South African **ChildGauge** 2019

Child and adolescent health

Leave no one behind

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children's institute
child rights in focus
Research • Advocacy • Education

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Acknowledgements

The editors are grateful to all those who contributed to this issue of the *South African Child Gauge*.

- All the authors, without whom this publication would not have been possible.
- Dr Tshepo Motsepe, First Lady of the Republic of South Africa, who wrote the Foreword.
- Dr Zweli Mhkize, Minister of Health, for sharing his vision for child and adolescent health in South Africa.
- Haroon Saloojee, Division of Community Paediatrics, University of the Witwatersrand; Lesley Bamford, Child and Youth Health Directorate, National Department of Health; Mariame Sylla, UNICEF South Africa; and Shanaaz Mathews, Children's Institute, University of Cape Town for their guidance as members of the editorial advisory committee.
- The peer reviewers who contributed their time and expertise to comment on the essays and recommend improvements:
  - Lesley Bamford (National Department of Health)
  - Lizette Berry (Children's Institute)
  - Matthew Cherisch (University of the Witwatersrand)
  - Andy Dawes (University of Cape Town)
  - Ariane De Lannoy (University of Cape Town)
  - Monica De Souza Louw (Land and Accountability Research Centre)
  - Lisanne du Plessis, Division of Human Nutrition (Stellenbosch University)
  - Hilary Goeiman (Department of Health, Western Cape)
  - Sharon Kleintjes (University of Cape Town)
  - Crick Lund (University of Cape Town)
  - Monde Makiwane (Independent researcher)
  - Elmarie Malek (Stellenbosch University)
  - Catherine Matthews (South African Medical Research Council)
  - Julian May (University of the Western Cape)
  - Neil McKerrow (KwaZulu-Natal Department of Health)
  - Karabo Ozah (Centre for Child Law)
  - Venessa Padayachee (NICRO)
  - Sue Philpott (University of KwaZulu-Natal)
  - Megan Prinsloo (South African Medical Research Council)
  - Priscilla Reddy (South African Medical Research Council)
  - Louis Reynolds (University of Cape Town)
  - Haroon Saloojee (University of the Witwatersrand)
  - Wiedaad Slemming (University of the Witwatersrand)
  - Catherine Ward (University of Cape Town)
  - Anthony Westwood (University of Cape Town)
- The DST-NRF Centre of Excellence in Human Development, University of the Witwatersrand, UNICEF South Africa, the Standard Bank Tutuwa Community Foundation and the Desmond and Leah Tutu Legacy Foundation for financial support that enabled the production of the book, accompanying materials and public launch.
- The ELMA Foundation for their support to the Children's Institute as a core donor over many years.
- Members of academic institutions, research groups and government departments who generously contributed their time and ideas at the roundtable.
- Researchers and other staff from the Children's Institute who supported the editorial team in many ways.
- UNICEF South Africa; LifeChoices; Philani Maternal, Child Health and Nutrition Trust; James Granelli; Eric Miller; Karen Schermbrucker/Slingshot Media and the Child Nurse Practice Development Initiative, UCT for the photographs used on the front cover and inside book.
- Mandy Lake-Digby for design and layout, Margot Cornelius, Charmaine Smith and Aislinn Delany for editorial assistance and Shumani RSA for printing.

Opinions expressed and conclusions arrived at are those of the authors and are not necessarily to be attributed to any of the donors, reviewers or the University of Cape Town.

Suggested citation

Shung-King M, Lake L, Sanders D & Hendricks M (eds) (2019) *South African Child Gauge 2019*. Cape Town: Children's Institute, University of Cape Town.

ISBN: 978-0-620-85838-0

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Abbreviations

AA-HA!	Accelerated Action for Adolescent Health
AIDS	Acquired Immunodeficiency Syndrome
APCN	Advanced Clinical Nurse Practitioners
ART	Antiretroviral Therapy
AYFS	Adolescent and Youth Friendly Service
BMI	Body Mass Index
BOD	Burden of Disease
CDG	Care Dependency Grant
CHC	Community Health Centre
Child PIP	Child Health Problem Identification Programme
CHWs	Community Health Workers
COMMIC	Committee on Morbidity and Mortality in Children under five
CSG	Child Support Grant
DBE	Department of Basic Education
DCSTs	District Clinical Specialist Teams
DHS	District Health System
DoH	Department of Health
EBF	Exclusive Breastfeeding
ECD	Early Childhood Development
ECI	Early Childhood Intervention
EDCs	Endocrine-disrupting Chemicals
EHPs	Environmental Health Practitioners
EMS	Emergency Medical Services
EWE	Extreme Weather Events
FCG	Foster Child Grant
GHS	General Household Survey
GMP	Growth Monitoring and Promotion
HIC	High Income Country
HIV	Human Immunodeficiency Virus
HRH	Human Resources for Health
ICESCR	International Covenant on Economic, Social and Cultural Rights
IMCI	Integrated Management of Childhood Illnesses
IMR	Infant Mortality Rate
ISHP	Integrated School Health Programme
LMIC	Low- and Middle-Income Countries
LTHC	Long Term Health Condition
MCWH	Maternal, Child and Woman's health
MDT	Multi-Disciplinary Team
NCDs	Non-Communicable Diseases
NCF	Nurturing Care Framework
NDP	National Development Plan
NEETs	Not in Employment, Education or Training
NGOs	Non-Governmental Organisations
NHI	National Health Insurance
NHIF	National Health Insurance Fund
NIDS	National Income Dynamics Study
NMR	Neonatal Mortality Rate
OHSC	Office of Health Standards Compliance
PHC	Primary Health Care
PMTCT	Prevention of Mother-to-Child Transmission
PPIP	Perinatal Problem Identification Programme
RMC	Respectful Maternity Care
RMS	Rapid Mortality Surveillance
RTHB	Road to Health Book
SADHS	South Africa Demographic Health Survey
SAM	Severe Acute Malnutrition
SAPS	South African Police Service
SASSA	South African Social Security Agency
SDGs	Sustainable Development Goals
SES	Socio-Economic Status
SRHR	Sexual and Reproductive Health and Rights
SSBs	Sugar-Sweetened Beverages
Stats SA	Statistics South Africa
STGs	Standard Treatment Guidelines
STIs	Sexually-Transmitted Infections
TB	Tuberculosis
U5MR	Under-Five Mortality Rate
UHC	Universal Health Coverage
UNCRC	United Nations Convention on the Rights of the Child
VAT	Value-Added Tax
WASH	Water, Sanitation and Hygiene
WBOTs	Ward-Based Outreach Teams

Foreword

The honourable First Lady, Doctor Tshepo Motsepe

This issue of the *South African Child Gauge* makes a powerful case for investing in child health. The science is clear. If we want to promote cognitive development, break the intergenerational cycles of poverty and violence, and halt the growing epidemic of obesity and non-communicable diseases, we need to invest early – starting in the first 1,000 days of a child's life and continuing into adolescence. Investments during these two sensitive periods of development, yield the greatest returns.

These benefits extend across life. By building a strong foundation early in life, we improve the health of children today, the adults they will become tomorrow, and the health and development of their children and their children's children.

Over the past 25 years we have made good progress. Yet South Africa remains a deeply divided country. While some children flourish, the majority of South Africa's children grow up in communities where poverty, hunger and violence continue to compromise their health, development, education and future employment prospects.

We have to ensure that no child is left behind, and that all of South Africa's children not only survive but thrive and reach their full potential. We have to realise children's constitutional right to basic health care services. We must define a clear package of basic health care services for children and adolescents – rooted in the best available evidence and responsive to local needs.

Emphasis has to be placed on providing quality preventative health care close to home. These services need to extend beyond the treatment of illness and injury, to promote children's optimal health, growth and development - including mental health and healthy relationships. This requires strong leadership for child health at the district level and teams of community health workers who can bridge the divide between clinics and children's homes.

Children, adolescents and their families have to be treated with care, dignity and respect. When we take the time to listen, keep them informed, and include them as active partners in health, this simple act of communication helps build a relationship of trust and relieves children's pain, fear and distress. It also helps improve patient outcomes and compliance with treatment and lies at the heart of a child- and adolescent-friendly health care system.

We have to recognise that health professionals have a responsibility for child health that extends beyond the walls of their clinic or hospital. We need to get to know where children come from and who they live with. We should understand the challenges they face, and put care plans in place that build on existing strengths in order to promote and safeguard children's health when they return to their homes, schools and communities.

We have to build strong partnerships to address the upstream determinants of health. This means health workers need to engage with their counterparts working in ECD centres, schools, youth development and job creation programmes. Families should be assisted to access birth certificates and social grants and assisted by lobbying local government to improve access to water and sanitation. Working with civil society organisations advocating for the regulation of fast foods and sugary beverages will address the epidemic of obesity and life style diseases. In this way we can start to build safer, healthier communities and a strong network of care and support for children and families.

Child health is everyone's business. Each one of us has the potential to make a difference. We need strong leadership and advocates for child and adolescent health; from the highest level of government down to grassroots levels where doctors, nurses, teachers and social workers have a critical role to play together with children and adolescents themselves. Working in unison we will achieve our goal.

A vision for child and adolescent health and well-being in South Africa

The Honourable Minister of Health, Zweli Mkhize

Our Constitution commits us to putting children first and Government has prioritised the needs of children by implementing a range of policies since 1994 and will continue to do so. The last South African Child Gauge to focus on child health was published in 2009 – a decade ago. This year's Child Gauge again focuses on children and provides us with an opportunity to reflect on what has been achieved and what still needs to be done to ensure that children are indeed put first, and that they both survive and thrive.

Sustainable Development Goal 3.2 calls for an end to preventable child deaths as evidenced by an under-five mortality rate of less than 25 per 1,000 live births by 2030. In the past decade, South Africa has made considerable progress in reducing our under-five mortality rate. Under-five mortality declined from 56 deaths per 1,000 live births in 2009 to 32 deaths per 1,000 live births in 2019 – a 42.8% decline in 10 years. This means that to meet the SDG goal of 24 per 1,000 we must reduce the under-five mortality rate by 21.9% in the next 11 years.

The majority of deaths in under-fives are still due to preventable conditions including neonatal conditions, pneumonia, diarrhoea, HIV and malnutrition. Reductions in child mortality during the past decade have primarily resulted from ensuring that all pregnant women and children have access to a well-defined package of maternal and child survival interventions that address these preventable causes. Successful implementation of the prevention of mother-to-child transmission (PMTCT) programme has been key to reducing child mortality; nevertheless, HIV infection remains an important cause of child mortality. The Unfinished Business Project successfully implemented a range of interventions that improved case-finding, retention in care and viral load suppression amongst HIV-infected children and adolescents in selected districts in Gauteng and KwaZulu-Natal; we are committed to ensuring that good practices identified through such projects are scaled up so that all children can benefit.

At the same time, as deaths due to these common, preventable causes decline, deaths due to other causes such as congenital disorders, injuries and other non-communicable diseases are beginning to account for a higher proportion of deaths. Preventing mortality and morbidity from these conditions requires different approaches, and our health system will need to expand the range of services provided in the coming decade in order to better address the health needs of children with long term health conditions.

During the past decade, attention has also been paid to the service delivery platform in an effort to ensure that all mothers and children have access to a basic package of health services. Initiatives such as the Ideal Clinic initiative have aimed to improve the quality of services provided at primary health care facilities, whilst introduction of ward-based outreach teams and school health services have aimed to take health services closer to communities. District Clinical Specialist Teams have been established and have contributed to improved clinical governance and improved quality of maternal and child health services in areas with the full complement of the team, whilst innovations such as MomConnect, NurseConnect and the Side-by-Side campaign aim to improve knowledge and support for pregnant women and caregivers.

Looking forward, what needs to be done to improve child health? I wish to highlight three areas that I propose that we prioritise.

The first is to achieve universal health coverage for all South Africans through implementing National Health Insurance (NHI). NHI is a health financing system that is designed to pool funds to provide access to quality, affordable personal health services for all South Africans based on their health needs, irrespective of their socio-economic status. This means that every South African will have a right to access comprehensive health-care services free of charge at the point of use at accredited clinics, GPs, other health providers and hospitals. NHI will increase access to health services for everyone, including children and adolescents, by ensuring

that access to health services is based on need rather than ability to pay; and should thus not result in financial hardship for individuals and their families. This is especially important for children as we know that they are more likely to live in poor households.

Implementation of NHI is clearly an ambitious plan which will not be realised overnight. However, during the current phase of implementation, legislative and structural arrangements to support NHI are being put in place. For NHI to be successfully implemented, affordable and high-quality health services must be available throughout the country; and efforts are currently underway to improve the quality of care provided in all public sector health facilities and steps will be taken to ensure affordability in both the public and private health sectors. We need to make sure that the needs of children and young people are adequately addressed during NHI implementation. Public hearings are currently underway, and it is critical that children's advocates and children themselves participate actively in these processes.

The second area relates to ensuring better community engagement and mobilisation. This includes: ensuring that the country's many community health workers are well-organised and supervised and provide a focused package of services to all households which includes services for pregnant women, mothers and young children. A scope of work has been agreed for CHWs, but there is a lot of work to be done to ensure that these services are delivered to all families.

There is also a need for every member of the community to embrace and internalise the fact that whilst Government needs to address the social determinants of health, Government cannot go it alone. KwaZulu-Natal's Sukuma Sakhe initiative which viewed the delivery of anti-poverty programmes as a collective responsibility was able to mobilise different sectors at ward level and needs to act as an example of what can be achieved. From a child health and well-being perspective, we need to ensure that such initiatives explicitly include a focus on vulnerable children, especially orphans, in order to ensure that they access the support that is available through different government departments and at community level.

The third issue relates to identifying critical periods for intervention. In line with the Child Gauge, our department also recognises the first 1,000 days and adolescence as critical periods for intervention, when many stakeholders including government departments, non-government organisations and civil society need to work together to ensure that all children, especially the most vulnerable, receive a comprehensive package of services. The role of a healthy food environment is also key during childhood and adolescence especially in the context of both malnutrition and obesity. The food and beverage sectors also need to play their role in providing healthy options; Government too has a role to legislate when necessary to create a healthy food environment.

The National Integrated Early Childhood Development (ECD) policy provides a framework for providing such a comprehensive service for young children. The health sector takes the lead in providing services for mothers and young children (0 – 2 years). During this period, engaging with households and communities is key – especially as many of the interventions required to improve ECD outcomes rely on behavioural change at household level. Health care workers therefore need not only to provide services (like immunizations and antibiotics for children with pneumonia) but to support caregivers to provide nurturing care including exclusively breastfeeding for six months and providing love, play and talk to encourage early learning. Once more, well-motivated CHWs can play a key role in ensuring that this happens.

Likewise, helping adolescents to successfully transition into adulthood remains an important challenge. Our Youth and Adolescent Health Policy aims to help adolescents and youth make the best of their opportunities and life chances and to support them in becoming valuable contributors to our communities. The policy identifies six principal objectives namely: to use innovative, youth-orientated programmes and technologies to promote the health and well-being of adolescents and youth; to provide comprehensive, integrated sexual and reproductive health services; to prevent, test and treat for HIV/AIDS, tuberculosis and non-communicable diseases; to reduce substance abuse and violence; to promote health nutrition and reduce obesity; and to empower adolescents and youth to engage with policy and programming on youth health and be responsible for their health and well-being, so that no one is left behind (including youth with disability). We have implemented a number of initiatives in support of the objectives including Adolescent and Youth Friendly Services (AYFS), the Integrated School Health Programme, B-Wise and the She Conquers Campaign.

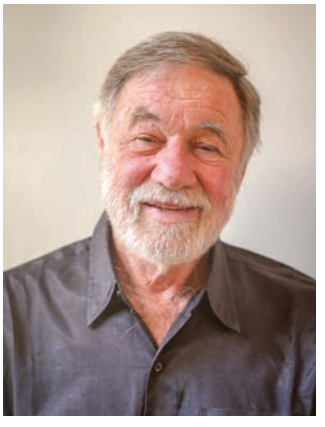
Gender-based violence has recently been flagged as a pervasive societal problem which particularly affects young women. As a society we need to work harder to change gender norms and ensure that gender equality is reached. As a department we have a responsibility to provide services to support women who have experienced gender-based violence. We are aware that in order to affect the large-scale change that is needed to improve the lives of youth and adolescent, we need to work closely with young people themselves, as well as with other government departments,

especially the Departments of Basic and Higher Education as well as non-government organisations, business and civil society.

Having not met our MDG targets for reducing maternal and child mortality, it is particularly important that we carefully monitor progress with regards to meeting the SDG targets – we dare not take our eyes off the ball. This edition of the *Child Gauge* can play an important role in monitoring progress, identifying gaps and suggesting remedial actions.

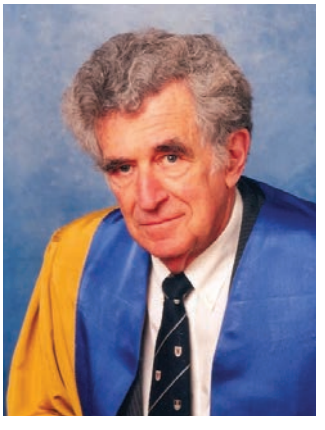
The most important investment that we can make as a country is to invest in the well-being and development of our children and adolescents so that they can go on to lead healthy and active lives. I call on all role-players – communities, health care workers, policy-makers, researchers – to work together to meet our SDG commitments, so that we can ensure that all children and adolescents survive and thrive, and that no child is left behind.

A dedication



This issue of the *South African Child Gauge* is dedicated to **David Sanders** – a global thought-leader and champion for child health. As the founding Director of the School of Public Health at the University of the Western Cape and an Honorary Professor in the Department of Paediatrics and Child Health, University of Cape Town, David challenged us to seek the connections between clinical medicine and public health. He encouraged us to consider not only the immediate causes of malnutrition such as inadequate food intake or recurrent bouts of illness and diarrhoea, but to also look upstream to consider the contexts in which children live, and identify the "causes of the causes" – including the structural inequalities between rich and poor, North and South and the role of transnational food companies in shaping people's food choices .

David was a central member of our editorial team and we miss him greatly. Yet you will see his presence and probing questions running like a golden thread throughout this issue of the *Child Gauge* – in its concern with inequality, its emphasis on the social and environmental determinants of child and adolescent health, its focus on the district health system and the role of community health workers in bringing quality care close to home, and its call to build a movement for child health.



We also remember and honour the legacy of **Maurice Kibel** who was the chief editor of the previous issue of the *Child Gauge* to focus on child health. Maurice was the first Professor of Child Health and established the Child Health Unit (CHU) in the Department of Paediatrics and Child Health in 1979. Under his guidance the CHU played a leading role in research, teaching, clinical service and policy. He was a strong advocate for child health and was instrumental in lobbying for free health care for children, which was realised in 1994. We hope this book will inspire others to take this work forward and to become powerful champions for child health, and that together we will create a more just and equal society in which children can flourish.

May the souls of these giants in the cause for equitable and good quality child health rest in peace.

Community health workers are essential in achieving universal health coverage and bringing health care closer to home.
© Photo courtesy of Philani Maternal, Child Health and Nutrition Trust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out to experience
levels & deser
DON'T BE A FOSSIL FOOL
DENIAL IS NOT A POLICY!

PART 1

Law reform

Part one summarises and comments on legislative developments that affect children. These include the:

- National Health Insurance Bill;
- State Liability Amendment Bill;
- Control of Tobacco Products and Electronic Delivery Systems Draft Bill;
- Control of Marketing of Alcoholic Beverages Draft Bill;
- Carbon Tax Act;
- Draft Climate Change Bill;
- Child Justice Amendment Bill;
- Customary Initiation Bill; and
- Traditional Courts Bill.

Children may not be able to vote, but they do have a voice and can be powerful advocates for health and a healthy environment.

Photo: © James Granelli

Legislative developments affecting children in 2018/19

Paula Proudlock,[a] Zita Hansungule,[b] Anthony Westwood,[c] Louis Reynolds,[c] Timothy Lloyd,[d] Vuyisile Ncube,[d] Leslie London,[e] Aadielah Maker[f] & Adam Bertscher[g]

Introduction

This chapter describes and analyses recent developments in law that will affect the realisation of children's rights now and for generations to come.

The *National Health Insurance Bill* aims to pool finances into a single fund to enable the state to provide quality universal health care to everyone. Yet greater participation from child health experts and advocates is needed as the Bill proceeds through the Parliamentary process to ensure that it takes sufficient cognizance of children's health rights.

The *State Liability Amendment Bill* is couched as an interim measure to protect provincial health budgets from being eroded by escalating medical negligence claims, by placing restrictions on the timing and amount of compensation payable. However, human rights activists warn against this approach exacerbating the lack of accountability for poor services within the public health sector, and point out the negative consequences for individual claimants, the majority of whom are women and children with disabilities. They call instead for measures to address the root causes of poor-quality services in the public health sector, particularly within obstetrics.

The *Control of Tobacco Products and Electronic Delivery Systems Draft Bill* and the *Control of Marketing of Alcoholic Beverages Draft Bill* aim to curb the harmful effects of tobacco and alcohol, particularly for children and youth. Both have the potential to protect children from harm if legislators are guided by children's best interests instead of by powerful profit-driven industries.

South Africa is the world's 14th largest emitter of carbon dioxide, largely due to its dependency on coal for electricity. This notorious status contributes to a high burden of preventable child illness and death, particular in the areas surrounding the biggest emitters, and is hastening the onset of climate change for all. The *Carbon Tax Act* is aimed at curbing carbon dioxide emissions by imposing a carbon tax, while the *Climate Change draft Bill* will impose emission limits. Yet both laws fall short of what is required, given the urgency of the climate change situation and the best interests of children.

The *Customary Initiation Bill* aims to reduce the high number of deaths and injuries that occur during male circumcisions, by regulating initiation schools and processes. The Bill is a product of lengthy research and extensive consultation which bodes well for effective implementation. The chapter also comments briefly on two bills that have been covered extensively in previous issues of the *South African Child Gauge*. These are the *Traditional Courts Bill* which does not allow individuals living in areas under traditional authorities to "opt out" of traditional courts and have their disputes considered *by a civil court; and the Child Justice Amendment Bill* which increases the age of criminal capacity from 10 to 12 years of age.

National Health Insurance Bill

This analysis takes a critical look at some aspects of the National Health Insurance (NHI) Bill[1] from a primary health care perspective focusing on its prospects for providing Universal Health Care in South Africa and its implications for children. The Bill was tabled in Parliament in August 2019 and is currently being considered by the Portfolio Committee on Health.

The Bill aims to establish a National Health Insurance Fund (NHIF), funded through mandatory prepayment as a means to ensure universal health coverage (UHC). The 2010 World

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Health Report defines UHC as: "financing systems … specifically designed to provide all people with access to needed health services (including prevention, promotion, treatment and rehabilitation) of sufficient quality to be effective; [and to] ensure that the use of these services does not expose the user to financial hardship."[2]

The NHIF must collect and pool resources to procure goods and services from accredited and contracted health care service providers. It will be set up as a single strategic purchaser of goods and services. This empowers it to plan, implement, evaluate and control all procurement decisions tactically to achieve its long-term goals.

Registration and benefits

The goods and services will depend on the benefits to be covered. These will be determined by the Benefits Advisory Committee (BAC), based on the health care needs of users. The NHIF must then contract with providers to provide the necessary services.

People to be covered by the NHI must have proof of registration. Registration can only be done at an accredited provider or health establishment.[3] Children born to users after the NHI commences, will be regarded as having been registered automatically at birth. Children already born will need to be registered by their parents or can register themselves from age 12 onwards. An original identity card, birth certificate and refugee identity card will be required for registration. Gaps in birth registration could result in barriers to health care for children whose births are not registered within the prescribed time of 30 days after birth. Statistics South Africa's 2018 report on recorded live births reveals that of babies born in 2017, only 77.7% had their births registered within the prescribed time. Early birth registration was lowest in three districts in KwaZulu-Natal where fewer than half of births were registered in time: iLembe (51,8%); uMzinyathi (56,6%); and uThungulu (63,2%).[4]

People eligible for NHI include South African citizens, permanent residents, refugees, inmates, and "certain categories of individual foreigners determined by the Minister of Home Affairs, after consultation" with the Ministers of Health and Finance. Asylum seekers and illegal foreigners are entitled only to emergency medical services and services for notifiable conditions of public health concern.

All children, including children of asylum seekers or illegal migrants, are entitled to basic health care services as provided for in section 28 (1)(c) of the Constitution.[5] This provision is to be welcomed as it suggests that all children will be entitled to the same rights as South African children. However, three potential problems arise. Children of asylum seekers and illegal immigrants will not have the formal identity documents required to register as users. Clarity is therefore needed on how these children will gain access. Secondly, unlike most social and economic rights, the rights specified in Section 28 are not subject to availability of resources, meaning that the state has had an obligation to realise them since the ratification of the Constitution in 1996. However, the state has yet to define what "basic health care" means in practice and how it translates into a package of essential health care services for children and adolescents. It is therefore urgent to define "basic health care" for the purposes of Section 28, and to advocate for a broad package of essential services to promote not only child and adolescent's survival but also their optimal health and development. This should extend beyond treatment to include early intervention, prevention, rehabilitation and palliative care for children with long term health conditions.

This brings us to the third problem. Children in South Africa currently have access to a range of additional essential services in the public sector that could potentially fall outside the defined basic package, but that are likely to be included in the benefits recommended for the NHI by the Benefits Advisory Committee. This makes it unclear if the NHI Fund will cover these benefits for children of asylum seekers and illegal migrants as it will for South African children.

The NHI provides an opportunity to improve the care of one in five children with long term health conditions (LTHCs) who require comprehensive care – close to home, but only if their specific needs are explicitly addressed. The Committee on Mortality and Morbidity of Children under five (COMMIC) has developed a framework for an essential package of health care services for children that includes children with LTHCs and those requiring palliative care[6] and this framework should be incorporated in the development of "baskets of care" under the NHI.

The NHI Board and advisory committees

The Bill establishes a Board of "not more than 11 persons appointed by the minister" to govern the NHIF in line with the Public Finance Management Act. It is not clear who the Board will be accountable to: in section 12 (1) the Bill specifies the Board is accountable to the Minister, while the memorandum to the Bill states that the Board is accountable to Parliament (see the explanations for clauses 12 and 15 in the Memorandum). This distinction is important: an independent board accountable to Parliament is more likely to face public scrutiny than one appointed by and accountable only to the Minister.

The Bill obliges the minister to appoint advisory committees:

- The Benefits Advisory Committee. Its tasks include determining and reviewing the health care service benefits and types of services that the fund will pay for at each level of care from primary to tertiary hospitals. Its members must have technical expertise in medicine, public health, health economics, epidemiology, and the rights of patients. An additional member represents the Minister. There is no representation from organised labour or user groups.
- The Health Benefits Pricing Committee, which must recommend the prices of health service benefits. Members must have expertise in actuarial science, medicines, epidemiology, health management, health economics, health financing, labour and rights of patients. One member must represent the Minister. This is the only advisory committee with a defined number of members: "not less than 16 and not more than 24". The Bill does not say whether members with "expertise in labour and rights of patients" actually represent those constituencies.
- A Stakeholder Advisory Committee, comprising "representatives from the statutory health professions councils, health public entities, organised labour, civil society organisations, associations of health professionals and providers as well as patient advocacy groups in such a manner as may be prescribed". This seems to be the only committee with potential representation from labour, civil society and users, but since members are appointed by the Minister "in a manner as may be prescribed", it is doubtful whether they will truly represent and be accountable to those constituencies.

None of these advisory committees require representation from the children's sector or child health specialists, raising concerns around whether children's and adolescents' interests will be adequately addressed.

Rights of users

Registered users are entitled to:

- necessary quality care from accredited providers free at the point of delivery if they have proof of membership;
- access health care services within a reasonable time period;
- be treated with a professional standard of care;
- make reasonable decisions about their health care;
- access information about the NHIF and health services available;
- access information or records regarding their health;
- have their privacy and confidentiality respected, subject to Protection of Personal Information Act;
- not be refused treatment on unreasonable grounds;
- complain, or institute legal or judicial review; and
- purchase additional services not covered by NHI through private insurance.

Concerns around quality, accreditation and inequity

Some measures in the Bill may exacerbate inequity, including the process for accreditation of health care facilities and the way user registration will work. Only health facilities that are certified by the Office of Health Standards Compliance (OHSC) will qualify for accreditation.[7] However, the most recent report of the OHSC found that only five out of the 696 public health facilities surveyed met the norms and standards required for certification.[8] After more than two decades of public sector austerity, many public and rural health care facilities are understaffed and under-equipped and unlikely to qualify for NHI accreditation. Hospitals are more likely to be accredited than clinics and community health centres, with clinics the least likely. Lack of accredited facilities at the community level will discriminate against people most dependent on local facilities and increase the hospital centeredness of the health services.

Private facilities are not only more likely to get accreditation but are also overwhelmingly urban-based, thus increasing both urban-rural and private-public inequality. Furthermore, the fact that the Bill ignores the Certificate of Need[i] contained in the National Health Act represents a key missed opportunity to improve equity. There is a possibility that some people – particularly those living in rural areas - will not have access to NHI-funded health care at all.

It is therefore concerning that fewer than 1% of the inspected facilities met the requirements for OHSC certification. Are all the facilities that failed so bad that they can't deliver their required services safely and effectively? Are the inspection protocols realistic or even appropriate?

For example, the OHSC Annual Inspection Report for 2015/2016 revealed that the Red Cross War Memorial Children's Hospital failed by some margin to meet the standards required. Examples of failures included: emergency trolleys that did not have adult oxygen masks (this was categorised as 'extreme"); procedures for conducting and acting on risk assessment of frail and aged patients were not available, nor had risk assessment been conducted on the files of frail or aged patients (categorised as "vital").

i The Certificate of Need is designed to regulate where private providers can open services.

While many of the other listed failures are valid, it seems inappropriate for a children's hospital to be expected to conduct risk assessments on the files of frail or aged patients, and raises concerns around the extent to which the specific needs of children and adolescents are addressed in the national norms and standards.

The requirements for user registration, which can only be done at accredited facilities is likely to further increase inequity. To apply for registration a person must provide biometrics, fingerprints, proof of residence, an original birth certificate, ID card or refugee ID card. This poses yet another risk that those already marginalised from access to care (e.g. rural populations, children, the disabled or elderly) will be further disadvantaged. Facilities that lack stable internet access, staff, medicines and equipment will not find it easy to register users as smoothly as those facilities already functioning at a much higher level of efficiency.

Strengthening primary health care

The Bill includes a commitment to strengthening Primary Health Care (PHC) services. It views the building of a high quality, effective PHC delivery platform as the foundation of the health system. This includes an emphasis on health promotion and disease prevention, and plans to make extensive use of community- and home-based services.

- PHC outreach teams will visit households allocated to them regularly, provide health promotion and education, identify those in need of preventive or rehabilitative services, and refer them to the relevant PHC facility.
- The outreach teams will also facilitate community involvement and participation in identifying health problems and behaviours and implement interventions to address these problems at a community level.
- School health services will be provided to improve the physical and mental health and general well-being of school-going children.
- Private providers will be included to improve capacity and access to care.

However, the Minister of Finance's mid-term budget statement[9] promised ongoing cuts to health budgets with the only new money to be made available from Treasury being grants directly to provinces to contract private providers. In the face of austerity budgets, it will be hard to turn services around after years of neglect and promoting private sector provision will not address the critical needs in child health.

The original plans for primary health care re-engineering also outlined the central role of District Clinical Specialist Teams (DCSTs) in providing leadership and clinical governance for maternal and child health at district level. It is therefore of concern that there is no longer any reference to the DCSTs in the NHI Bill, as this investment in clinical governance is essential to strengthen systems, improve coordination and ensure effective delivery of maternal, child and adolescent health services that are responsive to the local burden of disease. Strong leadership for child health is also needed at provincial level yet only two provinces have appointed provincial paediatricians despite such appointment being a strong recommendation from COMMIC.[10]

Similarly, the original plans to re-engineer rehabilitation services at district level should be revived in order to address the needs of large numbers of children with LTHCs and disability – especially in rural areas.[11]

Conclusion

While the NHI Bill has many weaknesses, including inadequate input from child health advocates and children themselves, the concept behind it has the potential to improve access to health care. It is therefore essential that child health advocates engage in the Parliamentary deliberations on the Bill and its implementation plan to ensure it is designed and works in the best interests of children. Parliamentary public hearings have already been held in four provinces and are also likely to be held at Parliament. Thereafter the public can engage directly with individual members of parliament as the deliberations and debate proceed in 2020.[12]

State Liability Amendment Bill

Medical negligence claims lodged against provincial health departments grew from R28.6 billion in March 2015 to R80.4 billion in March 2018.[13] Over the same period, actual payment of these claims increased from R498.7 million to R2.8 billion.

The rise in medical negligence claims and payments has been attributed to a range of factors[14] including:

- Poor quality of care, especially in maternity wards
- Poor quality of clinical notes and inadequate systems for management of clinical records
- Increase in litigious behaviour by law firms[ii]
- Inadequate legal response from the state

The poor quality of clinical care is attributed to severe human resource constraints leading to increased workload on remaining staff, failure to maintain medical equipment, and poor planning and management of essential medicine

ii Due to changes in the law governing the Road Accident Fund (RAF) personal injury claims against the RAF are no longer seen as a source of income for private lawyers. Many personal injury lawyers are now choosing to focus on medico-legal claims which have much higher pay outs and contingency fees.

stock resulting in stock-outs.[15] Government has committed to address these challenges in the quality of care mainly through:[16]

- recruiting and hiring more specialist medical personnel;
- regular inspections of public health facilities by the Office of Health Standards Compliance to promote greater adherence to the norms and standards; and
- prioritising improvements in areas with high numbers of negligence claims.

With regards to improving the state's legal response, Government has decided to:

- improve quality of clinical notes and systems for management of clinical records;
- strengthen the medico-legal units in the provincial departments of health;
- recruit national teams of experts to provide specialist support in cases; and
- amend the law so as to allow provinces to settle claims over a period of time rather than in one large lump sum.

The State Liability Amendment Bill is aimed at giving effect to the last bullet above. It aims to allow provincial health departments to pay future medical expenses claims over time according to a schedule, rather than a lump sum upfront. This amendment is particularly aimed at claims for long-term treatment for permanent incapacities or disabilities, for example, for babies born with cerebral palsy as a result of negligence by staff in the maternity and obstetric units. It proposes to do this by directing the courts to make orders for periodic payments (e.g. annually) rather than a single lump sum. If passed, this amendment will effectively amend the common law "once and for all" rule.

The Bill also allows the courts to order the provision of treatment in the public sector, rather than the payment of monetary compensation to the claimant. However, if the relevant public facility does not meet the norms and standards set by the Office for Health Standards Compliance (OHSC), then the claimant can get periodic monetary payments that would enable him or her to obtain these services at a private facility. However, the rate of compensation will be restricted to the rate charged in a public facility. The rate will increase annually based on the Consumer Price Index (CPI).

The Bill is framed as an interim measure, pending the finalisation of the South African Law Reform Commission's (SALRC) investigation into a long-term solution. The SALRC released its Issue Paper for comment in May 2017[17] and the next step will be a Discussion Paper followed by a Report and a possible draft Bill.

The Bill was introduced to Parliament in May 2018 and public hearings were held in October 2018. The Bill lapsed in 7 May 2019 when the fifth Parliament dissolved and has recently (29 October) been revived by the sixth Parliament to enable its further debate and passage. If the amendment is passed, it will apply to all future medical negligence claims as well as claims already in process.

All parties making submissions to Parliament agreed that the escalation in claims was a challenge in need of a solution as it signalled a larger problem in terms of quality of care and it was reducing the budget available for improving quality of care. However – there was general opposition to the Bill as it was not presented with – nor based on – a root cause contextual analysis. A number of alternatives were proposed that could achieve the same aim but with less of a negative impact on individual claimants, and still ensuring public health facilities are held accountable for poor service.

SECTION27 was concerned that the state was more focussed on reducing damages pay outs and less focussed on addressing the root cause of the escalation in claims – namely poor quality of health care in the public sector.[18] They called for the state to rather focus on strengthening the health system by investing in more trained health care workers, maintaining and investing in equipment, and keeping proper records. They were also concerned that due to only 0.7% of public health facilities meeting the criteria for OHSC accreditation, most claims will still be paid out in monetary amounts, and provincial hospitals are not currently in a position to reliably administer periodic monetary payments to claimants. Equipping them to do so would require significant resources and training which seems a waste of resources if the amendment Bill is viewed as an interim measure pending the SALRC's proposals. They are also concerned that payments will be restricted to public sector rates but as so few public facilities are accredited, most claimants will need to access services from the private sector where the rates are higher. Health care services will therefore be unaffordable for most claimants.

The Legal Resources Centre (LRC) and the Women's Legal Centre (WLC) pointed out that most claims arise from negligence during pregnancy and delivery.[19] The amendment is therefore likely to impact mostly on women and children with disabilities. They predict that this effect will mostly be negative for the individual women and children involved and will reduce accountability that helps drive improvements in quality of care for all women and children. Women and children visiting public health facilities are mostly reliant on private lawyers to litigate on their behalf. LRC and WLC

expressed concern that if the lump-sum payments are reduced to periodic payments, contingency fee amounts for the private lawyers will be reduced and there will be less incentive for private lawyers to assist poor women and children. This will reduce the chances of women and children obtaining legal redress and reduce the accountability that these claims create for continued improvements in the public sector.

A joint submission by Total Shutdown, Black Womxn Caucus and the Sexual & Reproductive Justice Coalition made a similar argument and provided evidence of poor quality and often abusive care in state maternity wards.[20] They also provided a budget analysis that showed how provincial health departments lost significantly more of their annual health budgets to corruption and mismanagement than to medical negligence payouts. They therefore questioned the state's focus on reducing the amount, timing and reliability of compensation to women and children instead of addressing the root causes of poor quality care and reducing corruption and mismanagement. They were concerned that the state was placing the burden of the health system's poor quality of obstetric services and the consequences of corruption and mismanagement on poor women and children.

Other concerns raised in the public hearings include:

- The Bill aligns the inflation rate for the period payments with CPI. However, medical price inflation is much higher than CPI. The result will be that many claimants will be unable to cover the actual costs of the health care that they need.[21]
- The amendment only addresses the challenge in the public health sector. Medical negligence claims are also a challenge in the private sector, particularly in obstetrics where the cost of insurance for obstetricians is very high and this cost is being passed onto health care users. Under the proposed NHI, the state will need to procure services from private health providers. The cost of professional liability insurance for private providers therefore needs to start being addressed.[22]
- The minimum threshold amount which would require scheduled payments rather than a lump sum is set at R1 million in the Bill. This threshold should rather be set in regulations to allow for inflation-related increases.[23]
- The proposal is delaying to future years and future generations, the negative economic effect of medical negligence payouts on the provincial budgets, rather than reducing the total cost to the state.[24]
- Women and children who are economically disadvantaged and living in rural areas have not been given the opportunity to participate in the making of this law.[25]

The Western Cape Department of Health[26] presented evidence of an alternative model already operating in the Western Cape which provides for future medical expenses payments to be paid into a trust fund that then administers payments direct to the service providers as and when the service is provided. This ensures the money is only spent on health services and, if a person dies the money is returned to the state. Furthermore, the trust is run by persons/institutions experienced in administering periodic payments, therefore ensuring no disruption in care. Other alternative proposals are being considered and developed by the SALRC through in-depth comparative research and consultation. These could include mediation as a preferred option to adversarial court-based processes, specialised health courts, and improved accountability mechanisms for negligence within the public sector.

Due to the urgency of the issue, it would be in the interests of all concerned for the SALRC process to be prioritised so that evidence-based alternatives can be considered and legislated for, rather than proceeding with the State Liability Amendment Bill in its current form.

Control of Tobacco Products and Electronic Delivery Systems Draft Bill

A draft Control of Tobacco Products and Electronic Delivery Systems Bill was published for comment in May 2018.[27] Once the Department of Health has considered and incorporated the comments received, the next draft will be sent to Cabinet for approval. Thereafter it can be tabled in Parliament for debate and passage.

Tobacco is highly toxic to people in all its forms. Tobacco smoke is dangerous to people who smoke and those around them ('secondary smoking') and those who enter spaces where they have been smoking ('tertiary smoking'). Nicotine, a highly addictive and toxic chemical, affects all the organs of the body and is particularly dangerous for children and adolescents who are still developing physically and emotionally.[28] Despite these dangers, tobacco smoking is still common in South Africa.[29] Over recent years, many nicotine-containing products have appeared in South Africa (such as e-cigarettes and vaping) with marketing clearly aimed at encouraging young people to try them, through flavourings, product design, retail spaces and advertising.

The Bill has two objectives. Firstly, it aims to tighten tobacco control in South Africa in the light of South Africa's commitment to the World Health Organization Framework Convention on Tobacco Control. Secondly, the Bill introduces controls on electronic delivery systems (known as e-cigarettes) including water-based delivery systems ('hubbly-bubblies'). Many of these systems deliver nicotine, yet there is currently no control on their contents, advertisement, distribution or sale. In this respect the Bill has taken a precautionary approach: Given emerging evidence that the products are dangerous and the likelihood that they are bad for human health.[30]

For all these products, the Bill sets out stringent controls on their sale, packaging, use in public spaces, advertising and standards of manufacture:

- Displays are not allowed in any retail space.
- Distribution by postal and internet sales are banned.
- None of these products may be sold to anyone under the age of 18 years. No sale may take place in any environment in which children are educated or trained.
- Plain packaging of all products is mandated. No claims about the product may be made on the packaging e.g. flavours, 'lite' etc. The packaging must include health warnings and a prescribed leaflet in the pack that outlines its harmful constituents, the dangers of smoking and the benefits of cessation, among other messages.
- Smoking in restaurants, bars, and public transport is prohibited.
- No-one may smoke in a vehicle in which a child under the age of 18 years is present. (an extension of the current law which prohibits smoking in vehicles if a child under the age of 12 is present).
- Advertising is prohibited in any shape or form.
- The Minister is given powers to regulate the manufacture of these products and obtain information on their contents.

The Minister of Health is given wide powers to promulgate regulations governing all these areas. Should violations of this law occur then penalties including imprisonment for up to five years will be administered.

The Bill is an important step in protecting children in this country from ill health caused by chemical aerosols from cigarettes and e-cigarettes and addictive nicotine. Its many provisions provide a comprehensive approach to reducing the harmful effects of tobacco, and aim to end the marketing of e-cigarettes to young people. The Bill would be strengthened by prohibiting sale of any of these harmful products to anyone born after a certain date in order to work progressively towards a 'nicotine-free generation'.[31]

Prohibiting the sale of individual or unpackaged cigarettes would reduce access for young people, while not denying access to people who smoke. Specific regulations that prohibit sale of these products near schools and other places where children and young people congregate should be developed to further protect the next generation.

This Bill represents a valuable contribution to child and adolescent health and welfare in South Africa. It is in line with the country's commitment to the United Nations Convention on the Rights of the Child, including the Committee's General Comment 16 which outlines States' obligation to ensure that "the activities and operations of business enterprises do not adversely impact on children's rights".[32] As the tobacco industry increases its lobbying against the Bill, legislators need to rely on reputable sources of evidence , rather than those funded by the industry in the interests of increasing profits.

Control of Marketing of Alcoholic Beverages Draft Bill

In 2013 the draft Control of Marketing of Alcoholic Beverages Bill, aimed at restricting alcohol advertising to the point of sale, was approved by Cabinet for public consultation. The Bill was developed over a three-year period by the National Departments of Health, Social Development, and Trade and Industry in response to the economic, health and social impact of harmful alcohol consumption.

The draft Bill is an evidence-based public health intervention that is applicable across all age groups but has specific relevance for children, by protecting children from exposure to alcohol advertising, sponsorships and promotions. Restricting advertising has been found to delay early experimentation with alcohol and subsequent risky drinking.[33] In 2011, 12% of 13-year-olds reported consuming alcohol,[34] and in 2016, 74% of young men and 38% of young women 15 – 19 years old reported binge drinking.[35]

In 2009, alcohol generated approximately R97 billion in tax revenue, yet harms associated with alcohol cost the country R245 billion, much of that impacting on children through violence, abuse, foetal alcohol syndrome, loss of a breadwinner and chronic health conditions such as cancer and heart disease.

Cabinet's statement upon approval of the draft Bill in 2013, indicated political commitment to reducing alcohol-related harm:

> *"Alcohol is a major impediment to reaching government's outcome of a long and healthy life for all. The Bill seeks to reduce alcohol related harm*

through control of marketing of alcoholic beverages. While government cannot ban alcohol it also cannot ethically permit encouragement of alcohol consumption by allowing the public and especially the youth to believe that their life will be enhanced when in fact for many it will have the opposite impact. This intervention should not be seen in isolation but as part of comprehensive measures by government to reduce alcohol-related harm."[36]

However, six years later, the draft Bill has not yet been gazetted for public comment. This is despite several letters to the Minister of Health, media reports, a civil society submission to the UN questioning the lack of progress,[37] and Government citing the draft Bill as evidence of its commitment to address alcohol-related harms in its 2018 report to the UN Committee on Cultural, Economic and Social Rights.[38]

The alcohol industry has been opposing the Bill with a concerted lobbying and advocacy campaign, using industry-funded research to warn of job losses and negative economic repercussions and questioning the legitimacy of academics and civil society organisations who support the Bill.[39] The industry has also proposed corporate social responsibility initiatives and industry-government partnerships as policy alternatives. These include the infamous "8 Pack Beer for Africa" and "Black Label gender-based violence/ masculinity" campaigns. However, industry corporate social responsibility and education initiatives have been shown to have limited or no efficacy and are often used to stall more effective measures.[40]

The Carbon Tax Act and draft Climate Change Bill

During the period 2018/2019 there were two legislative developments related to climate change mitigation and adaptation: The Carbon Tax Act[41] which aims to curb industries' carbon dioxide (CO_2) emissions, came into effect on 1 June 2019, and the draft Climate Change Bill,[42] which aims to provide a coordinated and integrated response to climate change and its impacts, was published for comment in June 2018. South Africa is the world's 14th largest CO_2 emitter, largely due to its dependency on coal.[43]

These two instruments are therefore of crucial importance to mitigate South Africa's contribution to climate change and to uphold Government's constitutional obligations to protect the environment for present and future generations.

The right to have the environment protected for present and future generations

South Africa is extremely vulnerable and exposed to the impacts of climate change due to our socio-economic and environmental context and it is recognised that children, especially infants, are particularly susceptible to the adverse effects of climate change.[44] These impacts include: increased extreme weather events such as droughts and flooding – which may lead to an increased burden of disease, food and water scarcity; and extreme temperatures. This will also aggravate the impact of air and water pollution on children whose central nervous, immune, reproductive, and digestive systems are still developing.[45] Such impacts are at the centre of a recent legal complaint submitted to the United Nations Committee on the Rights of the Child.[46] This petition, filed by 16 young people from around the world, argues that Argentina, Brazil, France, Germany, and Turkey have known about the risks of climate change for decades, but are failing to curb emissions.[47] South Africa, as a Member State of the UN Convention on the Rights of the Child, must take heed of this landmark petition and ensure that both the Carbon Tax Act and Climate Change Bill not only uphold the right to a healthy environment for the benefit of present and future generations,[48] but also recognise that there is heightened obligation to do so in the best interests of children.[49] See the 'Deadly Air' case on page 166.

The "Polluter Pays" principle

The Carbon Tax Act adopts the "polluter pays" principle – which requires that the costs of preventing and remedying pollution, and its adverse health effects, must be paid for by those responsible for harming the environment.[50] Despite this, the Act imposes a tax rate of only R120 per ton of CO_2 equivalent (CO_2e) for the initial phase of the carbon tax's implementation.[iii] This low rate combined with the tax-free allowances provided for in the Act[51] could result in the effective tax rate being as low as R6 – R48 per CO_2e.[52] It is unlikely that this rate will force industry (or at least the largest of the CO_2 emitters) to transition to low-carbon alternatives during the initial phase of the Act's implementation. In many instances, where consumers have limited alternatives available to them (as in the electricity supply sector at present), the additional cost burden of the tax will simply be passed on to consumers. This not only undermines the "polluter pays" principle, it has serious consequences for the health and constitutional rights of both present and future generations.

iii Section 1 of the Carbon Tax Act defines CO2e ("carbon dioxide equivalent") as "the concentration of carbon dioxide that would cause the same amount of radiative forcing (the difference of sunlight absorbed by the Earth and energy radiated back to space) as a given mixture of carbon dioxide and other greenhouse gases".

The rights to life, dignity and a healthy environment

The Preamble of the Climate Change Bill highlights what's at stake and acknowledges that the rights to life, health and dignity are dependent on a healthy environment. Section 13 of the Bill envisages setting a national trajectory for the country's greenhouse gas emissions, and within that there will be emission targets for different sectors such as energy and agriculture. Entities emitting over a certain threshold would be allocated carbon budgets, which are essentially emission limits, which they may not exceed.[iv] Although this signals a step in the right direction, if the Bill is passed in its current form this would be the only legally enforceable provision to mitigate the emission of Greenhouse Gases. The Bill does not go far enough to provide strong and clear guidance on the institutional mechanisms to monitor compliance and tackle climate change (particularly at a local level), nor does it address climate adaptation in a sufficiently coherent manner. It therefore fails, in its current form, to adequately respond to the "*urgent threat to human societies*" posed by climate change.[53] Any final Climate Change Act needs to be substantially more robust than the 2018 Bill. Despite the urgency of the situation, it is unclear when the next version of the Bill, or a final promulgated Act, can be expected.

It is critical, that the Carbon Tax Act and the Climate Change Bill are effective and lead the way toward a more comprehensive and transparent set of climate mitigation and adaption measures, while enabling a just and inclusive transition to a low-carbon society. These measures are urgently needed to strengthen South Africa's resilience to the far-reaching impacts of climate change and to fulfil children's constitutional rights, now, and for generations to come.

Child Justice Amendment Bill

The Child Justice Amendment Bill[54] was introduced in Parliament in October 2018. The Bill was amended and then passed by the National Assembly on 27 November 2018[55] and transmitted to the National Council of Provinces (NCOP) for concurrence. When the fifth Parliament was dissolved ahead of the May 2019 general elections, the Bill lapsed.[56] It has recently been revived by the sixth Parliament[57] and is now being considered by the NCOP.

The primary purpose of the Bill is to raise the minimum age of criminal capacity.[v] The Child Justice Act[58] currently sets the minimum age of criminal capacity at 10 years old. A child who commits an offence while under the age of 10 years does not have criminal capacity and therefore cannot be prosecuted for the offence.[vi] The child should instead be placed in the care of their parents, guardian, caregiver or alternative care. A probation officer is notified about the child and assesses the child to determine the best course forward. This may include referral to a children's court, referral to counselling or therapy, or provision of support services.[59] Linking children under the age of criminal capacity to support services is important as "[m]ore often than not a young child who gets involved in crime is a child at risk and some action should be taken."[60] The Act also states that a child who is 10 years or older but under the age of 14 years is presumed to lack criminal capacity unless the state can prove that the child has criminal capacity.

The Bill proposes to raise the minimum age of criminal capacity to 12 years old. The Bill also proposes that children 12 years old or older but under the age of 14 years are presumed to lack criminal capacity. The Bill retains the provision requiring a review of the minimum age of criminal capacity no later than five years after the commencement of the amendment.

Raising the minimum age of criminal capacity to 12 years old ensures that South Africa aligns with recommendations from the United Nations Committee on the Rights of the Child to increase the minimum age to at least 12 years and to continue increasing the age.[61] Commentary linked to Rule 4 of the United Nations Standard Minimum Rules for the Administration of Juvenile Justice[62] provides that the following must be considered when a minimum age of criminal capacity is being determined and discourages states from fixing the age at too low a level:

> *"The modern approach would be to consider whether a child can live up to the moral and psychological components of criminal responsibility; that is, whether a child, by virtue of her or his individual discernment and understanding, can be held responsible for essentially antisocial behaviour."*

iv Six greenhouse gases were declared priority air pollutants by the then-Minister of Environmental Affairs in July 2017: carbon dioxide ("CO_2"), methane ("CH_4"), nitrous oxide ("N_20"), hydrofluorocarbons ("HFCs"), perfluorocarbons ("PFCs") and sulphur hexafluoride ("SF_6").

v Section 8 of the Act provides for a review of the minimum age of criminal capacity in order to determine whether it should be raised. This section requires the Minister of Justice and Correctional Services (previously the Minister of Justice and Constitutional Development) to, not later than five years after the commencement of the Act, submit a report to Parliament dealing with the question of the review of the minimum age of criminal capacity. The report was submitted to Parliament in March 2016: Department of Justice and Constitutional Development "Report on the Review of the Minimum Age of Criminal Capacity" (2016).

vi The child is taken through procedures set out in Section 9 of the Act titled "Manner of dealing with child under the age of 10 years".

The Bill further proposes a number of consequential amendments. These include, amongst others, amendments that:

- recognise that prosecutors are not in a position to determine the cognitive capacity of a child (for purposes of prosecution) or the criminal capacity of a child (for diversion);[vii]
- refer the issue of determining criminal capacity to plea and trial in order to unclog the child justice system and prevent children being pathologised during pre-plea and trial processes; and
- give prosecutors and child justice courts the ability to refer children to a probation officer to be dealt with as children that lack criminal capacity if there is a belief that the children will not benefit from diversion or diversion is not appropriate

Traditional Courts Bill

The Traditional Courts Bill continues to be contentious. Many civil society and community-based organisations have raised serious concerns with various versions of the Bill on the basis that provisions violate constitutionally protected rights of communities in general, and women and children in particular.[63] Concerns with the latest version that was passed by the National Assembly in March 2019[64] include, that the Bill:

- preserves patriarchal norms;
- does not accurately reflect the nature of customary law;
- does not contain an 'opt-out' clause that gives people the choice of whether or not to have their dispute heard by either a traditional court or a civil court; and
- fails to align with systems established to protect and promote children's rights and well-being.[65]

The Bill lapsed in May 2019 when the fifth Parliament was dissolved and has only recently been revived, enabling it to now proceed to the National Council of Provinces. This will provide another opportunity for advocacy on issues of concern for women and children.

Customary Initiation Bill

Every year the media reports on deaths, serious health issues and rescues from "illegal" initiation schools, raising concerns about the poor regulation of initiation schools. The Customary Initiation Bill (CIB)[66] aims to provide such effective regulation through the establishment of oversight and coordinating structures for the protection of life, prevention of injuries and all forms of physical and mental abuse related to customary initiation. Furthermore, the CIB aims to provide guidance on governance and the responsibilities of different role-players to ensure that initiation is practiced in line with Constitutional and other legal prescripts.

It is important to note, in the discussions that follow, that the Bill differentiates between circumcision and initiation. Circumcision relates to the surgical removal of the foreskin or clitoris, while a person goes through initiation when they attend an initiation school for the purposes of undergoing customary or cultural practices, rituals or ceremonies which may include teachings relating to ideals, values, aspirations and respect that mark a person's transition into adulthood.

A number of provisions relate to the protection of children undergoing customary initiation practices, including the following:

- Initiation is a voluntary practice and no person may be forced or coerced into undergoing initiation practices or going to an initiation school.
- Parents, legal or customary guardians[viii] must decide together with the child whether the child should participate in customary initiation or not. If male circumcision forms part of the initiation process then the parents, legal or customary guardians must decide together with the child whether he will be circumcised medically or traditionally or not at all.
- The Bill provides that no person under the age of 16 years may attend an initiation school for the purposes of being initiated.
- Circumcision of a male child under the age of 16 years is prohibited except if performed for religious or medical purposes.
- A child between 16 and 18 years may not attend an initiation school for purposes of being initiated unless such child and his or her parents or customary or legal guardian have given written consent.
- Circumcision of a male child between the ages of 16 and 18 years is subject to the provisions of the Children's Act[67] and regulations. The Children's Act states that the child must give consent after proper counselling[68] and taking into consideration the child's age, maturity and stage of development. Every male child has the right to refuse circumcision.[69]

vii The prosecutors are only called on to consider a child's educational level, domestic and environmental circumstances, age and maturity of the child.
viii The Bill defines a 'customary guardian' as any person other than a parent or legal guardian who, in terms of the customs of a particular community, accepts parental responsibility for a child, including the responsibilities referred to in section 18 of the Children's Act. Section 18 of the Children's Act sets out what parental responsibilities and rights entail.

The consent requirements for initiation and circumcision will differ if this Bill is passed in its current form. While initiation will require the consent of both the child and his parents or guardian, circumcision only requires the consent of the child after proper counselling as set out in the Children's Act. The Children's Act does not require parental or guardian consent because it acknowledges that a child aged 16 to 18 years is an autonomous being with the sufficient capacity to make a decision about whether or not to undergo circumcision once given adequate guidance. In terms of the Children's Act a parent, guardian, caregiver or social service professional can provide proper counselling to guide the child when making their decision.[70]

It is commendable that the provisions of the CIB affirm the need for children to be involved in decisions about their own initiation or circumcision. These are deeply personal procedures and practices that affect a child's right to bodily and psychological integrity. However, the process outlined for consent to initiation is lacking when compared to the process set out in the Children's Act for circumcision. It is important that the requirements for initiation be aligned with the Children's Act requirements for circumcision. The Bill must be strengthened in this regard through amendments that make it clear that the decision to go through initiation should be the child's as set out in provisions in the Children's Act dealing with circumcision.[ix] This will require removing the requirement of parental consent from the CIB and replacing it with parental guidance/counselling to assist the child in making his/her decision and clarifying that it is the child who has the right to make the decision.

The Bill aims to align with the Children's Act provisions around genital mutilation, circumcision and virginity testing. The Children's Act prohibits the genital mutilation or circumcision of female children of any age.[71] It also prohibits the virginity testing of female children under the age of 16 years[72]. Virginity testing of children older than 16 years may only occur if the child consents and after proper counselling.[73] The CIB reinforces these provisions of the Children's Act by stating "no child … may be forced to undergo virginity testing as part of an initiation process."[74]

Provisions on discipline and teaching provide, amongst other things, that the principal of an initiation school and caregivers employed by the school, must ensure discipline among initiates at all times and must ensure that teachings discourage misconduct. Discipline must not include abuse or assault. Prohibition of the use of corporal punishment – particularly in relation to children – is a glaring omission that needs to be addressed the Bill in order to make it clear that corporal punishment in initiation schools will not be condoned.[75]

The Bill places an obligation on the principal and caregivers to ensure that initiates have at all times access to clean water, appropriate sanitation and food. Caregivers, principals and traditional surgeons all have the obligation to ensure that initiates who display symptoms of ill-health, serious injury, infection or excessive, recurring or continuous bleeding, receive immediate medical attention. The Bill, however, lacks clarity on where the child/children concerned must receive the medical attention (or that it must be from a registered health professional). It is essential that the Bill is clear on the importance of ensuring that children are taken to a doctor, clinic or hospital to receive adequate medical care.

The Bill further provides guidance on the process to be followed in the event of the death of an initiate.[76] This includes immediately informing parents and/or guardians, the South African Police Service, the relevant Provincial Initiation Coordinating Committee, traditional surgeon, where applicable medical practitioner and senior traditional leader where relevant.

The Bill provides that no person may participate in any aspect of initiation if that person is found to be unsuitable to work with children in terms of the Children's Act; if that person's name is contained in Part B of the National Child Protection Register; or if that person's details are in the National Register for Sex Offenders. The Bill further provides that principals and caregivers of initiation schools must be subject to screening to ensure that they have no history or criminal record of abuse of children. This seems to provide children with two layers of protection namely registers that aim to protect children and screening that includes a "history" of abuse and criminal record.

The content of the Bill is commendable in that it attempts to ensure that the rights and well-being of children involved in customary initiation are protected and affirmed. However, key to this will be consistent implementation of the Bill once it becomes law. Relevant duty bearers and oversight bodies will need to ensure that there is strict adherence to the provisions of the Bill, especially those that aim to protect children from illness, abuse, serious injury, death and psychological harm.

ix In addition to respecting and affirming the child's right to make a decision that may have an impact on his bodily integrity, having a clear provision will avoid conflicts that arise relating to what should be done if a parent/guardian and a child make different decisions.

The Bill was introduced in Parliament in April 2018. After engagements with stakeholders, in particular the National House of Traditional Leaders, [x] and a day of parliamentary hearings, the Portfolio Committee on Cooperative Governance and Traditional Affairs proposed amendments[77] and voted to adopt the Bill in November 2018.[78] Thereafter, the National Assembly passed the Bill[79] and referred it to the NCOP for concurrence. Due to the dissolution of the fifth Parliament, the Bill lapsed in May 2019, and has only recently been revived by the sixth Parliament.[80] The next step for the Bill will be deliberations and public hearings by the NCOP.

Conclusion

The professional lobbying of profit-driven industries such as the tobacco and alcohol industries; and the powerful influence of those invested in coal production or preserving patriarchial traditional systems have the potential to dominate the law-making process, resulting in laws that preserve the vested interests of a few at the expense of children.

On the other hand, if lawmakers were to seriously consider and uphold the best interests of children, then they would be more likely to make decisions that would improve the quality of life for all, and sustain the planet for generations to come.

References

1 National Health Insurance Bill, B11 – 2019.
2 World Health Organization (2010) *The World Health Report – Health systems Financing: The path to universal coverage*. Geneva: WHO.
3 See section 5 of the Bill for the registration requirements.
4 Statistics South Africa (2017) *Statistical Release P0305*. Recorded live births 2017. Pretoria: Stats SA. Available at: http://www.statssa.gov.za/publications/P0305/P03052017.pdf
5 See no. 1 above. Section 4 (3). [NHI]
6 Department of Health (2011) *1st Triennial Report. Ministerial Committee on Mortality and Morbidity in Children under 5 Years of Age in South Africa*. Pretoria: DoH.
7 See no. 1 above. Section 39 (1)(a).
8 Office of Health Standards Compliance (2018) *Annual Inspection Report 2016/17*. Pretoria: OHSC.
9 National Treasury (2019) *Medium Term Budget Policy Statement 2019*. 30 October 2019. Pretoria: NT.
10 Department of Health (2011) *First Triennial Report. Ministerial Committee on Mortality and Morbidity in Children under 5 Years of Age in South Africa*. Pretoria: DoH.
11 See no. 10 above.
12 Contact details of the members of the Portfolio Committee of Health are available on https://pmg.org.za/committee/63/
13 National Treasury (2019) *Budget Review MTBPS 2018/19*. Chapter 6. Pretoria: NT.
14 See no. 13 above.
15 SECTION27 (2018) *Submission on the State Liability Amendment Bill*.
16 See no. 13 above. Pg 71.
17 South African Law Reform Commission (2017) *Issue Paper 33 Project 141 Medico-Legal Claims*. 20 May 2017
18 See no. 15. above.
19 Legal Resources Centre and Women's Legal Centre (2018) *Submission on the State Liability Amendment Bill*
20 Total Shutdown, Black Womxn Caucus and the Sexual & Reproductive Justice Coalition (2018) *Submission on the State Liability Amendment Bill*
21 See no. 15 above;
Wewege J (2018) Submission on the State Liability Amendment Bill
22 See no. 15 above. [SECTION27]
23 See no. 15 above. [SECTION27]
24 Department of Health, Western Cape Provincial Government (2018) *Submission on the State Liability Amendment Bill*
25 Amnesty International (2018) *Submission on the State Liability Amendment Bill*
26 Department of Health, Western Cape Provincial Government (2018) *Submission on the State Liability Amendment Bill*
27 Invitation for Public Comment on the Draft Control of Tobacco Products and Electronic Delivery Systems Bill, 2018. *Government Gazette No. 41617*. 9 May 2018.
28 Westwood ATR, Vanker A & Gray D (2019) Tobacco, nicotine and e-cigarettes: Protecting children in South Africa. *South African Journal of Child Health*, 13: 4-5.
29 National Department of Health, Statistics South Africa, South African Medical Research Council and ICF (2017) *South Africa Demographic and Health Survey 2016: Key Indicators*. Pretoria, South Africa.
30 National Academies of Sciences, Engineering, and Medicine (018) *Public health consequences of e-cigarettes*. Washington, DC: The National Academies Press.
31 Berrick AJ (2013) The tobacco-free generation proposal. *Tobacco Control*, 22: i22-i26.
32 United Nations Committee on the Rights of the Child (2013) *General Comment No. 16. On State obligations regarding the impact of business on children's rights*. CRC/GC/16. Geneva: UNCRC.
33 Jernigan D, Noel J, Landon J, Thornton N & Lobstein T (2017) Alcohol marketing and youth alcohol consumption: A systematic review of longitudinal studies published since 2008. *Addiction*, 112(Suppl. 1): 7-20. World Health Organization (2018) *WHO launches SAFER new alcohol control initiative*. Viewed 15 November 2019: www.who.int/substance_abuse/safer/en/
34 Reddy SP, James S, Sewpaul R, Sifunda S, Ellahebokus A, Kambaran NS & Omardien RG (2013) *Umthente Uhlaba Usamila: The Third South African National Youth Risk Behaviour Survey 2011*. Pretoria: HSRC
35 World Health Organization (2018) *Global Status Report on Alcohol and Health*. Geneva: WHO. P. 181.
36 Cabinet of RSA (2013) *Statement of the Cabinet Meeting of the 18 September 2013*. Viewed 15 November 2019: www.gcis.gov.za/content/newsroom/media-releases/cabinet-statements/statement-cabinet-meeting-18Sept2013
37 Southern African Alcohol Policy Alliance (2018) *Submission to the United Nations Committee on Economic, Social and Cultural Rights South Africa*. Viewed 15 November 2019: https://tbinternet.ohchr.org/Treaties/CESCR/Shared%20Documents/ZAF/INT_CESCR_CSS_ZAF_32157_E.pdf
38 Republic of South Africa (2017) *Initial Report by South Africa on the Measures Adopted and Progress Made in Achieving the Rights Recognized in the ICESCR*. P. 53.
39 Bertscher A, London L & M (2018) Unpacking policy formulation and industry influence: the case of the draft control of marketing of alcoholic beverages Bill in South Africa. *Health Policy and Planning*, 33(7): 786-800.
40 Mialon M & McCambridge J (2018) Alcohol industry corporate social responsibility initiatives and harmful drinking: a systematic review, *European Journal of Public Health*, 28(4): 664-673.
41 Carbon Tax Act 15 of 2019.
42 Climate Change Bill, 2018 GN 580 in GG 41689,8 June 2018.
43 Carbon Brief (2019) *The Carbon Brief: South Africa Profile*. Viewed 15 November 2019: www.carbonbrief.org/the-carbon-brief-profile-south-africa.
44 Department of Environmental Affairs (2011) *National Climate Change Response*. Pretoria: DEA. PP. 8 & 12;
World Health Organization (2017) *Danger in the Air: How air pollution can affect brain development in children*. New York: United Nations Children Fund.
45 World Health Organization (2019) I Viewed 15 November 2019: www.who.int/ceh/risks/en/.
46 UNICEF (2019) *16 children, including Greta Thunberg, file landmark complaint to the United Nations Committee on the Rights of the Child: Child petitioners protest lack of government action on climate crisis*. Press

x Consultation with the House of Traditional Leaders is required by section 18(1) of the Traditional Leadership and Governance Framework Act 41 of 2003.

release. 23 September 2019. Viewed 15 November 2019: www.unicef.org/press-releases/16-children-including-greta-thunberg-file-landmark-complaint-united-nations.

47 Earth justice (2019) 16 young people file UN human rights complaint on climate change: *youth petitioners take fight for global climate change action to the united nations committee on the rights of the child.* Viewed 15 November 2019: earthjustice.org/news/press/2019/un-committee-on-the-rights-of-the-child-receives-first-ever-human-rights-complaint-on-climate-change.

48 Constitution of the Republic of South Africa. Act 108 of 1996. Section 24.

49 See no. 48 above. Section 28 (2).

50 The National Treasury (26 May 2019) *Media Statement: Publication of the 2019 Carbon Tax Act.* Viewed 15 November 2019: www.treasury.gov.za/comm_media/press/2019/2019052701%20Media%20statement%20-%20Carbon%20Tax%20Act.pdf;
The Carbon Tax Act must be read with the Customs and Excise Amendment Act, 2019.

51 Sections 7 to 13 of the Carbon tax Act provide for various categories of allowances.

52 The National Treasury Media Statement: *Publication of the 2019 Carbon Tax Act.* 26 May 2019. Viewed 15 November 2019: www.treasury.gov.za/comm_media/press/2019/2019052701%20Media%20statement%20-%20Carbon%20Tax%20Act.pdf.

53 See no. 42 above. Preamble.

54 Child Justice Amendment Bill [B32-2018]

55 See no. 54 above.

56 In terms of Rule 333(2) of the National Assembly Rules.

57 29 October 2019.

58 Child Justice Act 75 of 2008.

59 See no. 58 above. Section 9.

60 Gallinetti J (2009) Getting to know the Child Justice Act. Child Justice Alliance, Community Law Centre, University of the Western Cape. P. 20.

61 United Nations Committee on the Rights of the Child (CRC) (2007) *General Comment No. 10 : Children's Rights in Juvenile Justice*, 25 April 2007, CRC/C/GC/10. Geneva: UNCRC. It is of interest to note that the Principles and Guidelines on the Right to a Fair Trial and Legal Assistance in Africa prepared by the African Commission on Human & People's Rights provide that "The age of criminal responsibility should not be fixed below 15 years of age. No child below the age of 15 shall be arrested or detained on allegations of having committed a crime."

62 United Nations General Assembly (1985) *United Nations Standard Minimum Rules for the Administration of Juvenile Justice ("The Beijing Rules"): resolution / adopted by the General Assembly*, *29* November 1985, A/RES/40/33. . Rule 4.

63 Rohrs S, Proudlock P & Maistry A (2017) Legislative and policy developments 2016/2017. In: Jamieson L, Berry L & Lake L (eds) (2017) *South African Child Gauge 2017*. Cape Town: Children's Institute, UCT; Proudlock P and Rohrs S (2018) Recent developments in law and policy affecting children. In: Hall K, Richter L, Mokomane Z & Lake L (eds) *South African Child Gauge 2018*. Cape Town: Children's Institute, UCT; Hansungule Z (2018) Case 6: An examination of the Traditional Courts Bill. Hall K, Richter L, Mokomane Z & Lake L (eds) *South African Child Gauge 2018*. Cape Town: Children's Institute, UCT.

64 Traditional Courts Bill 1B-2017.

65 See no. 63 (Rohrs S et al) above.

66 Customary Initiation Bill [B7-2018].

67 Children's Act 38 of 2005.

68 See no 67 above. Section 12 (9).

69 See no 67 above. Section 12 (10).

70 Regulation 5 of chapter 2 of the Children's Act Regulations. See also section 129 (3) of the Children's Act which focuses on children's consent to surgery.

71 See no. 67 above. Section 12 (3).

72 See no. 67 above. Section 12 (4).

73 See no. 67above. Section 12 (5).

74 See no. 66 above. Section 28 (5)(d).

75 Department of Basic Education (2018) *Submission on the Customary Initiation Bill*

76 See no. 66 above. Section 31.

77 Customary Initiation Bill [B7A-2018].

78 Customary Initiation Bill [B7B-2018].

79 4 December 2018

80 17 August 2019

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PART 2

Child and adolescent health – leave no one behind

A series of twelve chapters examines the current status of child and adolescent health in South Africa reflecting on current and emerging challenges, showcasing examples of promising practice, and identifying opportunities for intervention and systems strengthening.

- Prioritising child and adolescent health
- A life course approach
- The first 1,000 days
- Adolescent health
- Children with long term health conditions
- Violence, injury and child safety
- Mental health
- The triple burden of malnutrition
- Environmental health and climate change
- Putting children at the heart of the health care system
- Building a workforce for child health

When health care workers adopt an empathetic approach to children and their caregivers, it creates an enabling environment that supports child and adolescent health.

Prioritising child and adolescent health: A human rights imperative

Lori Lake,[i] Maylene Shung-King,[ii] Michael Hendricks,[iii] Mark Heywood,[iv] Nadine Nannan, Ria Laubscher and Debbie Bradshaw,[v] and Catherine Mathews, Ameena Goga, Trisha Ramraj and Witness Chirinda[vi]

Nearly 25 years have passed since the first democratic elections in South Africa – and 10 years since the publication of the 2009 *Child Gauge*, which focused on child health – from survival to optimal development. The interim period has seen the introduction of a series of national and global initiatives that have the potential to enhance child and adolescent health.

Significant progress has been made in certain areas of child health, such as the reversal in under-five mortality. Yet over the same period inequalities have widened; poverty, hunger and violence continue to compromise children's health and development; and emerging challenges, such as climate change and the growing burden of obesity and non-communicable diseases, threaten to erode recent gains.

This period also coincides with the appointment of a new Minister of Health, within the cabinet of a newly-elected President. Major health policy reform is underway, marked by the release of the National Health Insurance Bill, which holds potential for addressing significant fault lines in the South African health system. We are also ten years away from the target dates of the 2030 National Development Plan and the Sustainable Development Goals. It is therefore an opportune moment to reflect on progress and identify critical leverage points, shifts in thinking and examples of best practice that can help us move forward towards ensuring that all South Africa's children reach their full potential.

This issue of the *South African Child Gauge* calls for early and sustained investment in young children and adolescents to disrupt the intergenerational cycles of poverty, violence and malnutrition. This introductory chapter reflects on our commitments to uphold children's right to health; recent trends in child and adolescent health status; and children's access to health care services and to basic living conditions and care arrangements that significantly influence their optimal health and development.

This introductory chapter considers the following questions:

- Why is it essential to prioritise child and adolescent health?
- What are the key elements of children's right to health and health-care services?
- What is the current status of child health in South Africa?
- To what extent are children able to access quality health care?
- Has South Africa made progress in addressing the social determinants of child health?
- How can South Africa draw on global initiatives to reimagine child and adolescent health?
- What are some of the key considerations in setting an agenda for 2030?

The child's name is Today
The child cannot wait.
Right now is the time the child's
bones are being formed,
blood is being made,
senses are being developed.
To the child we cannot answer
'tomorrow'
The child's name is Today.

Gabriela Mistral, Nobel Prize Winning Poet from Chile

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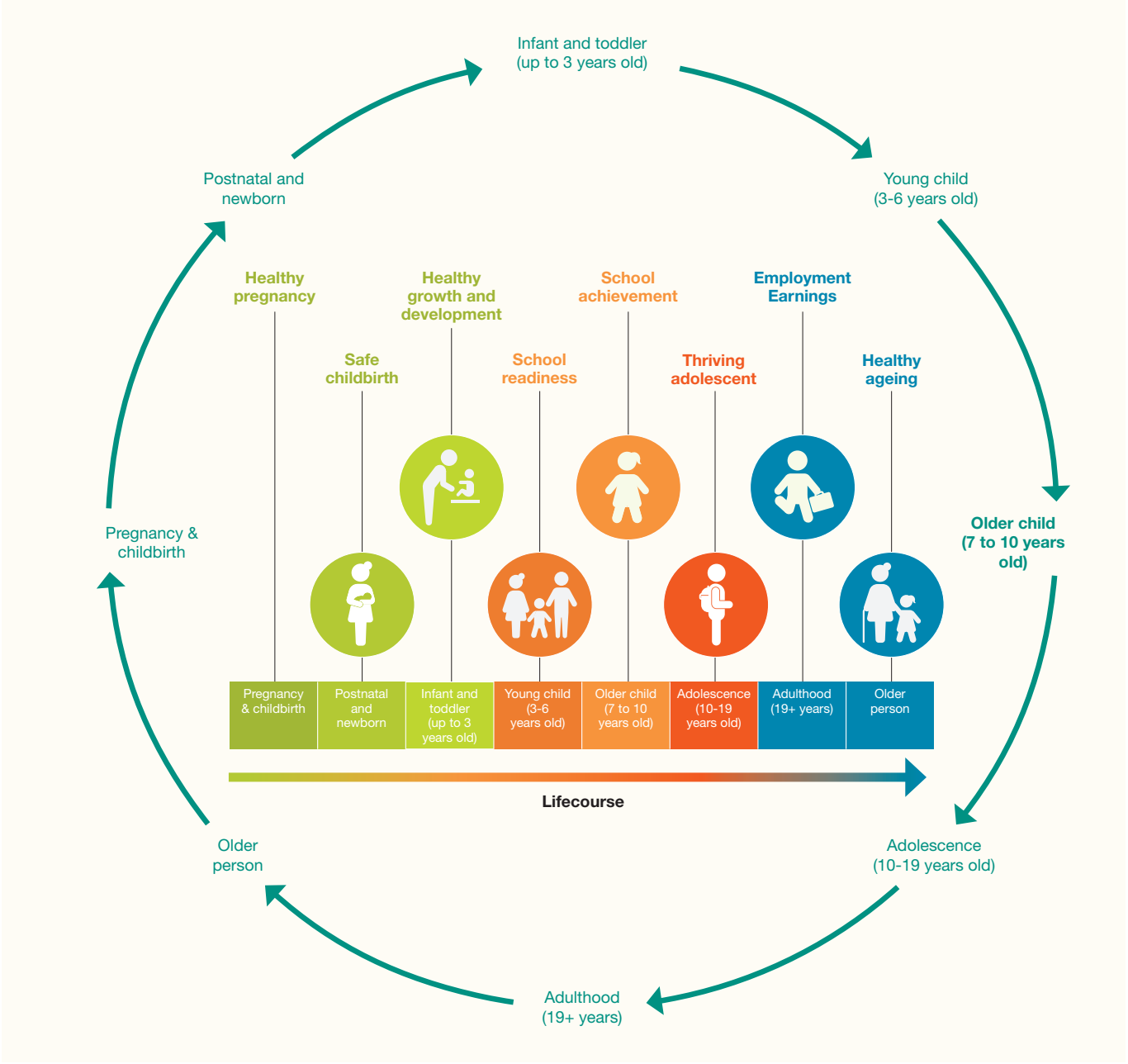
Why is it essential to prioritise child and adolescent health?

There are 19.7 million children in South Africa – in other words, one third (34%) of South Africa's population is under the age of 18 – and close to half of the overall population are under the age of 25.[1] With the right investments to promote their optimal well-being, our young population has the potential to transform our country and drive social and economic development. Emerging evidence from across a range of disciplines has led to a greater appreciation of the way in which early life experiences – even pre-conception – determine the developmental origins and trajectories of health or disease across the life course. It is therefore most effective – and cost effective – to intervene early to protect children from adversity and promote optimal health, growth and development. These early investments in child and adolescent health have the potential to reap a triple dividend – for children today, for the adults they will become tomorrow, and for the next generation of children.

Figure 1: Early investment in child and adolescent health drives development across the life course



Adapted from: World Health Organization, United Nations Children's Fund, World Bank Group (2018) *Nurturing Care for Early Childhood Development: A framework for helping children survive and thrive to transform health and human potential.* Geneva: WHO.

This is especially so during sensitive periods such as the first 1,000 days of life (from conception until a child's second birthday) and adolescence, when the developing body and brain are particularly sensitive to environmental stressors. For example, early exposure to violence in the home helps drive an intergenerational cycle of violence, as it increases the risk of children becoming victims or perpetrators, and later using harsh physical punishment to discipline their own children. Conversely, exclusive breastfeeding for the first six months of life not only provides infants with optimal nutrition, it reduces mortality from diarrhoea and pneumonia, improves IQ and reduces the risk of obesity and non-communicable diseases in adulthood.[2]

Investments in child and adolescent health have the potential to not only reduce the burden of violence, injury and ill health, but also to promote economic development and social cohesion. This resonates with South Africa's vision for 2030 as outlined in the National Development Plan, which recognises how investments in health, early childhood development and South Africa's youth can help level the playing fields, drive social and economic development, and promote a healthier, more resilient and equitable society.

Our obligation is therefore to work towards a South Africa where every child and adolescent lives with a family that loves, cares and supports them, in an environment that promotes their health, safety and wellbeing, and where they can access appropriate health and social services when in need. Such is the South Africa we imagined 25 years ago when we drafted our Constitution and Bill of Rights and accorded our children legally-binding entitlements, which aim to protect them from harm and create an enabling environment in which they are free to realise their full capabilities.

What do we mean by child and adolescent health?

The Constitution defines a *'child'* as a person under the age of 18, yet children's health care needs change dramatically as they pass through a series of developmental stages – from newborns, infants and toddlers through to older children and adolescents.

At times it is important to make clear distinctions between these different periods of development. For example, from a survival perspective it makes sense to treat neonates as a separate group because mortality is particularly high amongst infants in the first month of life, and because the drivers of neonatal mortality are different to the causes of death in the post-neonatal period. Yet if we are interested in ensuring children thrive, then it makes more sense to focus on the first 1,000 days of life because this focuses attention on the continuum of growth and development from conception until a child's second birthday.

Yet the boundaries between these different phases are often fluid. For example, the term '*adolescence*' is used to describe a period of transition from childhood to adulthood, yet there is significant delay between the age at which children start puberty and when they ready to take on their first job, move out of home or start a family of their own, prompting calls to extend the definition of adolescence until the age of 24. By contrast, adolescents in the South African health-care system are expected to make the transition from child to adult services as early as 13. Yet these services are rarely attuned or responsive to adolescents' developmental needs.

Child health has traditionally focused on younger children, and particularly the survival of children under five. This has tended to obscure the health-care needs of older children and adolescents. For this reason, we have chosen to alternate between using child health as an inclusive term that applies to all children from birth to adolescence, and at other times we refer to 'child and adolescent health' in order to make the health-care needs of adolescents more visible.

What are the key elements of children's right to health?

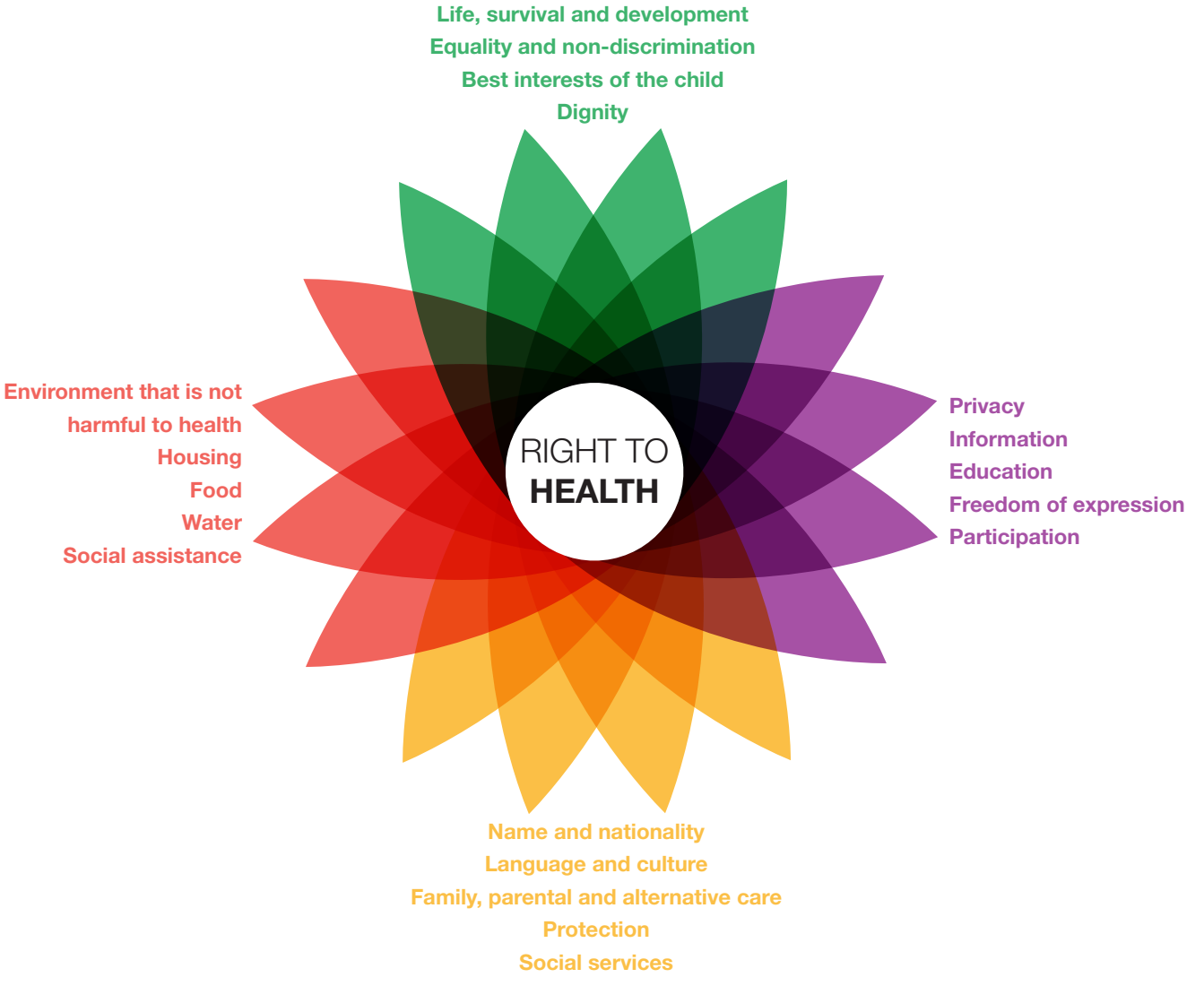
Children's right to the "highest attainable standard of health" is outlined in international law by the International Covenant on Economic, Social and Cultural Rights (ICESCR) and the United Nations Convention of the Rights of the Child (UNCRC), and is defined broadly as:

> *an inclusive right, extending not only to timely and appropriate prevention, health promotion, curative, rehabilitative and palliative services, but also to a right to grow and develop to their full potential and live in conditions that enable them to attain the highest standard of health.*[3]

In other words, achieving children's right to health depends not only on their access to health-care services, but also on their rights to food, water, shelter and an environment that is not harmful to health. It also includes their rights to dignity, equality, family care and protection, which requires the health system to acknowledge and support these rights, and to support access to justice when these rights have been violated – as outlined in Figure 2.

South Africa has ratified both the UNCRC and ICESCR and is therefore obliged to put in place laws, policies, programmes and services, and to allocate sufficient resources to give effect

Figure 2: Children's rights to health and health-care services are interdependent and indivisible



to these rights. In addition, the state is required to report on progress. These periodic country reports, complemented by those of civil society, serve as an important mechanism for holding the state accountable.

The general principles

The UN Committee on the Rights of the Child has also identified four general principles that should guide the interpretation and implementation of all children's rights. These include children's rights to survival and development, equality and non-discrimination, participation and the best interest of the child. This means that States must prioritise the needs of those who are most vulnerable and address discriminatory policies and practices. They must also put measures in place to ensure that children not only survive, but thrive, and reach their full capabilities by developing their mental and physical abilities, personalities and talents to the fullest extent possible.

The UNCRC also states that the 'best interests of the child' should be of primary consideration in any decisions that affect a child or group of children. This includes decisions about children's treatment options, the design and delivery of health-care services, and laws and policies that have a direct or indirect impact on children. Finally, the UNCRC calls on policymakers, parents and professionals to recognise children's evolving capacities and right to participate in decision-making, and to give their views due weight in accordance with their age and maturity.[4] For example, including children as active partners in health has been found to relieve pain and distress, improve patient outcomes and

compliance with treatment, build children's capacity to take responsibility for their own health, and enhance the design of child- and adolescent-friendly health-care services.[5] The Children's Act therefore enables children to consent to medical treatment from the age of 12, provided they understand the risks and benefits.[6]

Children's constitutional rights

Many of these rights and principles have been incorporated into the South African Constitution and are therefore legally binding in South Africa.

Most of the rights in the Constitution apply to everyone – including children. For example, we all have a right to life, dignity, equality, freedom of expression, and an environment that is not harmful to our health. But the Bill of Rights also recognises children's need for additional care and protection, and Section 28 spells out children's rights to a name and nationality; family, parental and alternative care; protection from maltreatment, abuse, neglect and degradation; health and social services; and to have their best interests considered in every matter concerning them.[7]

While everyone has a "right to have access to health-care services, sufficient food and water, social assistance and adequate housing",[8] these socio-economic rights are subject to progressive realisation and limited by the state's available resources. In contrast, section 28 guarantees children a direct and unqualified "right to basic nutrition, shelter, basic health-care services and social services"[9] (as outlined in Box 1).

The state is therefore obliged to put in place definitive measures to give effect to children's right to health. This includes adopting appropriate laws, policies and programmes; putting in place the necessary budget and resources; ensuring that the design and delivery of health care and other services puts children at the centre by considering their best interests; and making progress in improving child health outcomes across a range of indicators.[10]

Article 24 (2) of the UNCRC states that government must prioritise child health within the health plan for the general population, and the UN Committee on Economic, Social and Cultural Rights stipulates that these health goods, services and programmes should be available, accessible, acceptable and of good quality.[11] In other words:

- The facilities, goods and services for child and adolescent health should be available in sufficient quantity and continuous supply.
- These goods and services should be easy to use and accessible to all. For example, as far as possible, children and families should not have to travel long distances, incur expenses or struggle to access health information.
- Children and adolescents should be treated with care and respect and included in decisions about their own health care whenever possible.
- Children should receive the right treatment, when they need it, delivered in a caring, child-centred manner by well-capacitated health professionals.

Yet, 25 years since the adoption of the Constitution, the state has yet to define a package of basic health care for children. The national Committee on Morbidity and Mortality of

Box 1: Advocating for children's right to basic health-care services

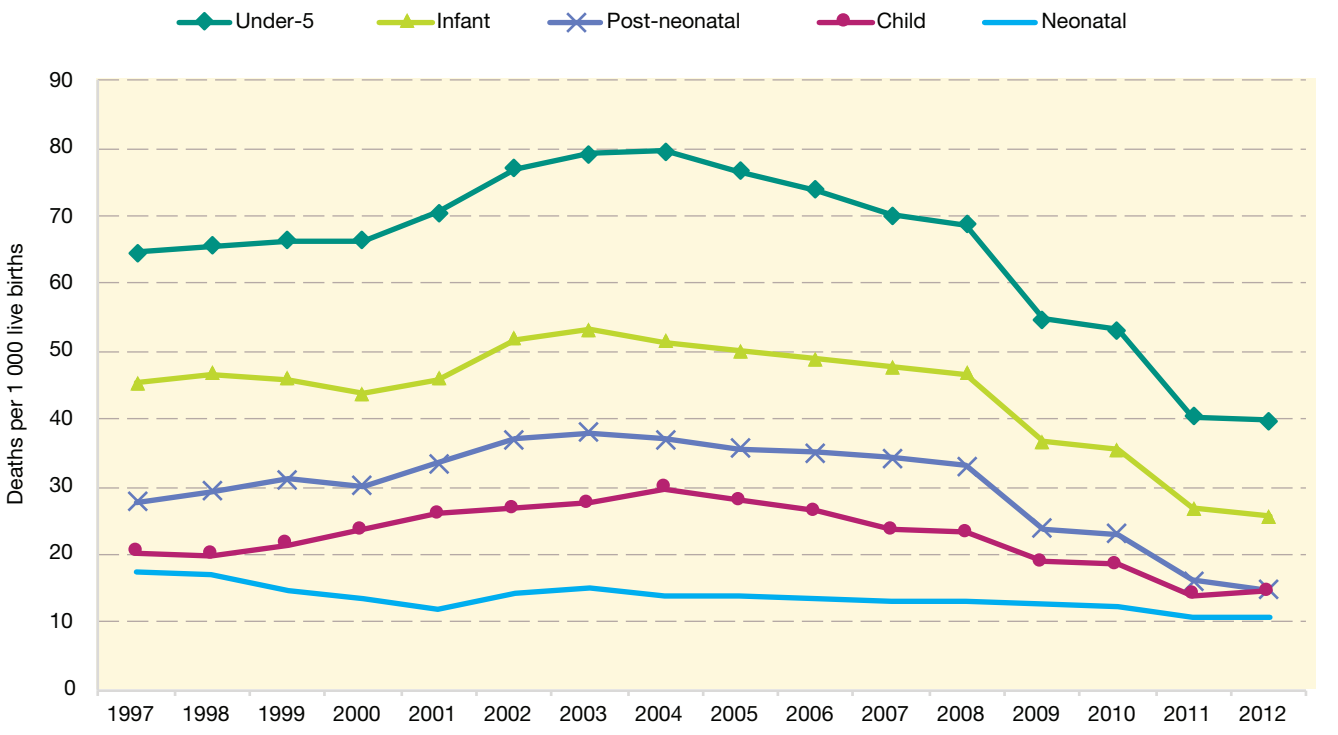
Children's constitutional rights are justiciable and can be enforced by a court of law. Advocates for child health argue that children's "right to basic health-care services" creates the same duty upon the state as the right of everyone to basic education,[12] which the Constitutional Court has ruled is "immediately realisable":

> There is no internal limitation requiring that the right be "progressively realised" within "available resources" subject to "reasonable legislative measures". The right to a basic education in section 29(1)(a) may be limited only in terms of a law of general application which is "reasonable and justifiable in an open and democratic society based on human dignity, equality and freedom".[13]

This has enabled education rights activists such as Equal Education, SECTION27, the Legal Resources Centre and the Centre for Child Law to campaign – and successfully argue in court – for textbooks, desks, teaching staff, safe and sanitary toilets, and binding minimum norms and standards for the provision of school infrastructure in order to give concrete meaning to the right to education and to clarify the precise obligations of the State.

These same strategies could potentially be applied to ensure the realisation of children's right to basic health-care services. A necessary first step is to officially endorse a package of 'basic health-care services' for children, and to build an advocacy and investment case that demonstrates how these services will benefit children's health and prove cost effective. Such a case should also draw on the international law – such as the UNCRC and ICESCR – which should guide both the state and the Courts' interpretation of basic health-care services for children in South Africa.

Figure 3: Trends in age-specific mortality rates for children under-five, 1997 – 2012



Source: Nannan N, Groenewald P, Pillay-van Wyk V, Nicol E, Msemburi W, Dorrington RE & Bradshaw D (2019) Child mortality trends and causes of death in South Africa, 1997 – 2012, and the importance of a national burden of disease study. *South African Medical Journal*, 109(7): 480-485.

Children Under-Five has repeatedly called on the state to fast track the development of an Essential Package of Care for Children,[14] including norms and standards for staff, physical infrastructure, equipment and consumables; together with clear targets in order to strengthen the health-care system and ensure that child health services are adequately resourced.

It is also clear (as outlined later in this chapter) that children still do not yet have equitable access to an acceptable quality of primary level services, and inequity of access escalates with hospital and specialised health care. It is therefore particularly pressing to ensure that children's needs are factored into the package of benefits that will be offered under the proposed National Health Insurance system (see page 16 in legislative developments).

The following sections reflect on the extent to which South Africa is realising children's rights both within and outside the health-care system, by reflecting on the current status of child and adolescent health in South Africa, evaluating recent progress in the delivery of child and adolescent health services, and considering the impact of the broader social and environmental determinants of child and adolescent health.

What is the current status of child health in South Africa?

While child and adolescent mortality has decreased significantly over the last decade, too many children and adolescents continue to die from preventable causes. There has been no change in the prevalence of stunting (a sign of chronic malnutrition), which affects one in four young children.[15] HIV prevalence continues to affect one in four pregnant women and violence against children remains pervasive, highlighting the need for greater investment in prevention to ensure that children not only survive, but thrive.

Child survival: Progress and gaps

Under-five mortality is an important measure of child health. It is also an index of a society's health and development, as child survival is dependent on a healthy and safe environment, adequate care, nutrition, protection from violence and access to health-care services. The Sustainable Development Goals (SDGs) therefore aim to galvanise efforts to end preventable deaths among young children and set targets to reduce the under-five mortality rate (U5MR) to no more than 25 deaths

Table 1: Child mortality indicators, rapid mortality surveillance, 2012 – 2017

INDICATOR	2012	2013	2014	2015	2016	2017	Target 2030
Under-five mortality rate (deaths per 1,000 live births)	41	41	40	37	34	32	25
Infant mortality rate(deaths per 1,000 live births)	27	28	28	27	25	23	-
Neonatal mortality rate (deaths per 1,000 live births)	12	11	12	12	12	12	12

Source: Dorrington RE, Bradshaw D, Laubscher R & Nannan, N (2019) *Rapid Mortality Surveillance Report 2017*. Cape Town: South African Medical Research Council.

per 1,000 live births and neonatal mortality to no more than 12 deaths per 1,000 live births by 2030.[vii]

Despite interest in monitoring progress towards the SDGs, and relatively reliable sources of child mortality data at national level, it has proved difficult to disaggregate this data at sub-national level or determine reliable estimates of cause of death. The second National Burden of Disease Study has therefore adjusted vital registration data[viii] to derive reliable estimates of the trends and causes of mortality amongst both young and older children[16].

Notwithstanding the data challenges, Figure 5 illustrates progress in reducing U5MR across all provinces. Not only has the surge in deaths due to the HIV epidemic been reduced, but under-five deaths are significantly lower than the pre-HIV era, suggesting that there has been improvement in other aspects of child health as well.

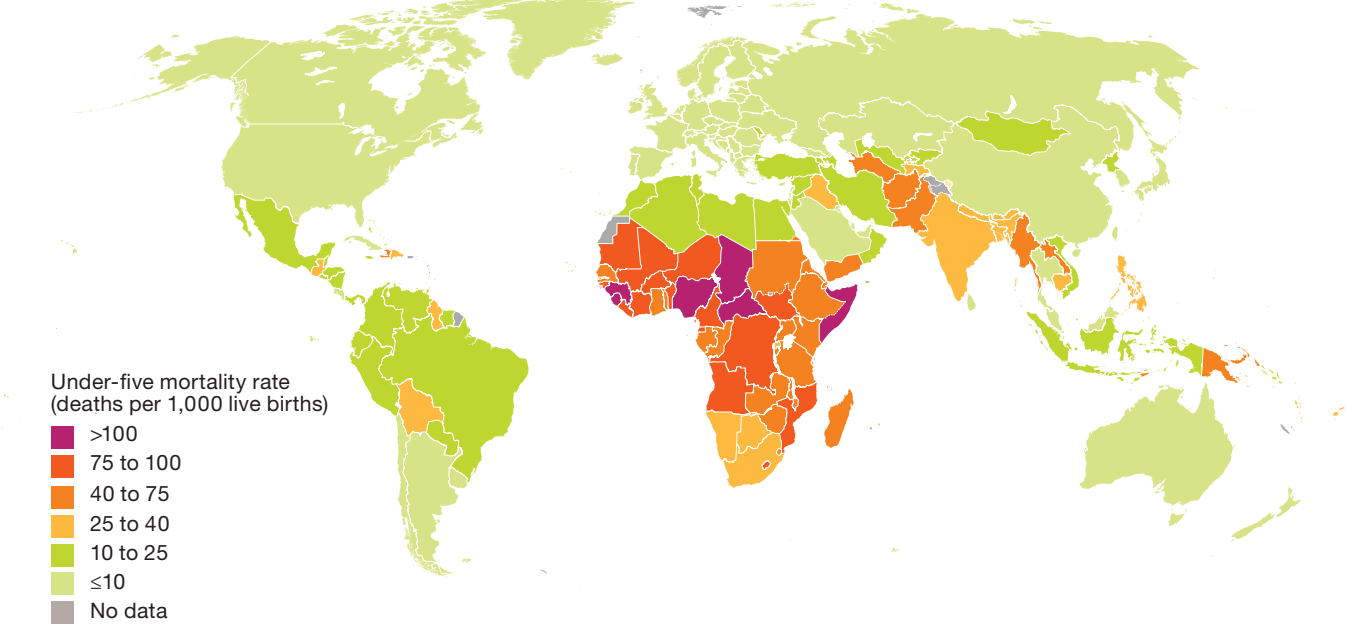
Trends in under-five mortality

Under-five mortality increased between 1997 and 2004 from 65 to 79 deaths per 1,000 births, before dropping steeply to 40 deaths per 1,000 births in 2012 (as illustrated in Figure 3). More recent estimates from the Rapid Mortality Surveillance Report in Table 1 document a further decline to 32 deaths per 1,000 live births in 2017. [17] Yet despite this progress, an estimated 15,965 young children died before their fifth birthday in 2017,[18] about 44 children a day, from mainly preventable causes. The mortality risk is highest in the first month of life, and neonatal mortality rates have remained stubbornly fixed at 12 deaths per 1,000 live births.

Global and provincial inequalities

The SDGs call on states to intensify efforts to reduce inequalities and ensure that no child is left behind. Yet

Figure 4: Children in sub-Saharan Africa face higher risks of dying before their fifth birthday

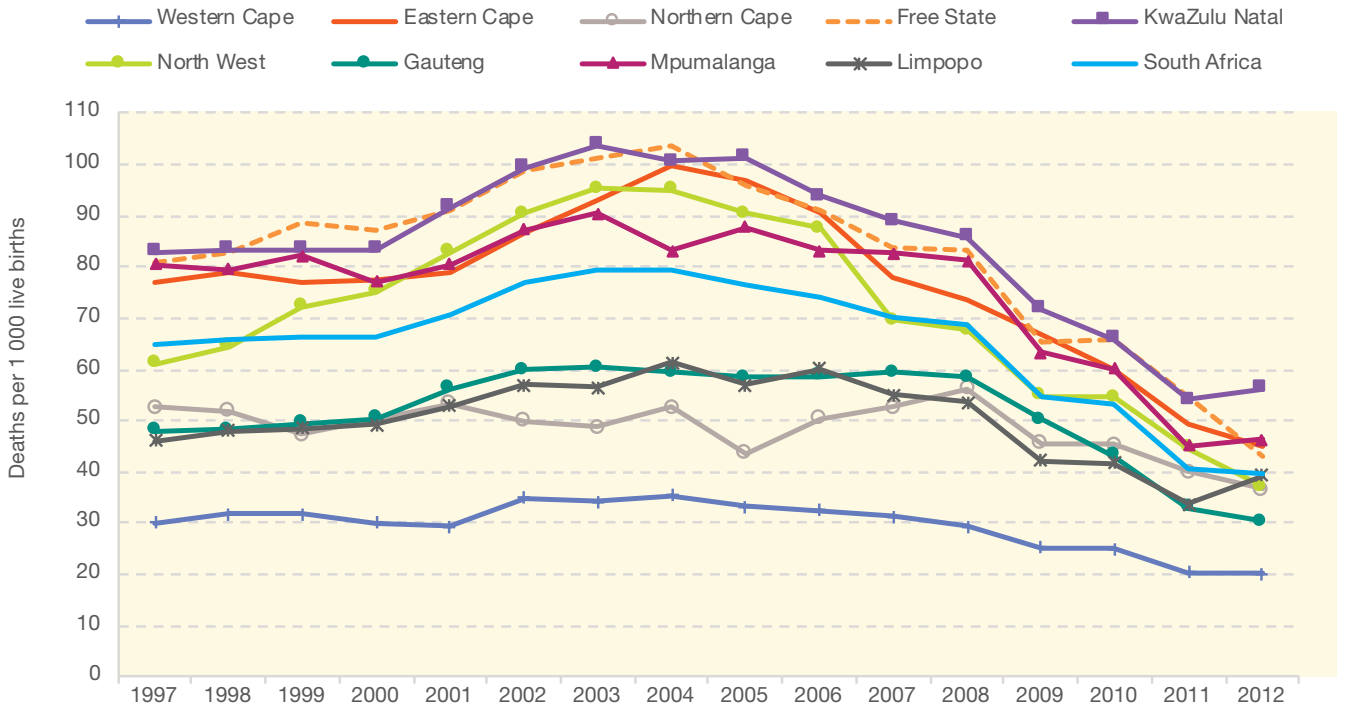


Source: United Nation's Children Fund. (2019) *Levels and trends in child mortality: Report 2019. Estimates developed by the UN Inter-agency Group for child mortality estimation*. New York: UNICEF.

vii Under-five mortality refers to the probability of a child dying before their fifth birthday, while neonatal mortality refers to the probability of infant dying in the first 28 days of life.

viii Vital registration of births and deaths is not yet complete and there is extensive misclassification of HIV/AIDS deaths and other quality concerns.

Figure 5: Trends in under-five mortality rates, by province, 1997 – 2012



Adapted from: Nannan N, Groenewald P, Pillay-van Wyk V, Nicol E, Msemburi W, Dorrington RE & Bradshaw D (2019) Child mortality trends and causes of death in South Africa, 1997 - 2012, and the importance of a national burden of disease study. *South African Medical Journal*, 109(7): 480-485.

inequities in child mortality persist both within and between countries. Children living in sub-Saharan Africa remain hardest hit, as illustrated in Figure 4. In 2018 the average under-five mortality rate in Africa was 78 deaths per 1,000 live births, 16 times higher than the average rate in high-income countries (5 deaths per 1,000 live births).

Yet, despite South Africa being one of the best performing countries in Africa economically-speaking, our under-five mortality rate lags behind similar middle-income countries such as Brazil (14) and Cuba (5),[19] as well as some lower-income countries.

This is most likely explained by inadequate attention to preventable child health conditions and the failure to adequately address the social determinants of child health, including economic factors such as persistently high levels of poverty and unemployment, and political factors such as lack of accountability for the Constitutional mandate on child health.

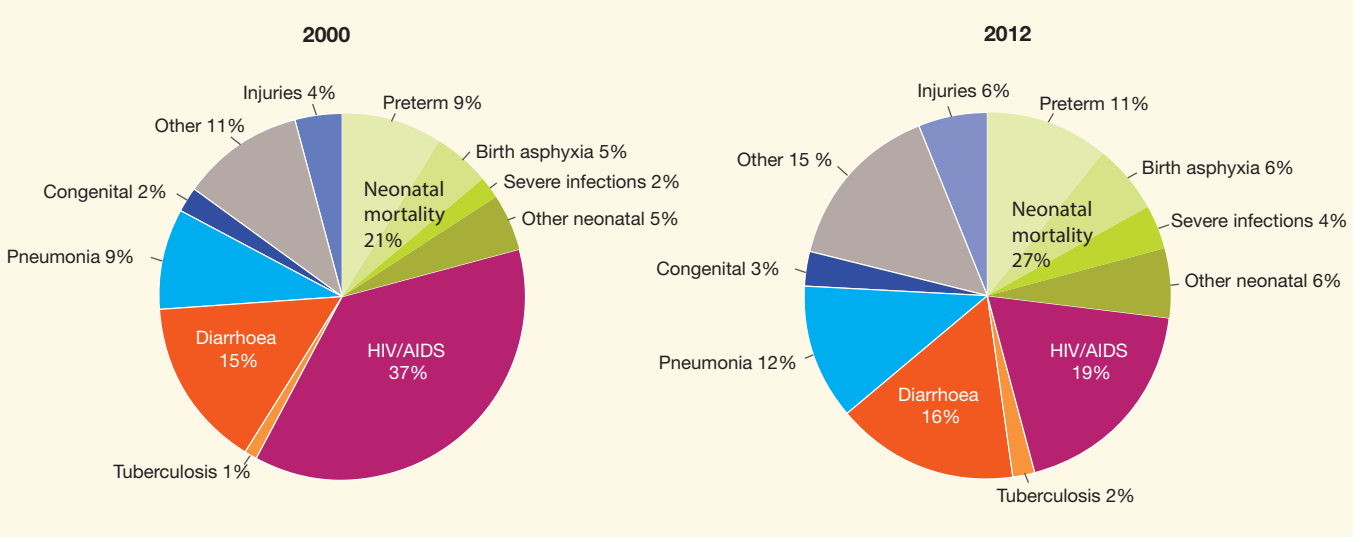
South Africa is further characterised by significant inequities between and within provinces. Figure 5 illustrates marked differences between the more rural provinces of KwaZulu-Natal, Free State, Mpumalanga and Eastern Cape, which had the highest U5MR at the beginning of the period, and the Western Cape, which had the lowest mortality rate. While these inequities have narrowed significantly over the 15-year period, young children in KwaZulu-Natal (with an U5MR of 56/1,000) are nearly three times more likely to die before their fifth birthday than those in the Western Cape (where U5MR is 20/1000). Yet data from the Western Cape suggest that while mortality has declined, inequities in U5MR between rural and urban districts have widened over time.[ix] Greater efforts are therefore needed to improve children's living conditions and access to health-care services, with greater focus on those most in need, in order to close the gap between provinces.

An analysis of the 1998 South Africa Demographic Health Survey highlighted stark racial and income inequities, with African[x] children four times more likely to die before their fifth birthday than White counterparts, and children living in the poorest 20% of households four times more likely to die than their counterparts who live in the richest households.[20]

ix U5MR in the Cape Metro decreased from 575 deaths per 1,000 live births in 2009 to 410/1,000 in 2015, while U5MR in the Central Karoo declined more slowly from 769/1,000 to 644/1,000 over the same period. Data from forthcoming Western Cape Burden of Disease Study and the Health Impact Assessment Directorate, Western Cape Government: Health.

x It is widely understood that race is a social construct, yet the racial classifications introduced under apartheid continue to be used in post-apartheid South Africa, ostensibly to monitor and support the reversal of inherited racial inequalities. The household surveys conducted by Statistics South Africa still include the apartheid-era racial classifications of "African", "Coloured", "Indian/Asian" and "White", and every individual is assigned to one of these groups.

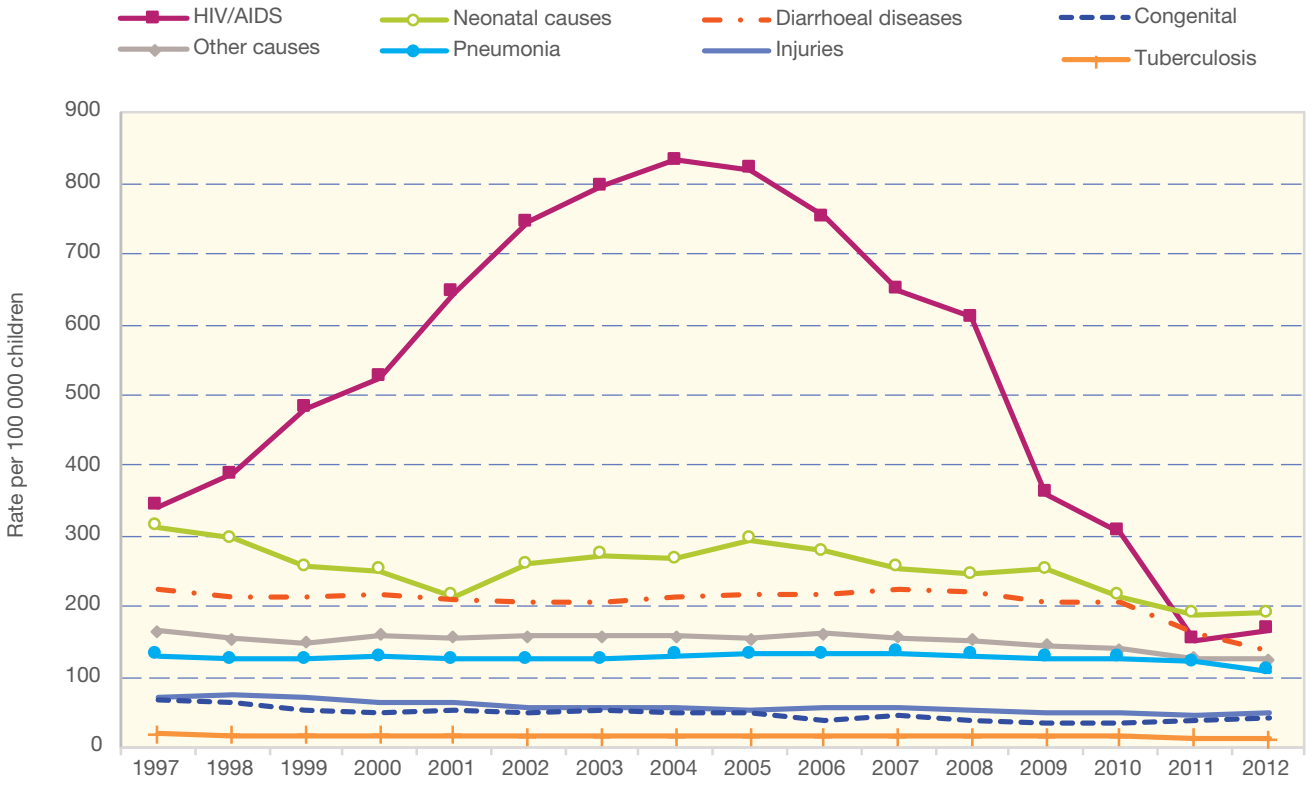
Figure 6: Causes of death in children under-five in South Africa, 2000 & 2012



Source: Nannan N, Groenewald P, Pillay-van Wyk V, Nicol E, Msemburi W, Dorrington RE & Bradshaw D (2019) Child mortality trends and causes of death in South Africa, 1997 – 2012, and the importance of a national burden of disease study. *South African Medical Journal*, 109(7): 480-485.

We are currently waiting for an updated analysis of the 2016 survey to establish whether these inequities have narrowed or deepened over time.Inequities also exist within provinces, although these are often hidden when data are aggregated to a provincial level. In particular, the increasing levels of deprivation in poor urban populations in large cities is of concern and this calls for the routine disaggregation of data to smaller geographic units, to identify pockets of deprivation.

Figure 7: Cause specific deaths rates in young children under-five, 1997 – 2012

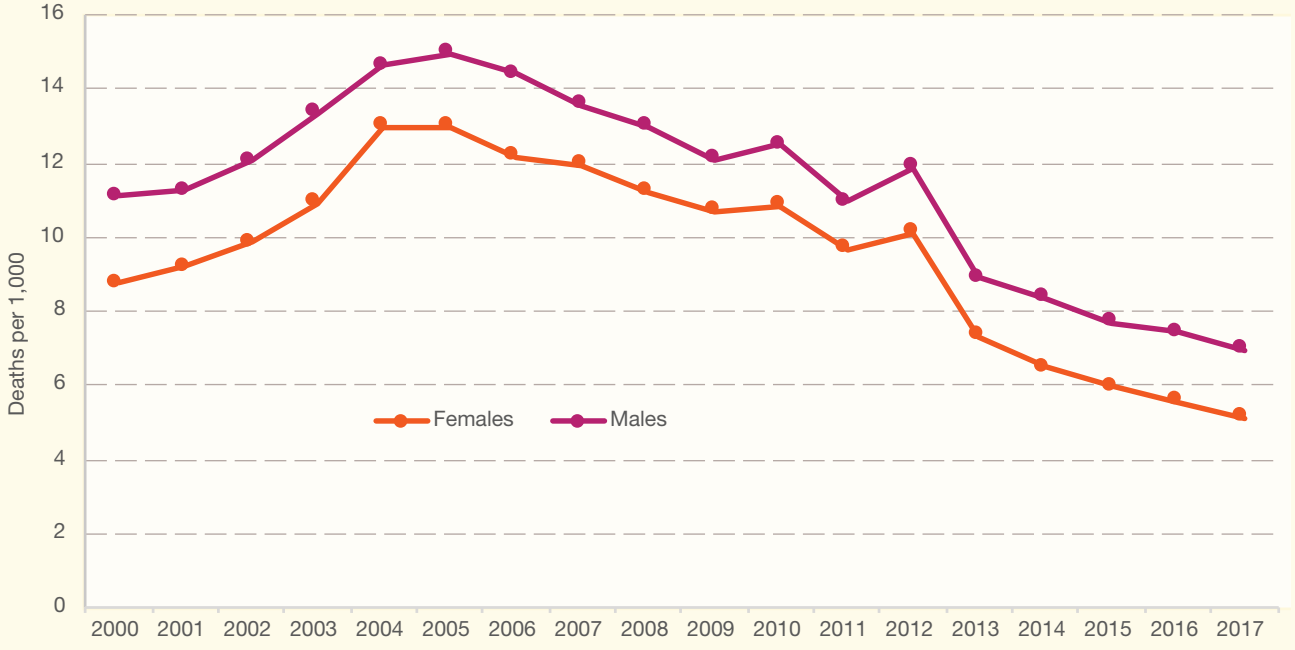


Source: Nannan N, Groenewald P, Pillay-van Wyk V, Nicol E, Msemburi W, Dorrington RE & Bradshaw D (2019) Child mortality trends and causes of death in South Africa, 1997 – 2012, and the importance of a national burden of disease study. *South African Medical Journal*, 109(7): 480-485.

Box 2: Mortality trends and causes of death in older children and adolescents

The Rapid Mortality Surveillance system uses the probability of a five-year-old dying before reaching their 15th birthday as an indicator to track mortality amongst older children in South Africa. Figure 8 illustrates how mortality peaked in 2004 and then declined, with boys more likely to die than girls before their 15th birthday.

Figure 8: Estimate of the probability of a five-year-old dying before age 15, males and females, 2000 – 2016



Source: Dorrington RE, Bradshaw D, Laubscher R & Nannan, N (2019) *Rapid Mortality Surveillance Report 2017*. Cape Town: South African Medical Research Council.

The 2012 Burden of Disease study indicates that HIV/AIDS was the leading cause of death in older children aged 5 – 19, except for adolescent boys aged 15 – 19, where interpersonal violence accounted for one in three deaths, followed by road traffic injuries, HIV/AIDS and self-inflicted injuries (Figure 9). Disaggregating data by age makes it clear that injuries become more prominent as children grow older. The total injury burden for older boys increases dramatically during the teenage years accounting for 60% of deaths amongst boys aged 15 – 19, with a smaller, yet significant, increase in the proportion of injury deaths amongst teenage girls.

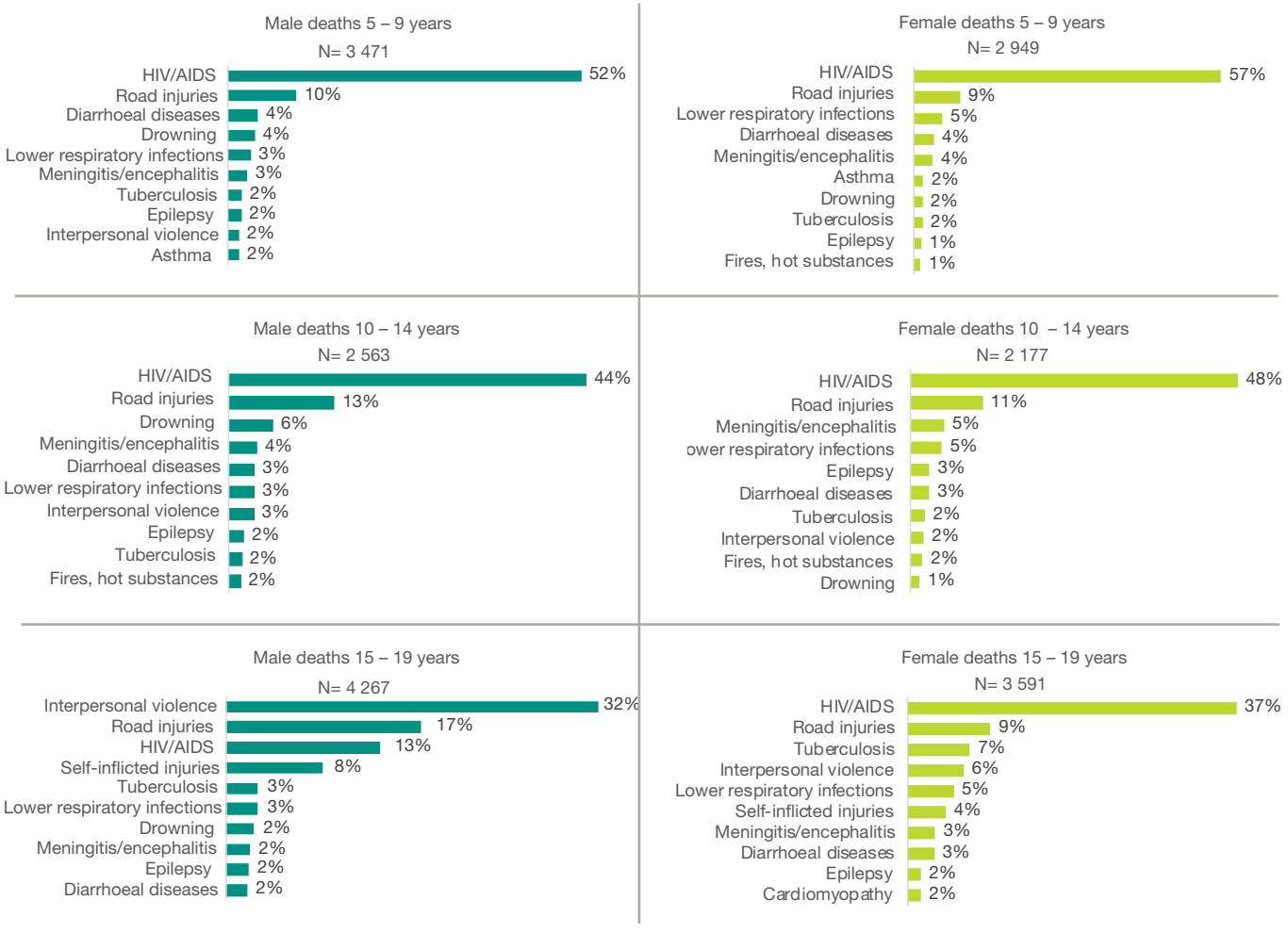
Cause of death profile

Most of these young child deaths are preventable. Figures 6 and 7 illustrate how the increase in under-five mortality in the early 2000s was accompanied by an increase in the proportion of HIV/AIDS deaths, which accounted for nearly half of under-five deaths by 2005. This decreased sharply to 19% of deaths in 2012, following the rollout of the prevention of mother-to-child transmission (PMTCT) programme. It still means that despite the availability of antiretroviral therapy, one in five children who die, do so as a result of HIV and AIDS-related complications.

Figure 8 illustrates how, as the proportion of HIV deaths declined from 2000 to 2012, neonatal causes accounted for a growing proportion of deaths amongst young children. By 2012, neonatal conditions were the leading cause of under-five mortality and the main contributors were prematurity, birth asphyxia and severe infections. Pneumonia and diarrhoea continue to be key drivers of under-five mortality, although these deaths started to decline following the introduction of the rotavirus and pneumococcal vaccines in 2010. Injury deaths accounted for a small, but increasing, share of deaths amongst young children over this 12-year period at 6% of under-five mortality and 10% of deaths amongst young children aged one to four years.

The profound impact of introducing, and adequately implementing, important preventative health service

Figure 9: Leading causes of death in older children and adolescents, 2012



Adapted from: Msemburi W, Pillay-van Wyk V, Dorrington RE, Neethling I, Nannan N, Groenewald P, Laubscher R, Joubert J,Matzopoulos R, Nicol E, Nojilana B, Prinsloo M, Sithole N, Somdyala N & Bradshaw D (2016) *Second National Burden of Disease Study for South Africa: Cause-of-death profile for South Africa, 1997 – 2012.* Cape Town: South Africa Medical Research Council.

interventions to improve child health is illustrated in the cause-specific mortality graph in Figure 9. It shows the significant decline in HIV-related mortality following the widespread implementation of the PMTCT programme. It also shows the small, but significant decline in diarrhoeal deaths between 2010 and 2012, following the introduction of the rotavirus vaccine. Similar efforts are required for other preventable causes of death. However, as illustrated earlier, it requires sustained investment beyond these health service measures to ensure that children thrive and attain optimal development.

While efforts to promote child-survival have traditionally focused on young children, the World Health Organization (WHO) has recently highlighted the importance of monitoring the mortality of older children and adolescents, as their deaths are also largely preventable.[21] Box 2 outlines recent trends and causes of death in older children and adolescents in South Africa.

Most of these deaths are preventable and improvements in the quality of health-care services and children's living circumstances (such as access to a reliable, easily accessible source of water in the case of diarrhoeal disease) need urgent attention.

Whilst mortality rates may be in decline and we are keeping more of our children alive, greater attention needs to be paid to child morbidity – to prevent illness and injury and promote optimal health, growth and development – including key challenges such as malnutrition, HIV, violence and mental health conditions.

Acknowledgement: The National Burden of Disease Study was partly funded by the South African Medical Research Council's Flagships Awards Project (SAMRC-RFA-IFSP_01-2013/SA CRA 2).

Child nutrition

Child nutrition is a major driver of child mortality and morbidity in South Africa. This includes a substantial burden of undernutrition, and a rapidly growing epidemic of obesity, driven by over consumption of sugary drinks and ultra-processed foods, and reduced physical activity.

Undernutrition remains a key driver of under-five mortality with a quarter of hospital deaths associated with severe acute malnutrition and another quarter associated with moderate acute malnutrition.[22] Table 2, illustrates a decline in wasting and underweight, yet stunting rates have remained stubbornly high, affecting more than one in four children (27%) under five.[23] Similarly, persistently high levels of low birth weight (13%)[24] may indicate poor maternal nutrition which contributes to children becoming stunted early in life.

Stunting is an indicator of chronic malnutrition. While poor maternal nutrition is a key contributor, prevalence increases between eight and 23 months as children shift to complementary feeding and become increasingly mobile and exposed to infection.[25] Stunting has been described as a "deadweight on the South African economy"[26] as it compromises children's cognitive development, education and employment prospects, and increases their risk of overweight and obesity. This has been found to be the case especially in urban settings, where there is a shift from traditional to Westernised diets, characterised by a decrease in fibre and an increase in fat and added sugar.[27]

Table 2: Indicators of children's nutritional status, 2005 & 2016

	NFCS-FB 2005 Children 1 – 9 years	SADHS 2016 Children under five years
Wasting[i]	4.5%	2.5%
Under-weight[ii]	9.3%	6%
Stunting[iii]	23.4% (1 – 3 years)	27%
Overweight[iv],[v]	10.6%	13.3%

Sources: NFCS-FB: National Food Consumption Survey-Fortification Baseline 2005; SADHS: South Africa Demographic Health Survey 2016.

i Wasting is determined by measuring the child's weight-for-height and a child is considered to have acute malnutrition when the weight-for-height is below two standard deviations (-2SD) of the median of the reference population.

ii Underweight is determined by measuring the child's weight-for-age and a child is considered to be underweight, indicating acute or chronic malnutrition, when the weight-for-age is below two standard deviations (-2SD) of the median of the reference population.

iii Stunting is determined by measuring height-for-age, and a child whose height-for-age is below two standard deviations (-2 SD) of the median of the reference population is considered stunted. This could indicate chronic malnutrition, but there are other reasons for a child being short for their age.

iv In the NFCS-FB study, children were classified as overweight based on a body mass index (BMI) greater than 25 kg/m^2

v In the SADHS, children under five years were considered overweight if their weight-for-height Z-score was more than two standard deviations (+2 SD) above the median of the reference population.

Breastfeeding offers optimal nutrition and protection from infection. Yet despite improvements, exclusive breastfeeding rates remain low at 32%, and only 23% of children aged six – 23 months receive a minimum acceptable diet.[28]

A high proportion of children consume unhealthy diets containing sugary foods (35%) and drinks (18%), and salty snacks (44%).[29] It is therefore not surprising that childhood overweight and obesity are also increasing, starting early in childhood, increasing with age, and fuelling a growing burden of non-communicable diseases in adulthood. The National Food Consumption Survey of 2005 found that 11% of children were overweight and a further 4% were obese.[30] The 2016 Demographic Health Survey found that 11% of adolescent males and 40% of females (15 – 24 years of age) were overweight or obese.[31] Rising obesity continues into adulthood, with 19 million obese or overweight adults, making South African one of the countries with the highest prevalence of obesity.[32] Whilst the introduction of a sugar tax is a good start, urgent efforts are needed to regulate the availability and marketing of unhealthy food to children and ensure optimal maternal and early childhood nutrition. It requires large-scale efforts and engagement with important sectors such as trade and industry to consider child and future adult health in food production, marketing and trade policies.

Nutrition is a quintessential example of how child health is primarily influenced by social, economic and environmental determinants outside the health sector, and the influence of the health-care sector on child nutrition is small by comparison. Addressing child nutrition is one example where a 'whole of society approach' is needed – without which, current child malnutrition challenges will remain.

HIV

South Africa has the largest HIV epidemic and treatment programme in the world, with an estimated 7.9 million people living with HIV in 2017, of whom 4.4 million are on antiretroviral treatment (see Table 3).[33] Although the total number of new HIV infections has declined by 44% since 2012, young adults (15 – 24 years) continue to be at higher risk,[34] accounting for over a third (38%) of all new infections in 2017. HIV incidence (meaning the rate of new infections each year) is highest among young women (15 – 24) who were three times more likely to become infected than young men, with an estimated 66,000 new infections in young women compared to 22,000 in young men in 2017.[35]

Table 3: Incidence, prevalence, treatment and prevention of HIV

	Baseline	Most recent
People living with HIV	5,2 million¥	7,9 million*
Total number of HIV infections <15	310,000§	260,000§
Number of new infections <15	42,000§	14,000§
HIV incidence		
Children <15	0.33%€	0.09%€
Youth 15 – 24	2.3%£	1.00%*
HIV prevalence		
Children <15	2.5%¥	2.7%*
Youth 15 – 24	8.7%¥	7.9%*
Prevention of mother-to-child transmission		
HIV prevalence in pregnant women (15 – 49)	29.3% Ω	28.4% Ω
HIV prevalence in pregnant women (15 – 24)	21.7 Ω	19.7 Ω
HIV-positive pregnant women on ART	65%§	87%§
Mother-to-child transmission	17.3%€	5%€
HIV-exposed uninfected children < 15	11.8%#	20.5%#
Access to antiretroviral treatment		
Total ART coverage	23%§	62%§
ART coverage <15	32%§	63%§

Sources:
¥ Shisana O, Rehle T, Simbayi LC, Zuma K, Jooste S, Pillay-Van Wyk V, Mbelle N, Van Zyl J, Parker W, Zungu NP, Pezi S & the SABSSM III Implementation Team (2009) *South African National HIV Prevalence, Incidence, Behaviour and Communication Survey 2008: A turning tide among teenagers?* Cape Town: HSRC Press.
* Simbayi LC, Zuma K, Zungu N, Moyo S, Marinda E, Jooste S, Mabaso M, Ramlagan S, North A, van Zyl J, Mohlabane N, Dietrich C, Naidoo I and the SABSSM V Team (2019) *South African National HIV Prevalence, Incidence, Behaviour and Communication Survey, 2017.* Cape Town: HSRC Press
§ UNAIDS. AIDS info. https://aidsinfo.unaids.org/
€ Thembisa Model. Viewed 10 October 2019: https://www.thembisa.org/downloads.
£ Rehle T, Johnson L, Hallett T, Mahy M, Kim A, Odido H, Onoya D, Jooste S, Shisana O, Puren A & Parekh B (2015) A comparison of South African National HIV Incidence Estimates: A critical appraisal of different methods. *PLoS ONE,* 10(7): e0133255.
Slogrove AL, Powis KM, Johnson LF, Stover J & Mahy M (in press). Estimates of the global population of children HIV-exposed and uninfected, 2000-2018: A modelling study. *Lancet Global Health.*
Ω Woldesenbet SA, Kufa T, Lombard C, Manda S, Ayalew K, Cheyip M & Puren A (2019) *The 2017 National Antenatal Sentinel HIV Survey, South Africa.* Pretoria: DoH.

HIV prevalence (meaning existing infections in the population) is also higher amongst adolescent girls and young women (15.6%), who account for three-quarters of 20 – 24-year-olds living with HIV – with only 4.8% of young men HIV positive in 2017.[36] HIV prevalence increases with age: 28% of pregnant women (15 – 49) are HIV positive, with little or no change since 2005.[37]

The national drive to eliminate mother-to-child transmission of HIV continues to yield results. The number of new HIV infections in children (under 15 years) in South Africa has declined from 42,000 in 2008 to 14,000 in 2018, driven primarily by the successful rollout of the prevention of mother-to-child treatment programme.[38] An estimated 87% of pregnant women now receive antiretroviral treatment (ART) up from 65% in 2010,[39] and vertical HIV transmission at 10 weeks dropped to 0.9% in 2017/18.[40] This is a key driver of the decline in under-five mortality.

Despite an increase in access to ART across all age groups since 2010, coverage remains below national targets. Greater efforts are needed to strengthen the 90-90-90 cascade[xi] and ensure that people living with HIV are tested, on treatment and virally suppressed. Men are less likely to be tested or on treatment than women, and young people are lagging behind. Only 32% of HIV-positive young women (15 – 24),[41] and only 38% of HIV-infected children (<15 years),[42] were virally suppressed in 2017.

While vertical transmission at 10 weeks is now less than 1% and a large proportion of infants are uninfected, these infants are still exposed to HIV and antiretroviral drugs.[43] They are more likely to be born prematurely or with low birth weight, and experience severe infections compared to infants not exposed to HIV.[44] This raises concerns about the long-term health and development of 3.4 million children exposed to HIV,[45] and requires urgent investment in prevention programmes to address the drivers of HIV infection among young women and adolescent girls.

Violence

Violence against children and adolescents is pervasive in South Africa – with 1,019 murders and 24,387 sexual offences against children reported in 2017/18.[46] The Birth to Twenty Plus cohort study found that 99% of children in Soweto-Johannesburg had either experienced or witnessed some form of violence, with more than 40% of children reporting multiple exposures to violence in their homes, schools and communities.[47]

xi An ambitious target to end the HIV epidemic: By 2020, 90% of all people living with HIV will know their HIV status; 90% of all people diagnosed with HIV will receive antiretroviral therapy (ART); and 90% of all people receiving ART will be virally suppressed.

Chapter 6 highlights how much of the violence has its roots in early childhood, where poverty, family conflict and substance abuse undermine families' capacity to care for young children, and spill over into domestic violence or harsh physical punishment. These early experiences have long-lasting adverse effects on children's mental health - increasing the risk of depression, anxiety, post-traumatic stress disorder, and aggressive and antisocial behaviour. Girls are at increased risk of sexual assault and intimate partner violence, and boys are more likely to become perpetrators of violence in their communities and intimate relationships,[48] with both men and women more likely to use harsh punishment with their own children. These patterns are perpetuated by a society that condones the use of violence to assert masculinity and 'discipline' women and children.[49]

Mental health

Prevalence data is limited in South Africa, yet the mental health of children and adolescents is a growing concern, as 50% of mental health problems are established by the age of 14 years and 75% by the age of 24 years.[50] Globally, it is estimated that 10 – 20% of adolescents experience mental health conditions such as depression, anxiety and alcohol use disorders, [51] while suicide is the third leading cause of death in older adolescents (15 – 19 years old). Given the high levels of poverty and violence in South Africa, it is therefore not surprising that nearly one in three mothers experience postnatal depression,[52] and one in three South Africans suffer from a mental disorder in their lifetime.[53] Yet chapter 7 indicates a significant gap between the burden of disease and the provision of child and adolescent mental health services.

Are children able to access quality health care?

The state has put in place a range of laws, policies and programmes to give effect to children's right to health care services, yet the high burden of child morbidity and mortality suggests that more work is needed to translate policy into practice, and ensure children are able to access quality health care close to home.

Coverage of essential health interventions across the continuum of care

Figure 10 draws on an initial analysis in the 2008 Every Death Counts report[54] and indicators from Countdown to 2030,[55] in order to track the coverage of essential interventions to improve women's, children's and adolescent's health over a 10 – 15-year period. Many of these interventions have a strong focus on child survival – and a broader set of indicators will be needed to help track and drive progress towards a thrive agenda. For example, we do not have national data on the nature and extent of child and adolescent mental health conditions. Similarly, we need to develop indicators to track the impact of critical interventions such as developmental screening, growth monitoring, early stimulation and responsive caregiving, in order to make visible these currently hidden dimensions of child health. For example, efforts are currently underway to introduce an Early Learning Outcomes Measure[xii] to assess whether young children are developmentally "on track" for age across of number of domains, and a preliminary study found that only 29% of children were developmentally on track.[56]

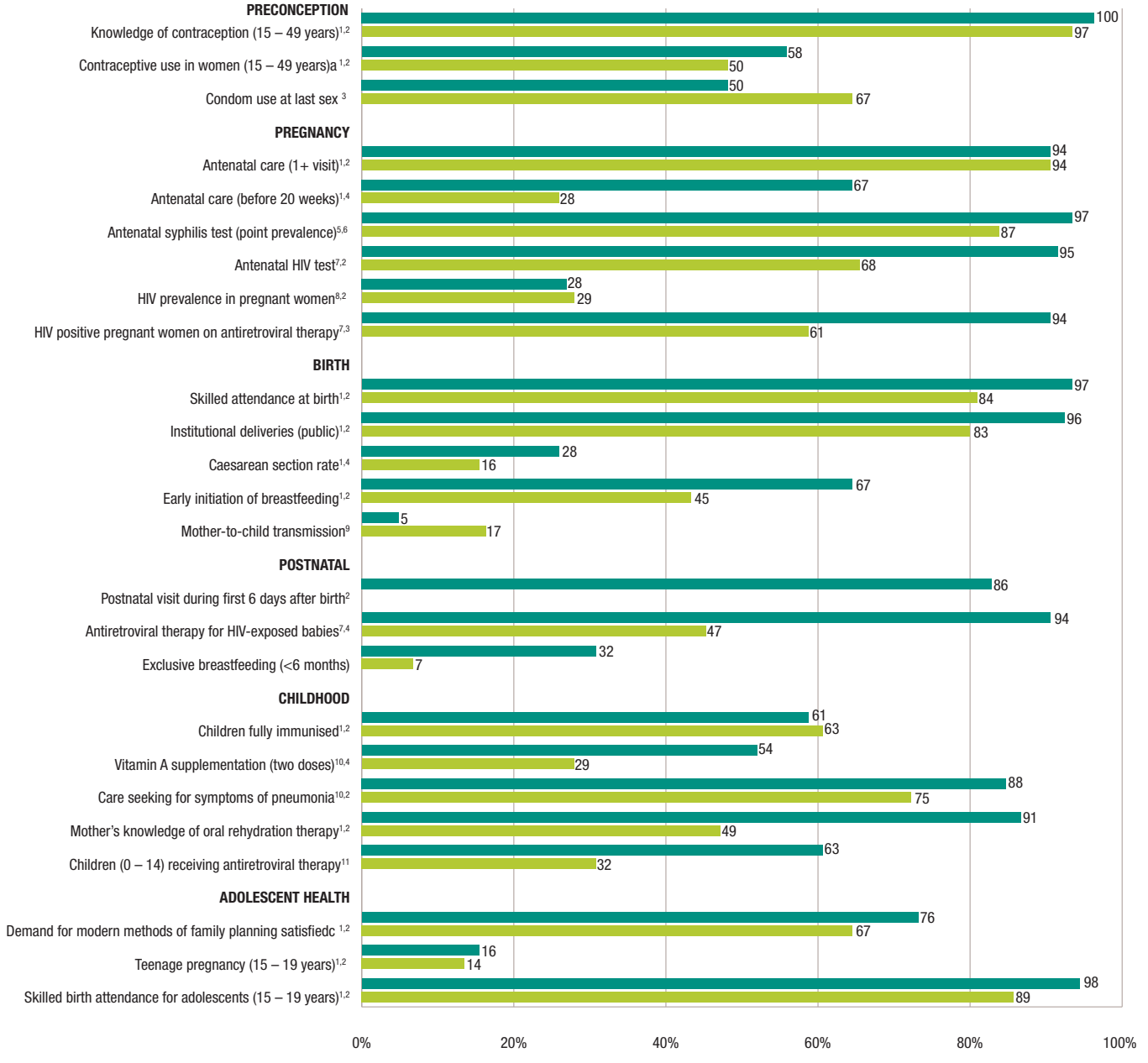
Figure 10 illustrates how South Africa has made significant improvements in the coverage of key interventions across a continuum of care – from pre-conception through to adolescence. This includes significant gains in access to antiretroviral treatment and a corresponding decline in mother-to-child transmission of HIV, as well as improvements in early antenatal care, skilled birth attendance, early initiation of breastfeeding and vitamin A coverage.

Yet despite important progress, coverage of certain key preventative services remains low and varies significantly between provinces and districts. This suggests that child health has not yet been given sufficient priority in the planning and delivery of health services at national, provincial and district level. For example, immunisation is one of the most effective interventions to protect children against potentially life-threatening illnesses such as tuberculosis, polio, hepatitis and measles. The regular schedule of immunisations also provides a hook for other interventions such as growth monitoring, vitamin A supplements, developmental screening, and prophylaxis for babies born to HIV-positive mothers. Immunisation coverage is a therefore a useful proxy for young children's access primary health-care services.

Yet only 61% of infants were reported fully immunised in 2016.[57] District Health Information System data reports higher levels of coverage at 77% in 2018,[58] yet this is still far below the national target of 87% and not sufficient to ensure herd immunity. Significant variation between provinces – from 90% in Mpumalanga to 69% in the Eastern Cape – points to persistent inequities in access and coverage, while Figure 11 points to even more fine-grained inequalities at sub-district level.[59]

xii ELOM includes measures of young children's gross motor development, fine motor control and visual motor integration, emergent numeracy and mathematics, literacy and language, and cognitive and executive function.

Figure 10: Tracking improvements in coverage of essential health interventions across the continuum of care



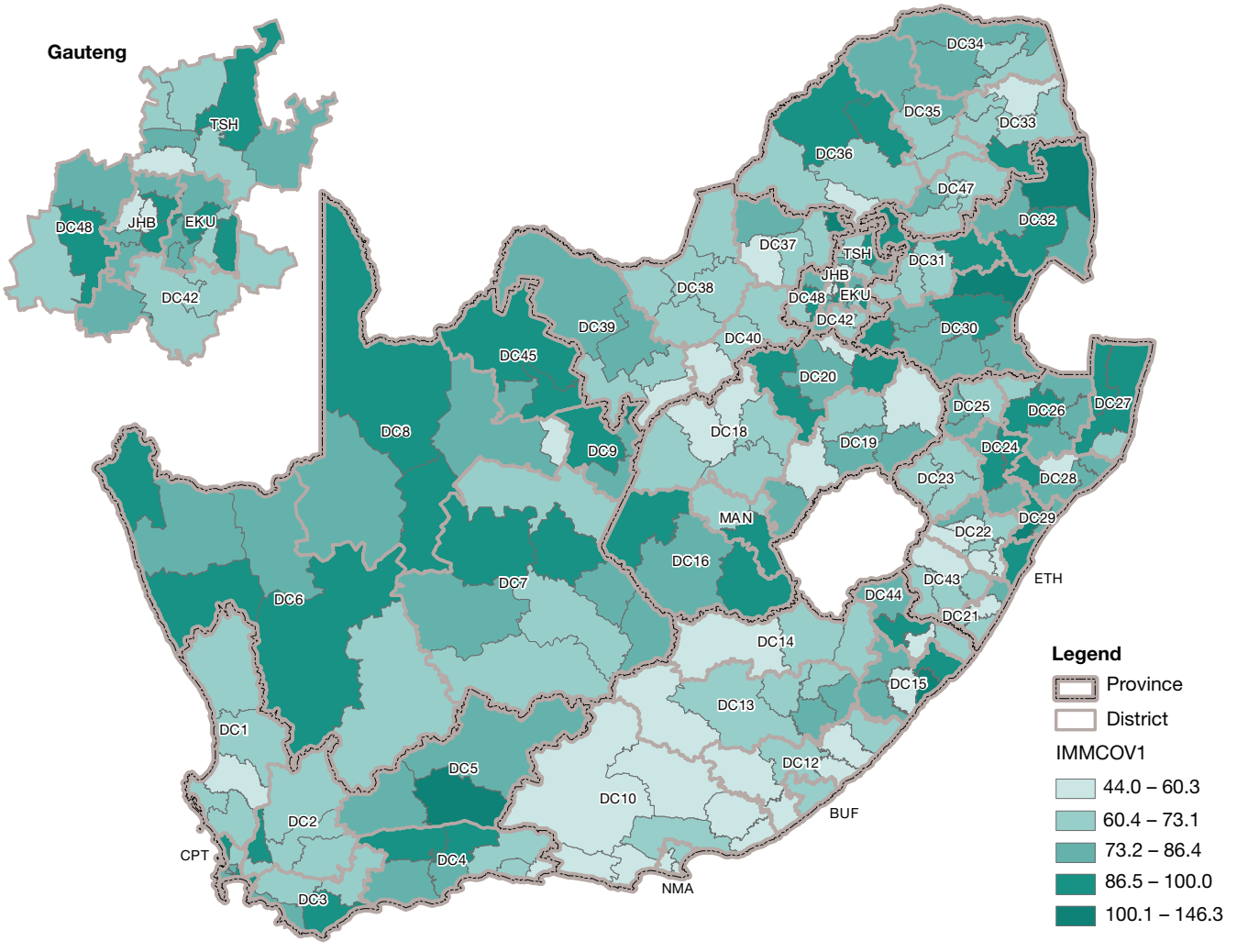
Sources:

1 Department of Health, Medical Research Council & Measure DHS (2002) *South Africa Demographic & Health Survey 1998*. Calverton, MD: Measure DHS.
2 Department of Health, Statistics South Africa, South African Medical Research Council and ICF (2017) *South Africa Demographic and Health Survey 2016: Key Indicators*. Pretoria and Rockville, Maryland: DOH, Stats SA, SAMRC & ICF.
3 Shisana O, Rehle T, Simbayi LC, Zuma K, Jooste S, Pillay-Van Wyk V, Mbelle N, Van Zyl J, Parker W, Zungu NP, Pezi S & the SABSSM III Implementation Team (2009) *South African National HIV Prevalence, Incidence, Behaviour and Communication Survey 2008: A turning tide among teenagers?* Cape Town: HSRC Press.
4 Simbayi LC, Zuma K, Zungu N, Moyo S, Marinda E, Jooste S, Mabaso M, Ramlagan S, North A, van Zyl J, Mohlabane N, Dietrich C, Naidoo I and the SABSSM V Team (2019) *South African National HIV Prevalence, Incidence, Behaviour and Communication Survey, 2017*. Cape Town: HSRC Press
5 Massyn N, Pillay Y & Padarath A (2019) *District Health Barometer 2017/18*. Durban: Health Systems Trust.
6 Pattinson RC, Etsane E, Snyman JS, Bezuidenhout C, Sutton V, Ferreria V, Bergh AP, Makin JD (2007) *Report to UNICEF on the scaling-up of the basic antenatal care quality improvement programme in two sub-districts per province in South-Africa (draft)*. Pretoria: Medical Research Council & University of Pretoria.
7 Department of Health (2017) *The 2015 National Antenatal Sentinel HIV & Syphilis Prevalence Survey*. Pretoria: DoH.
8 Barron P, Day C & Monticelli F (2007) *The District Health Barometer 2005/06*. Durban: Health Systems Trust.
9 Department of Health (2009) *The 2008 National Antenatal Sentinel HIV & Syphilis Prevalence Survey*. Pretoria: DoH.
10 Thembisa Model estimates 2008 & 2016. Viewed 10 October 2019: https://www.thembisa.org/downloads.
11 UNICEF (2008) *State of the World's Children*. New York: UNICEF.
12 UNAIDS (2019) UNAIDS estimates 2008 & 2016. AIDS info. Viewed 10 October 2019: https://aidsinfo.unaids.org/.

Notes:

a. Contraceptive use in married and sexually active unmarried women (15 – 49 years)
b. Condom use at last sex in women (15 – 24 years with two or more partners in the last year)
c. Demand for modern methods of family planning satisfied (sexually active women 19 – 24 years)

Figure 11: Immunisation coverage under one year, by local municipality, sub-district, 2017/18



Source: Massyn N, Pillay Y & Padarath A (eds) (2019) *District Health Barometer 2017/18*. Durban: Health Systems Trust.

While 94% of pregnant women attended one antenatal visit in 2016,[60] only 67% received antenatal care in the first 20 weeks.[61] Further efforts are needed to improve early access to antenatal care, as this enables health professionals to identify and respond proactively to risks such as hypertension, diabetes and HIV. Delivery at a health facility, in hygienic conditions with a skilled birth attendant, reduces the risk of complications and infection during labour and delivery, while timely postnatal care is essential to identify and respond to complications as most neonatal deaths occur within the first week of life. While 96% of women gave birth in a health care facility in 2016, only 70% received postnatal care within two days of birth; and we are failing to capitalise on gains such as early initiation of breastfeeding, with only 32% of babies exclusively breastfed in the first six months.[62]

Boxes 3 and 4 illustrate similar patterns in adolescent health and neonatal care. Greater efforts are therefore needed to tackle some of the broader systemic problems that undermine access to and quality of care, in order close these gaps and optimise child and adolescent health.

Access

Since 1994, South Africa has invested in strengthening and expanding primary health care services, and 90% of South Africans now live within five kilometres of a health facility.[63] Yet despite these gains, 20% of children still travel more than 30 minutes to reach a health care facility,[64] and transport costs and road safety concerns continue to cause life-threatening delays in accessing treatment.[65] Similarly, the National Health Act[66] introduced free health-care services for pregnant and breastfeeding women and children under-six.[xiii] This was later

xiii Except those who are members or beneficiaries of medical aid schemes

Box 3: Closing the gaps in neonatal care

Natasha R Rhoda[i] and Shuaib Kauchali[ii]

South Africa made good strides in reducing neonatal mortality in the 1990s, yet progress has been slow since the early 2000s as illustrated in Figure 3.[67] There has been little change since 2000 with an estimated neonatal mortality rate (NMR) of 12 in 2017.[68] Despite these challenges, improvements in facility-based newborn care have increased the survival of babies with a birth weight of more than 1kg and reduced mortality during the first week of life (early neonatal mortality). Moving forward it is important to build on this foundation and intensify efforts to improve antenatal, obstetric and neonatal care.

The neonatal burden of disease in South Africa follows the global pattern of neonatal deaths, with preterm birth complications (49.2%) as the leading cause of death, followed by birth complications (28%), congenital abnormalities (9%) and infections (8.1%).[69] Amongst the premature deaths, the very low birth weight (<1.5kg) babies have the highest NMR at 299 per 1,000 live births[70] and 85% of them die within the first week of life.

Improving neonatal survival requires a continuum of care. This starts with early antenatal booking (up to eight dedicated visits), treatment to prevent mother-to-child transmission of HIV, and the provision of antenatal steroids for imminent preterm labour. During the postnatal phase, the highest risk of dying is in the first 24 hours of life, so the presence of skilled birth attendants and staff trained in the basics of resuscitation is essential. Basic, inexpensive care, which is in the reach of every facility, is the mainstay of treatment. Prevention of hypothermia (including skin to skin care) and early initiation of breastfeeding, within the first hour, are proven to reduce neonatal mortalities dramatically.

The past decade has seen the introduction of several initiatives that have the potential to improve neonatal health including the Limpopo Maternal Care programme featured on page 195. The Director for Maternal and Neonatal Health in the National Department of Health, has the potential to strengthen leadership, investment and accountability for neonatal care across all levels of the health care system A national neonatal implementation plan has been developed and provincial plans have been aligned and signed off in all nine provinces. A standardised neonatal admission register has been developed will generate national indicators (e.g. KMC and antenatal steroid coverage) that are needed to monitor the quality of care provided to mothers and neonates, track trends in morbidity and mortality, and tailor plans to address problems in maternal and neonatal care at national, provincial, district and sub-district level. This must still be rolled out across the country.

Training in the essential steps in the management of obstetric emergencies (ESMOE) has been funded for national roll out and has improved the maternal care significantly. Two further interventions are particularly promising in helping to reduce NMR: the management of small and sick neonates (MSSN) and helping babies breathe (HBB). Yet provincial roll out has covered less than 50% of facilities at district level.

The District Clinical Specialist Teams (DCSTs) in collaboration with the district health management teams have the potential to play a role in delivering training and improving clinical governance at district level, and those districts with a full DCST staff complement have shown improvements in neonatal care.[71] Yet uptake of DCST posts by paediatricians has been very limited. Clinical governance structures are lacking in some districts and in the absence of monitoring and evaluation, early neonatal mortality rates are rising in certain provinces.

Moving forward, it is vital to ensure that each district puts mechanisms in place to ensure accountability and successful implementation of newborn care. A comprehensive bundle of care for preterm babies must form part of an essential package of care for children, with emphasis on preventing preterm labour and limiting complications after preterm birth. This should also include a training package for mothers to help them recognise the early warning signs for sick neonates so that they know when to seek care. Community health workers are well placed and have the potential to provide a full package of services and support for mothers and their newborn babies following their discharge from hospital. This should extend beyond health promotion to include curative services such as antibiotics for newborns with respiratory distress, as pneumonia is one of the leading causes of death post-discharge.

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Box 4: Adolescent health – a second chance in the second decade

Adolescence is a period of both opportunity and risk that sets the foundation for adult health, and the health of the next generation of children. Health interventions during adolescence therefore offer both immediate and long-term rewards.[72] Global initiatives such as the SDGs, the Global Strategy for Women's, Children's and Adolescents' Health, the Lancet Commission on Adolescent Health and Wellbeing, and the Countdown to 2030 have therefore called for greater investment in adolescent health.

Habits established in adolescence are key predictors for adult behaviour. Rapid physical and psychosocial changes, accompanied by peer pressure, may encourage young people to either make healthy choices or put their health at risk as they explore, experiment, and search for identity and belonging. For example, tobacco use is a leading driver of non-communicable diseases such as cancer, heart disease and chronic respiratory diseases, whilst alcohol use is associated with road traffic injuries, violence and condomless sex.

Table 4 illustrates how adolescent boys smoke and drink more than adolescent girls. Tobacco use increased amongst adolescent boys between 2003 and 2016, yet smoking and binge drinking decreased amongst adolescent girls over the same period. The dramatic increase in obesity is also of concern – affecting nearly one in every six adolescent girls.

Early childbearing compromises the teenage mother's access to education, employment, health care and social assistance, and has a detrimental impact on her child's health, nutritional and educational outcomes. Preventing teenage pregnancy and providing additional support to pregnant teens and teenage mothers is therefore critical to optimise mother-infant outcomes.

Table 4: Obesity, tobacco use and binge drinking, youth 15 – 24, 2003 & 2016

	2003		2016	
15 – 19 years	Women	Men	Women	Men
Tobacco use (daily/ occasional)	7	23	5	29
Binge drinking in the past 30 days	8	23	5	21
Obesity	11	1.8	15.5	2.3

Source: Department of Health, Medical Research Council & OrcMacro (2007) *South Africa Demographic and Health Survey 2003*. Pretoria: Department of Health; Department of Health, Statistics South Africa, South African Medical Research Council and ICF (2017) *South Africa Demographic and Health Survey 2016: Key Indicators*. Pretoria and Rockville, Maryland: DOH, Stats SA, SAMRC & ICF.

Table 5: Condom use and early sexual debut, youth 15 – 24, 2008 & 2017

	2008		2017	
15 – 24 years	Women	Men	Women	Men
Condom use at last sex	66.5%	85.2%	49.8%	67.7%
Early sexual debut (by age 15)	5.9%	11.3%	7.6%	19.5%

Source: Shisana O, Rehle T, Simbayi LC, Zuma K, Jooste S, Pillay-Van Wyk V, Mbelle N, Van Zyl J, Parker W, Zungu NP, Pezi S & the SABSSM III Implementation Team (2009) *South African National HIV Prevalence, Incidence, Behaviour and Communication Survey 2008: A turning tide among teenagers?* Cape Town: HSRC Press;
Simbayi LC, Zuma K, Zungu N, Moyo S, Marinda E, Jooste S, Mabaso M, Ramlagan S, North A, van Zyl J, Mohlabane N, Dietrich C, Naidoo I and the SABSSM V Team (2019) *South African National HIV Prevalence, Incidence, Behaviour and Communication Survey, 2017*. Cape Town: HSRC Press.

Table 5 illustrates how the proportion of adolescent boys and young men engaging in sex at an early age increased from 2008 to 2017, while condom use amongst young men and women (15 – 24) decreased over the same period. Despite these concerns, HIV prevalence amongst pregnant women (15 – 24) declined between 2008 and 2016 (see Table 3) and teen child bearing rates have remained steady at 7% in 2009 and 2018. Yet HIV prevalence and teen pregnancy rates remain high and most of these pregnancies are unintended.

These health risks in adolescence are not simply driven by individual behaviour but are shaped by significant social and structural determinants such as poor-quality education, youth unemployment, violence and poverty that constrain adolescents' choices and limit their potential.

Chapter 4 outlines a diverse range of policies and programmes designed to promote adolescent health in South Africa. Adolescent and Youth Friendly Services (AYFS) have recently been incorporated into the Ideal Clinic Initiative in an effort to enhance the quality of adolescent health services.[73] The Integrated School Health Programme (ISHP) aims to provide a comprehensive package of health services to school children including

access to sexual and reproductive health services such as contraception.[74] And campaigns such as She Conquers aim to tackle the social and structural determinants of HIV among young women and girls.[75]

Yet, despite investments in AYFS,[76] adolescents continue to report dissatisfaction with the quality of care they receive. They voice concerns about respect and confidentiality,[77] and call for better relationships with health workers, more flexible clinic opening hours, and access to a wider range of services.[78] It is therefore not surprising that adolescent women aged 15 – 19 years are less likely to have access to contraception, more likely to have an unintended pregnancy, and less likely to access HIV testing and treatment than adult women.[79] It is therefore a priority to establish what works best to increase adolescents' access and adherence to treatment.[80]

extended to include free primary level care for everyone, while the National Patient Fee Schedule enables social grant beneficiaries to receive free health care at public hospitals. In each case, these provisions are intended to address some of the financial barriers that undermine access to care. Yet those living in the poorest 20% of households are most likely to experience catastrophic health-care expenditure linked to the costs of hospitalisation or medical supplies.[81]

Inequity

Stark inequities persist between rural and urban areas as well as the private and public health-care sectors: 52% of health-care spending is focused on the richest 16% of the population who can afford private health care,[82] while the majority of South Africans are dependent on the public health system in which resources are thinly stretched. Only 32% of medical practitioners work in the public sector, and specialists remain concentrated in the wealthier and more urban provinces of the Western Cape and Gauteng.[83] Rural provinces continue to experience significant shortages of doctors and nurses.[84] These challenges and inequities are likely to intensify following proposed cuts to social spending.[85]

Ninety-six percent of children in the poorest households are dependent on the public health system, while 82% of those in the richest households access private health care as illustrated in Figure 12.

Quality

While access has improved, quality of care remains a concern. Audits of child deaths in hospital have identified a number of modifiable factors at hospital, clinic and community levels.[86] This includes caregivers' failure to recognise the danger signs and delays in seeking care, health workers' failure to identify or respond to growth problems or HIV, and a lack of high care facilities for children.[87] Adolescents in turn express concerns about opening hours, long waiting times, stockouts of medicines, confidentiality and quality of care.[88]

This suggests that efforts to close the quality gap need to extend to patients' experiences and the ways in which health-care services uphold children and adolescent's right to dignity, care and respect. For example, the Institute for Healthcare Improvement's efforts to drive quality improvement outline a vision of a health-care system in which there are "no needless deaths, no needless pain and suffering, no needless waiting, and no needless helplessness".[89]

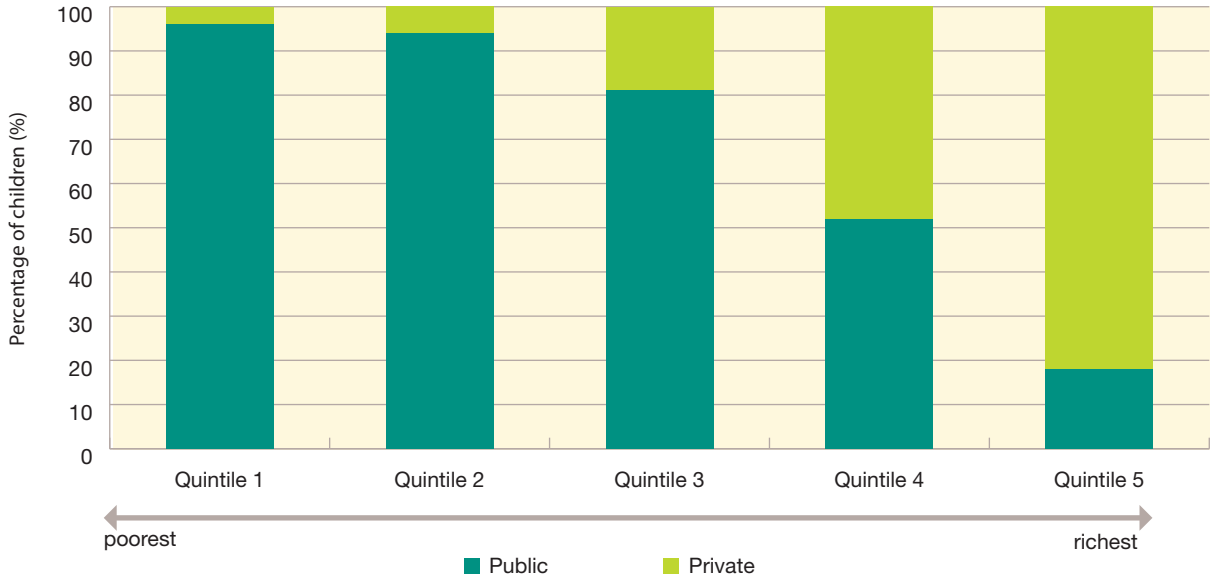
Yet a 2011 audit of health-care establishments noted poor compliance with ministerial priority areas such as waiting times (68%), cleanliness (50%), patient safety (34%) and positive and caring attitudes (30%).[90] The 2015/16 audit raised similar concerns around quality of care and also pointed to systemic challenges such as budgetary constraints, vacant posts, shortages of medical supplies and equipment, poor leadership and governance.[91]

National Health Insurance

The introduction of a National Health Insurance (NHI) system, in an effort to achieve universal health coverage, has the potential to address some of these challenges by introducing a more equitable distribution of resources between public and private sectors, and financial risk protection for the poor. In addition, the re-engineering of primary health care has a strong focus on maternal and child health and is intended to strengthen service delivery at district level in preparation for NHI. This includes the introduction of district-based clinical specialist teams (DCSTs) to provide leadership for child health at district level together with school health and ward-based outreach teams to extend the reach of health-care services to children's homes and schools.

Yet Chapter 11 describes how the current distribution and number of community health workers (CHWs) – with a proposed ratio of one ward-based outreach team to 3,856 households – may compromise the quality of this care. Increased investment is therefore needed in the numbers, training, supervision and conditions of service of CHWs.

Figure 12: Type of facility used when children are ill, by household income quintile, 2018



Source: Statistics South Africa (2019) *General Household Survey*. Pretoria: Stats SA. Analysis by Debbie Budlender.

The DCSTs have the potential to strengthen leadership for child health at district level and are intended to improve clinical governance, enhance quality of care, and drive intersectoral collaboration in response to the local burden of disease. While there are examples of promising practice, most teams are incomplete. For example, the quality of neonatal care in districts where the DCST has both a paediatrician and paediatric nurse has improved by up to 30%,[92] yet most DCSTs are missing paediatricians and family physicians.[93]

The emphasis on school health services since 2012 is another welcome move, with the Integrated School Health Policy (ISHP) outlining a package of services to identify and address health problems and barriers to learning, promote healthy behaviours, and provide reproductive health services to high-school learners. However, implementation remains a challenge, with national coverage (for a limited range of services) reaching only one third of Grade 1s and 22% of Grade 8s in 2017/18.[94] A shortage of school nurses, social workers and allied health professionals' compromises screening and referrals and limits the range of services delivered on the ground. As yet, no packages of care or robust onward referral pathways exist – and as such, the huge potential of the ISHP remains untapped.

Governance and leadership

Current provincial inequities, and gaps in coverage and quality of child health services, raise questions about capacity and leadership for child health at national, provincial and district levels. Good governance is the foundation of a resilient and responsive health system,[95] and enables the whole system to function effectively. It works together with other facets of a health system in achieving health goals. Chapter 10 expands on what a child-centred health system encompasses and how the different elements of the system must work together.

In the current health system and country climate, poor leadership, governance and management of the health system result in failures to implement policies and allocate resources appropriately. Austerity cuts, frozen posts and staff shortages place undue strain on health professionals and undermine the quality of care and safety of children and adolescents.[96] At a service delivery level, for example, stockouts of essential medicines such as vaccines (11%), ARV and TB treatment (36%)[97] compromise access to treatment.

Effective, child- and adolescent-friendly health services are therefore unlikely to be achieved without strong leadership for child health and cross-cutting initiatives to strengthen the health care system. While health sector reform is indeed necessary, it is not sufficient to address the burden of childhood morbidity and mortality. Proactive engagement with other sectors is also needed to address the social and environmental determinants of child and adolescent health.

Table 6: Social and environmental determinants of child health, 2008 & 2018

Poverty and unemployment	2008	2018
Children living in unemployed households	35%	30%
Children living below the upper bound poverty line	71%	59%
Care arrangements		
Children without a co-resident mother	25%	23%
Orphans (maternal, paternal and double orphans)	17%	5%
Child-only households	0.6%	0.3%
Education		
Children attending an ECD programme (5 – 6 years old)	75%	92%
Children attending school (7 – 17 years old)	96%	98%
Grade 9 completion rate	62%	70%
Children not in employment, education or training	35%	34%
Environment		
Children with access to adequate water	62%	70%
Children with access to adequate sanitation	62%	79%
Children with access to electricity	80%	91%
Children living in informal housing	10%	9%
Children living in overcrowded households	26%	18%
Health		
Children living close to clinic	59%	80%

Source: Statistics South Africa (2009, 2019) *General Household Survey 2008. General Household Survey 2018*. Pretoria: Stats SA.
Note: For detailed definitions and more information on each indicator, see Part 3: Children Count in this issue of the *South African Child Gauge*.

Is South Africa making progress in addressing the social and environmental determinants of child and adolescent health?

The impact of children's living conditions, care arrangements and access to services on child health is well-established and can have either a protective or harmful effect. In particular, the links between poverty, inequality and ill health are well-established and for children are particularly important, as most life-threatening childhood illnesses are preventable through improvements in their living conditions.

For example, a global analysis of the success factors underpinning improvements in maternal and child health across 144 low- and middle-income countries indicated that health-sector investments accounted for only half of the reduction in under-five mortality between 1990 and 2010.[98] The remaining gains were driven by health-enhancing investments in other sectors, such as improved education, access to clean water, and reductions in poverty and income inequality.

Table 6 outlines South Africa's progress in addressing the social and environmental determinants of child and adolescent health, tracking shifts in children's living conditions, care arrangements and access to services.

Child poverty

Child poverty has decreased over the last 10 years, driven by the expansion of the Child Support Grant (CSG), which now reaches over 12 million children. Yet nearly 60% of children still live below the upper-bound poverty line (in households with a per capita income of less than R1,183 per month), and children are more likely than adults to be concentrated in poor households.[99]

The CSG is associated with improved health, nutrition and education outcomes, and is protective against adolescent risk behaviour,[100] yet 17.5% of eligible children do not receive the grant. Uptake is lowest in the first year of life,[101] and the low value of the grant (R430 per month in October 2019) is not sufficient to meet the nutritional needs of a child.

Poverty intrudes into every area of children's lives and is associated with multiple forms of deprivation, as illustrated in Figure 14.

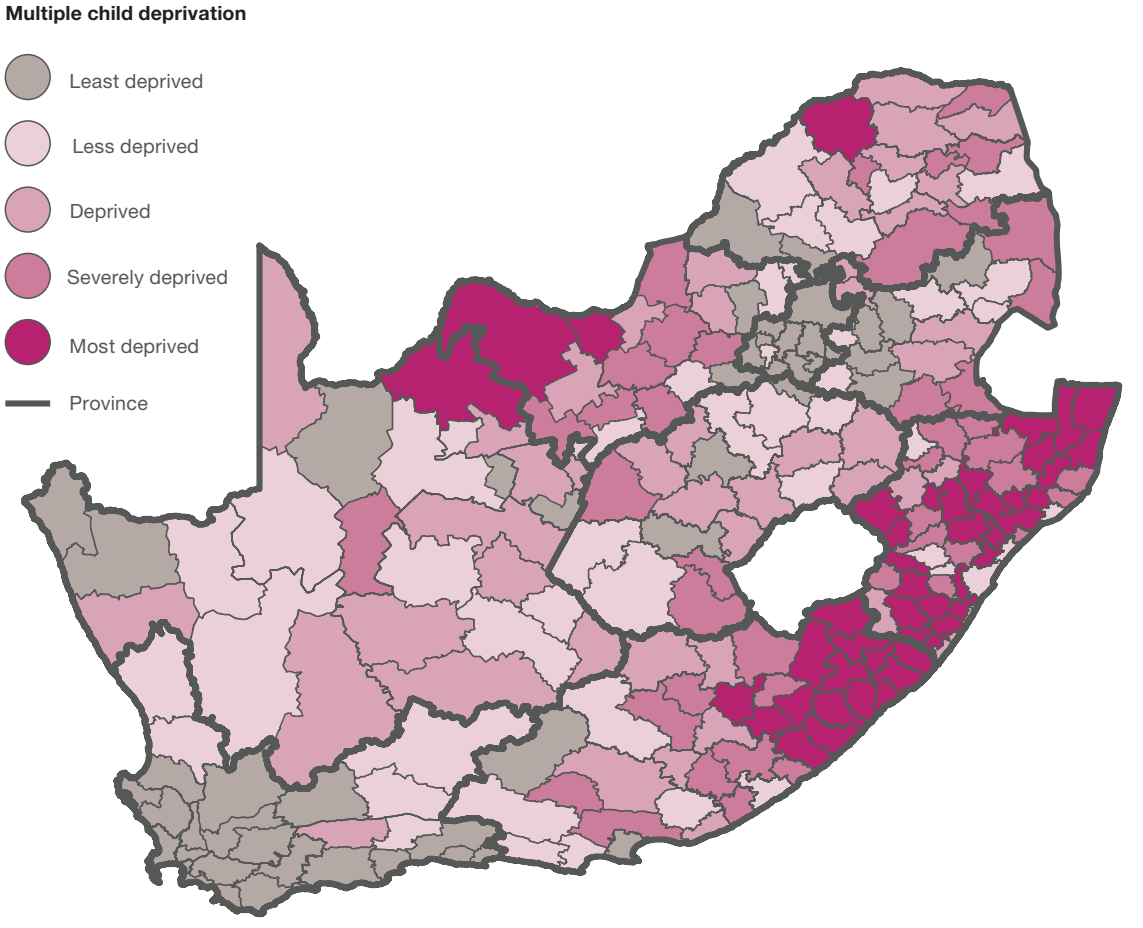
Growing up in a poor household is likely to compromise children's health, nutritional status, care arrangements and access to services. It undermines their cognitive development, academic performance and employment prospects and compromises the health and development of the next generation of children. This intergenerational cycle of poverty is difficult to escape, and many families will remain trapped in poverty unless radical structural economic changes are brought about.[102]

Persistent income, spatial and racial inequalities

Persistent and pervasive structural inequalities limit the life-chances of children and their families and prevent a large proportion of children and adolescents from living to their full capabilities.

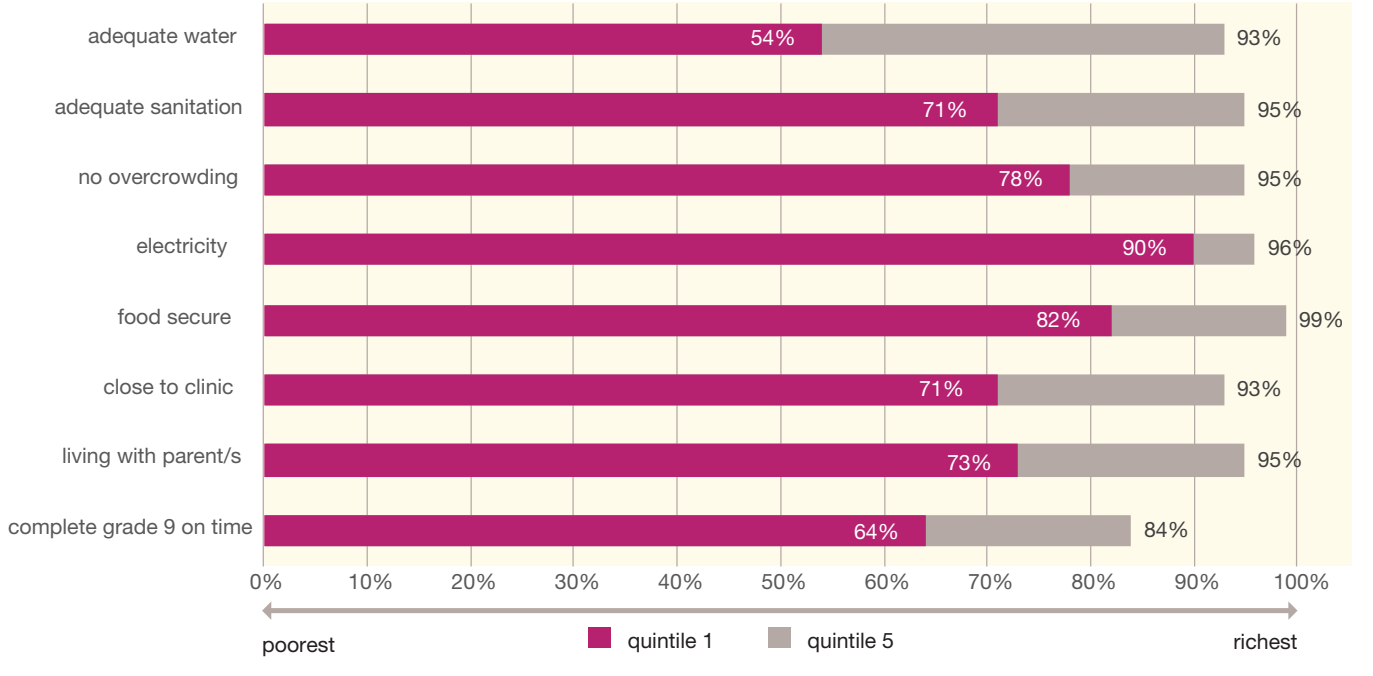
While child poverty has decreased, income inequality or the gap between rich and poor has widened since 1994. A recent 2018 World Bank report identified South Africa as the most unequal country in the world, with poverty levels highest

Figure 13: South African Index of Multiple Deprivation for Children, at municipality level, 2011



Source: Southern African Social Policy Research Institute, 2017

Figure 14: Children's living conditions, care arrangements and access to services, by income quintile, 2018



Source: Statistics South Africa (2019) *General Household Survey 2018*. Pretoria: Stats SA.

amongst black South Africans, the less educated, unemployed, female headed households, large families and children.[103]

Despite introducing an array of policies and programmes intended to alleviate child poverty, patterns of racial and spatial inequality have proved particularly resistant to change. These are rooted in the structural violence of apartheid and colonialism which entrenched White privilege and systematically excluded Black South Africans from equal education and economic opportunities, confined them to the deep rural areas or fringes of South Africa's towns and cities, and fractured the fabric of family and community life.[104]

Figure 13 illustrates how child deprivation continues to be most severe in the rural areas and former homelands – with dark red indicating municipalities where children are most deprived and grey indicating areas where children are less deprived. If one were to zoom in even closer, similar patterns of inequality would become visible within municipalities, drawing attention to the ways in which the health and safety of children living in informal settlements and in poor urban areas are threatened by a toxic mix of poverty, violence, overcrowding and insanitary living conditions.[105]

In 2018, two in every three African children (65%) lived below the poverty line, yet only 3% of White children lived in poor households as illustrated in Figure 15.[106]

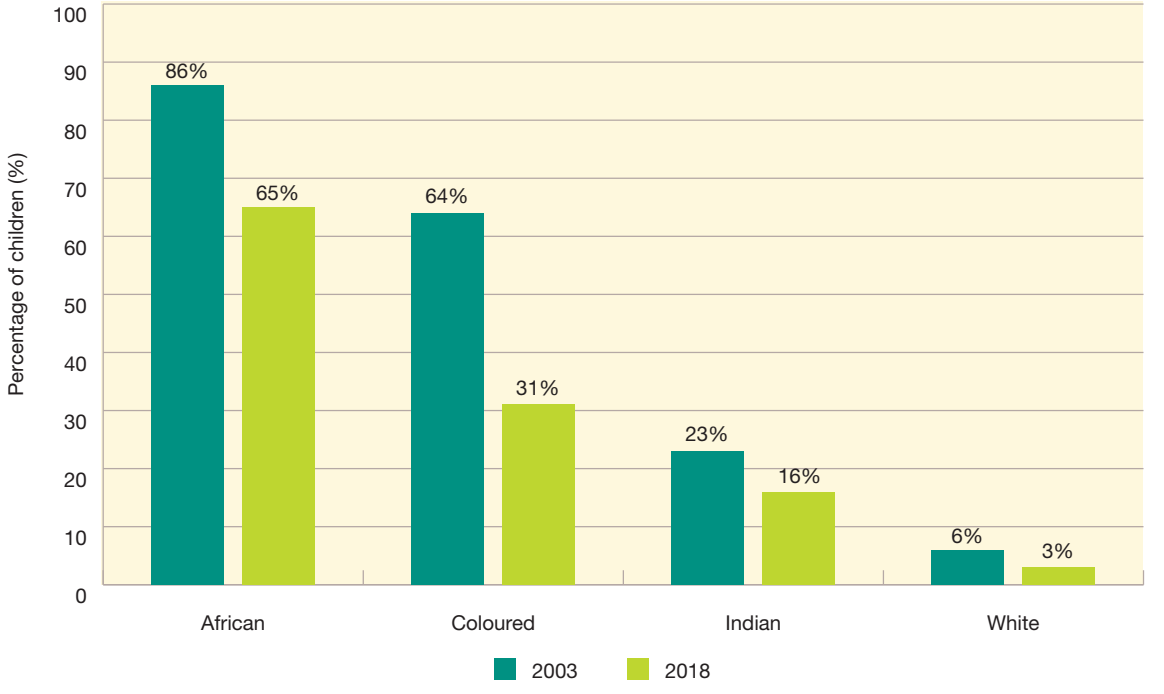
Care arrangements

Poverty and unemployment place additional strain on families and caregivers, with women often carrying a double-burden of care and financial support.[107] Only one in three children in South Africa lives with both their biological parents, 43% live with their mothers, and a further one in five children live with neither parent – most in the care of grandmothers and other kin. Families and care arrangements are often fluid – stretching across rural and urban divides as families seek to balance the search for employment with the care and protection of children. Yet these arrangements also have the potential to disrupt children's access to education and health-care services and may increase their vulnerability to maltreatment and psychological distress.[108]

Education and employment

Basic education has the potential to be a great equaliser and provide a gateway to higher education and employment. Over the past 10 years, South Africa has increased access to early childhood development programmes and school attendance has been consistently high with 98% of children aged 7 – 17 attending school, but the quality of education and throughput remains of serious concern. At least 78% of grade 4 learners cannot read for meaning in any language.[109]

Figure 15: Children living below the upper-bound poverty line, by race, 2003 & 2018



Source: Statistics South African (2004, 2018) *General Household Survey 2003. General Household Survey 2018.* Pretoria: Stats SA. Analysis by Katharine Hall, Children's Institute, UCT.

Whilst 95% of learners completed grade 7 in 2017, only 51% completed grade 12.[110] It is therefore not surprising that, 34% of youth (15 – 24 years) are not in employment, education and training – with no change over the last 10 years.[111] Youth unemployment is particularly high with 53% of young people aged 21 - 24 unemployed, driven by poor quality education and widespread structural unemployment, with an official unemployment rate of 29% in 2019.

Improved living conditions

Despite these challenges, the past 10 years have seen significant increases in children's access to electricity, water, sanitation and formal housing – in part driven by increasing urbanisation, with 57% of children now living in urban areas. Yet there has been little or no change in the proportion of children living in informal housing.

Improved access to water, sanitation and good quality housing can help in the reduction of diarrhoea and pneumonia prevalence and the spread of communicable diseases and respiratory tract infections. Yet, 30% of children still do not have access to piped water at home, 20% do not have access to sanitation, and 18% continue to live in overcrowded households – and if addressed, can significantly improve child health. Greater efforts are therefore needed to build on recent progress and to close the gap so that all children grow up in a safe and healthy environment.

Towards an intersectoral approach

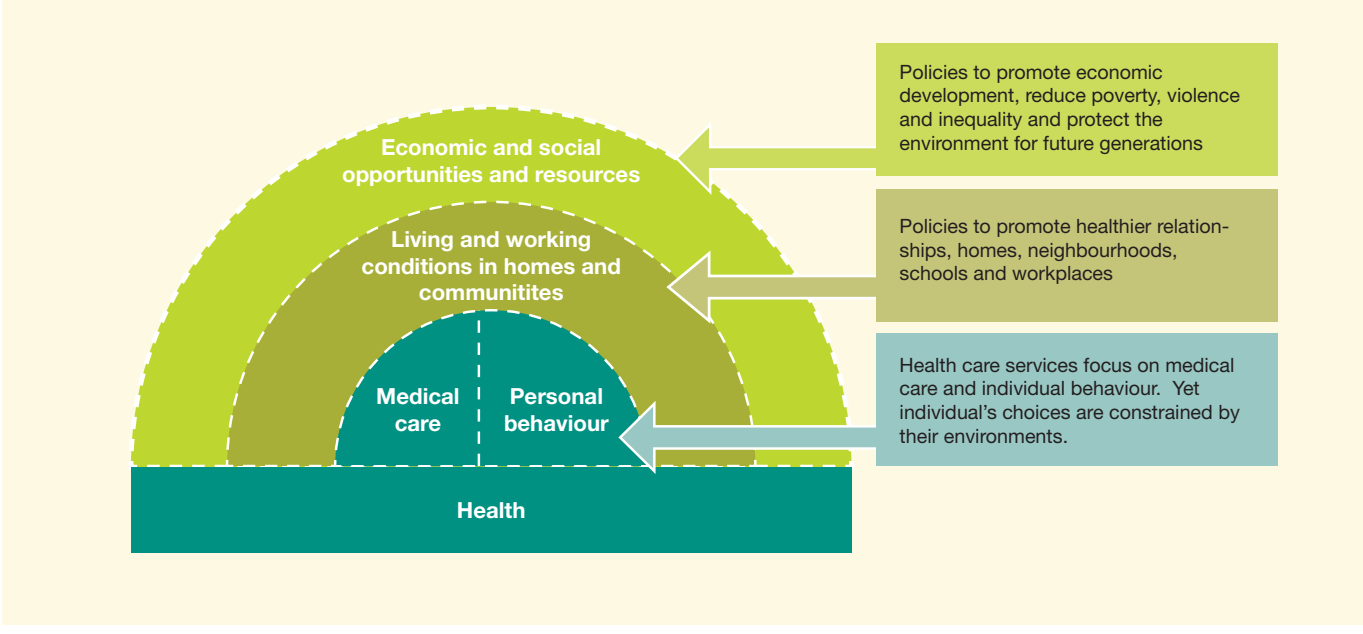
Children's health, survival and development are shaped in fundamental ways by their living conditions, care arrangements and access to services. Yet these immediate social and environmental determinants of child health are also shaped by broader political, economic, social and environmental forces – from laws, policies, and social norms to climate change and the unequal distribution of power, money, goods and services locally, nationally and globally, as illustrated in Figure 16.

Efforts to promote children's health and development therefore need to extend beyond treatment and the provision of health care services. This includes engaging a wide range of stakeholders in both government, business and civil society in order to improve children's living conditions, reduce inequalities and create greater economic and social mobility.

How can South Africa draw on global initiatives to reimagine child and adolescent health?

Global initiatives such as the Sustainable Development Goals (SDGs), Global Strategy for Maternal, Child and Adolescent Health,[112] Nurturing Care Framework[113] and the WHO's report on Health for the World's Adolescents[114] offer an opportunity to respond to these challenges and reimagine health care services for children. These initiatives call for universal health

Figure 16: Opportunities to promote child and adolescent health



Source: Adapted from Braveman PA, Egerter SA & Mockenhaupt RE (2011) Broadening the focus: the need to address the social determinants of health. *American Journal of Preventive Medicine*, 40(1): S4-18.

coverage, a greater emphasis on supporting children's development across the life course, and intersectoral collaboration to address the social determinants of health.

The Sustainable Development Goals

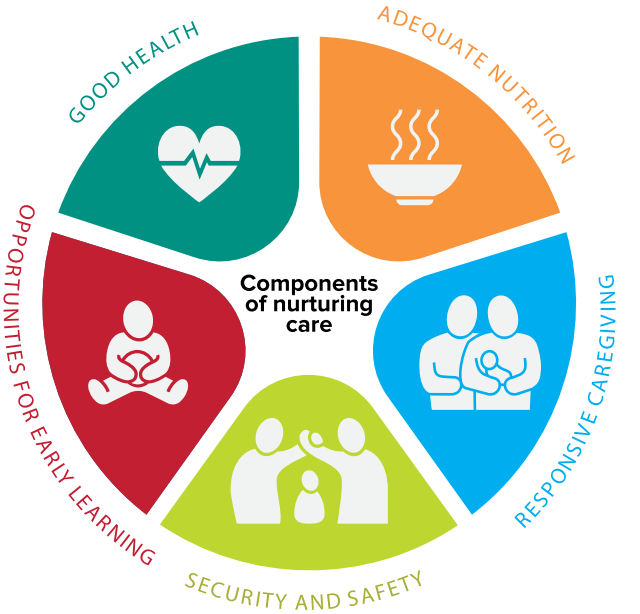
In 2015 the United Nations committed to a new global agenda centred on the achievement of the SDGs by 2030. The SDGs aim to balance "economic growth, social justice and environmental stewardship"[115] and call for an integrated approach to development with an emphasis on intersectoral collaboration in order to maximise synergies across 17 goals.

The SDGs build on the foundation of the Millennium Development Goals, which mobilised global efforts to combat poverty, hunger and disease. Yet despite achieving significant progress with the MDGs, these gains often failed to reach those most in need – giving rise to inequalities both between and within countries. The SDGs therefore have a much more explicit focus on reducing inequality through addressing social, environmental, economic and other structural determinants of health – recognising "that the dignity of the human person is fundamental" and prioritising the most vulnerable members of society to ensure no one is left behind.[116]

Survive. Thrive. Transform.

The Global Strategy for Women's, Children's and Adolescents' Health (2016 – 2030) builds on this foundation and aims to not only end preventable deaths, but also ensure that children thrive by expanding enabling environments so that "every women, child and adolescent realises their rights to physical and mental health and well-being".[117] This shift beyond child survival to optimal development requires a transformation in the ways in which we deliver health-care services for children and adolescents. This includes greater attention to nutrition, early childhood development and sexual and reproductive health care services – and a commitment to achieving universal health coverage and financial risk protection for the poor. In addition, the Global Strategy aims to create an enabling environment by addressing the broader social determinants of health such as poverty, violence, and access to water and sanitation. Figure 19 outlines some of the practical steps required to achieve this.

Figure 18: The five components of nurturing care



Source: World Health Organization, United Nations Children's Fund & World Bank Group (2018) Nurturing Care for Early Childhood Development: A framework for helping children survive and thrive to transform health and human potential. Geneva: WHO.

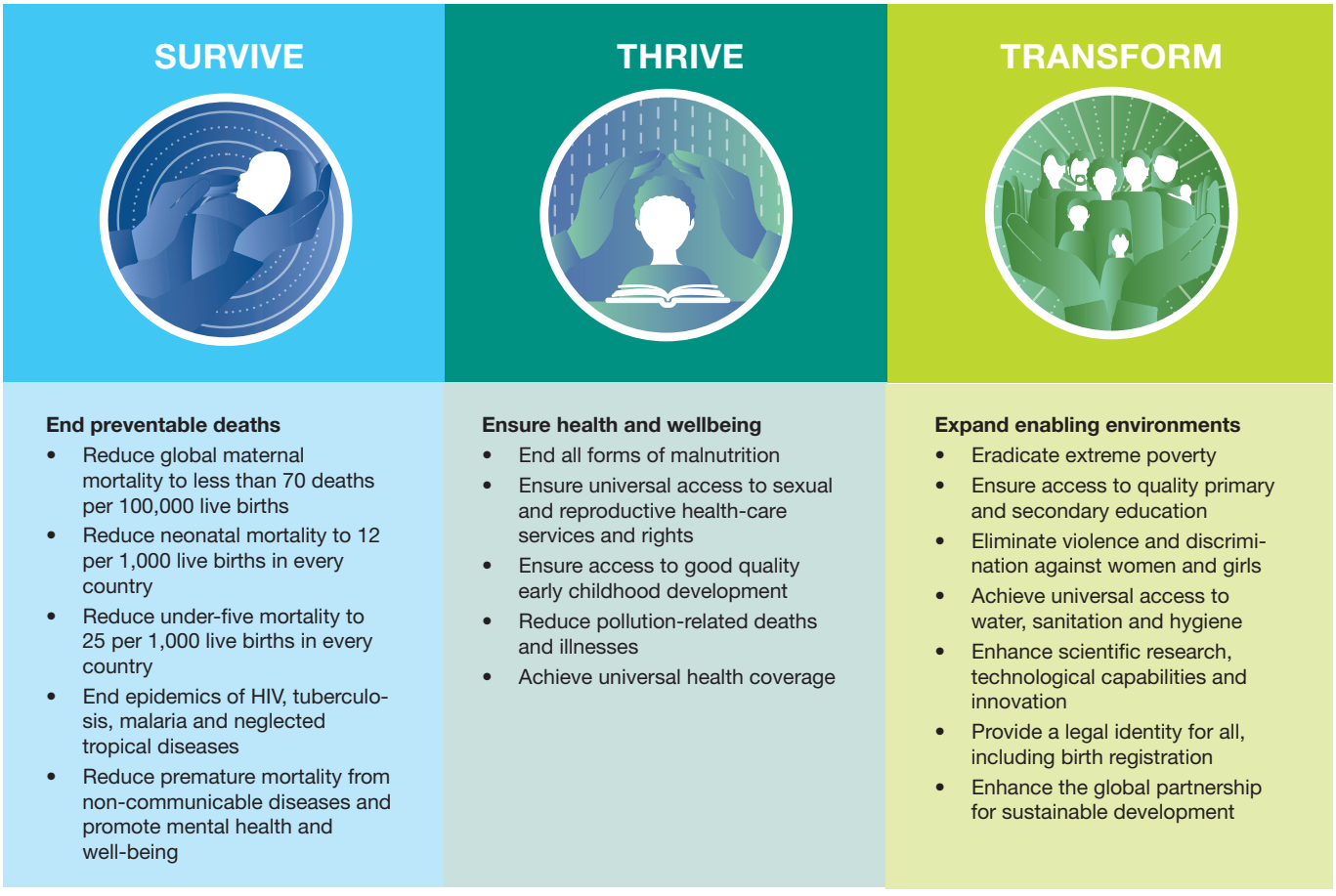
The Nurturing Care Framework

The Nurturing Care Framework for Early Childhood Development (NCF)[118] builds on these global commitments and evidence from The Lancet Series on Advancing Early Childhood Development: from Science to Scale,[119] emphasizing how early investment in 'nurturing care' provides a foundation for healthy development across the life course.

The NCF highlights how the first 1,000 days of life are a particularly sensitive period of development and acknowledges the central role of parents and caregivers in providing a strong foundation of nurturing care by ensuring children's good health and nutrition, protecting them from harm, providing them with opportunities to

Figure 17: The Sustainable Development Goals: Driving an integrated approach to development

Figure 19: Survive. Thrive. Transform. Redefining the global strategy for child and adolescent health



Source: Every Woman, Every Child (2015) The Global Strategy for Women's, Children's and Adolescents' Health (2016 – 2030), Survive, Thrive, Transform, *Every Woman Every Child*. New York: EWEC.

learn, and providing care that is responsive to children's needs. The framework calls on health, nutrition, education, social welfare and child protection services to create an enabling environment and support the efforts of families and caregivers. It identifies health as the lead department for the first 1,000 days, as it has the greatest reach and is the most effective platform for reaching pregnant women, infants and young children.

A second chance in adolescence

The WHO's 2014 report on Health for the World's Adolescents[120] and global call for Accelerated Action for Adolescent Health (AA-HA!)[121] recognise the benefits of investing in adolescence as it has the potential to improve the health of adolescents themselves, their future health as adults, and the health, well-being and development of their children. Instead of treating adolescents as old children or young adults. AA-HA! recognises adolescence as a unique period of development and recommends designing services in collaboration with adolescents to ensure they better meet adolescent needs. It also goes beyond the traditional focus on HIV and sexual and reproductive health, to call for a 'whole of society approach' in order to mobilise the efforts of other sectors – such as education, social protection and urban planning – to fulfil adolescents' rights to health.

UNICEF is developing an Adolescent Country Tracker, with: a set of 30 indicators across five domains that aim to promote adolescent health, education, protection, transition to work and participation in family and community life. While some of these indicators are familiar, the participation domain encourages us to think more deeply about how to listen to adolescents, take them seriously, actively involve them in decision making, and instil a feeling of self-worth.

But what do these shifts in global strategy mean for children in South Africa, and how can we draw on these initiatives to strengthen the health-care system and ensure that no child is left behind?

What are some of the key considerations in setting an agenda for 2030?

This issue of the *South African Child Gauge* emphasises some of the persistent and emerging challenges affecting South Africa's children and adolescents that require urgent attention, and it draws on these shifts in global thinking to both interrogate and reimagine health-care services for children.

Chapter 2 presents the science underpinning **a life course approach** to health and development. Research into the developmental origins of health and disease foregrounds the complex, dynamic interaction between our biology (our genes, systems and organs) and environment (our nutrition, physical and social environment) and how this shapes our health and development across the life course and those of our children. For example, maternal stress and malnutrition can causes epigenetic changes in the developing foetus that predispose children to a greater risk of obesity and non-communicable diseases in adulthood. It is therefore essential to intervene early – particularly during sensitive periods such as adolescence and the first 1,000 days of life – to protect children from adversity and optimise their health and development.

Chapter 3 focuses attention on opportunities to intervene during **the first 1,000 days** of life. It introduces key elements of the Nurturing Care Framework and explores how these have been integrated into the South African health-care system in order to better support families and caregivers, and improve the health, nutrition, care, safety and early stimulation of young children.

Chapter 4 focuses on **adolescence** as a second window of opportunity highlighting the need for intersectoral action to address the structural drivers of adolescent health. This includes efforts to extend adolescent programmes beyond health care services to reach young people in their schools and communities and through mobile platforms, and a greater emphasis on working in partnership with adolescents to ensure that services are attuned to adolescent needs and delivered with care and respect.

The subsequent five chapters focus attention on emerging challenges: long term health conditions, violence and injury, mental health, the double burden of nutrition, and environmental health and climate change.

Chapter 5 focuses attention on **long term health conditions** (LTHCs) which affect an estimated one in five children in South Africa. As South Africa makes strides in reducing child mortality, the proportion of children with disabilities and LTHCs is likely to increase. These children require early intervention and ongoing care and support to ensure their optimal functioning and participation in family and community life. This will require a significant reorientation of the health-care system to ensure continuity of care both within and between health and other support services.

Chapter 6 focuses on **violence and injuries** which account for an increasing share of child mortality and are the leading cause of death amongst adolescents. Violence and injuries are often considered in isolation, yet they share many common risk factors, such as poverty, poor education, and substance use. The chapter identifies opportunities to bridge this divide and to strengthen primary prevention by creating safer communities and healthy relationships within the family.

Chapter 7 sheds light on child and adolescent **mental health**. While little is known about the extent of mental health conditions affecting children and adolescents in South Africa, we know that poverty, violence and social inequalities increase the risk of depression, anxiety and substance use disorders – and undermine families' capacity to care for children. Most mental health conditions have their roots in childhood, with 50% of mental health problems established by the time a child turns 14.[122] Yet, the mental health of children and adolescents has been largely neglected and under-resourced. The chapter therefore calls for early and sustained investment in mental health across the life course, starting early in the antenatal period in order to support families and children.

Chapter 8 examines how persistently high levels of stunting and rising obesity are compromising children's health, education and employment chances and fuelling the adult burden of non-communicable diseases. The drivers of this **triple burden of malnutrition** extend beyond infant feeding choices and are shaped by structural forces: Poverty and unemployment continue to compromise the quality and diversity of children's diets, and the marketing strategies of transnational corporations are making sugary drinks and ultra-processed foods widely available and desirable.

Chapter 9 focuses attention on **environmental health and climate change**. Today's children are exposed to a wide range of environmental toxins – in the food they eat, the air they breathe, the water they drink and the places they call home. Children are particularly vulnerable to environmental exposures as their bodies and brains are still developing, yet there are very few child-centred policies in place to protect children from harm. These threats are likely to intensify with climate change as rising temperatures, droughts and extreme weather events undermine food security, drive the spread of disease, and increase violence and crime. The chapter therefore calls on the state to regulate industry and develop

Figure 20: Adolescent country tracker

ADOLESCENT COUNTRY TRACKER (ACT) 5X5PLUS5

	Health and Wellbeing	Education and Learning	Protection	Transition to Work	Participation and Engagement **	PLUS 5
5X5	All cause mortality rate	Proficiency in reading and mathematics*	Child Marriage (by 15 and 18)*	Time spent on economic activities	Sense of self-worth	Adolescent population
	Suicide mortality rate*	Youth literacy rate*	Homicide mortality rate*	Time spent on unpaid household services*	Experience of being taken seriously / being listened to	Adolescents living below the international poverty line*
	Adolescent birth rate*	Completion rate for primary education	Intimate partner violence*	Information and communication technology (ICT) skills*	Experience of individual decision-making	Use of improved drinking water source and sanitation facility*
	Prevalence of underweight and overweight	Completion rate for lower and upper secondary education	Violent discipline*	Adolescents not in education, employment or training*	Opportunities to challenge injustice	Gini (inequality) index
	Substance use	Out-of-school rate	Experience of bullying	Unemployment rate*	Experience of public participation	Social institutions and gender index
Country Specific Indicators						

*SDG indicator

**Intentionally comparable indicators for this domain are under development. Five Outcome areas have been proposed for which indicators and survey tools are being designed.

child-centred policies to safeguard the health of children and future generations.

The final two chapters focus on what is needed to prioritise children and adolescents and place their interests at the heart of the health-care system.

Chapter 10 identifies the principles that should inform the development of **child- and adolescent-centred health care system** at district level. It recognises the need for a 'whole systems' approach to ensure that child health is adequately prioritised and resourced. This means that child health is not just the responsibility of child-specific programme and services. It requires all facets of the health system – both the hardware (finances, human resources, drugs and supply chains) as well as the software (values, attitudes, relationships, behaviours and communication systems) – to be attuned to the needs of children, adolescents and families.

Chapter 11 focuses attention on **building a workforce for child health** that is responsive to the changing demographics and epidemiology of child health. This requires a shift from a narrow focus on under-five mortality to an extended view of child health throughout the first two decades of life and a broader set of skills to support children's optimal health and development, including better continuity of care, and a greater emphasis on quality care close to home.

This issue of the *South Africa Child Gauge* is also peppered with a series of case studies that showcase innovative and promising practice. These are intended to stimulate critical thinking, generate a sense of possibility, inspire others to take action, and promote leadership for child health at all levels of the health-care system.

The concluding chapter reflects on these emerging challenges and opportunities. It explores the common drivers and calls for greater collaboration between different sectors and spheres and government, and the integration – and prioritisation – of child and adolescent health in all policies and practices to ensure we reap the benefits of a life course approach to health and development, and that no child is left behind.

References

Acknowledgments: This chapter draws on and updates previous analyses presented a series of shadow reports to the African Committee of Experts on the Rights and Welfare of the Child, UN Committee on the Rights of the Child, and UN Committee on Economic, Social and Cultural Rights.

1 Statistics South Africa (2019) *General Household Survey 2018*. Pretoria: Stats SA. Analysis by Katharine Hall, Children's Institute, UCT.
2 Victora CG, Bahl R, Barros AJD, França GVA, et al (2016). Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. *Lancet* 387: 475-490.
3 United Nations Committee on the Rights of the Child (2013) *General Comment No. 15 on the right of the child to the enjoyment of the highest attainable state of health*. (Article 24). CRC/C/GC/15. Geneva: United Nations. Para2.
4 Office of the High Commissioner of Human Rights (1989) Convention on the Rights of the Child, *UN General Assembly Resolution 44/25*. Geneva: United Nations.
5 Kruger J & Coetzee M (2011) Children's relationships with professionals. In: Jamieson L, Bray R, Viviers A, Lake L, Pendlebury S & Smith C (eds) *South African Child Gauge 2010/11*. Cape Town: Children's Institute, UCT.
6 Children's Act 38 of 2005.
7 Constitution of the Republic of South Africa Act 108 of 1996. Section 28.
8 See no. 7 above. Section 27.
9 See no. 7 above. [Section 28]
10 Proudlock P & Mahery P (2010) Children's right to health. In: Kibel M, Lake L & Smith C (eds) *South African Child Gauge 2009/2010*. Cape Town: Children's Institute, UCT.
11 United Nations Committee on Economic, Social and Cultural Rights (2000) The right to the highest attainable standard of health. *General comment 14*, E/C.12/2000/4. Geneva: UN.
12 See no. 7 above. Section 29 (1)(a)
13 *Governing Body of the Juma Musjid Primary School & Others v Essay N.O. and Others* (CCT 29/10) [2011] ZACC 13; 2011 (8) BCLR 761 (CC) (11 April 2011) Available at: http://www.saflii.org/cgi-bin/disp.pl?file=za/cases/ZACC/2011/13.html&query=%20Juma%20Musjid
14 Department of Health (2011) 1st *Triennial Report. Ministerial Committee on Mortality and Morbidity in Children under 5 Years of Age in South Africa*. Pretoria: DoH.
15 Department of Health, Statistics South Africa, South African Medical Research Council and ICF (2019) *South Africa Demographic and Health Survey 2016*. Pretoria and Rockville, Maryland: DoH, Stats SA, SAMRC & ICF.
16 Pillay-van Wyk V, Msemburi W, Laubscher R, Dorrington RE, Groenewald P, Glass T, Nojilana B, Joubert JD, Matzopoulos R, Prinsloo M, Nannan N, Gwebushe N, Vos T, Somdyala N, Sithole N, Neethling I, Nicol E, Rossouw A & Bradshaw D (2016) Mortality trends and differentials in South Africa from 1997 to 2012: Second National Burden of Disease Study. *Lancet Global Health*, 4(9): e642-653. doi: 10.1016/S2214-109X(16)30113-9.
17 Dorrington RE, Bradshaw D, Laubscher R & Nannan N (2018) *Rapid Mortality Surveillance Report 2016*. Cape Town: South African Medical Research Council.
18 Dorrington RE, Bradshaw D, Laubscher R & Nannan, N (2019) *Rapid Mortality Surveillance Report 2017*. Cape Town: South African Medical Research Council.
19 UNICEF (2019) Levels and trends in child mortality: Report 2019. *Estimates developed by the UN Inter-agency Group for child mortality estimation*. New York: United Nation's Children Fund.
20 Bradshaw D (2008) Determinants of health and their trends. In: Barron P & Roma-Reardon J (eds) *South African Health Review 2008*. Durban: Health Systems Trust.
21 Masquelier B, Hug L, Sharrow D, You D, Hogan D, Hill K, Liu J, Pedersen J, Alkema L, on behalf of the United Nations Inter-agency Group for Child Mortality Estimation (2018) Global, regional, and national mortality trends in older children and young adolescents (5–14 years) from 1990 to 2016: An analysis of empirical data. *The Lancet Global Health*, 6(10): e1087-1099.
22 Unpublished 2018 data from the Child Health Problem Identification Programme that audits hospital deaths at 75% of facilities countrywide. Personal communication, Cindy Stephens.
23 See no. 15 above.
24 National Perinatal Morbidity and Mortality Committee (no date) *Saving Babies 2014-2016: Triennial report on perinatal mortality in South Africa*. Pretoria: DoH.
25 See no. 15 above.
26 Harrison D (2017) Investing in children: The drivers of national transformation in South Africa. In: Jamison L, Berry L & Lake L (eds) *South African Child Gauge 2017*. Cape Town: Children's Institute, University of Cape Town.
27 Symington EA, Gericke GJ, Nel JH & Labadarios D (2016) The relationship between stunting and overweight among children from South Africa: Secondary analysis of the National Food Consumption Survey – Fortification Baseline I. *South African Medical Journal*, 106(1): 65-69.
28 See no. 15 above.
29 See no. 15 above.
30 Labadarios D, Swart R, Maunder E, Kruger HS, Gericke GJ, Kuzway P, Ntsi PR, Steyn NP, Schloss I, Dhansay MA, Jooste PL, Dannhauser A, Nel JH, Molefe D & Kotze TJvW (2008) Executive summary of the National Food Consumption Survey Fortification Baseline I (NFCS-FB-I) South Africa, 2005. *South African Journal of Clinical Nutrition*, 21(3): 245-300.
31 See no. 15 above [DOH, Stats SA, MRC & ICF, 2017].
32 Cole TJ & Lobstein T (2012) Extended international (IOTF) body mass index cut-offs for thinness, overweight and obesity. Pediatric Obesity, 7: 284-294.
33 Simbayi LC, Zuma K, Zungu N, Moyo S, Marinda E, Jooste S, Mabaso M, Ramlagan S, North A, van Zyl J, Mohlabane N, Dietrich C, Naidoo I and the SABSSM V Team (2019) South African National HIV Prevalence, *Incidence, Behaviour and Communication Survey, 2017*. Cape Town: HSRC Press
34 See no. 33 above.
35 See no. 33 above.
36 See no. 33 above.
37 Thembisa Model. Viewed 10 October 2019: https://www.thembisa.org/downloads.
38 UNAIDS. AIDS info. https://aidsinfo.unaids.org/
39 See no. 38 above. (UNAIDS. AIDS info)
40 Makua M, Haeri Mazanderani A, Sherman G & Massyn N (2019) PMTCT. In: Massyn N, Pillay Y & Padarath A (eds) *District Health Barometer 2017/18*. Durban: Health Systems Trust.
41 See no. 33 above.
42 UNAIDS. AIDS info. https://aidsinfo.unaids.org/
43 See no. 40 above. [Makua et al, DHB 2019]
44 Ramokolo V, Goga AE, Slogrove AL & Powis KM (2019) Unmasking the vulnerabilities of HIV-exposed uninfected children. *British Medical Journal*, 366: l4479. doi: https://doi.org/10.1136/bmj.l4479.
45 Slogrove AL, Powis KM, Johnson LF, Stover J & Mahy M (in press). Estimates of the global population of children HIV-exposed and uninfected, 2000-2018: A modelling study. *Lancet Global Health*.
46 Nicholson G & Mafolo K (2019) Murder, sexual offences on the increase as grim statistics mount up. *Daily Maverick*, 12 September 2019.
47 Richter LM, Mathews S, Kagura J & Nonterah E (2018) A longitudinal perspective on violence in the lives of South African children from the Birth to Twenty Plus cohort study in Johannesburg-Soweto. *South African Medical Journal*, 108(3), 181–186.
48 Dunkle K, Jewkes R, Brown HC, Yoshihama M, Gray GE, McIntrye JA & Harlow Social Development (2004) Prevalence and patterns of gender-based violence and revictimization among women attending antenatal clinics in Soweto, South Africa. *American Journal of Epidemiology*, 160(3): 230-239;
Mathews S, Jewkes R & Abrahams N (2011) "I had a hard life": Exploring childhood adversity in the shaping of masculinities among men who killed an intimate partner in South Africa. *British Journal of Criminology*, 51(6): 960-977.
49 Mathews S, Govender R, Lamb G, Boonzaier F, Dawes A, Ward C, Duma S, Baerecke L, Warton G, Artz L, Meer T, Jamieson L, Smith R & Röhrs S (2016) *Towards a more comprehensive understanding of the direct and indirect determinants of violence against women and children in South Africa with a view to enhancing violence prevention*. Cape Town: Safety and Violence Initiative, University of Cape Town.
50 Kessler RC, Berglund P, Demler O, Jin R, Merikangas KR & Walters EE (2005) Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, 62(6): 593-602.
51 World Health Organization (2018) *Adolescent mental health*. Key facts. Viewed 25 September 2018: https://www.who.int/news-room/fact-sheets/detail/adolescent-mental-health
52 Schneider M, Docrat S, Onah M, Tomlinson M, Baron E, Honikman S, Skeen S, van der Westhuizen C, Breuer E, Kagee A, Sorsdahl K & Lund C (2016) Integrating mental health into South Africa's health system: Current status and way forward. *South African Health Review 2015/16*. Durban: Health Systems Trust.
53 Jack H, Wagner RG, Petersen I, Thom R, Newton CR, Stein A, Kahn K, Tollman S & Hofman KJ (2014) Closing the mental health treatment gap in South Africa: A review of costs and cost-effectiveness. *Global Health Action*, 7(1): 23431.
54 Bradshaw D, Chopra M, Kerber K, Lawn J, Moodley J, Pattinson R, Patrick

M, Stephen C & Velaphi S (2008) *Every Death Counts: Saving the lives of mothers, babies and children in South Africa*. Cape Town: Department of Health, Medical Research Council, University of Pretoria, Save the Children & UNICEF.
55 Countdown to 2030 Women's, Children's and Adolescents' Health (2019) *Country Profile*. South Africa. Viewed 10 November: http://profiles.countdown2030.org/#/cp/ZAF.
56 Snelling M, Dawes A, Biersteker L, Girdwood E & Tredoux CJ (2019) The development of a South African Early Learning Outcomes Measure: A South African instrument for measuring early learning program outcomes. *Child Care Health and Development*, 45: 257-270.
57 See no. 15 above [DOH, Stats SA, MRC & ICF, 2017].
58 Massyn N, Pillay Y & Padarath A (eds) *District Health Barometer 2017/18*. Durban: Health Systems Trust.
59 See no. 58 above.
60 See no. 15 above.
61 See no. 58 above.
62 See no. 15 above
63 McKenzie A, Scneider H, Schaay N, Scott V & Sanders D (2017), *Primary health care systems (PRIMASYS): Case study from South Africa*. Geneva: World Health Organisation.
64 Statistics South Africa (2019) *General Household Survey 2018*. Pretoria: Stats SA. Analysis by Katharine Hall and Winnie Sambu, Children's Institute, UCT.
65 McLaren Z, C Ardington & M Leibbrandt (2013) Distance as a Barrier to Health Care Access in South Africa. *A Southern Africa Labour and Development Research Unit working paper no. 97*. Cape Town: SALDRU, UCT.
66 National Health Act 61 of 2003.
67 Nannan N, Groenewald P, Pillay-van Wyk V, Nicol E, Msemburi W, Dorrington RE & Bradshaw D (2019) Child mortality trends and causes of death in SouthAfrica, 1997 – 2012, and the importance of a national burden of disease study. *South African Medical Journal*, 109(7): 480-485.
68 See no. 18 above. [Dorrington et al, 2019]
69 Rhoda NR, Velaphi S, Gebhardt GS, Kauchali S & Barron P (2018) Reducing neonatal deaths in South Africa: Progress and challenges. *South African Medical Journal*, 108(3): S9-S16.
70 Data extracted from the Perinatal Problem Identification Programme, 10 November 2019.
71 Pattison RC & Rhoda N (2014) *Saving Babies 2012-2013: Ninth report on perinatal care in South Africa*. Pretoria: Tshepesa Press.
72 Azzopardi PS, Hearps SJ, Francis KL, Kennedy EC, Mokdad AH, Kassebaum NJ, Lim S, Irvine CM, Vos T, Brown AD & Dogra S (2019) Progress in adolescent health and wellbeing: tracking 12 headline indicators for 195 countries and territories, 1990-2016. *Lancet*, 393(10176): 1101-1118;
Patton GC, Sawyer SM, Santelli JS, Ross DA, Afifi R, Allen NB, Arora M, Azzopardi P, Baldwin W, Bonell C & Kakuma R (2016) Our future: A Lancet commission on adolescent health and wellbeing. *Lancet*, 387(10036): 2423-2478.
73 James, S, Pisa PT, Imri J, Beery MP, Martin C, Skosana C & Delany-Moretlwe S (2018) Assessment of adolescent and youth friendly services in primary healthcare facilities in two provinces in South Africa. *BMC Health Services Research*, 18(1): 809.
74 Chersich, M, Wabiri N, Risher K, Shisana O, Celentano, D, Rehle T, Evans M & Rees H (2017) Contraception coverage and methods used among women in South Africa: A national household survey. *South African Medical Journal*, 107(4): 307-314;
Shung-King, M (2013) From 'stepchild of primary healthcare' to priority programme: Lessons for the implementation of the National Integrated School Health Policy in South Africa. *South African Medical Journal*, 103(12): 895-898.
75 Subedar H, Barnett S, Chaka T, Dladla S, Hagerman E, Jenkins S, Matshimane G, Mangold K, Msimanga B, Pooe R, Schultz L & Pillay Y (2018) Tackling HIV by empowering adolescent girls and young women: A multisectoral, government led campaign in South Africa. *British Medical Journal*, 363: k4585.
76 See no. 73 above.
77 Schriver B, Meagley K, Norris S, Geary R & Stein AD (2014) Young people's perceptions of youth-oriented health services in urban Soweto, South Africa: A qualitative investigation. *BMC Health Services Research*, 14: 625;
Geary RS, Webb EL, Clarke L & Norris SA (2015) Evaluating youth-friendly health services: young people's perspectives from a simulated client study in urban South Africa. *Global Health Action*, 8: 26080;
Mulaudzi M, Dlamini BN, Coetzee J, Sikkema K, Gray G & Dietrich JJ (2018) Perceptions of counsellors and youth-serving professionals about sexual and reproductive health services for adolescents in Soweto, South Africa. *Reproductive Health*, 15(1): 21.
78 Smith P, Marcus R, Bennie T, Nkala B, Nchabeleng M, Latka MH, Gray G, Wallace M & Bekker LG (2018) What do South African adolescents want in a sexual health service? Evidence from the South African Studies on HIV in Adolescents (SASHA) project. *South African Medical Journal*, 108(8): 677-681.
79 Armstrong A, Nagata JM, Vicari M, Irvine C, cluver L, Sohn AH, Ferguson J, Caswell G, Njenga LW, Oliveras C, Ross D, Puthanakit T, Baggaley R & Penazzato M (2018) A global research agenda for adolescents living with HIV. Journal of *Acquired Immune Deficiency Syndrome*, 78(1): S16-S21.
80 See no. 75 above. [Armstrong et al, 2018]
81 Babikir A, Satty A & Mwambi H (2018) Determinants of out-of-pocket health expenditure and their welfare implications in a South African context. *Journal of Economic and Financial Sciences*, 11(1): a177. http://dx.doi. org/10.4102/jef.v11i1.177.
82 McIntyre D, Doherty J & Ataguba J (2014) *Universal Health Coverage Assessment: South Africa*. Global Network for Health Equity.
83 Gray A & Vawda Y (2016) Health policy and legislation. In: Padarath A, King J, Mackie E & Casciola J (eds) *South African Health Review 2016*. Durban: Health Systems Trust.
84 RUDASA (2015) Rural Health Fact Sheet 2015. Viewed 12 November 2019: rhap.org.za/wp-content/uploads/2015/09/RHAP-Rural-Health-Fact-Sheet-2015-web.pdf.
85 Naidoo P & Mbatha A (2019) South Africa to seek budget spending cuts as debt climbs. Fin24., 22 August 019.
86 Stephen CR (2016) *Saving Children 2012-2013: An eighth survey of child healthcare in South Africa*. Pretoria: Tshepesa Press, MRC, CDC.
87 See no 86 above.
88 See no. 77 above;
Mokomane Z, Mokhele T, Mathews C & Makoea M (2017) Availability and accessibility of public health services for adolescents and young people in South Africa. *Children and Youth Services Review*, 74: 125-132.
89 Institute for Health Improvement (no date) *Closing the quality gap: An introduction to IHI*. Cambridge, Massachusetts: IHI. Viewed 10 October 2019: http://www.ihi.org/about/Documents/IntroductiontoIHIBrochureDec10.pdf.
90 Health Systems Trust (2012) *National Health Care Facilities Baseline Audit: Summary Report*. Durban: HST.
91 Office of Health Standards Compliance (2017) 2015/2016 Annual Inspection Report. Pretoria: OHSC.
92 Data extracted from Perinatal Problem Identification Programme 2013 - 2016.
93 Genesis Analytics, PriceWaterhouseCoopers Advisory, Centre for Health Policy & Insight Actuaries and Consultants (2019). Evaluation of the Phase 1 Implementation of the Interventions in the National Health Insurance Pilot Districts in South Africa, *Evaluation Report*, Final. NDOH10/2017-2018.
94 See no. 5 above.
95 World Health Organisation (2007) Everybody's business: Strengthening health systems to improve health outcomes. *WHO's framework for action*. Geneva: WHO.
96 Rispel L (2016) Analysing the progress and fault lines of health sector transformation in South Africa. *South African Health Review* 2016, Durban: Health Systems Trust;
Office of Health Standards Compliance (2017) 2016/17 Annual Inspection Report. Pretoria: OHSC.
97 Stop Stock Outs Project (2015) *2015 Stockouts National Survey: The continuing crisis*. Pretoria: Doctors Without Borders, the Rural Doctors Association of Southern Africa, the Rural Health Advocacy Project, the Treatment Action Campaign, SECTION27 and the Southern African HIV Clinicians Society.
98 Kuruvilla S et al on behalf of the Success Factors for Women's and Children's Health study groups (2014) Success factors for reducing maternal and child mortality. *Bulletin of the World Health Organization*, 92: 533-544.
99 Hall K (2018) Income poverty and social grants – Children living in income poverty. *Children Count* website, Children's Institute, University of Cape Town. Viewed 20 November 2019: www.childrencount.uct.ac.za
100 Grinspun A (2016) No small change: The multiple impacts of the Child Support Grant on child and adolescent well-being. In: Delany A, Jehoma S & Lake L (eds) *South African Child Gauge 2016*. Cape Town: Children's Institute, UCT.
101 DSD, SASSA & UNICEF (2016) *Removing Barriers to Accessing Child Grants: Progress in reducing exclusion from South Africa's Child Support Grant*. Pretoria: UNICEF South Africa.
102 South African Human Rights Commission and UNICEF (2014) *Poverty Traps and Social Exclusion among Children in South Africa 2014*. Pretoria: SAHRC & UNICEF.
103 Sulla V & Zikhali P (2018) *Overcoming Poverty and Inequality in South Africa: An assessment of drivers, constraints and opportunities*. Washington DC: World Bank.
104 Hall K & Richter L (2018) Introduction: Children, families and the state. In: Hall K, Richter L, Mokomane Z & Lake L (eds) South African Child Gauge 2018. Cape Town: Children's Institute, UCT.
105 Open Up & Media Monitoring Africa (2019) Wazimap. Viewed 11 November 2019: //wazimap.co.za/.
106 Statistics South Africa (2019) *General Household Survey 2018*. Pretoria: Stats SA. Analysis Katharine Hall, Children's Institute, UCT.
107 Hall K & Budlender D (2016) Children's context: Household living arrangements, poverty and care. In: Delany A, Jehoma S & Lake L (eds)

South African Child Gauge 2016. Cape Town: Children's Institute, UCT.
108 Nduna M & Jewkes R (2012) Disempowerment and psychological distress in the lives of young people in the Eastern Cape. *Journal of Family Studies*, 21: 1018-1027.
109 Howie SJ, Combrinck C, Tshele M, Roux K, McLeod Palane N & Mokoena GM (2017) *PIRLS 2016 Progress in International Reading Literacy Study 2016 Grade 5 Benchmark Participation: South African Children's Reading Literacy Achievement*. Pretoria: Centre for Evaluation and Assessment.
110 Department of Basic Education (2019) *National Senior Certificate 2018: Director General Technical Report*. Pretoria: DBE.
111 Statistics South Africa (2019) *Quarterly Labour Force Survey*, Q2:2019. Pretoria: Stats SA.
112 Every Woman, Every Child (2015) *The Global Strategy for Women's, Children's and Adolescents' Health (2016 – 2030), Survive, Thrive, Transform, Every Woman Every Child*. New York: EWEC.
113 World Health Organisation, United Nations Children's Fund & World Bank Group (2018) *Nurturing Care for Early Childhood Development: A framework for helping children survive and thrive to transform health and human potential*. Geneva: WHO.
114 World Health Organisation (2014) *Health for the World's Adolescents. A second chance in the second decade*. Geneva: WHO.
115 United Nations General Assembly (2015) Transforming our World: The 2030 *Agenda for Sustainable Development*, 21 October 2015, A/RES/70/1. New York: UN.
116 United Nations Economic and Social Council (2016) Ministerial Declaration of the High-level Segment of the 2016 Session of the Economic and Social Council on the Annual Theme "Implementing the post-2015 Development Agenda: Moving from Commitments to Results. E/HLS/2016/1, 29 July 2016. 2016 session, High-level segment, Agenda item 5.
117 See no. 112 above. [Every Woman, Every Child 2015]
118 See no. 113 above. [Who et al, 2018]
119 Black MM, Walker SP, Fernald LC, Andersen CT, DiGirolamo AM, Lu C, McCoy DC, Fink G, Shawar YR, Shiffman J & Devercelli AE. (2017) Advancing Early Childhood Development: From Science to Scale 1: Early childhood development coming of age: Science through the life course. *Lancet*, 389(10064): 77.
120 World Health Organization (2014) *Health for the World's Adolescents. A second chance in the second decade*. Geneva: WHO.
121 World Health Organisation (2017) *Global Accelerated Action for the Health of Adolescents (AA-HA!): Guidance to support country implementation*. Summary. Geneva: WHO.
122 Kessler RC, Berglund P, Demler O, Jin R, Merikangas KR & Walters EE (2005) Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, 62(6): 593-602.

Child health matters: A life course perspective

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High-income countries have seen a steady decline in adult morbidity and mortality caused by infectious diseases and a rise in obesity and non-communicable diseases (NCDs) such as cardiovascular disease, diabetes and cancer.[1] In sub-Saharan Africa, infectious diseases still dominate, but a recent study has shown a significant increase in the overall disease burden caused by NCDs between 1990 and 2017. The authors hypothesised that within the next decade, NCDs will surpass communicable, maternal, neonatal, and nutritional diseases as the leading cause of ill-health and death in sub-Saharan Africa.[2] The implications of these findings are profound as the health systems in most sub-Saharan countries are buckling under the current strain of infectious diseases, and will be severely overburdened by a growing epidemic of NCDs.

Obesity and NCDs in low- or middle-income countries are typically attributed to a combination of structural determinants (such as poverty, living environments and the marketing and availability of fast food) and lifestyle patterns (including greater consumption of energy-dense but micronutrient-poor diets, less exercise and sleep, more sedentary behaviour, and the use of alcohol and tobacco).[3] However, there is substantial evidence to suggest that early life nutrition and experiences play a pivotal role in the progression towards adult NCDs.

Indeed, it is the interaction between socio-environmental cues and our biology in the earlier years that shapes our health across the life course. In other words, child health and development matters – not only so they survive and thrive in the short term – but because it significantly impacts long-term health, human capital, and the health and well-being of future generations. Investing in optimal child health has the potential to prevent obesity and NCDs; optimise cognitive development, educational and economic attainment; and yield a triple dividend: benefits now, benefits for future health, and benefits for the next generation's health and development.

This chapter will address the following questions:

- Why is it important to adopt a life course approach for child health?
- What are the key features of the Life Course Health and Development Framework for child and adolescent health?
- What are the implications for child and adolescent health?

Why is it important to adopt a life course approach for child health?

Discoveries in science and medicine during the nineteenth century propelled a greater academic interest in maternal and child health – from preterm birth, low-birth weight, acute and chronic undernutrition and linear growth failure, to the HIV epidemic and childhood obesity. Towards the end of the 1980s, a new and rapidly converging set of ideas and research results, initially dubbed the "foetal origins of health and disease," began to foreground the links between maternal nutrition during pregnancy and the development of adult disease in the offspring.

The Barker hypothesis proposed that adult NCDs, such as cardiovascular disease and type 2 diabetes, are triggered by foetal undernutrition (itself a result of poor maternal nutrition and/or illness). This leads to genetic changes that may enable the foetus to survive in the short term but increases the risk of adult disease.[4] A substantial body of both animal and human studies have shed light on the Developmental Origins of Health and Disease (DOHaD) and illustrated how the development of physiological systems and organs during the first 1,000 days of life are influenced by the interplay of environmental and genetic elements during this critical window of development and beyond. This "biological programming" determines an individual's biological trajectory and sets the limits for their long-term health – with evidence now connecting the dots between child health and healthy aging.[5]

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Birth cohorts (such as South Africa's Birth to Twenty Plus cohort) and other prospective longitudinal population studies have improved our understanding of patterns of health and disease cross the life course including the epidemic of childhood obesity, which has demonstrated how rapid or excessive weight gain in childhood can significantly contribute to the risk of adult NCDs.[6] Data from the Birth to Twenty Plus cohort highlighted that, by early adulthood, over 40% of young women are either overweight or obese,[7] and that if a girl was obese by age five years, she is 45 times more likely to be an obese adult.[8] Furthermore, low birthweight was associated with a 10% greater risk of adult impaired fasting glucose (a precursor to diabetes), and excessive weight gain during the period age four years to the end of adolescence had a 32% greater risk of impaired fasting glucose.[9]

The pattern of obesity is not unique to South Africa and is found more and more in other low- or middle-income countries. Research from the Young Lives Peru cohort showed different rates of overweight or obesity in younger and older cohorts (born eight years apart) with rates of overweight or obesity greater in the younger cohort who have grown up in poverty and were exposed to dietary patterns that are associated with obesity (obesogenic foods).[10]

A life course framework also underscores intergenerational susceptibility to obesity and NCDs. A startling recent meta-analysis has demonstrated that, if a mother is obese prior to conceiving a baby, then her child has almost three times greater risk of being obese.[11] Consequently, there is a growing appreciation that a life course framework can assist us to not only understand the origins of NCDs but, more importantly, identify opportunities for prevention.

What are the key features of the Life Course Health and Development Framework?

Life course approaches have their origins in the sociological literature, for example, Elder's studies on the development of children affected by the Great Depression in America in the 1930s. The central thesis of this approach is that "the life course of individuals is embedded in and shaped by the historical times and places they experience over their lifetime", and that "the developmental impact of a succession of life transitions or events is contingent on when they occur in a person's life".[12] Life span approaches are complementary, focusing on the study of individual development from conception through to old age.[13]

The Life Course Health and Development Framework (LCHDF) brings both these approaches into focus with the biopsychosocial model. The framework is particularly useful for child and adolescent science as it recognises the complex, dynamic interaction between our biology (our genes, systems and organs) and environmental cues (our nutrition, physical and social environment) as illustrated in Figure 21. Indeed, it is this interaction that shapes our health and development trajectories – starting early, even before we are born, and extending across our life and those of our children.[14]

The Life Course and Health Development Model (Figure 22) draws on the World Health Organization's (WHO) Life Course Model and the Life Course Health and Development Framework[15] to illustrate the interaction between the environment and biology especially during key periods of plasticity that set up health and development trajectories.

Key concepts in the Life Course Health and Development Framework include: (i) plasticity, (ii) latent, pathway and cumulative effects, (iii) timing, and (iv) environment.

Plasticity

The genes that we inherit from our parents serve as a "blueprint" that guides our biological development. This genetic code is fixed, but how some genes are switched on and off is not. Instead the human body, brain, and behaviour

Figure 21: Health and development: A complex interplay between biology and environment

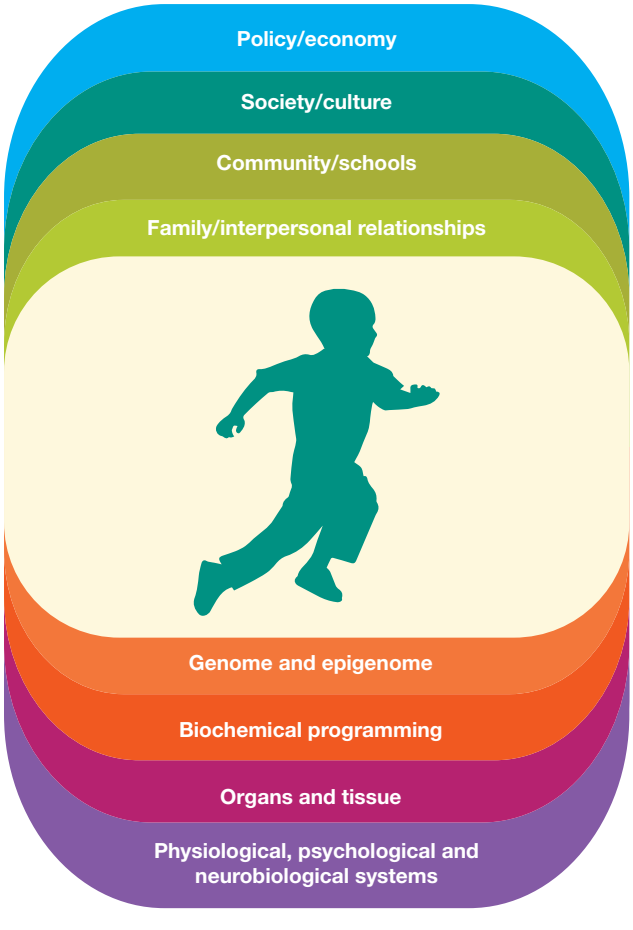
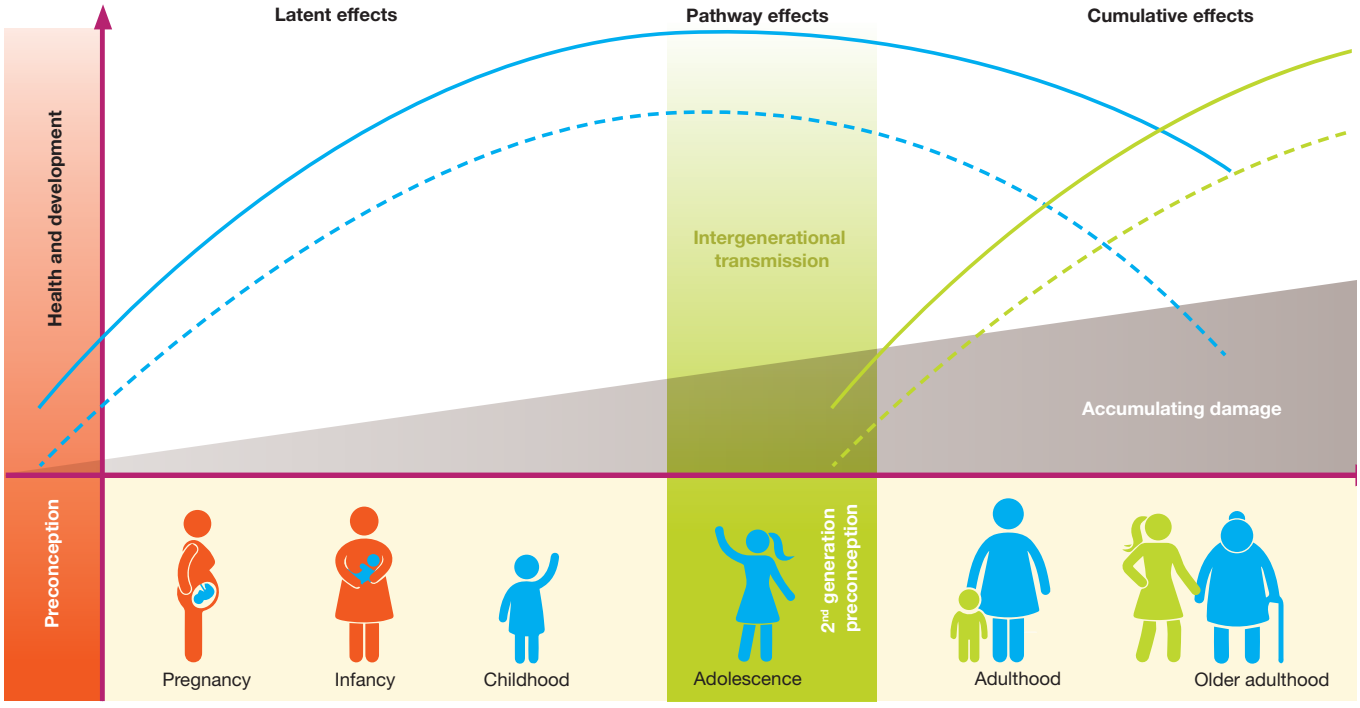


Figure 22: Life Course and Health Development Model



are "plastic" and able to change and adapt to environmental constraints and opportunities. This is particularly true in the early years of development. This epigenetic response to cues alters the way in which our genes and traits are expressed (switched on) and lays down pathways in the body and brain that can become increasingly hardwired and difficult to change as we age. In this way, life experiences become biologically embedded and shape our future health, behaviour and temperament.

An excellent illustration of this in nature is found in the honey bee. If a bee larva is fed honey, by default its ovary genes are methylated (switched off) and a worker bee emerges that cannot reproduce. But when a bee larva is fed royal jelly its chemical composition triggers the epigenetic switches, the ovary genes are switched on, and a queen bee emerges that is able to lay eggs. The framework recognises biological plasticity as a key mechanism in health and development.

Latent, cumulative and pathway effects

Across our lives, we accumulate biological damage as we age. Exposures that occur early in life are considered latent effects as they often precede pathway and cumulative effects, and influence later developmental stages. Other effects are cumulative, for example, prolonged, severe or repeated exposures to stress result in biological damage that accumulates over time and across developmental stages and manifests later as disease. Pathway effects describe the way in which our biology or behaviour is influenced by specific pathways, for example adolescence is seen as part of the biological pathway towards adult-attained height and reproduction. These effects are interlinked so that poor infant nutrition (a latent effect) may undermine cognitive development in childhood (a pathway effect) that impacts human capital in adulthood (a cumulative effect).

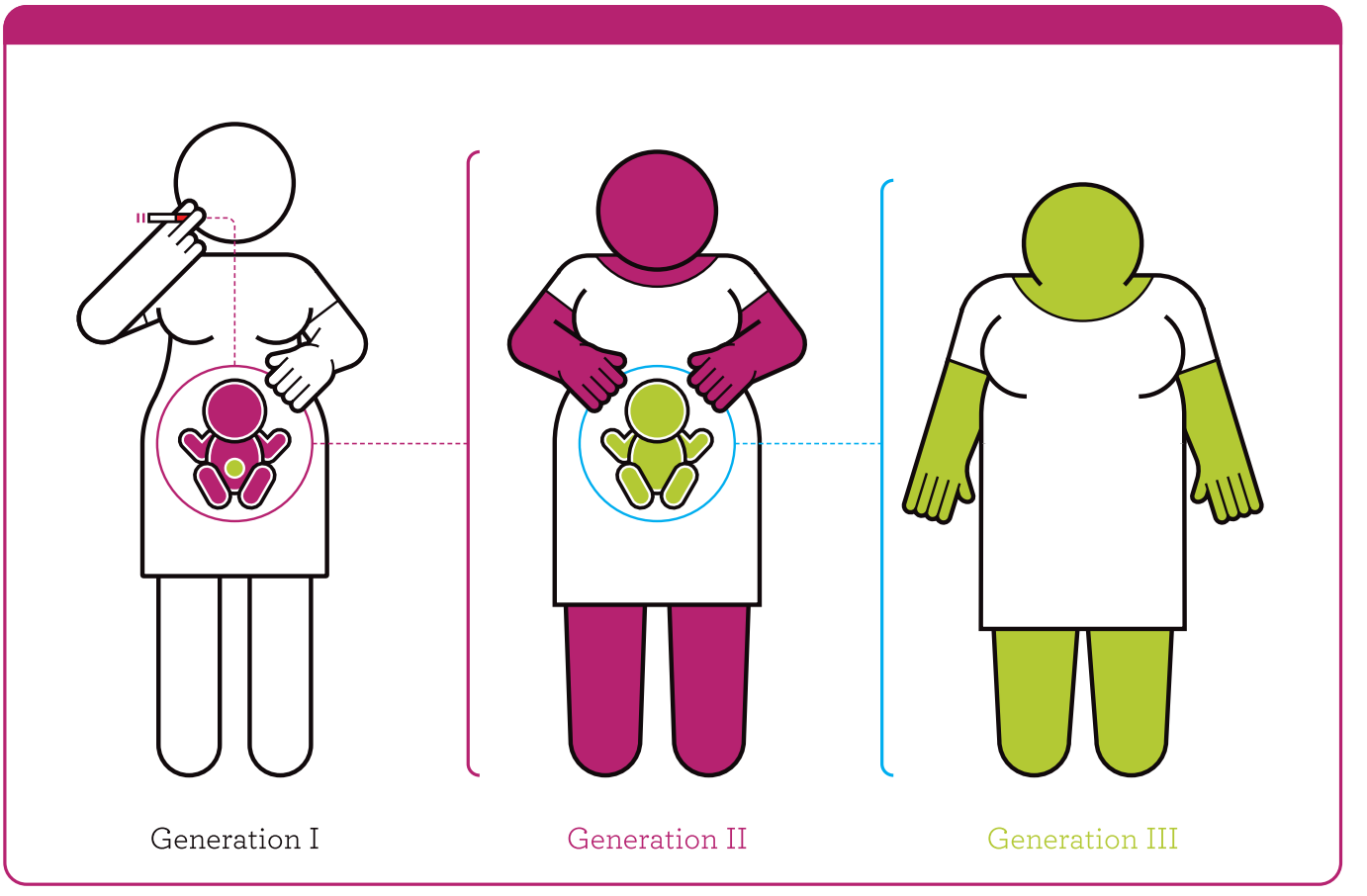
Timing

Certain stages of development – such as the first 1,000 days and adolescence – are particularly plastic and sensitive, and environmental exposures during these periods may have a stronger and potentially lifelong effect on structure and functioning. The framework highlights the intergenerational transmission of health and disease that that starts early – even preconception. For example, a mother's tobacco use during pregnancy impacts not only the growing foetus, but also her unborn daughter's reproductive cells that are laid down during foetal development and this has persisting health consequences across three generations, as illustrated in Figure 23.

Environment

Context is key. The environments in which infants and children live, play and learn, together with their relationships with family, teachers and peers, exert a powerful influence on

Figure 23: The intergenerational impact of smoking



Source: Shaw J (2017) Is epigenetics inherited? *Harvard Magazine, May/June 2017*. Viewed 10 October 2019: https://harvardmagazine.com/2017/05/is-epigenetics-inherited. Illustration by: Jude Buffum. Reproduced with permission from Jude Buffum.

their health and development. For example, the developing brain is highly sensitive and susceptible to adversity, which is linked to children's cognitive and emotional functioning and impacts outcomes such as school readiness, academic performance, and long-term mental health.[16]

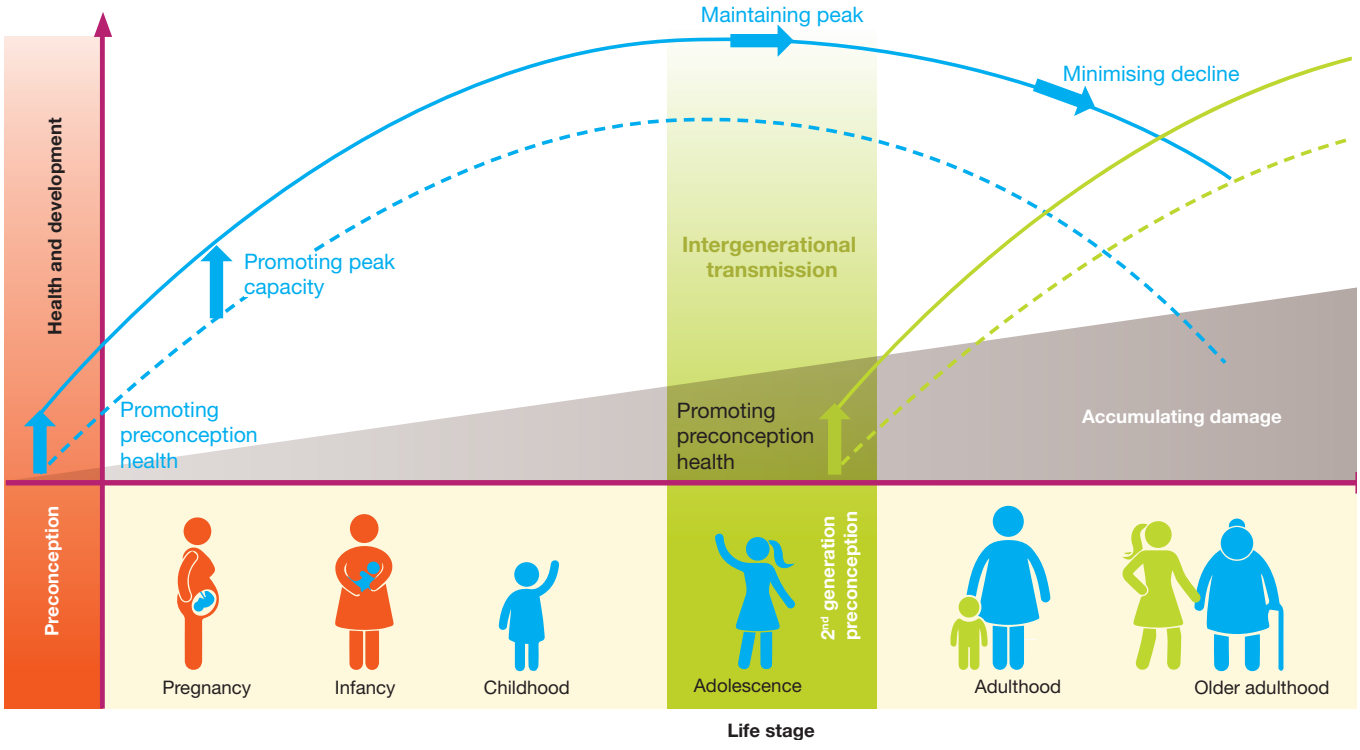
What are the implications of the Life Course Health and Development Framework for child and adolescent health?

The framework provides us with a powerful lens to identify opportunities for public health interventions and policies that can optimise life course trajectories (see Figure 24). We can minimise the risk of disease (accumulative damage) and promote a healthier life course trajectory by optimising parental preconception health, promoting peak biological capacity during childhood and adolescence (for example, growth, cognitive potential and body composition), maintaining this peak capacity during mid-adulthood, and minimising the decline in older adults (for example, by maintaining healthy bone mineral density and muscle mass). This framework highlights the profound impact of investments in children's development during the first 1,000 days of life and adolescence. Positive choices made during these sensitive periods of development can help firm up a strong foundation that will shape children's health and development trajectories across the life course, and those of their children.

Preconception: Promoting health before pregnancy

There is increasing evidence that the preconception period is an opportunity to prevent future health risk to both parents and their children.[17] Optimising health (healthy weight, normal blood pressure and glucose concentrations, and adequate iron stores) and promoting healthier habits (sufficient sleep, increased physical activity and reduced sedentary behaviour) in men and women prior to conception may promote the healthy development of the foetus during pregnancy and beyond.[18] The International Federation of Gynecology and Obstetrics has made strong calls for measures and interventions globally to improve nutrition education and access for women of reproductive age to assist with planning and preparation for healthy pregnancies.[19]

Figure 24: Intervention strategies across the life course



Pregnancy: Laying down a healthy foundation

One in three women of childbearing age in urban Soweto is obese at first presentation at the antenatal clinic, and 10% have gestational diabetes[i] (GDM).[20] This type of diabetes is not universally screened for in South Africa and there is therefore concern that a significant proportion of these GDM pregnancies may go undiagnosed and untreated. The consequences of a GDM pregnancy are substantial as it accelerates progression to diabetes in women (45% of women who had a GDM pregnancy in South Africa were diabetic within five years)[21] and children born of GDM pregnancies are likely to be more obese.[22] Keeping blood sugar levels within a normal range during pregnancy can help reduce the risk of "transmitting" both obesity and diabetes to the child.

Poor maternal nutrition during pregnancy impacts on the development of the foetus, reducing the number of nephrons responsible for filtering blood in the kidneys, which then increases the offspring's risk for hypertension and chronic kidney disease in later life.[23] Therefore, it is essential to lay down a healthy foundation during pregnancy through early and regular access to antenatal care services (including digital health services such as MomConnect[24]) and to address signs of malnutrition, domestic violence, substance abuse and maternal depression.

Childhood: Establishing healthy trajectories

Cognitive capacity established in the early years of life forms the foundation for school readiness and academic skills, which are essential for positive educational outcomes. When a child experiences toxic stress – such as frequent and/or prolonged adversity such as physical or emotional abuse, chronic neglect, caregiver substance abuse or mental illness, exposure to violence, and/or the accumulated burdens of family economic hardship – it can derail healthy childhood health and development trajectories. Fostering a stable and secure environment is an effective way to mitigate the impact of toxic stress on children.

The Nurturing Care Framework aims to support stable and responsive home environments.[25] This framework, endorsed by WHO, provides clear guidance for public policies, programmes and services; and includes a focus on good health, safety and security, responsive caregiving, adequate nutrition, stimulation (including play), and early learning. The framework has a particular focus on empowering parents and caregivers to respond attentively to young children's efforts to explore and interact with the world around them. The Nurturing Care Framework has been integrated into South Africa's new Road to Health Book and accompanying Side-by-Side campaign (see Chapter 3). Ensuring early access to

i Gestational diabetes is characterised by elevated glucose or blood sugar levels first identified during pregnancy.

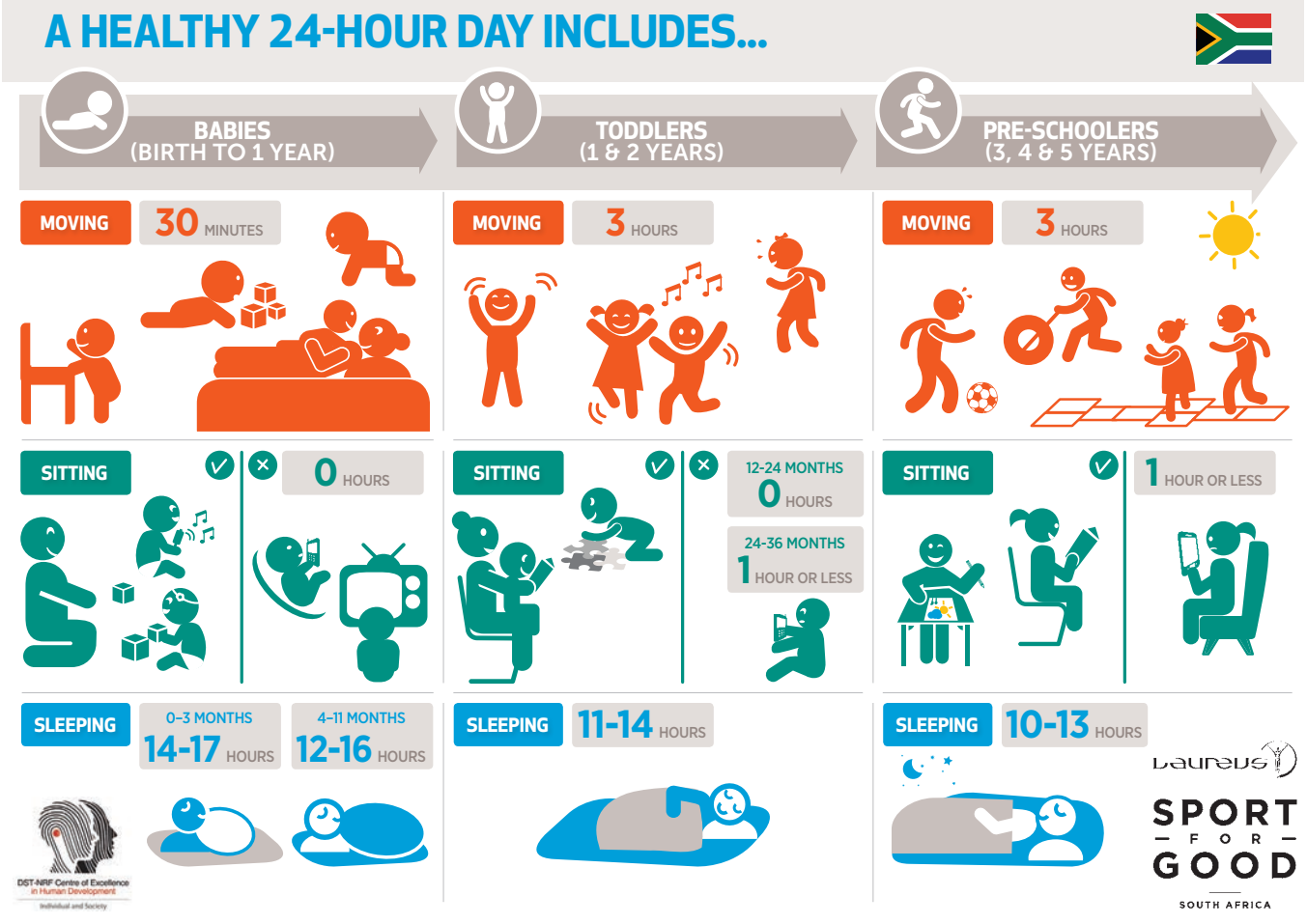
Case 1: The South African 24-hour movement guidelines for birth to five years

These guidelines outline how much time infants and young children should spend moving, sitting and sleeping each day and aim to help parents, caregivers and early childhood practitioners to structure a healthy 24-hour day for young children (see Figure 25).

These guidelines do not focus on just one specific behaviour or age group, but rather provide a coherent set of recommendations that apply to various key stages of the life course. The recommendations are consistent with the WHO 24-hour Movement Guidelines and are based on the best available local and international evidence, expert consensus, stakeholder consultation and consideration of what is regarded to be important, applicable, feasible and equitable across all South African contexts.[26]

These guidelines have been developed in response to research that has shown how these movement behaviours are linked to healthy growth and physical development, as well as cognitive, social and emotional development in children from birth to five years. Children who are supported to meet these movement guidelines are likely to grow up healthier, fitter and stronger. They may also have better motor skill abilities, be more prepared for school, manage their feelings better, and enjoy life more.

Figure 25: South African 24-hour movement guidelines: Infancy and early childhood



social support, such as the Child Support Grant, and timeous receipt and effective use of the Road to Health Book can help ensure the healthy growth and development of young children. During this stage of the life course, healthy habits also begin to form. This includes dietary preferences, as well as movement behaviours including physical activity, sedentary (sitting) behaviour, screen time and sleep. A healthy balance of these activities is needed to promote the physical health, well-being and cognitive development of young children (see Case 1). The earlier healthy routines are established the

better, since these behaviours track through to adolescence and adulthood. When children achieve the optimal balance of these behaviours, there is a greater chance that they grow up fitter, healthier, stronger and better prepared for school.

Adolescence: Promoting peak capacity

Adolescence is a critical developmental phase for achieving human potential as this is when the physical, psychological, behavioural, social and economic foundations of adulthood are consolidated. Brain development and new cognitive abilities, such as complex abstract thinking, lead to shifts in adolescents' identity and relationships with their families, peers and communities. Adolescence also entrenches health behaviours (both positive and negative) that can affect health and well-being in later life.[27] The Harvard Growth Study of 1922 – 1935 was a landmark study that demonstrated persisting consequences of adolescent health.[28] In particular, adolescent malnutrition (being either overweight or obese) had long-lasting effects and was associated with an increased risk of mortality among men, and greater risk of cardiovascular disease in both men and women.

The adolescent health profile in sub-Saharan Africa is dismal – infectious diseases, such as HIV and tuberculosis, and pregnancy complications are prominent causes of morbidity and mortality; the risks for NCDs are rising rapidly; and mental, neurological, and substance use disorders peak during this period.[29] Adolescents in South Africa are the only population group who have not seen a decline in new infections of HIV. Rates of conduct disorders (11.9%) – characterised by aggressive, destructive or deceitful behaviour – are almost double than those in the United Kingdom and violent and antisocial behaviour is common (20%) in the adolescent years. One in seven new HIV infections occur during adolescence; up to half of sexual assaults are committed against girls younger than age 16; and perpetrating, or being a victim of violence, peaks at ages 14 – 19 years. More than 50% of adult psychiatric disorders have their onset in adolescence and up to a third of suicide attempts involve adolescents.[30]

Longitudinal data from the Birth to Twenty Plus cohort showed a rising prevalence of obesity, particularly in girls. By the end of adolescence, 10% of females and 4% of males are obese, and the prevalence in females then nearly doubles in early adulthood. South Africa has the most obese adolescent population in sub-Saharan Africa, exceeding the obesity prevalence in Europe, and approaching levels described in the United States. With no clear prevention, management and treatment plan in the public health sector, adolescent and childhood obesity is often neglected.

Initiatives such as the WHO Global Accelerated Action for the Health of Adolescents (AA-HA!)[31] aim to place adolescent health at the forefront of health-care policy in order to: (i) effectively deal with the health needs of young people; (ii) boost the impact of early interventions in childhood; and (iii) optimise adolescents' health trajectories and those of their future offspring.

Catalano and colleagues argue that there needs to be greater investment in prevention strategies in order to reduce the burden of adolescent mortality and morbidity.[32] AA-HA identifies 75 evidence-based health interventions designed to promote positive development and address unintentional injury, violence, sexual and reproductive health, communicable and NCDs, mental health, substance use and self-harm.

There is no one-size-fits-all prevention package to optimise adolescent well-being, and most governments face significant resource constraints. Therefore, governments should: (i) commit to prioritising adolescent health; (ii) conduct a needs assessment and landscape analysis; (iii) engage with multiple stakeholders, including adolescents, to set priorities; and (iv) implement pragmatic, evidence-based solutions.

Conclusion

The Life Course Health and Development Framework and DOHaD science have illustrated how the health of the elderly is connected to the health of the young. Perhaps the most important insight arising out of the life course approach is the need to treat health and development as a long-term investment. Instead of simply treating the consequences of biological damage that has accumulated in old age, it makes economic sense to promote health from the beginning of life in order to improve health and development and reduce the cost of treating NCDs. Greater commitment to and investment in child and adolescent health are urgently needed.

References

1 Lopez AD, Mathers CD, Ezzati M, Jamison DT & Murry CJ (2006) Global and regional burden of disease and risk factors, 2001: Systematic analysis of population health data. *The Lancet*, 367(9524): 1747-1757.

2 Gouda HN, Charlson F, Sorsdahl K, Ahmadzada S, Ferrari AJ, Erskine H, Leung J, Santamauro D, Lund C, Aminde LN, Mayosi BM, Kengne AP, Harris M, Achoki T, Wiysonge CS, Stein DJ & Whiteford H (2019) Burden of non-communicable diseases in sub-Saharan Africa, 1990-2017: Results from the Global Burden of Disease Study 2017. *Lancet Global Health*, 7(10): e1375-e1387.

3 Popkin BM & Gordon-Larsen P (2004) The nutrition transition: Worldwide obesity dynamics and their determinants. *International Journal of Obesity*, 28: S2-9;
Sharma SR, Mishra SR, Wagle K, Page R, Matheson A, Lambrick D, Faulkner J, Lounsbury D & Vaidya A (2017) Social determinants of common metabolic risk factors (high blood pressure, high blood sugar, high body mass index and high waist-hip ratio) of major non-communicable diseases in South Asia region: A systematic review protocol. *Systematic Reviews*, 6(1): 183.

4 Calkins K & Devaskar SU (2011) Fetal origins of adult disease. *Current Problems in Pediatric and Adolescent Health Care*, 41(6): 158-176;
Barker DJ, Lampl M, Roseboom T & Winder N (2012) Resource allocation in utero and health in later life. *Placenta*, 33(2): e30-30.

5 Kuh D & Davey-Smith G (2004) The life course and adult chronic disease: An historical perspective with particular reference to coronary heart disease. In: Kuh D & Shlomo YB (eds) *A Life Course Approach to Chronic Disease Epidemiology*. Oxford: Oxford University Press.

6 Gillman MW (2004) A life course approach to obesity. In: Kuh D, Shlomo YB & Ezra S (eds) *A Life Course Approach to Chronic Disease Epidemiology*, Oxford: Oxford University Press. P. 473.

7 Nyati LH, Pettifor JM & Norris SA (2019) The prevalence of malnutrition and growth percentiles for urban South African children. *BMC Public Health*, 19(1): 492.

8 Lundeen EA, Norris SA, Adair LS, Richter LM & Stein AD (2016) Sex differences in obesity incidence: 20-year prospective cohort in South Africa. *Pediatric Obesity*, 11(1): 75-80.

9 Norris SA, Osmond C, Gigante D, Kuzawa CW, Ramakrishnan L, Lee NR, Ramirez-Zea M, Richter LM, Stein AD, Tandon N, Fall CH; COHORTS Group (2012) Size at birth, weight gain in infancy and childhood, and adult diabetes risk in five low- or middle-income country birth cohorts. *Diabetes Care*, 35(1): 72-79.

10 Benny L, Boyden J & Penny M (2018) *Early is Best but it's Not Always Too Late: Young Lives evidence on nutrition and growth in Ethiopia, India, Peru and Vietnam. Summative report*. Oxford: Young Lives.

11 Heslehurst N, Vieira R, Akhter Z, Bailey H, Slack E, Ngongalah L, Pemu A & Rankin J (2019) The association between maternal body mass index and child obesity: A systematic review and meta-analysis. PLOS Medicine, 16(6): e1002817.

12 Elder Jr GH (1998) The life course as developmental theory. *Child Development*, 69(1): 1-12.

13 Baltes PB, Staudinger UM & Lindenberger U (1999) Lifespan psychology: Theory and application to intellectual functioning. *Annual Review of Psychology*, 50(1): 471-507.

14 Jacob CM, Baird J, Barker M, Cooper C & Hanson M (2017) *The Importance of a Life-course Approach to Health: Chronic disease risk from preconception through adolescence and adulthood. White Paper.* World Health Organization;
Halfon N, Forrest CB, Lerner RM & Faustman E (eds) (2018) *Handbook of Life Course Health Development*. doi 10. 1007/978-3-319-47143-3_14.

15 See no. 14 above.

16 Lomanowska AM, Boivin M, Hertzman C & Fleming AS (2017) Parenting begets parenting: A neurobiological perspective on early adversity and the transmission of parenting styles across generations. *Neuroscience*, 342: 120-139;
Hodel AS (2018) Rapid infant prefrontal cortex development and sensitivity to early environmental experience. *Developmental Review*, 48: 113-144.

17 Stephenson J, Heslehurst N, Hall J, Schoenaker DAJM, Hutchinson J, Cade JE, Poston L, Barrett G, Crozier SR, Barker M, Kumaran K, Yajnik CS, Baird J & Mishra GD (2018) Before the beginning: Nutrition and lifestyle in the preconception period and its importance for future health. *The Lancet*, 391(10132): 1830-1841;
Barker M, Dombrowski SU, Colbourn T, Fall CHD, Kriznik NM, Lawrence WT, Norris SA, Ngaiza G, Patel D, Skordis-Worrall J, Sniehotta FF, Steegers-Theunissen R, Vogel C, Woods-Townsend K & Stephenson J (2018) Intervention strategies to improve nutrition and health behaviours before conception. *The Lancet*, 391(10132): 1853-1864.

18 Hanson M, Barker M, Dodd JM, Kumanyika S, Norris S, Steegers E, Stephenson J, Thangaratinam S & Yang H (2017) Interventions to prevent maternal obesity before conception, during pregnancy, and post-partum. *Lancet Diabetes Endocrinol*, 5(1): 65-76.

19 Hanson MA, Bardsley A, De-Regil LM, Moore SE, Oken E, Poston L, Ma RC, McAuliffe FM, Maleta K, Purandare CN, Yajnik CS, Rushwan H & Morris JL (2015) The International Federation of Gynecology and Obstetrics (FIGO) recommendations on adolescent, preconception, and maternal nutrition: "Think Nutrition First". *International Journal of Gynecology and Obstetrics*, 131(4): S213-S253.

20 Macaulay S, Ngobeni M, Dunger DB & Norris SA (2018) The prevalence of gestational diabetes mellitus amongst black South African women is a public health concern. *Diabetes Research and Clinical Practice*, 139: 278-287.

21 Chivese T, Norris SA & Levitt NS (2019) Progression to type 2 diabetes mellitus and associated risk factors after hyperglycemia first detected in pregnancy: A cross-sectional study in Cape Town, South Africa. *PLOS Medicine*, 16(9): e1002865.

22 Lowe WL Jr, Lowe LP, Kuang A, Catalano PM, Nodzenski M, Talbot O, Tam WH, Sacks DA, McCance D, Linder B, Lebenthal Y, Lawrence JM, Lashley M, Josefson JL, Hamilton J, Deerochanawong C, Clayton P, Brickman WJ, Dyer AR, Scholtens DM, Metzger BE; HAPO Follow-up Study Cooperative Research Group (2019) Maternal glucose levels during pregnancy and childhood adiposity in the Hyperglycemia and Adverse Pregnancy Outcome Follow-up Study. *Diabetologia*, 62(4): 598-610.

23 Luyckx VA, Perico N, Somaschini M, Manfellotto D, Valensise H, Cetin I, Simeoni U, Allegaert K, Vikse BE, Steegers EA, Adu D, Montini G, Remuzzi G, Brenner BM; writing group of the Low Birth Weight and Nephron Number Working Group (2017) A developmental approach to the prevention of hypertension and kidney disease: A report from the Low Birth Weight and Nephron Number Working Group. *The Lancet*, 390(10092): 424-428.

24 Department of Health (2019) *What is MomConnect?* Viewed 10 October 2019: http://www.health.gov.za/index.php/mom-connect .

25 World Health Organization (2019) *Nurturing Care Framework: Why Nurturing Care*? Viewed 16 October 2019: www.who.int/maternal_child_adolescent/child/nurturing-care-framework-rationale/en/.

26 Draper CE, Tomaz SA, Barrow T, Biersteker L, Cook CJ, Couper J et al. (in press) The South African 24-hour Movement Guidelines for Birth to Five Years: An integration of physical activity, sitting behaviour, screen time and sleep. *Journal of Physical Activity and Health* (in press).

27 Sawyer SM, Afifi RA, Bearinger LH, Blakemore S-J,Dick B, AC Ezeh & Patton GC (2012) Adolescence: A foundation for future health. *The Lancet*, 379(9826): 1630-1640.

28 Must A, Jacques PF, Dallal GE, Bajema CJ & Dietz WH (1992) Long-term morbidity and mortality of overweight adolescents: A follow-up of the Harvard Growth Study of 1922 to 1935. *New England Journal of Medicine*, 327(19): 1350-1355.

29 Patton GC, Coffey C, Cappa C, Currie D, Riley L, Gore F, Degenhardt L, Richardson D, Astone N, Sangowawa AO, Mokdad A & Ferguson J (2012) Health of the world's adolescents: A synthesis of internationally comparable data. *The Lancet*, 379(9826): 1665-1675.

30 Cappa C, Wardlaw T, Langevin-Falcon C & Diers J (2012) Progress for children: A report card on adolescents. *The Lancet*, 379(9834): 2323-2325;
Davidson LL, Grigorenko EL, Boivin MJ, Rapa E & Stein A (2015) A focus on adolescence to reduce neurological, mental health and substance-use disability. *Nature*, 527(7578): S161;
Polanczyk GV, Salum GA, Sugaya LS, Caye A & Rohde LA (2015) Annual research review: A meta-analysis of the worldwide prevalence of mental disorders in children and adolescents. *Journal of Child Psychology and Psychiatry*, 56(3): 345-365;
Patel V, Flisher AJ, Hetrick S & McGorry P (2007) Mental health of young people: A global public health challenge. *The Lancet*, 369(9569): 1302-1313.

31 World Health Organization (2019) *What is Global AA-HA! Guidance*? Viewed 16 October 2019: www.who.int/maternal_child_adolescent/topics/adolescence/what-is-global-aa-ha/en/.

32 Catalano RF, Fagan AA, Gavin LE, Greenberg MT, Irwin CE Jr, Ross DA & Shek DT (2012) Worldwide application of prevention science in adolescent health. *The Lancet*, 379(9826): 1653-1664.

The first 1,000 days: Ensuring mothers and young children thrive

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As child mortality declines, child health policymakers and practitioners have the opportunity and obligation to focus not only on child survival, but on ensuring that all children also thrive and reach their full developmental potential. The first 1,000 days of life – from conception until a child's second birthday – is increasingly recognised as a unique period of opportunity when the foundations for optimum health and development across the lifespan are established. The benefits of interventions during this critical period of development are therefore amplified with the highest long-term return on investment[1] (see Box 5).

The chapter focuses on the following issues:

- What are South Africa's global and national commitments regarding the first 1,000 days?
- What are the key interventions that need to be delivered?
- Is South Africa making progress in delivering key interventions, and in improving outcomes for young children?
- What must the health sector do differently to help young children thrive?

What are South Africa's global and national commitments?

The Sustainable Development Goals provide the basis for achieving equity, prosperity and sustainable growth, and the SDGs and targets outline the environment and services which young children require to ensure that they reach their full potential, and that "no child is left behind".[2] Many of the SDG targets will not be achieved without investment and improvements in early childhood development, whilst the Global Strategy for Women's, Adolescent's and Children's Health uses the "Survive, Thrive and Transform" concept as a key strategy for achieving the SDG targets that support children's health and optimal development.[3]

In South Africa, the National Integrated Early Childhood Development (ECD) Policy, adopted by Cabinet in 2015, lays

Box 5: Why focus on the first 1,000 days?

The increased focus on the first 1,000 days is based on improved understanding in a number of fields including neuroscience, infant mental health, epidemiology, economics and violence prevention.

The relationship and causal links between adversity during early childhood and lifelong health, emotional and social well-being and educational outcomes are better understood. Nutrition during the first 1,000 days affects not only a child's growth, cognition and subsequent school attainment,[4] but also impacts on lifelong risk of developing chronic disease. Extreme poverty increases children's likelihood of exposure to multiple adversities, including family stress, child abuse and neglect, food insecurity, and exposure to violence. Early intervention has the potential to decrease inequality and interrupt intergenerational cycles of poverty, although this will only be realised if interventions are specifically targeted at the most vulnerable children.[5]

The importance of relationships and warm interactions between caregivers and young children has also been recognised. These interactions create an emotional bond which helps young children to understand and explore the world around them and to learn about people, relationships and language. Neuroscientific evidence shows how responsive care during early childhood lowers the detrimental effects of low socio-economic status on brain development and helps children cope with the effects of adversity and toxic stress.[6]

These advances in basic and intervention science indicate that early childhood is a period of special sensitivity to experiences that promote development, and that critical time windows exist when the benefits of ECD interventions are amplified. Interventions in early childhood are therefore most cost effective and have the highest long-term return on investment.[7]

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out a similar multi-sectoral approach to promoting the health, nutrition, development and well-being of mothers and young children.[8] The policy, recognises of the health sector's role in reaching pregnant mothers and young children, assigns key responsibility for service provision to children 0 – 2 years to the health sector. In addition to the health sector's traditional role of providing health and nutrition programmes for pregnant women, infants and children, the policy assigns additional roles to the health sector including provision of parenting support programmes and increasing opportunities for learning and play for children from birth to two years through health facilities and home visits by community health workers for children at risk of poor development outcomes.

However, translating these global and national commitments into changes in how frontline health services are designed and delivered remains a challenge, especially as the health sector has historically focused on primarily providing a package of maternal and child survival services, frequently delivered as vertical programmes. Caring for young children (0 – 2 years) and issues related to development and learning have been left to families.[9] In addition, whilst the ECD policy provides a comprehensive blueprint for improving the lives of young children in South Africa, ECD is still largely understood in the South African context to be about centre-based early child care and education programmes for children 3 – 5 years of age. Whilst such programmes are likely to improve school readiness, they will not achieve their full potential unless complemented by a focus on the first 1,000 days.

What are the key interventions that need to be delivered during the first 1,000 days?

Two important documents which can assist countries to re-orientate their health systems towards a more comprehensive understanding of ECD were published in 2018. The Nurturing Care Framework[10] provides a framework for a comprehensive package of services and support for early childhood development, whilst the second, the country ECD Countdown Country Profiles,[11] provide a basis for measuring progress over time and comparing progress between and within countries.

Box 6: Key components of nurturing care

1. Good health

Young children's good health is the result of caregivers:

- monitoring children's physical and emotional condition;
- giving affectionate and appropriate responses to children's daily needs;
- protecting young children from household and environmental dangers;
- having hygiene practices which minimise infections;
- using promotive and preventive health services; and
- seeking care and appropriate treatment for children's illnesses.

2. Adequate nutrition

- The mother's nutrition during pregnancy affects her health and well-being, as well as the developing child's nutrition and growth.
- All mothers should be supported to breastfeed exclusively from immediately after birth until the child is six months old.
- From the age of six months, young children need complementary foods that are frequent and diverse enough, and which contain the micronutrients they need for the rapid growth of their body and brain.
- When children's daily diet fails to support healthy growth, they need micronutrient supplements or treatment for malnutrition (including obesity).
- Food safety and family food security are essential for adequate nutrition.

3. Responsive caregiving

Responsive caregiving includes observing and responding to children's movements, sounds and gestures, verbal requests and emotional needs. It is the basis for:

- building trust and social relationships;
- protecting children against injury and the negative effects of adversity;
- recognising and responding to illness; and
- enriched learning.

4. Opportunities for early learning

Children need:

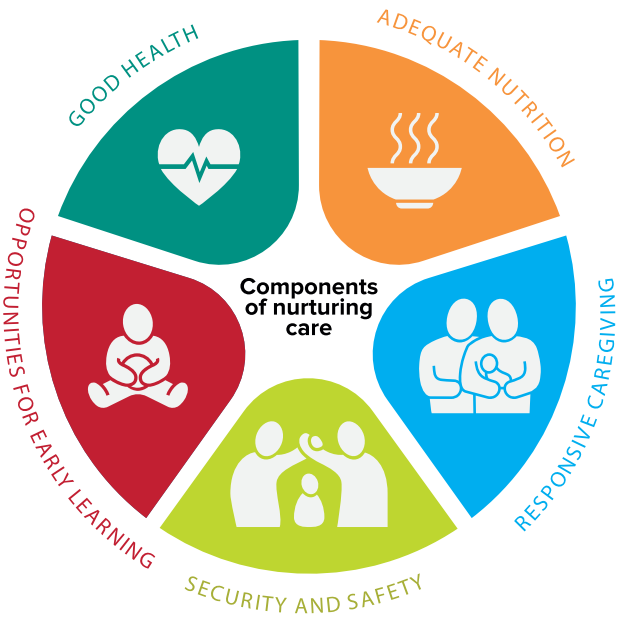
- affectionate and secure caregiving from adults; and
- opportunities to play.

5. Security and safety

Children need:

- to live in safe environments; and
- to be protected from abuse and harsh punishment.

Figure 26: The five components of nurturing care



These two documents provide a useful lens for considering how the South African health sector has, and should, respond to the imperative to use the first 1,000 days as a platform to ensure that children not only survive, but thrive.

The Nurturing Care Framework

The Nurturing Care Framework, which was launched at the 71st World Health Assembly in 2018, is an important step in translating the concepts associated with the first 1,000 days into action, especially within the health arena.[12] The framework identifies five key components that young children require to thrive: good health, adequate nutrition, to be cared for responsively and with love, to be given opportunities to satisfy their innate capacity to learn, and to be safe and secure (see Box 6). Nurturing care is provided by parents and caregivers who, in turn, require a facilitating environment of supportive policies and services.

The Nurturing Care Framework also identifies the role of different sectors in providing nurturing care (see Box 7) and a number of key strategies or requirements for successful implementation. These are leadership and investment; a focus on families and communities; strengthening of services; monitoring progress; and using data to innovate.[13]

ECD Countdown Country Profiles

The ECD Countdown Country Profiles[14] represent an important first step in reaching consensus on the best indicators for tracking progress and addressing poor outcomes for young children. The profiles also allow for countries to benchmark themselves and to measure progress over time.

Each country profile provides information on two key areas, namely threats to children's health, nutrition and development outcomes; and support and services for ECD. The latter is further divided into two sections – the first focuses on the extent to which services outlined in the Nurturing Care Framework are provided, and the second on the extent to which a policy environment that facilitates ECD is in place.

It should be noted that population-level indicators related to responsive caregiving and early learning are often lacking

Box 7: Role of health, education and social sectors in promoting nurturing care

Role of the health sector

- Ensure women and young children have access to good-quality health and nutrition services.
- Make health and nutrition services more supportive of nurturing care.
- Increase outreach to families and children with the greatest risk of suboptimal outcomes.
- Establish specialised services for families and children with developmental difficulties and disabilities.
- Collaborate with other sectors to ensure a continuum of care.

Role of the social and child protection sectors

- Guarantee citizenship for every child.
- Shield families and children from poverty.
- Link benefits to services that support nurturing care.
- Ensure there is a continuum of care.
- Protect children from maltreatment, violence and family break-up.

Role of the education sector

- Reinforce the fact that education begins at birth.
- Ensure good health practices and hygiene in early childhood programmes.
- Put family engagement at the core of early childhood programmes.
- Integrate children who have additional needs and reach out to the most vulnerable.
- Invest in education for adolescents and adults.

and/or poorly standardised – this reflects the low importance assigned to these areas within and outside of the health sector.

Is South Africa making progress in delivering key interventions and improving outcomes for young children?

Progress in South Africa, based on data from the ECD Countdown Country Profile and other sources, is shown in Table 7. Wherever possible, population-based data using standardised global indicators are presented, but where these are not available or do not sufficiently address the South African context, local data are presented. Indicators used in the 2013 *South African Child Gauge* to assess progress in ECD service delivery are also included to allow for comparison over time. Likewise, where possible, information on children 0 – 2 years is presented; however, where age disaggregation is not available for key indicators, data on children 0 – 5 years (and in some cases 0 – 18 years) are presented.

Table 7: Status of young children and threats to optimal early childhood development

Indicator	Baseline	Most-recent estimate
Proportion of young children at risk of poor development[1]	52% (2005)	38% (2015)
Maternal mortality ratio[2]	200 per 100,000 live births (2011)	134 per 100,000 live births (2016)
Neonatal mortality rate[1]	13 per 1,000 live births (2011)	12 per 1,000 live births (2017)
Infant mortality rate[2]	28 per 1,000 live births (2011)	23 per 1,000 live births (2017)
Proportion of births with birthweight < 2.5 kg[3]	13.1% (2012)	12.9% (2018)
Number of children living in extreme poverty[i] (< $1.90 per person per day)[4]	9.3 million (2003)	4.3 million (2017)
Number of children living in poverty[ii] (< R1,183 per person per month in 2018) [4]	14.1 million (2003)	12.8 million (2017)
Proportion of children under five years who are stunted[iii]	27%[5] (2003)	27%[6] (2016)
Number of children 0 – 15 years with HIV infection[7]	429,140 (2012)	312,133 (2018)
Proportion of young children who experience harsh punishment	No data available	No data available[iv]
Inadequate supervision of children	No data available	0.1% of children 1 – 4 years were left in the care of a person younger than 18[9]

Sources:

1 Richter LM, Black M, Britto P, Daelmans B, Devercelli A, Dua T, Fink G, Heymann J, Lombardi J, McCoy D & Vargas-Baron E (2018) *Thrive: Nurturing care for early childhood development. country profiles for early childhood development.* Johannesburg: University of the Witwatersrand.
2 Dorrington R, Bradshaw D, Laubscher R & Nannan N (2019) *Rapid Mortality Surveillance Report 2018.* Cape Town: South African Medical Research Council.
3 Department of Health (2019) District Health Information System data. Viewed: 11 June 2019: https://za.dhis.dhmis.org/
4 Hall K & Sambu W (2018) Income poverty, unemployment and social grants. In: Hall K, Richter L, Mokomane Z & Lake L (eds) *South African Child Gauge 2018.* Cape Town: Children's Institute, UCT.
5 Department of Health, Medical Research Council & OrcMacro (2007) *South Africa Demographic & Health Survey 2003.* Pretoria: DoH.
6 Department of Health, Statistics South Africa, South Africa Medical Research Council and ICF (2017) *South Africa Demographic & Health Survey 2016 Report.* Pretoria: DoH.
7 Thembisa model. Viewed 10 October 2019: https://thembisa.org/content/downloadPage/Provinces2019.
8 Richter L, Mathews S, Kagura J & Nonterah E (2018) A longitudinal perspective on violence in the lives of South African children from the Birth to Twenty Plus cohort study in Johannesburg-Soweto. *South African Medical Journal*, 108(3): 181-186.
9 Statistics South Africa (2019) *General Household Survey 2018.* Pretoria: Stats SA.

i International line used to track progress towards elimination of extreme poverty.
ii The upper-bound poverty line is linked to the minimum requirement for basic nutrition as well as other basic needs.
iii More rigorous standards were used to define stunting in 2016 than 2003.
iv The Birth to Twenty study in Soweto found half of pre-school children had experienced physical punishment by a parent or caregiver.[8]

Table 8: Support and services for ECD

Indicator	Baseline	Most-recent estimate
Proportion of women who receive four antenatal care visits	56%[1] (2003)	76%[2] (2016)
Proportion of women who attend antenatal care before 20 weeks[3]	40% (2011)	67% (2018)
Proportion of pregnant women living with HIV on treatment[3]	24% (2012)	> 95% (2018)
Proportion of HIV-exposed infants who are tested for HIV infection at birth and 10 weeks	63% of infants tested at eight weeks[4] (2011)	96% tested at birth, 71% retested at 10 weeks[3] (2018)
Rate of mother-to-child transmission (MTCT) of HIV[5]	8% (2012)	4.5% (2019)
Proportion of newborns receiving postnatal care within six days of birth[3]	63% (2012)	75% (2018)
Proportion of children under five years with fever and cough where health care was sought	66%[1] (2003)	88%[2] (2016)
Proportion of children fully immunised at one year of age	Immunisation coverage remains uncertain. It was previously reported that 95% of children under one year of age were fully immunised.[6] However the estimate was lowered to 75%, following revised population estimates. The comparable figure for 2018 is 82%.[3] Survey data show lower figures: the 2016 South Africa Demographic Health Survey reported that only 61% of children age 12 – 23 months had received all basic vaccinations and only 53% received all age-appropriate vaccinations.[2]	
Proportion of infants who initiate breastfeeding early (within one hour of birth)	39%[1] (2003)	67%[2] (2016)
Exclusive breastfeeding (proportion of infants 0 – 6 months exclusively breastfed[i]	8%[1] (2003)	32%[2] (2016)
Proportion of children 1 – 5 years who received two doses of vitamin A[3]	36% (2011)	57% (2018)
Children 6 – 24 months receiving an acceptable diet	No data	23%[2] (2016)
Children 0 – 2 years reported to attend: a preschool, nursery school, crèche, educare centre or playgroup	No data	21%[7] (2017)
Proportion of children registered within one year of birth	90%[8]	81%[7]
Children receiving the Child Support Grant[9]	6.6 million (2011)	12.3 million (2018)

Sources:

1 Department of Health, Medical Research Council & OrcMacro (2007) *South Africa Demographic & Health Survey 2003*. Pretoria: DoH.
2 Department of Health, Statistics South Africa, South Africa Medical Research Council and ICF (2017) *South Africa Demographic & Health Survey 2016 Report*. Pretoria: DoH.
3 Department of Health (2019) District Health Information System data. Extracted 11 June 2019: https://za.dhis.dhmis.org/
4 Health Systems Trust (2011) *District Health Barometer 2011/12*. Durban: Health Systems Trust.
5 Thembisa model. Viewed 10 October 2019: https://thembisa.org/content/downloadPage/Provinces2019
6 Department of Health 2011 data. In: Bamford L (2013) Maternal, newborn and child health. In: Padarath A & English R (eds) *South African Health Review 2012/13*. Durban: Health Systems Trust.
7 Hall K, Sambu W, Almeleh C, Mabaso K, Giese S & Proudlock P (2019) *South African Early Childhood Review 2019*. Cape Town: Children's Institute, UCT & Ilifa Labantwana.
8 Berry L, Dawes A & Biersteker L (2013) Getting the basics right: An essential package of servives and support for ECD. In: Berry L, Biersteker L, Dawes A, Lake L & Smith C (eds) *South African Child Gauge 2013*. Cape Town: Children's Institute, UCT.
9 Hall K & Sambu 2 (2019) *Income Poverty and Grants – Child Support Grants*. Children Count website, Children's Institute, UCT. Viewed 10 October 2019: www.childrencount.uct.ac.za.

i Routine data show that 49% of infants receiving 14-week immunisations were exclusively breastfed; up from 34% in 2013.[3]

Table 7 shows that young children face many threats. Using a composite indicator based on under-five stunting or poverty, it is estimated that 38% of young children are at risk for poor physical and cognitive development.[15] Whilst maternal and infant mortality rates have fallen, they remain high for a middle-income country such as South Africa. High levels of stunting persist with approximately one quarter of children under five years of age being short or stunted.[16] Stunting and poor cognition correlate well at a population level, and high levels of stunting are therefore a strong predictor of poor educational attainment.[17] In South Africa, these issues are further compounded by the HIV epidemic – not only are children with HIV infection at high risk of poor growth and development, but increasing evidence suggests that this is also the case for the almost one third of South Africa's children who are HIV exposed but uninfected.[18]

The persistently high levels of stunting in South Africa are therefore very concerning. Reducing these levels will depend on implementation of a package of interventions which focus on improving child nutrition (especially exclusive breastfeeding and complementary feeding practices) but also on reaching mothers and families, and improving their living environment and nutrition.[19]

Coverage of essential ECD services is shown in Table 8. Coverage of basic maternal, newborn and child health services is generally high with significant progress since 2011, although is not yet universal and deficiencies in the quality of care continue to be documented.[20] High coverage is an opportunity to expand the scope of service and provide additional services. For example, high antenatal coverage provides an opportunity to expand the scope of services to include assessment and support for psychosocial issues including maternal mental health and preparation for parenting.

Likewise, within the Prevention of Mother-To-Child Transmission programme, attention needs to be paid to providing adherence support and ensuring that all women are virally suppressed during pregnancy and breastfeeding. This ensures that the mother remains healthy and reduces the risk of vertical transmission (to the child). The postnatal period has been identified as a period of vulnerability during which mothers receive little support; this affects particularly HIV-infected mothers negatively.

An innovative facility-based intervention to address this problem is described in Case 3. Mothers who acquire HIV during pregnancy or while breastfeeding are likely to pass on HIV infection to their children; thus, reducing new maternal infections during pregnancy is also critical for further reductions in vertical transmission. Despite a decline in the number of children who are HIV infected, estimates continue to suggest that antiretroviral therapy (ART) coverage in children remains low with only 53% of eligible children receiving treatment.[21]

Coverage of key nutrition interventions has increased, although exclusive breastfeeding rates remain below the

Case 2: Catalysing community health workers

Kopano Mabaso, Grow Great Campaign

The Grow Great Campaign aims to galvanise South Africa towards a national commitment to achieving zero stunting by 2030. As part of the campaign, the Champions for Children Club was launched in 2018. The club is a community of practice for community health workers (CHWs) that celebrates, recognises and affirms CHWs for the important work they do. This opt-in club and its resource hub offer support to CHWs through a telephonic information line, opportunities for training on First 1,000 Day interventions, performance-based incentives and access to a social network of other CHWs across the country.

Approximately 200 CHWs based in the Ehlanzeni district of Mpumalanga and the Mopani district of Limpopo are currently participating in the Champions for Children Clubs. During the programme's first nine months, these CHWs have provided First 1,000 Days care and support to almost 4,000 young children and their caregivers. This included breastfeeding support, screening children for malnutrition, screening for perinatal depression, identifying early signs of pregnancy and encouraging early antenatal booking, identification and referral of at-risk children and children who are not benefitting from a CSG, and educating primary caregivers on the importance of early stimulation and play.

After six months, the confidence of CHWs in their understanding of issues related to maternal mental health, and in conducting screenings for perinatal depression, had improved significantly. CHWs also reported significantly improved knowledge and confidence to support early antenatal bookings, identify at-risk babies (especially low birth weight babies), screening for malnutrition, and assisting caregivers to obtain birth certificates.

Case 3: Postnatal clubs

Aurelie Nelson, Doctors without Borders (MSF)

Despite reductions in vertical transmission of HIV infection, challenges such as relatively high postnatal transmission remain. Adherence to antiretroviral treatment (ART) and retention in care may be low among women during the period after giving birth, resulting in sub-optimal health and an increased risk of mother-to-child transmission through breastfeeding.[22] Reasons for poor maternal retention are many and include high patient volumes, long waiting times, non-disclosure of HIV status, travel costs, inadequate knowledge, stigma, regimen fatigue, and lack of partner involvement.[23]

In response to these challenges, Médecins Sans Frontières (MSF), mothers2mothers and the City of Cape Town Health Department introduced postnatal clubs (PNCs). This holistic patient-centred model of care addresses both the medical needs of HIV-positive mothers and their HIV-exposed infants, whilst providing peer support, psychosocial support and ECD support in line with the Western Cape's "First 1,000 Days" campaign.

Mothers with babies born in the same month are grouped with PNCs, starting around 10 weeks after giving birth (although education on PNCs happens during pregnancy). The clubs meet monthly until infants turn six months old, then once every three months until children reach 18 months. A PNC starts with a peer educator-led support session which includes information on ART adherence, infant feeding (encouraging exclusive breastfeeding), health promotion messages (e.g. on disclosure of HIV, family planning, etc.) and ECD activities. The peer educators also weigh the mothers and babies, screen for TB and for maternal depression (six monthly) as well as distributing pre-packed ART. Mother–infant pairs are thereafter seen by a professional nurse who provides an integrated package of HIV and non-HIV care.

Between July 2016 and 15 June 2018, 335 mothers were recruited into PNCs (18 were high-risk) and 340 infants (five sets of twins). After 18 months, 79.2% of the mothers were still in care and with viral load testing and suppression remaining above 90% throughout. A high proportion of infants were also fully immunised.

For more information, see bit.ly/PNCtoolkit.

global target of 50% by 2025, [24] whilst complementary feeding practices remain poor with only a quarter of children 6 – 24 months receiving an appropriate diet.[25] Further increases in exclusive breastfeeding, as well as significant improvements in complementary feeding practices, will be needed to reduce stunting levels.

What must the health sector do differently to ensure young children thrive?

Declines in child mortality rates are encouraging; yet these rates remain unacceptably high and further reductions are required. Likewise, whilst improved coverage of many interventions is welcomed, the health sector needs to ensure that all mothers and children receive high-quality services.

Early learning and issues related to safety and security have not been considered historically as core health sector concerns. Ensuring that births are registered and that eligible children receive the Child Support Grant (CSG) represent interventions that can be undertaken by health-care workers as part of a package of ECD interventions.

Health-care workers can also play a key role in promoting early leaning. Since 2016, questions on stimulation provided to young children (0 – 4 years) have been included in the General Household Survey. In 2018, nearly half (47%) of children had never read a book, drawn (43%), or named different items with a parent or guardian (26%).[26]

Community health workers are particularly well placed to integrate these activities and to provide a comprehensive and integrated package of services to underserved communities (see Case 2).

The Nurturing Care Framework addresses not only the content of services, but also how these services are delivered, and places caregivers and families at the centre, with health and other services playing a supportive role. The national Department of Health has recently developed a more comprehensive Road to Health Book (RTHB) which focuses attention on children's health, nutrition, care and development, and is accompanied by the Side-by-Side campaign which aims to build a stronger partnership between children's caregivers and health care workers.[27] The Side-by-Side campaign is described in Case 4.

There are several key issues that need to be addressed in order to maximise the potential for achieving improved outcomes through a focus on the first 1,000 days.

Case 4: The Side-by-Side campaign

The Side-by-Side campaign aims to empower mothers and caregivers to ensure that their children grow and develop optimally. The central message of the campaign is "You are central to your child's nurturing, care and protection – and their lifelong health outcomes. Your health worker is there to support you".

The name Side-by-Side describes the supportive relationship between a child and the caregiver, as well as the relationship between health care workers and practitioners who support and advise the caregiver. Side-by-Side aims to convey the concept of partnership and togetherness and addresses the shared child-rearing journey that caregivers embark on with their children and all those who help and support them.

The Side-by-Side campaign is shaped by the five pillars of the Road to Health Book as outlined in Figure 27.

Figure 27: The five pillars of the Road to Health Book

	**NUTRITION** Good nutrition is important for you and your child to grow healthy. It starts with breastfeeding.
	**LOVE** Your child learns from looking at you when you hold them close to you and love, play and talk to them.
	**PROTECTION** Your child can be protected from disease and injury by getting immunised and by playing in safe places.
	**HEALTHCARE** Your child needs help from you or a health worker when they are sick or injured.
	**EXTRA CARE** Your child may need special care or support and knowing what to do and where to go will help both of you.

Source: Slemming W & Bamford L (2018) The new Road to Health Booklet requires a paradigm shift. *South African Journal of Child Health*, 12(3): 86-87.

Commitment and leadership

Despite the comprehensive nature of the integrated policy, ECD is still largely understood in the South African context to be about early child care and education delivered to children 3 – 5 years of age through centres, whilst health services focus on survival, growth and health, but not on development or learning.[28]

This perception is likely to skew investment away from the first 1,000 days, and means that additional responsibilities assigned to the health sector, such as parenting support, will remain un/underfunded. The Nurturing Care Framework and ECD Countdown Country Profiles have raised the profile of ECD within the global health community and should be used to advocate at national and sub-national levels that politicians as well as parents pay more attention to nurturing care.

Notwithstanding the above, many opportunities exist at all levels of the health system to ensure that components of the Nurturing Care Framework are introduced into routine health service delivery. Community health workers are especially well-placed to provide a comprehensive package of ECD services at household and community level, and will be key to driving further improvements in ECD outcomes, especially amongst the most vulnerable and disadvantaged children. The new RTHB provides an excellent mechanism for providing comprehensive services, and health care and other practitioners at all levels should be encouraged to take the lead in using the five pillars outlined in the new RTHB (and Side-by-Side campaign) as the basis for empowering caregivers, and providing better and more comprehensive services for mothers, children and their families (see Box 3).

Addressing poverty and the social determinants of health

The first 1,000 days concept highlights the important contribution of poverty and undernutrition to poor health, educational and developmental outcomes, whilst the Nurturing Care Framework calls for intersectoral collaboration to ensure that young children grow up in an environment

that is safe and secure. Whilst this chapter has focused on the role of the health sector, it is clear that young children will not reach their full potential in the absence of reductions in poverty and inequality. Stunting in young children serves as a proxy measure for poor educational, economic and social outcomes, and can be used to foster public understanding and engagement, as well as to garner political commitment for investment in essential services.

Whilst the ECD policy should be used to drive formal intersectoral collaboration at a policy level, different sectors also need to work together at local level to improve outcomes for young children. As a minimum, efforts to ensure that all children's births are registered, and that all eligible children receive a CSG, should be part of the routine work of all health-care workers including, and especially, community health workers.

Empowering caregivers to improve their own health and that of their children

The Nurturing Care Framework acknowledges the central role of caregivers and households in ensuring that children receive their optimal development potential. This requires a paradigm shift among those who provide health care and other services to understand their roles in supporting and empowering families and communities to provide the care that children need, including early stimulation and responsive care (as captured in the Side-by-Side campaign). This requires a shift in attitudes and practice amongst health care workers and which needs to be reflected in maternal and child health curricula and training.

It also requires a shift towards investing in mental health care services at primary health-care level, including risk and resilience assessments of, and counselling and intersectoral referral and support services for, parents and caregivers, starting during pregnancy and continuing into childhood.

Providing a comprehensive package of health and nutrition services for all mothers and babies

The Nurturing Care Framework requires that women and young children have access to good-quality health and nutrition services. Although coverage of many essential services has increased, more attention needs to be paid to ensuring full coverage, addressing deficiencies in the quality of care provided, and removing financial and non-financial barriers to using services. More attention also needs to be paid to services that are not currently provided at scale. These include breastfeeding support, provision of support to mothers suffering from maternal depression and other mental health problems, as well as better services for children with disabilities and developmental problems.

Tracking progress

Whilst the ECD Country Countdown Profiles are an important first step in agreeing how progress should be monitored, the profiles are likely to evolve over time, especially with regards to measuring responsive caregiving and early learning at population level. At a national level, attention should be paid to ensuring that global indicators are measured and that, where necessary, appropriate local indicators are identified and measured – which may require that these are incorporated into routine health information systems or collected through surveys. At a local level, child health practitioners should continue to monitor local mother and child mortality and health service delivery indicators, but also consider how maternal and child development and well-being can be measured and monitored.

Conclusion

Early intervention during pregnancy and the first two years of a child's life can result in significant gains on the long-term physical and cognitive development of a child. However, improving these gains will require that underlying social determinants of health are addressed, that health services are strengthened so that mothers and children receive a comprehensive package of services, and that mothers and other family members are supported to implement all five components of the Nurturing Care Framework successfully. These in turn will require leadership and investment in ECD, as well as improved systems for tracking progress and addressing deficiencies.

References

1 World Health Organization, UNICEF & World Bank Group (2016) *Advancing Early Childhood Development: From science to scale.* An executive summary for The Lancet's series, October 2016.

2 United Nations General Assembly (2015) *Transforming our World: The 2030 Agenda for Sustainable Development: Resolution adopted by the General Assembly on 25 September 2015.* New York: United Nations.

3 Every Woman, Every Child (2015) *The Global Strategy for Women's, Children's and Adolescent's Health (2016 – 2030): Survive, thrive, transform.* New York: United Nations.

4 Adair LS (2014) Long-term consequences of nutrition and growth in early childhood and possible preventive interventions. *Nestle Nutrition Institute Workshop Series*, 78: 111-20.

5 Black MM, Walker SP, Fernald LC, Andersen CT, DiGirolamo AM, Lu C, McCoy DC, Fink G, Shawar YR, Shiffman J & Devercelli AE (2017) Early childhood development coming of age: Science through the life course. *The Lancet*, 389: 77-90.

6 See no. 4 above;
See no. 5 above.

7 Britto PR, Lye SJ, Proulx K, Yousafzai AK, Matthews SG, Vaivada T, Perez-Escamilla R, Rao N, Ip P, Fernald LC & MacMillan H (2016) Nurturing care: Promoting early childhood development. *The Lancet*, 389: 91-102;
See no. 5 above.
8 Republic of South Africa (2015) *National Integrated Early Childhood Development Policy*. Pretoria: Government Printers.
9 Richter L, Tomlinson M, Watt K, Hunt X & Lindland E (2019) Early means early: Understanding popular understandings of early childhood development in South Africa. *Early Years*, 39:3, 295-309, doi: 10.1080/09575146.2019.1613346.
10 World Health Organization, UNICEF & World Bank Group (2018) *Nurturing Care for Early Childhood Development: A framework for helping children survive and thrive to transform health and human potential*. Geneva: WHO.
11 Richter LM, Black M, Britto P, Daelmans B, Devercelli A, Dua T, Fink G, Heymann J, Lombardi J, McCoy D & Vargas-Baron E (2018) *Thrive: Nurturing care for early childhood development. Country profiles for early childhood development*. Johannesburg: University of the Witwatersrand.
12 See no. 10 above;
See no. 11 above.
13 See no. 10 above;
14 See no. 11 above.
15 See no. 11 above.
16 Department of Health, Statistics South Africa, South African Medical Research Council & ICF (2017) *South Africa Demographic and Health Survey 2016*. Pretoria, South Africa, & Rockville, Maryland, USA: DoH, Stats SA, SAMRC & ICF.
17 Prendergast AJ & Humphrey JH (2014) The stunting syndrome in developing countries. *Paediatrics and International Child Health*, 34: 250-265.
18 Rosala-Hallas A, Bartlett JW & Filteau S (2017) Growth of HIV-exposed uninfected, compared with HIV-unexposed, Zambian children: A longitudinal analysis from infancy to school age. *BMC Pediatrics*, 17: 80.
19 Danaei G, Andrews KG, Sudfeld CR, Fink G, McCoy DC, Peet E, Sania A, Fawzi MC, Ezzati M & Fawzi WW (2016) Risk factors for childhood stunting in 137 developing countries: A comparative risk assessment analysis at global, regional, and country levels. *PLOS Medicine*, 3: e1002164.
20 Hall K, Sambu W, Almeleh C, Mabaso K, Giese S & Proudlock P (2019) *South African Early Childhood Review 2019*. Cape Town: Children's Institute, UCT & Ilifa Labantwana.
21 Thembisa model. Viewed 10 October 2019: https://thembisa.org/content/downloadPage/Provinces2019.
22 Phillips T, Thebus E, Bekker L-G, Mcintyre J, Abrams EJ & Myer L (2014) Disengagement of HIV-positive pregnant and postpartum women from antiretroviral therapy services: A cohort study. *Journal of the International AIDS Society*, 17: 19242;
Clouse K, Schwartz S, Van Rie A, Bassett J, Yende N & Pettifor A (2014) "What they wanted was to give birth; nothing else": Barriers to retention in option B+ HIV care among postpartum women in South Africa. *Journal of Acquired Immune Deficiency Syndromes*, 67: e12-18.
23 Suthar AB, Hoos D, Beqiri A, Lorenz-Dehne K, McClured C & Duncombee C (2013) Integrating antiretroviral therapy into antenatal care and maternal and child health settings: A systematic review and meta-analysis. *Bulletin of the World Health Organization*, 91: 46-56.
24 World Health Organization & UNICEF (2014) *Global Nutrition Targets 2025: Breastfeeding Policy Brief (WHO/NMH/NHD/14.7)*. Geneva: WHO.
25 See no. 16 above.
26 Statistics South Africa (2019) *General Household Survey 2018*. Pretoria: Stats SA.
27 Slemming W & Bamford L (2018) The new Road to Health Booklet demands a paradigm shift. *South African Journal of Child Health*, 12(3): 86-87.
28 See no. 9 above.

Thriving in the second decade: Bridging childhood and adulthood for South Africa's adolescents

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South Africa is home to over 10 million adolescents, defined by Statistics South Africa as those aged between 10 and 19.[1] Adolescence is a life stage of immense biological, cognitive, emotional and social change. The second decade of life is a time in which many young people aspire to greater individual autonomy, establish a sense of self, and explore relationships beyond familial bonds with peers and romantic and sexual partners.

It is also a time of potential increased exposure to a range of physical, social and emotional challenges. Adolescence is characterised by significant transitions from childhood to adulthood, from dependant to caregiver roles, from paediatric to adult health services, from legal minority to legal majority, some of which overlap and are cyclical. These transitions in social and legal roles are formally recognised in different ways by many laws and policies in South Africa. For example, as children grow older, they are afforded greater autonomy under South African law, such as the right to access health services, including sexual and reproductive health, without caregiver consent.

A growing body of evidence confirms that experiences in adolescence – both adversity and resilience – shape long-term outcomes across multiple domains of well-being and development, particularly health. For this reason, adolescence is a critical period for health promotion, resilience-building, and protection from risk. South Africa's adolescents experience multiple – and at times overlapping – health challenges, including HIV, exposure to and perpetration of violence, poor mental health and substance use. This essay focuses on the following questions:

- What makes adolescence unique?
- What are the key considerations for the health of adolescents in South Africa?
- What are key features of the South African legal and policy environment on adolescent health?
- What are some of the current and emerging opportunities for promoting adolescent health?
- What is our vision for the health of South Africa's adolescents?

What makes adolescence unique?

Starting in the second decade of life, adolescence is a period of transition from childhood to adulthood, accompanied by profound biological, physical, psychosocial, cognitive and emotional changes. While this is an exciting time of identity exploration and development, it can be a tumultuous period for adolescents as they test out new social roles, strive for greater autonomy, and form new emotional and social attachments.[2] Different societies have their own ways of defining adolescence and the transition to adulthood: from legal entitlements, such as the age at which young people can vote, to physical developments such as the onset of menstruation among young women, the completion of circumcision and manhood rites among young men, starting a family or working towards financial independence.[3] Increasingly, there is a notable and widening gap between biological maturation, occurring first, and social transition to adulthood, in part due to a longer time in the education system and delayed age of first employment.[4] This has led some to call for expanding the definition of adolescence beyond the second decade of life until the age of 24.[5]

Research on adolescent brain development suggests that the adolescent brain tends to satisfy immediate needs and under-estimate short-term dangers.[6] As a result, adolescents may show limited ability to control their behaviours, and may be prone to rash decisions and increased risk-taking.[7] Adolescent brains are also particularly sensitive to biological and social stress. Adolescents' desire to be both "normal" and "unique": they want to fit in with their peers, and develop an individual identity.[8] During this period of significant emotional development, adolescents are also hyper-sensitive perceived criticism, not only by peers, but also by adults in their families, social networks, communities – and via the internet and social media.[9]

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In other words, adolescents are particularly vulnerable to a range of stressors at a time when their skills to navigate these challenging social, economic and health circumstances are still developing.[10] Experiences and transitions during adolescence have implications for how adolescents understand and act on information, formulate decisions, conceive of their futures, and act in response to new experiences such as parenthood, partnerships and employment.[11]

What are the key considerations for the health of adolescents in South Africa?

South Africa's adolescents face several key health and well-being challenges (see Table 9), although comprehensive and representative data for the second decade of life are not always available. While many of these health issues are common for adolescents around the world, others are unique or more severe among adolescents in South Africa. Mortality and morbidity among 10 – 24-year-olds in South African are driven by injuries and violence as well as communicable diseases such as HIV/AIDS and TB.[12]

Adolescents living in HIV-affected households, whether orphaned due to AIDS or living with an AIDS-ill caregiver, are also more likely to have multiple experiences of trauma and poorer mental health, drop out of school, engage in high-risk sex and live in more precarious households.[13] Although HIV prevalence in the age group has decreased over time, rates of HIV incidence remain high.[14] Most of the burden of HIV infection in this age group is borne by young women, who accounted for over a third of all new infections in 2017.[15] Worryingly, HIV incidence among adolescent boys – although low – is on the rise,[16] particularly among young men who have sex with men. Young men are also less likely to use health services, get tested for HIV and adhere to antiretroviral treatment (ART).[17]

For adolescent girls in particular, early exposure to sexually-transmitted infections and unintended pregnancies contributes substantially to the morbidity of this age group and undermines outcomes such as school completion, employment and the health of the next generation.[18] Although rates of adolescent pregnancy have decreased over time, adolescent mothers and their children have worse health outcomes, including worse retention in HIV treatment after giving birth, and higher rates of HIV transmission to their children.[19] Pregnancy-related mortality among adolescents is closely linked to preventable and manageable issues: hypertension, unsafe abortion and injuries.[20] Efforts to prevent adolescent pregnancies continue – though with limited effectiveness – but programmes to support adolescent mothers to care for themselves and their children, while negotiating return to school or entering the workforce, are scarce.[21]

Globally, and in South Africa, mental health issues among adolescents account for a growing burden of morbidity,[22] and adversely affect young people's education and employment.[23] According to the World Health Organization's Global Health Observatory data, suicide mortality rates among adolescents in South Africa increase dramatically with age, from 0.2 – 0.7 suicides per 100,000 in young adolescents aged 10 – 14, to 4.4 – 11.4 suicides per 100,000 in older adolescents aged 15 – 19.[24] Adolescents living in socially and economically disadvantaged homes and communities experience poorer mental health outcomes; for example, adolescents living in AIDS-affected households or those who have been exposed to violence are more likely to report high levels of depression and post-traumatic stress disorder.[25] Mental health issues, many of which emerge in adolescence, are compounded by exposure to physical, emotional and sexual violence at home, schools, clinics and communities. With growing exposure to the internet, adolescents in South Africa are also increasingly exposed to cyberbullying, which has been linked to poor emotional and academic outcomes.[26] Moreover, mental health issues during childhood and adolescence are linked to mental health problems in adulthood (see chapter 7 on mental health).[27]

Social determinants of adolescent health

It is also important to consider the social determinants of adolescent health that intersect in complex ways to shape health risk exposures, practices and outcomes.[28] South Africa's adolescents have low rates of high school graduation, high rates of violence victimisation and perpetration, and live in households and communities which face considerable challenges, such as unemployment, migration, crowding, and high rates of burdened caregivers. Recent studies among school-going young adolescents have found that more than one in three adolescents report experiences of violence, while one in five report perpetrating violence.[29] Analyses of 12 years of data (1997 – 2009) among women in South Africa found that adolescent girls and young women were the most likely to report physical and sexual violence.[30] A recent large-scale national study found that 9.1% of adolescent boys and 14.5% of adolescent girls reported forced sexual experiences in their lifetime.[31] Experiences of violence are associated with sexual risk-taking[32] and lower adherence to antiretroviral therapy (ART) among adolescents living with HIV[33]. Orphanhood and fathers' absence from the

Table 9: Adolescent health and well-being data tracker on Sustainable Development Goals (SDGs) for South Africa

Adolescent health and well-being domain and related SDG	Indicator	Adolescent data	(age | year)
Poverty (SDG 1)	Adolescents living below the poverty line	62.2% [1]	(15 – 24-year-olds | 2016)
Food security (SDG 2)	No food in the house for breakfast	33.3%[2]	(10 – 14-year-olds | 2011)
	Overweight	4% males 4% females[3]	(10 – 14-year-olds | 2011)
	Obesity	8% females 1% males[3]	(10 – 19-year-olds | 2016)
Health (SDG 3)	Adolescent mortality rate	128.7/100,000[4]	(10 – 19-year-olds | 2015)
	Suicide mortality rate	4.2/100,000[4]	(10 – 19-year-olds | 2016)
	Suicide ideation (ideas)	17.6%[5]	(13 – 19-years olds | 2011)
	Adolescent fertility rate	68/1,000[6]	(15 – 19-year-olds | 2017)
	HIV-prevalence rate	11.3% females 3.7% males[7]	(15 – 24-year-olds | 2018)
	HIV-incidence rate	1.59% females 0.49% males[8]	(15 – 24-year-olds | 2017)
	ART-initiation rate (among those living with HIV)	39.9%[8]	(15 – 24-year-olds | 2017)
	Viral suppression rates (among those on ART)	47.7%[8]	(15 – 24-year-olds | 2017)
	TB prevalence	107/100,000 305/100,000[9]	(10 – 14-year-olds | 2016) (15 – 19-year-olds | 2016)
Education (SDG 4)	Completed primary education	95%[10]	(20 – 24-year-olds | 2014)
	Completed secondary education	49%[10]	(20 – 24-year-olds | 2014)
	Proficiency in mathematics and language in grade 9	Language = 48% Maths = 3%[10]	Grade 9 learners
Clean water and sanitation (SDG 6)	Access to improved sanitation	82.5%[3]	(15 – 24-year-olds | 2016)
Gender equality (SDG 5)	Contraception use (any modern method)	24.9% [3]	(15 – 19-year-olds | 2016)
Decent work and economic growth (SDG 8)	Unemployment	27.0%[6]	(15 – 24-year-olds | 2018)
	Not in employment, education or training	36.6% females 31.2% males[11]	(15 – 24-year-olds | 2018)
Peace and violence prevention (SDG 16)	Homicide mortality rate	8.22/100,000[12]	(10 – 17-year-olds)
	Physical abuse by an adult	34.8%[13]	(15 – 17-year-olds)
	Lifetime sexual abuse	35.4%[13]	(15 – 17-year-olds)
	Lifetime forced sex (attempted or took place)	11.7%[13]	(15 – 17-year-olds)

Source:

1. Poverty and Inequality Initiative (2019) *Youth Explorer. PII, SALDRU, University of Cape Town. Viewed 10 November 2019: https://youthexplorer.org.za*. Poverty defined as upper-bound poverty line of R779 per person per month (2011).
2. Shisana O (2013) HIV/AIDS in South Africa: At last the glass is half full. In: *6th South African AIDS Conference*. Durban, South Africa: Human Sciences Research Council. Viewed 10 November 2019: www.hsrc.ac.za/en/media-briefs/hiv-aids-stis-and-tb/plenary-session-3-20-june-2013-hiv-aids-in-south-africa-at-last-the-glass-is-half-full
3. National Department of Health, Statistics South Africa, South African Medical Research Council and ICF (2017) *South Africa Demographic and Health Survey 2016: Key Indicators*. Pretoria and Rockville, Maryland: NDoH, Stats SA, SAMRC & ICF.
4. World Health Organization (2019) Global Health Observatory Data. Viewed 10 November 2019: https://www.who.int/gho/en/
5. Reddy SP, James S, Sifunda S, Ellahebokus A, Kambaran N & Omardien R (2013) *Umthente Uhlaba Usamila - The 3rd South African National Youth Risk Behaviour Survey 2011*. Cape Town: HSRC.
6. World Bank (2019) World Bank Open Data. Viewed 10 November 2019: https://data.worldbank.org/
7. UNAIDS (2019) *Country Fact Sheet: South Africa 2018*. Viewed 10 November 2019: https://www.unaids.org/en/regionscountries/countries/southafrica
8. Simbayi LC, Zuma K, Zungu N, Moyo S, Marinda E, Jooste S, Mabaso M, Ramlagan S, North A, van Zyl J, Mohlabane N, Dietrich C, Naidoo I and the SABSSM V Team (2019) *South African National HIV Prevalence, Incidence, Behaviour and Communication Survey, 2017*. Cape Town: HSRC Press.
9. Snow KJ, Sismanidis C, Denholm J, Sawyer SM & Graham SM (2018) The incidence of tuberculosis among adolescents and young adults: A global estimate. *European Respiratory Journal*, 51(2): 1702352.
10. South African Human Rights Commission & UNICEF South Africa (2016) *Global Goals for Every Child: Progress and disparities among children in South Africa*. Pretoria: SAHRC & UNICEF.
11. Statistics South Africa (2019) *General Household Survey 2018*. Pretoria: Stats SA. Analysis by Katharine Hall and Winnie Sambu, Children's Institute, UCT.
12. Mathews S, Abrahams N, Jewkes R, Martin LJ & Lombard C (2013) The epidemiology of child homicides in South Africa. *Bulletin of the World Health Organization*, 91: 562-568.
13. Ward CL, Artz L, Leoschut L, Kassanjee R & Burton P (2018) Sexual violence against children in South Africa: a nationally representative cross-sectional study of prevalence and correlates. *Lancet Global Health*, 6(4): e460-468.

home are also predictors of early sexual risk-taking,[34] which is linked to a higher risk of HIV and other sexually-transmitted infections and unintended early pregnancies. Moreover, the combination and overlap of multiple risk factors heighten the vulnerability of adolescents in South Africa, with cumulative risks resulting in long-term negative outcomes.[35]

Despite all these negative experiences, adolescents in South Africa – whether or not they are living with a chronic illness – aspire to have families, become contributing members of society, and want to be heard.[36] Policies and guidelines linked to age of consent to services and products in the health, education and other sectors are key to shaping adolescent well-being, as outlined in the next section. Cultural and societal values, particularly those linked to gender norms, violence and discipline play a major role in framing and shaping adolescents' attitudes, practices and outcomes – both directly and through caregivers and adults on whom they model their lives.

What are the key features of the South African legal and policy environment affecting adolescent health?

South Africa is signatory to numerous international frameworks, including the Sustainable Development Goals, the African Union's Agenda 2063, the United Nations Convention on the Rights of the Child, and the African Charter on the Rights and Welfare of the Child. These international frameworks set ambitious targets for improving the health, education, security and livelihoods of children, adolescents and young people.[i] South Africa has put in place a rich legal and regulatory framework that defines the rights of children, adolescents, and young people,[37] and outlines the state's commitment to providing basic education, health care, social services, social security, and housing, water and sanitation.

In recent years, there has been a growing emphasis on meeting the needs of adolescents and young adults. The National Youth Development Policy Framework (2015 – 2020) defines 'young people' as the group aged between 14 and 35,[38] while other youth-focused policies use different definitions, drawing on international norms which are themselves disputed. In keeping with the definition by the World Health Organization, South Africa's National Adolescent and Youth Health Policy (2017) defines adolescents and young people as those between the ages of 10 and 24.[39]

These different definitions of adolescence pose a challenge to service providers: what is the "cut-off" age for adolescents' entitlement to targeted services or development programmes and when – and how – do they transition to adult services? While these questions remain unanswered, due to the many different approaches of key policy documents, broadening the definition of adolescence to 24 years old would allow for a more sustained focus on the particular needs of adolescents and young people.

It is extremely difficult to tailor services to the unique needs of children and adolescents in the absence of data.[40] Most of the data available on the health and life outcomes of South Africa's adolescents focuses on 5 – 14-year-olds and 15 – 24-year-olds, with limited access or reporting of data further disaggregated by age. As we move forward, it is crucial to collect and analyse data in five-year age bands: 10 – 14, 15 – 19 and 20 – 24-year-olds to design and deliver services and programmes that are more attuned to the changing needs of adolescents. This data collection approach should be applied to both routinely collected administrative data in the health, education, social development and labour sectors, and to research endeavours.[41]

In recent years, early childhood development services have increasingly commanded the state's attention as they are crucial for improving the health, care and education of younger children.[42] There is also growing recognition of the need for programmes and interventions targeted at older children, adolescents and young people. Health programming should not only focus on reaching South Africa's adolescents with appropriate medical products and services. Escalating rates of unemployment, persistent high rates of AIDS mortality, and violence among adolescents,[43] require an expanded intersectoral approach to adolescent health programming in South Africa. In particular, there is an urgent need for interventions that fill the gap between late childhood and early adolescence, where young people may may become disconnected from opportunities without the necessary support.

Highly vulnerable adolescents, including adolescents living with chronic illnesses and adolescents in state care, require careful consideration to support their transitions from pediatric to adult health services or moving out of foster care.[44]

South Africa has several policies that focus directly on adolescent and youth development, as outlined in Table 10. Key policies focusing on adolescents and young people generally recognise the challenges and risks that adolescents face, including poor schooling, persistent unemployment,

i Additional global policies to which South Africa is a signatory that focus on youth health include the World Health Organization's Global Strategy for Women's, Children's and Adolescent's Health (2016 – 2030) and the World Health Organization's Global Standards for Quality Healthcare Services for Adolescents.

Table 10: An adolescent health lens on national policies and guidelines

	Law, policy or regulation	Adolescent health focus
GENERAL	National Development Plan 2030: Our Future, Make It Work[46]	Does not refer to "adolescents", but focuses on youth more broadly, as those aged 15 – 35 years old. Highlights need for economic empowerment, job creation and skills advancement among youth.
	Children's Act[47]	Defines children as 0 – 18 years old, but no mention of adolescents.
	National Youth Development Policy 2015 – 2020[48]	Adolescents are lost within the broader focus on youth aged 15 – 35. The only specific mention of adolescents in the text calls for improved sexual and reproductive health education within families.
HEALTH	National Adolescent and Youth Health Policy[49]	Defines youth as those aged 10 – 24. Crosscutting, approaches adolescents from different developmental perspectives. Focuses on improving sexual and reproductive health; violence; nutrition and obesity; substance abuse; and the empowerment and representation of youth.
	National Contraception Clinical Guidelines;[50] National Contraception and Fertility Planning Policy and Service Delivery Guidelines (2018 update)[51]	Defines adolescents as 12 – 19 years old. Includes adolescents in the chapter focusing on contraception for special populations and special considerations for service delivery. States that: "No medical reason exists for denying any contraceptive method based on young age alone."[52]
	National Strategy for STI, HIV and TB 2017 – 2022[53]	Includes adolescent girls and young women in the targets for all goals. Notes that adolescent boys and young men should not be left behind.
EDUCATION	Integrated School Health Policy[54]	Clarifies roles and responsibilities of the national and provincial departments of Health and Education for the delivery of health programmes and interventions in schools. Sets consent age for health services and products at 14 years of age. Provides a framework for the provision of services and support to learners on the following: (1) personal and environmental hygiene, (2) nutrition, (3) TB, (4) abuse (sexual, physical and emotional abuse including bullying, violence), (5) sexual and reproductive health services and products, (6) menstruation, (7) contraception, (8) STIs, incl. HIV, (9) male circumcision, (10) adolescent pregnancy, including prevention-of mother-to-child transmission of HIV, (11) HIV counselling and testing and stigma mitigation, (12) drug and substance abuse, and (13) suicide.
	National School Safety Framework[55]	Notes importance of screening for violence in adolescence. Applies a socio-ecological model, which takes into account individual, family/community and structural-level factors.

high rates of violence and gender inequality, epidemics of communicable and non-communicable diseases, and substance abuse.[45] But these policies are also united in their vision of realising the potential dividends of young people, rather than treating them as a danger to society.[56]

Synergies and challenges in policy implementation

The central objectives of each policy reflect those of the agencies and government departments which wrote them, and their content conveys some of the tensions inherent in implementing multi-sectoral programmes. For instance, the National Youth Policy, written by the National Youth Development Agency, focuses principally on employment and livelihoods, drawing attention to the effects of school drop-out and inadequate skills development on young people's employability.

A recent example of a holistic and intersectoral approach to adolescent health is the South African National Adolescent and Youth Health Policy. Driven by consultations with adolescents and young people together with strong evidence reviews, the policy focuses on combinations of interventions which maximise gains across seven priority areas: adolescent and youth-friendly services, drug and substance abuse, HIV/AIDS and TB prevention and treatment, mental health/illness, sexual and reproductive health, and violence prevention. Another example of an intersectoral policy is the Integrated School Health Policy, co-developed by the Departments of Basic Education and Health.[57] Although much work remains to be done in implementing these existing policies, and ensuring they reach the adolescents who need them, increasing concerted efforts are in place to implement intersectoral policies.

Yet South African policies sometimes provide conflicting guidance on adolescents' ability to access health services, programming and interventions. For example, the Children's Act recognises children's evolving capacities and right to participate in health care decision-making and enables children to consent to medical treatment from the age of 12. The Integrated School Health Policy, on the other hand, adopts a more conservative approach and only allows children to access health services without parental consent from the age of 14.[58] As a result, there are limited avenues for adolescents who have become parents themselves to consent to treatment or access to services for themselves or their children.[59]

Some of these policies may result in highly vulnerable adolescents, such as pregnant learners and adolescent girls in relationships with older sexual partners, struggling to access health products and services such as condoms, contraception, or post-exposure prophylaxis. Some of these tensions are addressed in the detailed Standard Operating Procedures for the Provision of Sexual and Reproductive Health, Rights and Social Services in Secondary Schools, issued by the Department of Basic Education in 2019. These procedures align the implementation of the school-based policy with the Children's Act, so that secondary school students are able to access sexual and reproductive health services from the age of 12 if informed and voluntary consent processes are followed.[60]

Despite the above tensions, South Africa's legal and regulatory framework on adolescent health is rich and visionary, aiming to ensure that the country's adolescents – who are currently one in five of all people living in South Africa – do not only survive, but thrive. A recent positive example is the Department of Basic Education Draft National Policy on the Prevention and Management of Learner Pregnancy in Schools. The draft policy builds on existing policies by committing to provide comprehensive sexual and reproductive health services, empower learners to make informed decisions, facilitate access to antenatal care, ensure learners return to school and complete their education post-delivery, and ensure schools are stigma-free, non-discriminatory, non-judgmental environments that promotes pregnant learners' physical and psychological health and dignity.[61]

However, many of the policies highlighted in Table 2 do not have specified budgets or clear implementation plans with measurable timelines and targets, and this may hinder their roll-out and reach. Funding for health-care products and services for adolescents is available under the purview of various national and provincial departments, including Health, Basic Education, Higher Education and Training, Social Development, and Labour. The South African experience to date has shown that implementation on specific issues could be coordinated through multi-sectoral platforms, for example, HIV prevention for adolescent girls and young women under the DREAMS and SheConquers initiatives which are discussed later.

Much work remains to be done to reach the shared vision for zero new HIV infections among adolescent girls and young women. The recent Standard Operating Procedures for the Integrated School Health Policy provides comprehensive steps to roll out the vision set in the policy. A unified vision and roadmap are needed so that programmes delivered by different sectors complement one other, address the structural drivers of poor adolescent health, and close the gaps to ensure services reach highly vulnerable adolescents such as out-of-school adolescents and adolescent parents.

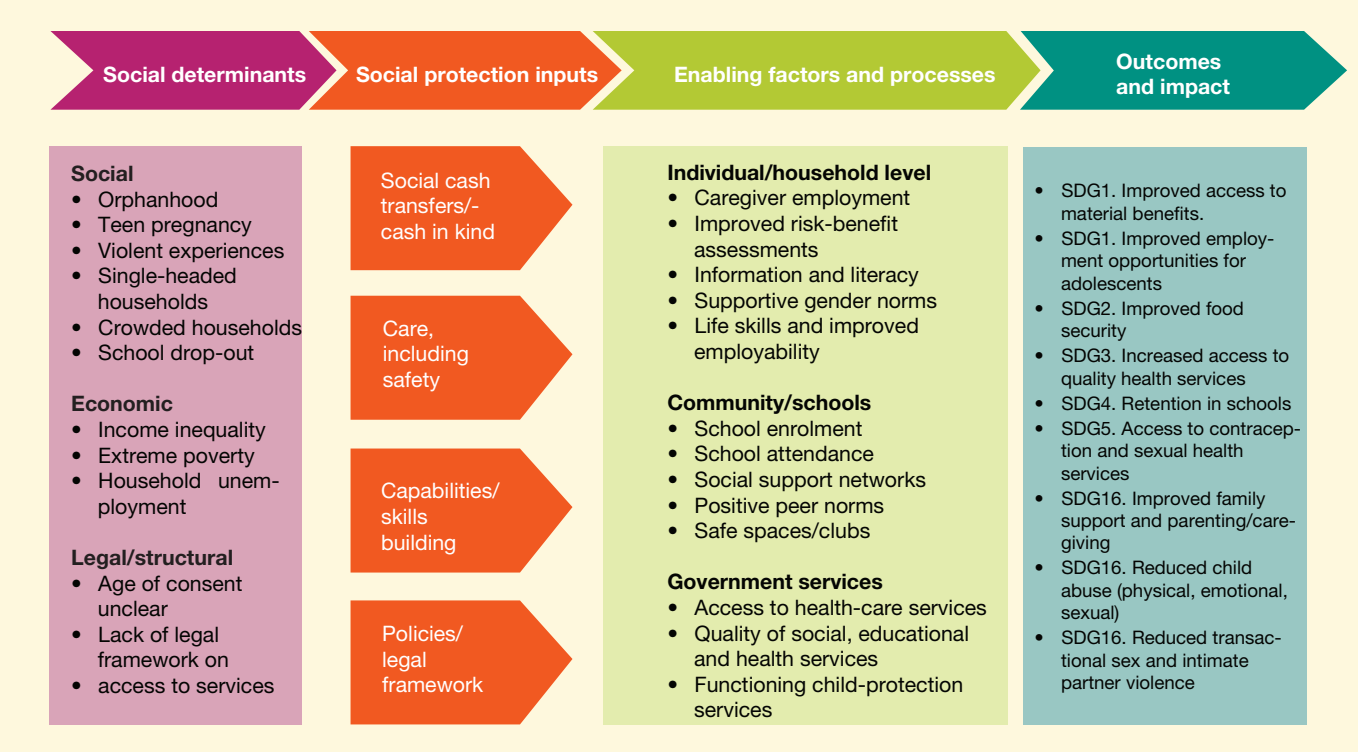
What are current and emerging opportunities for promoting adolescent health?

A holistic approach to adolescent health

A growing body of evidence highlights the important role of structural drivers such as poverty, hunger, inequality and violence on adolescent risk-taking and health-seeking behaviour.[62] Responding to these complex challenges requires a holistic approach to address the social determinants of health at the individual, family, or community and structural levels while acknowledging the transitions that adolescents are experiencing.[63] The socio-ecological model provides a useful framework for outlining social determinants of health at different levels and the interactions between different factors.[64] It highlights the importance of moving beyond a focus on individual issues, such as education, health or HIV, and addressing adolescent health and well-being more broadly across multiple life spheres.

Programming for adolescent health may take the form of individual, family, school, clinic or community-based interventions or a combination of these. Social protection is an emerging approach that aims to tackle the structural drivers of adolescent health by addressing both economic and social vulnerabilities through interventions that address both immediate (proximal) and structural (distal) factors (Figure 28).[65] Adolescent-sensitive social protection addresses different dimensions of adolescent well-being. It also addresses social disadvantages, risks and vulnerabilities that children may be born into and those that are acquired later in childhood with the goal of maximising opportunities and developmental outcomes.[66]

Figure 28: Addressing the social determinants of adolescent health



Adapted from: Toska E, Gittings L, Cluver LD, Hodes RJ, Chademana E & Gutierrez VE (2016) Resourcing resilience: social protection for HIV prevention amongst children and adolescents in Eastern and Southern Africa. *African Journal of AIDS Research*, 15(2): 123-140.

In South Africa, social protection programming includes a range of interventions such as the Child Support Grant (CSG), school feeding scheme, fee-free schools, job-seeker support for young people, housing support, and caregiver support programmes. Some of these programmes are directly targeted at young people, but most aim to address structural issues that adolescents also face within households, schools and communities.[67] Although the evidence on the benefits of social protection for adolescents has been focused primarily on HIV prevention and treatment support, there is growing evidence that social protection has a positive impact on other spheres of health and well-being, building resilience in adolescents and young people in the face of adversity by reducing the perpetration and experience of violence, and improving mental health and educational outcomes.[68]

Adolescent health programmes, products and services, including social protection, should be delivered in the spaces where adolescents live, learn, love, play and work – at home, at school colleges and universities, in health facilities, in the community and in the workplace – with a focus on providing adolescents with the resources they need to become resilient. We briefly review current and planned programmes for adolescent health in each of these contexts.

Individual and family-based programmes

Programming for adolescent health takes many shapes, including individual behaviour change interventions (for example, Stepping Stones to prevent adolescent pregnancies), family-centred initiatives focused on specific health outcomes (for example, VUKA on improving ART adherence), or broader social protection initiatives such as no-fee schools. Initiatives such as loveLife, b-Wise and MomConnect use individual, peer-based, and mHealth (mobile health) approaches to tackle specific health issues such as HIV, sexual health, pregnancy and motherhood.

A recent review identified over a dozen interventions which included an mHealth component, yet none had been evaluated,[69] despite over a third of all adolescents preferring to get health information on their mobile phones.[70] This was confirmed from preliminary analyses from the Mzantsi Wakho study, which found that young men, in particular, preferred to use their phones to access information about health.[71] Given young people's growing access to mobile phones in South Africa, it is worth exploring the potential of mHealth platforms, while remaining mindful that many young people in South Africa still struggle to access data, airtime and network coverage – especially in more rural settings.[72]

Following a decade of research and development, parenting programmes such as Sinovuyo Teen – Parenting for Lifelong Health and Families Matter! are being rolled out across South Africa by governmental and non-governmental bodies.[73] Such programmes involve sessions with caregivers and their adolescents focused on developing skills for conflict management and problem-solving in intergenerational households. Through improved adolescent–caregiver relationships, care-centred programmes can reduce exposure to violence and psychosocial stress, reduce adolescent problem behaviours – "acting out" and "rule-breaking" – and, through these pathways, improve educational outcomes and health-seeking practices.[74]

Feedback from adolescent girls and young women suggests that peer-based facilitated programmes such as RISE clubs and Choma Café help them learn self-respect and improve their self-esteem by creating spaces in which young women can support each other. However, these positive programmes are not always accessible to the most vulnerable adolescents, especially when juxtaposed with a lack of health services at schools, which are where young adolescents generally spend most of their time.

Schools as a "social vaccine"

Although not all adolescents remain in the education system throughout adolescence, schools are recognised as powerful platforms for delivering adolescent health programming.[75] Keeping adolescent girls longer in school is strongly linked to reduced sexual risk, delayed unintended pregnancies, and lower rates of HIV incidence.[76] This may be due to the positive effect of school-based services such as school feeding and comprehensive sexuality education.[77] School attendance may also have protective effects by reducing exposure to risks, providing opportunities to access supportive services, and increasing opportunities for employment.

Schools also provide spaces to reinforce positive peer influences and establish safe and healthy relationships in early adolescence.[78] School-based safety and violence prevention interventions have demonstrated potential to improve school outcomes and reduce problem behaviour.[79] In recognition of the growing evidence of schools' potential to deliver adolescent health programmes, the South African Medical Research Council is leading the development of a Social Impact Bond[ii] support adolescent girls to return to school to prevent HIV and delay pregnancy. .

Although less than half of all children in South Africa who start school progress to matric, over 150,000 young men and women entered tertiary educational institutions for the first time in 2016.[80] These institutions provide additional opportunities for reaching older adolescents with health services and products. Programming led by HEAIDS – Higher Education and Training HIV/AIDS – reached over 200,000 students with sexual reproductive health and HIV services and products in 2017, and with positive feedback from participants.[81]

Health facilities – caring for the most vulnerable adolescents

Health-care products and services are critical during adolescence. Multiple studies in South Africa in the last two decades have found that adolescents want health-care workers who actively listen without judgment, are patient, provide adequate time and space to discuss challenges openly, offer correct information, and respect their right to privacy and confidentiality.[82] The World Health Organization advocates for adolescent-responsive health systems, for which it has developed a set of global standards.[83]

South Africa introduced the National Adolescent Friendly Clinic Initiative (NAFCI) in 1999, led by a consortium of 10 non-governmental organisations within the context of the loveLife campaign.[84] The NAFCI rolled out a national set of 10 standards to ensure the quality of adolescent-friendly services. Following implementation, NACFI clinics performed significantly better than control clinics.[85] The Ideal Clinic Initiative now includes a checklist (Figure 29) to measure progress towards five minimum standards for adolescent- and youth-friendly services in South Africa. These include: (1) a management system to support the effective provision of adolescent and youth health programmes, (2) access and availability of adolescent and youth services, (3) relevant information, education, and communication, (4) individualised care that ensures privacy and confidentiality, and (5) proper referral systems to ensure continuity of care.[86]

Adolescents living with communicable or chronic illnesses, such as TB, HIV, diabetes or epilepsy, require additional attention when accessing health-care services in facilities, particularly with regard to transitions in care. For example, adolescents living with HIV require special attention as they move regularly between different types of facilities including paediatric departments, primary health-care clinics, antenatal care, and infectious disease departments.

ii Social impact bonds are a relatively new financing mechanism that leverage private sector finance to deliver social services that were historically funded and implemented directly by government. They have been introduced where there are misaligned resources or inefficient service delivery to develop and effectively implement services that have measurable outcomes.

Figure 29: Ideal Clinic checklist for adolescent and youth-friendly services

Item	Score
The National Adolescent and Youth Health Policy is available	
A poster indicating that the facility allocates dedicated time to consult adolescents and youth after school hours is visibly posted in the reception area and in consulting rooms(s) where AYFS are provided	
The facility's staff development plan makes provision for all healthcare professionals to be trained in AYFS	
The training register/record reflect that the healthcare professionals providing comprehensive integrated package of service to young people are trained on AYFS	
Facility's clinic committee includes a representative of the adolescent and youth sector aged 16 – 24 years	
At least 10% of the sample of PEC survey include adolescents and youth aged 10 – 24 years	
Facility has a brief profile of adolescents and youth in its catchment area, including their challenges.	
Total score	

Source: Department of Health (2018) *Ideal Clinic Manual Version 18. 1 April 2018.* Pretoria: DoH.

Other transitions that need to be managed carefully include referrals between different levels of care, and the transition from paediatric to adult services when adolescents turn 15 – or in some cases as early as young as 12 years old.[iii] Age-based transitions in care often do not take into account the competence and maturity of individual patients, and may result in care that is not responsive to the unique needs of each adolescent. Schools and educational institutions could also play a critical role in identifying and supporting adolescents with long-term health conditions, particularly for illnesses that require both regular monitoring and medication.[87]

Community spaces, recreational facilities, and workplace

Several adolescent programmes acknowledge the importance of supportive environments beyond families and homes. Community-based programmes can provide comprehensive psychosocial support; involve young people in sports, arts and culture; make health services available to adolescents in unconventional spaces; or help adolescents access opportunities beyond school, for example, by linking them to their first jobs through internships. These interventions address some of the structural vulnerabilities that result in poor adolescent health and, if rolled out more widely, may reach adolescents who are not in employment, education or training – amongst the most vulnerable and likely to fall through the cracks of the formalised services for adolescent health.

Combination interventions

Programmes delivered through each of these platforms can help address critical drivers of adolescent health, but a more integrated approach is needed to address the complex interplay of risk factors.[88] A growing body of evidence supports the delivery of interventions that combine material support – government child-focused cash transfers such as the CSG,[89] no-fee schools, free school uniforms – with care such as parenting programmes, peer supporters or community health workers (see Figure 30).

Although designed as a poverty alleviation provision, the CSG has also had positive effects in reducing adolescent pregnancies, sexual risk-taking and HIV exposure by reducing household economic stress and keeping young adolescents in school.[90] Recent data from the Mzantsi Wakho study suggest that combining child-focused cash transfers with parenting programmes and safe schools improves HIV-related health outcomes, reduces violence exposure, supports school progression, and lowers sexual risk-taking among adolescents living with HIV in South Africa. Adolescents receiving the three provisions – parenting support, safe schools and child-focused grants – consistently at baseline and follow-up – were more likely to experience greater positive effects across multiple health and well-being than those who received only one of these provisions.[91]

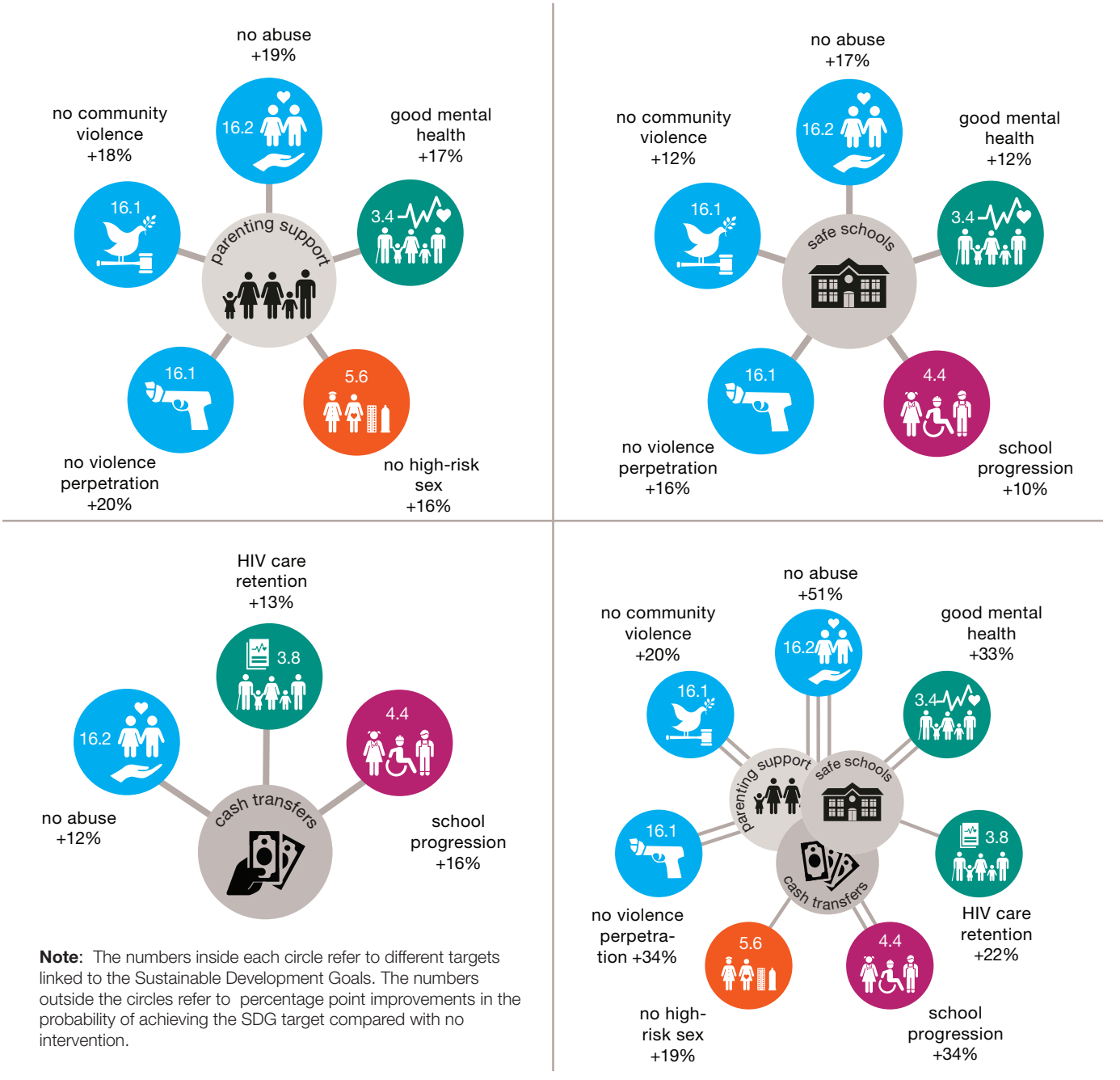
Roll-out and challenges

Adolescents, researchers and policymakers need to work together to turn evidence into national programmes. Although South Africa is home to a large and growing number of adolescent health research initiatives, translating evidence from research into large-scale policy and programming remains challenging. Researchers working in partnership with the national departments of Health, Social Development and Education, and the South African National AIDS Council (SANAC) have identified a set of key strategies.

First, research conducted in real-world conditions increases confidence that a programme will work when rolled out. This can include pragmatic randomised trials or observational

iii For example, adolescents living with HIV could experience a transition out of hospital-based paediatric care to a primary health-care clinic where they receive generalised, non-paediatric HIV care.

Figure 30: Individual and combined effects of cash, care and safe schools on adolescent development



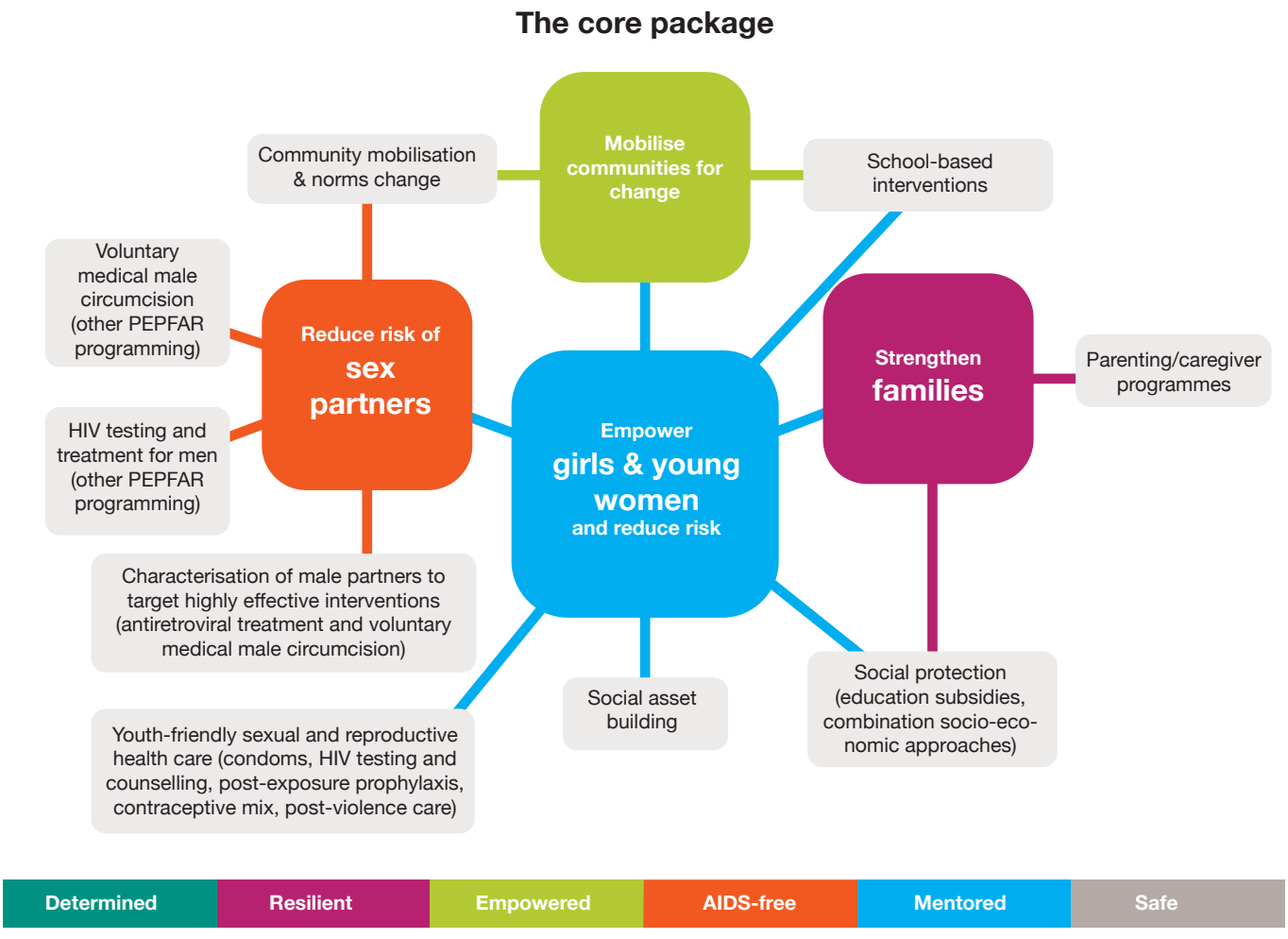
Note: The numbers inside each circle refer to different targets linked to the Sustainable Development Goals. The numbers outside the circles refer to percentage point improvements in the probability of achieving the SDG target compared with no intervention.

Source: Cluver LD, Orkin FM, Campeau L, Toska E, Webb D & Carlqvist A (2019) Improving lives by accelerating progress towards the UN Sustainable Development Goals for adolescents living with HIV: a prospective cohort study. The Lancet Child & Adolescent Health, 3(4): 245-254.

"natural" experiments. Instead of testing these programmes in perfect conditions and relying on highly qualified professionals, they should be tested with the populations that will be using them on a large scale when delivered in state or non-governmental services. Studies need to describe which adaptations work best without compromising effectiveness, and to test programmes in both urban and rural settings, and not just the highest-resourced provinces.

Initiatives such as the DREAMS Intervention package (Figure 31) require multi-sectoral approaches which may be easier to deliver in better-resourced settings. Translating the evidence on what works into implementation also requires strong intersectoral collaboration, and bodies like SANAC have helped coordinate national efforts such as the DREAMS package of interventions and the SheConquers campaign.

Figure 31: DREAMS: Elements of the core package



The DREAMS initiative is a public–private partnership designed to prevent HIV infections among adolescent girls and young women in sub-Saharan Africa. DREAMS has resulted in large reductions in HIV infections in 10 sub-Saharan African countries through a combination of interventions across four domains that aims to: empower girls and young women and reduce risk of infection, strengthen families, mobilise communities for change, and reduce risk in their sexual partners.[92]

SheConquers is a three-year campaign to coordinate the planning and monitoring of programmes for adolescent girls and young women in order to maximise impact of numerous interventions in South Africa. The campaign focuses on five shared targets: (1) decrease new HIV infections in adolescent girls and young women by at least 30%, (2) reduce teen childbearing by at least 30%, (3) keep girls in school until matric by improving retention by 20%, (4) decrease sexual and gender-based violence by 10%, and (5) increase economic opportunities for young people by 10%.[93]

Finally, government partners emphasise the value of cost-effectiveness or allocative efficiency analyses to guide decisions on which specific programmes to fund and prioritise to ensure the greatest impact. Understanding whether programmes work at scale, when delivered by community members, in challenging contexts, and whether they are cost-efficient can make those decisions as evidence-based as possible.

What is our vision for the health of South Africa's adolescents?

Programming for adolescent health is at a crossroads: while South Africa has addressed individual health issues in policy and implementation mandates, it has to maximise adolescent health outcomes. National intersectoral campaigns and programming can be powerful tools but roll-out at scale remains challenging throughout the continent with coverage varying by location (rural or urban), age group (early vs late adolescents) and sex (girls or boys). Moreover, evidence on

what interventions are appropriate and effective in filling the age gap between child-centred and adolescent-centred programming is limited. Such programming needs to address risk and vulnerability while acknowledging adolescents' growing need for independence and cognitive maturation.

As adolescents in South Africa navigate the tempestuous and exciting second decade of their lives, our joint efforts need to support their long-term resilience in the face of the layered and overlapping vulnerabilities that they are exposed to. In particular, this requires supporting them to build safe and healthy relationships at home, in schools, with sexual and romantic partners, and in the workplace.[94] Supporting them through transitions, including home-to-love, school-to-workforce, child-to-parent, requires age- and stage-appropriate interventions that acknowledge the evolving nature of adolescent health needs, as well as young people's agency and role in society.

The National Development Plan includes a comprehensive list of programmatic recommendations for young people, with a particular focus on education and economic empowerment. But the siloed approach of national departments in implementing policies can weaken the potential impact of crosscutting interventions. South Africa's first generation of "Born Frees" are now aging into adulthood but, for far too many, their prospects remain to be realised. It is essential to design and implement strategies and interventions that are tailored to adolescents' developmental needs. This is possible through multi-sectoral efforts that are well financed.

Meeting adolescents' needs requires both a public health and human rights-based approach. This means designing health-care products and services *with* adolescents, rather than just *for* them, and ensuring adolescents' access to material and psychosocial resources. Promising models in South Africa abound, and our efforts must focus on taking them to scale to improve adolescent health and well-being across multiple domains with a focus on resourcing adolescent resilience and equipping them with the tools and skills they need to succeed as adults.[95]

References

Acknowledgments: Lori Lake, Ariane De Lannoy, Eugene Davids, Jane Ferguson, Nadia Ahmed, Cathy Mathews, Melanie Pleaner, and reviewers.

1 Statistics South Africa (2018) *Demographic Profile of Adolescents in South Africa*. Pretoria: Stats SA.
2 Jaworska N & MacQueen G (2015) Adolescence as a unique developmental period. *Journal of Psychiatry & Neuroscience*, 40(5): 291; Arnett JJ (2000) Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist*, 55(5): 469.
3 Ledesma RG (2005) Defining adolescence. *Psyccritiques*, 42(2): 119-119. doi:10.1037/000574
4 World Health Organization (2017) *Global Accelerated Action for the Health of Adolescents (AA-HA!): Guidance to support country implementation*. Geneva: WHO.
5 Sawyer SM, Azzopardi PS, Wickremarathne D & Patton GC (2018) The age of adolescence. *The Lancet Child & Adolescent Health*, 2(3): 223-228; Kinghorn A, Shanaube K, Toska E, Cluver L & Bekker L-G (2018) Defining adolescence: Priorities from a global health perspective. *The Lancet Child & Adolescent Health*, 2(5): e10.
6 Shatkin J (2017) *Born to Be Wild: Why teens and tweens take risks, and how we can help keep them safe*. Penguin Publisher Group.
7 See no. 6 above; [Shatkin J.]
Romer D (2010) Adolescent risk taking, impulsivity, and brain development: Implications for prevention. *Developmental Psychobiology*, 52(3): 263-276.
8 See no. 6 above.
9 See no. 6 above;
Christie D & Viner R (2005) Adolescent development. *The BMJ*, 330(7486): 301-304.
10 See no. 6 above.
11 Hodes R & Gittings L (2019) 'Kasi curriculum': What young men learn and teach about sex in a South African township. *Sex Education*, 2019: 1-19.
12 Statistics South Africa (2018) *Demographic Profile of Adolescents in South Africa*. Pretoria: Stats SA;
Mahlangu P, Gevers A & De Lannoy A (2014) Adolescents: Preventing interpersonal and gender-based violence. In: Mathews S, Jamieson L, Lake L & Smith C (eds) *South African Child Gauge*. Cape Town: Children's Institute, UCT.
13 Cluver L & Gardner F (2007) Risk and protective factors for psychological well-being of orphaned children in Cape Town: A qualitative study of children's views. *AIDS Care*, 19(3): 318-325;
Cluver LD, Orkin M, Boyes ME, Gardner F & Meinck F (2011) Transactional sex amongst AIDS-orphaned and AIDS-affected adolescents predicted by abuse and extreme poverty. *Journal of Acquired Immune Deficiency Syndromes*; 58: 336-343;
Nyberg BJ, Yates DD, Lovich R, Coulibaly-Traore D, Sherr L, Thurman TR, Sampson A & Howard B (2012) Saving lives for a lifetime: Supporting orphans and vulnerable children impacted by HIV/AIDS. *Journal of Acquired Immune Deficiency Syndromes*, 01 Aug 2012, 60(Supplement 3): S127-135;
Thurman TR, Brown L, Richter L, Maharaj P & Magnani R (2006) Sexual risk behavior among South African adolescents: Is orphan status a factor? *AIDS and Behavior*, 10(6): 627-635.
14 Human Sciences Research Council (2018) *The Fifth South African National HIV Prevalence, Incidence, Behaviour and Communication Survey, 2017: HIV impact assessment summary report*. Cape Town: HSRC.
15 See no. 14 above.
16 See no. 14 above.
17 Colvin CJ (2019) Strategies for engaging men in HIV services. *The Lancet HIV*, 6(3): e191-e200;
Joint United Nations Programme on HIV/AIDS (2017) *A Snapshot of Men in South Africa*. Geneva: UNAIDS.
18 Patton GC, Olsson CA, Skirbekk V, Saffery R, Wlodek ME, Azzopardi PS, Stonawski M, Rasmussen B, Spry E, Francis K, Bhutta ZA, Kassebaum NJ, Mokdad AH, Murray CJL, Prentice AM, Reavley N, Sheehan P, Sweeny K, Viner RM & Sawyer SM (2018) Adolescence and the next generation. *Nature*, 554(7693): 458.
19 Ramraj T, Jackson D, Dinh T-H, Olorunju S, Lombard C, Sherman G, Puren A, Ramokolo V, Noveve N, Singh Y, Magasana V, Bhardwaj S, Cheyip M, Mogashoa M, Pillay Y, Goga AE (2017) Adolescent access to care and risk of early mother-to-child HIV transmission. *Journal of Adolescent Health*, 62(4): 434-443;
Horwood C, Vermaak K, Butler L, Haskins L, Phakathi S & Rollins N (2012) Elimination of paediatric HIV in KwaZulu-Natal, South Africa: Large-scale assessment of interventions for the prevention of mother-to-child transmission. *Bulletin of the World Health Organization*, 90(3): 168-175.
20 De Wet N (2016) Pregnancy and death: An examination of pregnancy-related deaths among adolescents in South Africa. *South African Journal of Child Health*, 10(3): 151-155.
21 Toska E, Roberts KJ, Laurenzi C, Cluver L & Sherr L (2019) *Adolescent Mothers Affected by HIV and Their Children: Understanding and meeting their needs in our HIV response and global commitments*. London: Coalition for Children Affected by HIV/AIDS.
22 Das-Munshi J, Lund C, Mathews C, Clark C, Rothon C & Stansfeld S (2016) Mental health inequalities in adolescents growing up in post-apartheid South Africa: Cross-sectional survey, SHaW study. *PLOS One*, 11(5): e0154478.
23 Patel V, Flisher AJ, Hetrick S & McGorry P (2007) Mental health of young

people: A global public-health challenge. *The Lancet*, 369(9569): 1302-1313.
24 World Health Organization (2019) *Global Health Observatory Data*. Viewed 26 October 2019: www.who.int/countries/zaf/en/.
25 Cluver LD, Orkin M, Gardner F & Boyes ME (2012) Persisting mental health problems among AIDS-orphaned children in South Africa. *Journal of Child Psychology and Psychiatry*, 53(4): 363-370;
Flisher AJ, Dawes A, Kafaar Z, Lund C, Sorsdahl K, Myers B, Thom R & Seedat S (2012) Child and adolescent mental health in South Africa. *Journal of Child and Adolescent Mental Health*, 24(2): 149-161.
26 Farhangpour P, Maluleke C & Mutshaeni HN (2019) Emotional and academic effects of cyberbullying on students in a rural high school in the Limpopo province, South Africa. *South African Journal of Information Management*, 21(1), a925. doi:10.4102/sajim.v21i1.925
27 Belfer ML (2008) Child and adolescent mental disorders: The magnitude of the problem across the globe. *Journal of Child Psychology and Psychiatry*, 49(3): 226-236.
28 See no. 4 above;
Solar O & Irwin A (2010) *A Conceptual Framework for Action on the Social Determinants of Health*. Social Determinants of Health Discussion Paper 2 (Policy and Practice). Geneva: World Health Organization.
29 Kuo C, Mathews C, LoVette A, Harrison A, Orchowski L, Pellowski JA, Atujuna M, Stein DK & Brown LK (2019) Perpetration of sexual aggression among adolescents in South Africa. *Journal of Adolescence*, 72: 32-36;
Mathews C, Eggers SM, Townsend L, Aarø LE, De Vries PJ, Mason-Jones AJ, De Koker P, McClinton Appollis T, Mtshizana Y, Koech J, Wubs A & De Vries H (2016) Effects of PREPARE, a Multi-component, School-Based HIV and Intimate Partner Violence (IPV) Prevention Programme on Adolescent Sexual Risk Behaviour and IPV: Cluster Randomised Controlled Trial. *AIDS and Behavior*, 20(9): 1821-1840.
30 De Wet N (2018) Violence against young females in South Africa: An analysis of the current prevalence and previous levels of youth mortality. In: *Gender-Based Violence: Perspective from Africa, the Middle East, and India*. Springer International Publishing. PP. 33-55.
31 Ward CL, Artz L, Leoschut L, Kassanjee R & Burton P (2018) Sexual violence against children in South Africa: a nationally representative cross-sectional study of prevalence and correlates. *Lancet Global Health*, 6(4): e460-468.
32 Toska E, Cluver LD, Boyes ME, Isaacsohn M, Hodes R & Sherr L (2016) School, supervision and adolescent-sensitive clinic care: Combination social protection and reduced unprotected sex among HIV-positive adolescents in South Africa. *AIDS and Behavior*, 21(9): 2746-2759.
33 Cluver L, Meinck F, Toska E, Orkin FM, Hodes R & Sherr L (2018) Multitype violence exposures and adolescent antiretroviral nonadherence in South Africa. *AIDS*, 32(8): 975-983.
34 Ellis BJ, Bates JE, Dodge KA, Fergusson DM, Horwood LJ, Pettit GS & Woodward L (2003) Does father absence place daughters at special risk for early sexual activity and teenage pregnancy? *Child Development*, 74(3): 801-821;
Operario D, Underhill K, Chuong C & Cluver LD (2011) HIV infection and sexual risk behaviour among youth who have experienced orphanhood: Systematic review and meta-analysis. *Journal of the International AIDS Society*, 14: 25.
35 Scott V, Schaay N, Schneider H & Sanders D (2017) Addressing social determinants of health in South Africa: the journey continues. *South African Health Review*, 2017(1): 77-87.
36 Hodes R, Doubt J, Toska E, Vale B, Zungu N & Cluver L (2018) The stuff that dreams are made of: HIV-positive adolescents' aspirations for development. *Journal of the International AIDS Society*, 21(S1): e25057.
Toska E, Zhou S, Laurenzi C & Cluver LD (2019) Adolescent hormonal contraception use and childbearing ideation in the era of HIV – findings from a large community-based study in South Africa. In: *AIDSImpact*. London, United Kingdom. Viewed 10 November 2019: http://www.aidsimpact.com/static/AIDSImpact%202019%20-%20Programme.pdf]
37 Proudlock P & Rohrs S (2018). Recent developments in law and policy affecting children. In: Hall K, Richter L, Mokomane Z & Lake L (eds) *South African Child Gauge 2018*. Cape Town: Children's Institute, UCT.
Hall K & Richter L (2018) Introduction: Children, Families and the State. In: Hall K, Richter L, Mokomane Z & Lake L (eds) *South African Child Gauge 2018*. Cape Town: Children's Institute, UCT.
38 The Presidency, Republic of South Africa (2015) *National Youth Policy 2015 – 2020*. Pretoria: The Presidency.
39 Department of Health (2017) *National Adolescent and Youth Health Policy 2017*. Pretoria: DoH.
40 See no. 5 above (Kinghorn et al).
41 See no. 5 above (Kinghorn et al).
42 Ozah K & Skelton A (2018) Legal perspectives: Children, families and the state. In: Hall K, Richter L, Mokomane Z & Lake L (eds) *South African Child Gauge 2018*. Cape Town: Children's Institute, UCT.
43 See no. 33 above.;
Dyer CEF, Campeau L, Toska E, Hodes R & Cluver LD (2019) *Are Youth Living with HIV in South Africa Reaching the Sustainable Development Goals?* CSSR Working Paper No. 434, April 2019. Cape Town: Centre for Social Science Research, UCT.
44 Haghighat R, Toska E, Cluver LD, Gulaid L, Mark D & Bains A (in press) Transition pathways out of pediatric care and associated HIV outcomes for adolescents living with HIV in South Africa. *Journal of Acquired Immune Deficiency Syndromes*.
45 See no. 39 above.
46 See no. 38 above.
47 National Planning Commission (2012) *National Development Plan 2030: Our Future, Make It Work*. Pretoria: The Presidency.
48 Children's Act 38 of 2005.
49 See no. 38 above.
50 See no. 39 above.
51 Department of Health (2012) *National Contraception Clinical Guidelines*. Pretoria: DoH.
52 Department of Health (2018) *National Contraception and Fertility Planning Policy and Service Delivery Guidelines* (2018 update). Pretoria: DoH.
53 See no. 51 and 52 above.
54 South African National AIDS Council (2017) *National Strategy for STI, HIV and TB 2017 – 2022*. Pretoria: SANAC.
55 Department of Health & Department of Basic Education (2012) *Integrated School Health Policy*. Pretoria: DoH & DBE.
56 Department of Basic Education, UNICEF & Centre for Justice and Crime Prevention. (2015) *The National School Safety Framework*. Viewed 10 November 2019: www.education.gov.za/Portals/0/Documents/Publications/School%20Safety%20Framework%202016.pdf?ver=2016-02-19-133421-363
57 See no. 54 above.
58 See no. 54 above;
See no. 47 above.
59 United Nations Population Fund (2017) *Harmonizing the Legal Environment for Adolescent Sexual and Reproductive Health and Rights: A review of 23 countries in east and southern Africa*. Pretoria: UNFPA.
60 Department of Basic Education (2019) *Standard Operating Procedure for the provision of Sexual and Reproductive Health, Rights and Social services in secondary schools*. PP. 2-18
61 Department Basic Education (2018) Draft National Policy on the Prevention and Management of Learner Pregnancy in Schools. Notice 128, *Government Gazette* No. 41456, 23 February 2018.
62 See no. 33 above;
Dunkle KL, Jewkes RK, Brown HC, Gray GE, McIntryre JA & Harlow SD (2004). Transactional sex among women in Soweto, South Africa: Prevalence, risk factors and association with HIV infection. *Social Science & Medicine*, 59(8): 1581-1592;
Jewkes RK, Dunkle K, Nduna M & Shai N (2010) Intimate partner violence, relationship power inequity, and incidence of HIV infection in young women in South Africa: A cohort study. *The Lancet*, 376(9734): 41-48.
63 Pettifor A, Stoner M, Pike C & Bekker LG (2018) Adolescent lives matter: Preventing HIV in adolescents. *Current Opinion in HIV and AIDS*, 13(3): 265-273.
64 World Health Organization (2019) *The Determinants of Health*. Viewed 26 October: www.who.int/hia/evidence/doh/en/.
65 United Nations Children's Fund (2012) *Integrated Social Protection Systems: Enhancing Equity for Children*. New York: UNICEF.
66 Toska E, Gittings L, Cluver LD, Hodes RJ, Chademana E & Gutierrez VE (2016) Resourcing resilience: Social protection for HIV prevention amongst children and adolescents in Eastern and Southern Africa. *African Journal of AIDS Research*, 15(2): 123-140.
67 See no. 66 above.
68 Cluver LD, Orkin FM, Meinck F, Boyes ME, Yakubovich AR & Sherr L (2016) Can social protection improve Sustainable Development Goals for adolescent health? *PLOS One*, 11(10): e0164808.
Cluver L, Pantelic M, Orkin M, Toska E, Medley S & Sherr L (2018) Sustainable survival for adolescents living with HIV: Do SDG-aligned provisions reduce potential mortality risk? *Journal of the International AIDS Society*, 21: 4-9.
69 United Nations Children's Fund (2017) *MHealth and Young People in South Africa*. Pretoria: UNICEF.
70 See no. 69 above.
71 Carty C, He E, Toska E, Cluver LD & Hodes RJ (2017) Efficacy of mobile health platforms for health information seeking among South African adolescents. *American Public Health Association*. Viewed 10 November 2019: https://apha.confex.com/apha/2017/meetingapp.cgi/Person/358534
72 Hampshire K, Porter G, Owusu SA, Mariwah S, Abane A, Robson E, Munthali A, DeLannoy A, Bango A, Gunguluza N & Milner J (2015) Informal m-health: How are young people using mobile phones to bridge healthcare gaps in Sub-Saharan Africa? *Social Science & Medicine*, 142:90-9.
73 Ward C, Makusha T & Bray R. Parenting, poverty and young people in South Africa: What are the connections? In: De Lannoy A, Swartz S, Lake L & Smith C (eds) *South African Child Gauge 2015*. Cape Town: Children's Institute, UCT.
74 Cluver LD, Orkin FM, Meinck F, Boyes ME & Sherr L (2016) Structural

drivers and social protection : Mechanisms of HIV risk and HIV prevention for South African adolescents. *Journal of the International AIDS Society*, 19: 20646.

75 See no. 4 above.

76 Hardee K, Gay J, Croce-Galis M & Afari-Dwamena NA (2014) What HIV programs work for adolescent girls? *Journal of Acquired Immune Deficiency Syndromes*, 66: S176–S185.

77 Mehra S, Daral S & Sharma S (2018) Investing in our adolescents: assertions of the 11th World Congress on Adolescent Health. *Journal of Adolescent Health*, 63(1): 9-11.

78 See no. 29 above (Mathews et al).

79 See no. 29 above (Mathews et al);
Cluver LD, Orkin FM, Campeau L, Toska E, Webb D & Carlqvist A (2019) Improving lives by accelerating progress towards the UN Sustainable Development Goals for adolescents living with HIV: A prospective cohort study. *The Lancet Child & Adolescent Health*, 3(4): 245-254.

80 Statistics South Africa (2019) *Higher Education and Skills in South Africa 2017*. Education Series Volume V. Pretoria: Stats SA.

81 Mbelle N, Mabaso M, Chauke T, Sigida S, Naidoo D & Sifunda S (2018) Perceptions and attitudes about male and female condom use amongst university and technical and vocational education and training (TVET) college students in South Africa: A qualitative enquiry of the 2014 Higher Education and Training HIV/AIDS (HEAIDS) Programme First Things First campaign. *Journal for HIV and AIDS*, 4(1): 031.

82 See no. 33 above; [Toska E, Cluver LD, Boyes ME, et al 2016]
Cluver L, Pantelic M, Toska E, Orkin M, Casale M, Bungane N & Sherr L (2018) STACKing the odds for adolescent survival: Health service factors associated with full retention in care and adherence amongst adolescents living with HIV in South Africa. *Journal of the International AIDS Society*, 21(9): e25176;
Wood K & Jewkes RK (2006) Blood blockages and scolding nurses: Barriers to adolescent contraceptive use in South Africa. *Reproductive Health Matters*, 14(27): 109-118.

83 See no. 4 above.

84 Dickson KE, Ashton J & Smith JM (2007) Does setting adolescent-friendly standards improve the quality of care in clinics? Evidence from South Africa. *International Journal for Quality in Health Care*, 19(2): 80-90.

85 See no. 4 above;
See no. 84 above.

86 Department of Health South Africa (2018) *Ideal Clinic Manual. Version 18. 1 April 2018*. Pretoria: DoH.

87 Toska E, Cluver L, Orkin M, Bains A, Sherr L, Berezin M & Gulaid L (2019) Screening and supporting through schools: Educational experiences and needs of adolescents living with HIV in a South African cohort. *BMC Public Health*, 19(271): 1-10.

88 Padian NS, McCoy SI, Balkus JE & Wasserheit JN (2010) Weighing the gold in the gold standard: Challenges in HIV prevention research. *AIDS*, 24(5): 621-635;
Cluver LD, Orkin MF, Yakubovich AR & Sherr L (2016) Combination social protection for reducing HIV-risk behavior amongst adolescents in South Africa. Journal of Acquired Immune Deficiency Syndromes, 72(1):96-104.

89 United Nations Children's Fund, Department of Social Development & South African Social Security Agency (2012) *The South African Child Support Grant Impact Assessment: Evidence from a survey of children, adolescents and their households*. Pretoria: UNICEF South Africa.

90 Cluver LD, Orkin FM, Boyes ME & Sherr L (2014) Cash plus care: Social protection cumulatively mitigates HIV-risk behaviour among adolescents in South Africa. *AIDS*, 28(S3): S389-397;
Audrey P, McPhail C, Kahn K, Maman S, Chirayath S & Thirumurthy H (2010) *HPTN 068: Effects of cash transfer for the prevention of HIV in young South African women*.

91 Cluver LD, Orkin FM, Campeau L, Toska E, Webb D & Carlqvist A (2019) Improving lives by accelerating progress towards the UN Sustainable Development Goals for adolescents living with HIV: a prospective cohort study. *The Lancet Child & Adolescent Health*, 3(4): 245-254.

92 Department of State (2018) *2018 Progress Report - PEPFAR Strategy for Accelerating HIV /AIDS Epidemic Control (2017 – 2020)*. Washington D.C.

93 SheConquers (2019) SheConquers home page. Viewed 23 October 2019: http://sheconquerssa.co.za/.

94 See no. 29 above.

95 See no. 66 above;
See no. 91 above.

Long term health conditions in children: Towards comprehensive care

Anthony Westwood[a] and Wiedaad Slemming[b]

Nearly a quarter of all children have some form of long term health condition (LTHC). Global attention has been focused primarily on such conditions in adulthood. LTHCs among adults, such as diabetes and high blood pressure (also known as non-communicable diseases, or chronic diseases of lifestyle), are placing increasing pressure on health services and national budgets. National governments and health and other services have given much less attention and fewer resources to the needs of the many children with LTHCs. Most of the focus in child health in recent decades has been on the infectious and neonatal conditions responsible for the bulk of mortality and morbidity of children under five years of age. In addition, the range of LTHCs affecting children is much wider than among adults (see Table 1 for a classification of LTHCs among children), and their care is distributed across a wider range of health services with a greater proportion taking place in specialised services. Organising long-term care in health and other services for children with LTHCs is thus more complex than for adults.

This chapter shines a light on the many children in South Africa who have disabling and long-term conditions and whose right to survival, optimal development, basic health and education services and dignity, amongst other rights, are not being met. It argues that condition-specific care, together with routine (or 'non-categorical'[i]) long-term care to help children and families cope with the consequences of the LTHC, constitute "basic health care services" for these children under section 28 (1)(c) of the South African Constitution. It proposes approaches to realising these rights, highlighting children with disabling and life-limiting conditions who, with their families, have the greatest need for a comprehensive response from government and communities.

The chapter seeks to answer the following questions:

- How are the LTHCs affecting children defined?
- What are the LTHCs affecting children?
- What is the health burden due to LTHCs among children in South Africa?
- What are the consequences of having a LTHC for the child and family?
- How can services best work with children with LTHCs and their families?
- What laws and policies are there to guide service providers and society in meeting the needs of children with LTHCs and their families?
- What are the policy and implementation gaps and what are the recommendations?

How are the LTHCs affecting children defined?

Unlike acute conditions that come and go in a short period of time, LTHCs, by virtue of their continuous presence in the life of a child and family over time, are likely to have an impact on the development and life chances of the child unless they are managed well through childhood. As first described by Stein and colleagues,[1] the two essential elements of the definition of LTHCs are the duration of the presence of the condition and the need for health services. Box 8 highlights how duration also brings with it a set of potential consequences for the child and family as does the need for health services over that time. A working definition of a LTHC is outlined in Box 9.

Box 8: Common characteristics and needs of children with LTHCs

- Increased psychological stresses for the child, parents, caregivers and siblings
- Increased financial strain
- Risk of problems with physical growth
- Risk of problems with neuro-development
- Potential barriers to learning
- Increased financial costs
- Challenges in negotiating the transitions of childhood, especially adolescence

i 'Non-categorical' means that children and families living with LTHCs face similar challenges regardless of the category of the long-term condition. This concept is explained further in this essay (see Table 2).

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Box 9: Definition of long term health condition

A long term health condition is one that has a physical, cognitive or mental basis and the following three features:

1. It affects the child for enough time to potentially affect the child's physical or psychological development (more than a year, sometimes for life).
2. The child requires ongoing health and/or other services to function optimally.
3. As a result, the child requires continuous, coordinated and comprehensive health care.

Adapted from: Stein REK, Bauman LJ, Westbrook LE, Coupey SM & Ireys HT (1993) Framework for identifying children who have chronic conditions: The case of a new definition. *Journal of Pediatrics*, 112: 342-347.

What are the long term health conditions affecting children?

Table 11 sets out a classification of the myriad congenital[ii] and acquired[iii] conditions that affect children. Every organ of the body may be affected and many LTHCs affect multiple organs. Long-term mental health and cognitive conditions are included. Some LTHCs, like asthma, are very common; others affect only a few children. A significant number of LTHCs are severe and disabling; others are mild. Some, like certain cancers, are curable; others, like haemophilia or Type 1 diabetes mellitus, are lifelong, or may lead to the child's early demise as many inherited disorders of body chemistry do. Specific conditions may affect children differently. For example, allergic rhinitis (hay fever) can be a mild irritation to one child but can interfere with learning or even lead to life-threatening heart failure in another.

Table 11: A classification of long term health conditions in childhood

Time of onset	Group name	Sub-group by cause	Examples
Before birth	Congenital	Genetic disorders	Down syndrome, haemophilia, muscular dystrophy, metabolic disorders, certain forms of epilepsy
		Congenital infections	Damage from German measles virus
		Foetal damage by external toxins	Foetal alcohol spectrum disorders
		Congenital disorders of unknown cause	Many syndromes; many forms of congenital heart disease
During birth	Perinatal	Consequences of preterm birth	Some forms of cerebral palsy; blindness due to damage to immature eyes
		Consequences of birth injury	Some forms of cerebral palsy; intellectual disability
		Consequences of severe neonatal illness	Some forms of cerebral palsy; deafness
Any time from birth to adolescence	Acquired	Allergic	Asthma, allergic rhinitis
		Post-infectious	Chronic lung diseases, kidney failure
		Infectious	HIV/AIDS, tuberculosis
		Post-traumatic	Traumatic brain injury; limb amputation
		Auto-immune	Diabetes mellitus, juvenile arthritis
		Neuro-behavioural	Autistic spectrum disorders, attention deficit disorders (see Box 10)
		Psychiatric	Depression, obsessive compulsive disorder
		Intellectual disability	Mild, moderate or severe
		Sensory disability	Deafness, blindness
		Nutritional	Obesity
		Tumours and cancers	Acute leukaemia; brain tumours
		Unknown causes	Certain forms of epilepsy

Note: The time at which a long term health condition is first recognised depends on access to screening tests (e.g. ultrasound during pregnancy, examination of newborn babies), parental knowledge (e.g. access to genetic counselling, knowledge of normal child development), access to clinical services (e.g. nurses who can identify children who are at risk), and how long a particular condition takes to show symptoms.

ii 'Congenital' means that the cause of the condition occurs during pregnancy before labour commences, e.g. Down syndrome.
iii 'Acquired' means that the cause of the condition occurs after the child is born, e.g. cerebral palsy as a consequence of meningitis.

The sheer diversity of childhood LTHCs and their many rhythms and long-term trajectories introduces service delivery challenges that are more complex than with most long term health conditions in adults.

What is the health burden due to LTHCs among children in South Africa?

For many reasons, there are inherent difficulties in establishing how many children have LTHCs given the wide variety of conditions, times of onset, levels of function and mortality rates. No comprehensive attempt has been made to do this within existing surveys or research in South Africa. Inequity of access to accurate diagnosis and specialised care in South Africa means that health service or register data would be an underestimate of numbers and need. Thus, accurate comprehensive data on the number of children who have a LTHC in South Africa are lacking.

Overall, however, based on international figures and what is known in South Africa, it is likely that from infancy to late adolescence about one in every five children in South Africa has a LTHC (i.e. about four million children). A significant but unclear proportion of these children have a severe or complex disorder. Birth incidence of congenital disorders in South Africa was estimated by to be about 83,000 live births in 2012 (6.8% of all live births).[2] With about 30% of these children inevitably dying early due to the severity of their congenital condition, the remaining approximately 60,000 infants per year will require some form of management (often multi-disciplinary including paediatric surgery) and continued long-term care.

In terms of childhood disabilities, combining Statistics South Africa's census-based childhood disabilities estimates[3] that do not include children under five years of age with figures from an international study on developmental disabilities[4] that only counted children under five years of age, a total of 1.15 million children in South Africa are estimated to have sensory, developmental, cognitive and motor disabilities, many of which are congenital.

Overall numbers of children living with a LTHC may not have changed much in recent decades but, for various reasons, the conditions that make up these numbers are likely to have changed. Long-term consequences of vaccine-

Box 10: Attention deficit and hyperactivity and autistic spectrum disorders in childhood

Attention deficit and hyperactivity disorders (ADHD) and autism spectrum disorders (ASD) are the two most common types of neuro-behavioural disorders affecting children in South Africa and constitute a particular challenge in long-term care.

ADHDs are characterised by a mix of poor concentration, impulsivity, fidgetiness and restlessness, learning problems, mild motor difficulties, and poor social skills. Without recognition, careful assessment and management, these lead to poor educational outcomes, difficult family and peer relationships, poor self-esteem and stigma.

ASDs are characterised by sensory sensitivities, difficulties with language, communication and inter-personal relationships, repetitive behaviour and difficulty coping with change. Some children with ASD have major learning problems. This array of difficulties challenges families and education systems and makes many inputs from an array of educational, social and health professionals necessary.

These conditions occur commonly across all class, cultural and language groups in South Africa. Many of these conditions are recognisable well before the child enters the formal education system, the point at which the behaviours and learning traits become more obvious. Early identification and intervention are key, enabling children to access therapeutic and family interventions that can improve their life trajectory and educational attainment. Early childhood development practitioners have a crucial role in identifying children who have difficulties with language, social relationships and abnormal patterns of play (see Case 1).

Optimal management of ADHD and ASDs requires coordinated intervention from health, education and social services – and support for both the child and family. Systems to achieve this are not well established and resourced. Access to assessment and therapy services in the health system is poor especially at the primary care level. Mainstream schools battle to provide educational support and special schools are rare. Social stigma is rife, and these children often experience social isolation, mental health problems, school failure, poor career prospects and difficulty with intimate relationships.

Apart from the generic long-term care approaches espoused in this chapter, specific cross-disciplinary attention needs to be given to ADHD and ASD services across South Africa if the best interests of this large number of children are to be realised.

preventable diseases and common childhood infections have decreased due to immunisation and treatment programmes. Their place has been taken by three groups of children in what is known as an 'epidemiological transition':[5]

1. Children whom medical science has saved from death but not saved from long-term disability and/or need for services, such as very low birth weight babies ("premature babies") and many children whose congenital defects have been surgically corrected at least partially, congenital heart defects being the commonest in this group.
2. Children with previously life-limiting conditions, such as cancer; HIV/AIDS; cerebral palsy; sickle cell disease; many forms of congenital heart disease; and cystic fibrosis, where medical advances have increased their life span, often into adulthood.
3. The increasing prevalence of children with obesity, chronic constipation, allergic disorders such as asthma, mental health disorders such as depression and anxiety, and neuro-behavioural conditions (see Box 10) such as autistic spectrum disorders (ASD) and attention deficit and hyperactivity disorders (ADHD). These increases are probably related to changes in diet, reductions in infectious diseases, increasing urbanisation, climate change, and/or stressful environments.

There is also a concern regarding over-diagnosis of some LTHCs by practitioners and families, such as food allergies and ADHD.

On the positive front, improvements in access to paediatric care and awareness of conditions such as ASDs mean that fewer children with LTHCs are being missed in South Africa.

In child health in general, prevention of disease, disability and death is a primary concern. To what extent are LTHCs in childhood preventable? Box 11 shows how a wide range of preventive approaches can and should be applied to LTHCs in childhood in South Africa.

What are the consequences of having a LTHC for the child and family?

A number of important consequences for the child and members of the family may occur as a result of the LTHC. An understanding of these consequences and how to deal with them is essential in order to provide optimal care for children

Box 11: To what extent are the prevalent long term health conditions in South Africa preventable?

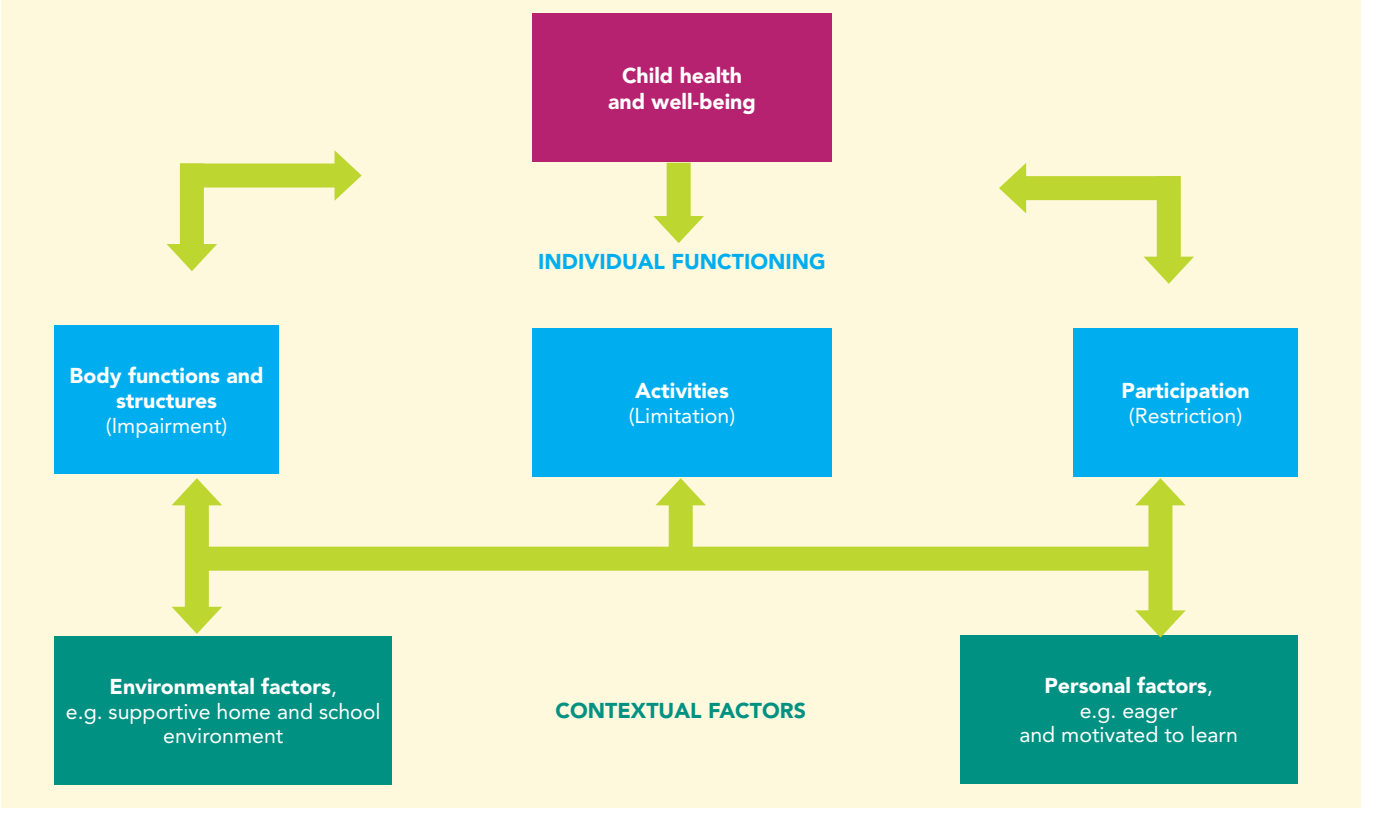
- Primordial prevention aims to reduce factors that increase the overall burden of disease in a population such as pollution, uncontrolled urbanisation, lack of access to healthy foods, climate change and social disruption. The prevalence of some common childhood mental health problems, obesity, allergies and lung diseases would decrease with better urban planning, agricultural and food policies, improvements in air quality, cooler climatic conditions, and safer societies.
- Primary prevention aims to stop the condition from occurring at all. For example, quality perinatal and neonatal care can prevent cerebral palsy (CP) and foetal alcohol syndrome disorders; preventing exposure to tobacco smoke can reduce long term lung diseases such asthma and tuberculosis. Genetic services, including genetic counselling, can play an essential role in primary prevention in childhood. Long term consequences of infections can be prevented in the same ways that the infections themselves are prevented: immunisation, hygiene, prevention of mother-to-child transmission of HIV, etc. Mental health and behavioural problems can be prevented with nurturing care and the recognition and mitigation of risk factors in the classroom. Obesity is preventable through early nutrition education, growth monitoring and exercise programmes.
- Secondary prevention aims to identify risks or conditions and intervene as early as possible. For example, children who are obese are more likely to develop asthma and diabetes. Screening for heart diseases at birth and during childhood can lead to life-saving early interventions. Early childhood intervention (ECI) for developmental difficulties and disabilities is an established and effective form of secondary prevention – see Case 5.
- Tertiary prevention aims to overcome or mitigate the effects of a LTHC, e.g. physiotherapy and orthopaedic surgery in CP; blood products in haemophilia. Tertiary prevention is the focus of much health service effort and is a vital part of reducing the burden of suffering related to all LTHCs in childhood.
- Quaternary prevention refers to preventing suffering as a result of inappropriate health-related fears. For children, concern about food allergies that lead to poor diets and activity limitation is a common example that requires prevention of a "pseudo-LTHC" in many young children.

with LTHCs and their families. While this chapter deals with consequences that may put well-being at risk, many also enhance quality of life for the child and members of the family (for example by promoting greater family cohesion).

Disability or disabilities

Disability is one of the most common consequences of a child having a LTHC, although LTHCs and disabilities in childhood are not the same thing. All children with disabilities have a LTHC because the disabling condition (such as cerebral palsy) is present in the long term. But not all children with LTHCs have a disability. For example, if the condition is mild, well-controlled, or compensated for by an enabling assistive device (e.g. a hearing aid) or an educational or social compensatory intervention (e.g. classroom support), the child who has the LTHC is not necessarily disabled by it. LTHCs can result in **secondary disability**, for example depression in a child who has an incurable condition may reduce their ability to learn and participate at school. For many years, defining **disability** as an individual "problem" (the medical model) was the dominant way of thinking. However, there is growing recognition that the functioning of children with LTHCs is affected by the environments in which they live – their immediate family, physical and social environments. Although diagnoses are important for defining the cause and prognosis, they do not necessarily predict the child's **level of functioning**.[6] It is therefore essential to identify any **limitations of function** that may restrict the child's **ability to participate** in order to develop a care plan for the individual child. A formal medical diagnosis is not necessary for this process to take place. The International Classification of Functioning, Disability and Health for Children and Youth (ICF-CY)[7] is designed to document both the characteristics of the developing child and the influence of the surrounding environment. The ICF-CY provides a standardised framework for **impairments, activity limitations** and **restrictions to participation**[iv] in everyday life situations and relevant environmental factors (Figure 32). It also presents a common language to enable the documentation and measurement of health and disability in children and youth across different settings. Although largely used in the context of disability, this framework can provide the basis for developing and delivering optimal care plans and systems for all children with LTHCs in addition to

Figure 32: The International Classification of Functioning (ICF) Framework



Adapted from: World Health Organisation (2007) *International classification of functioning, disability and health: Children and youth version*. WHO.

iv 'Impairment' refers to a loss or abnormality in body function or structure; 'activity limitation' is a difficulty experienced by an individual in executing a task/action; and a 'participation restriction' is a difficulty experienced by an individual in everyday life situations.

Table 12: Principles for delivering routine long-term care for children

Principles	Definition	Some ways to demonstrate generic care
Comprehensive	Covers all aspects of care needed, from promotive to palliative for all children with LTHCs	• Cover all aspects of care outlined in this table • Ensure all usual child health care (e.g. immunisation) is carried out • Promote optimal development
Coordinated	Planned, seamless and efficient care across sites, sectors, and professionals involved in the child's care	• One member of the health team designated as coordinator of the child's care – could be a specialist nurse or a general practitioner • Ensure parents know who to contact • Multi-disciplinary clinics for complex diseases; teamwork • Book clinics on the same day • Keep all role players informed • Planned patient transport for patients who live far away – a missed appointment could be a disaster • Plan for provision of drugs; servicing of equipment • Individualised care plan carried by parent or caregiver; copy to role players at every level of care; regularly updated by "highest" level of care • Standardised management guidelines • Define the role of each level in a child's care; outreach services from tertiary and secondary levels
Continuity of care	Continuity of people, management and information in the child's care across the life course. Incorporates the C-word "consistency".	• Same faces in the health service as far as possible • Designated "chronic care" nurse(s) in outpatient department • Encourage outpatient nurses to give advice when the child is an in-patient • Notekeeping and care plans track care provided • Integrated data systems across levels and sectors • Anticipatory guidance
Communication	Verbal and written means of transmission of meaning and information for child, family, health care team and other sectors	• Appropriate interpersonal communication and counselling between health team and child and family • Practitioners at all levels to write in the Road to Health Book at every visit • Patient-held record for older children, and children with complex needs • Individualised care plan • Secretarial support • Email/WhatsApp groups/fax/telephones that work • Parents are recognised as an essential part of the team • Integrated data systems across levels and sectors
Community-linked	Services and families are in touch with and using community resources	• Non-governmental organisations, community-based organisations • Community support groups • Support for schools and educators by the health team • Service directories
Capacitated	Capable of performing actions expected of someone or something (child, family members, professionals, systems)	• Basic and post-basic health professional education to include non-categorical or routine long-term care principles and practice • Essential standard patient records, equipment and medication available throughout the system • Outreach systems from specialised levels of care • Patient- and family-centred health education ethos • Recognise that the child needs to understand his or her condition according to the developmental stage – include the child from the start

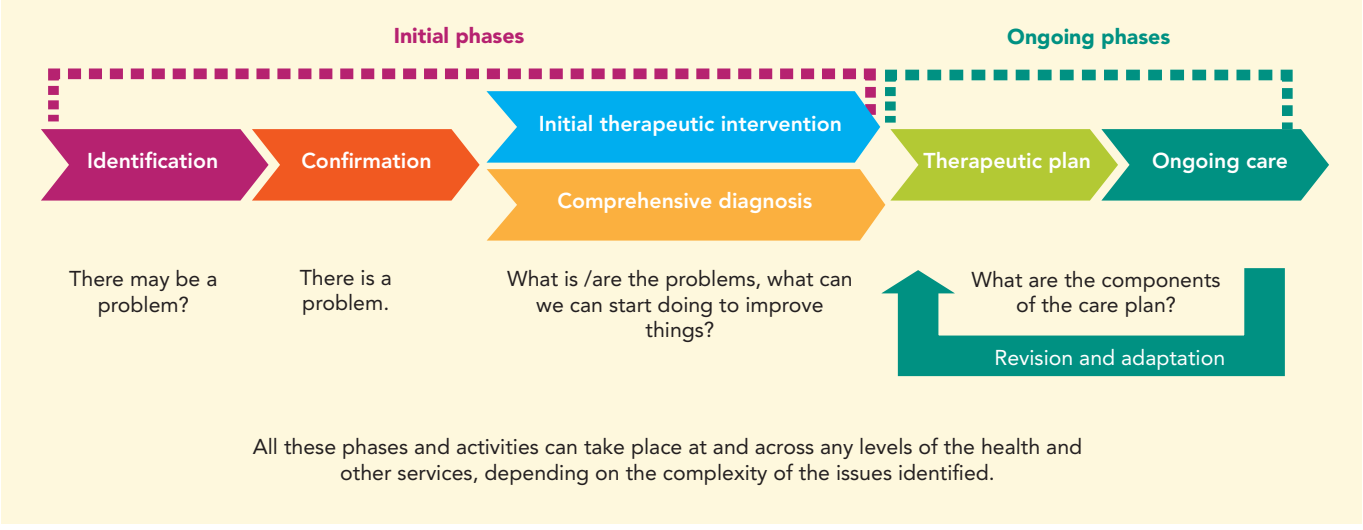
Adapted, with permission, from: Kibel M, Westwood T & Saloojee H (2013) *Child Health for All*. 5th edition. Oxford University Press.

diagnosis-based International Classification of Disease that is usually used in clinical care and health information systems.

A set of predictable and potentially preventable consequences for the child and family

The continuous presence of a LTHC can negatively influence the child's physical growth, psychosocial development, mental health, education and social participation. The LTHC is also likely to have significant effects on family function and dynamics.[8] Understanding the significance of LTHCs on a child

Figure 33: Care pathways for children with long term health conditions



and family is crucial since this dictates our approach to service delivery. These common consequences, to which family, services and society must respond, are set out in Table 12. As this list of consequences is common to all categories of LTHC (Table 11), it is known as the **non-categorical approach**.[9]

The aim of all interventions for LTHCs must therefore be to achieve **maximum function** and **participation** for the child, and to **minimise disability** where possible. In concert, while each LTHC requires condition-specific care, it is as important to routinely take a holistic **non-categorical approach** to minimise the consequences of LTHCs for children and families across all services and society.

How can services best work with children with LTHCs and their families?

The pervasive acute care model of health service delivery with its short-term goals will not be able to respond appropriately to children with LTHCs. Likewise, the conventional primary care approach to child health with its emphasis on programmes for children under five years of age will also not be able to achieve this aim. How then should services be configured to respond effectively?

Figure 33 shows the stages that each child and family need to pass through: from the initial suspicion that a child has a LTHC; through assessment of the child's functioning and responding early to any deficit; confirming the diagnosis (if possible); to establishing how the condition is affecting this individual child and family; and then developing, implementing and reviewing treatment regimens and care plans as the child and family pass through the transitions of life to adulthood or, in some cases, to the death of the child. Thus, the whole system needs to be geared to providing continuity of care for all such children across the life course and across health and other systems, while addressing their condition-specific needs as well as their generic and sometimes complex needs at facility, community and household levels.

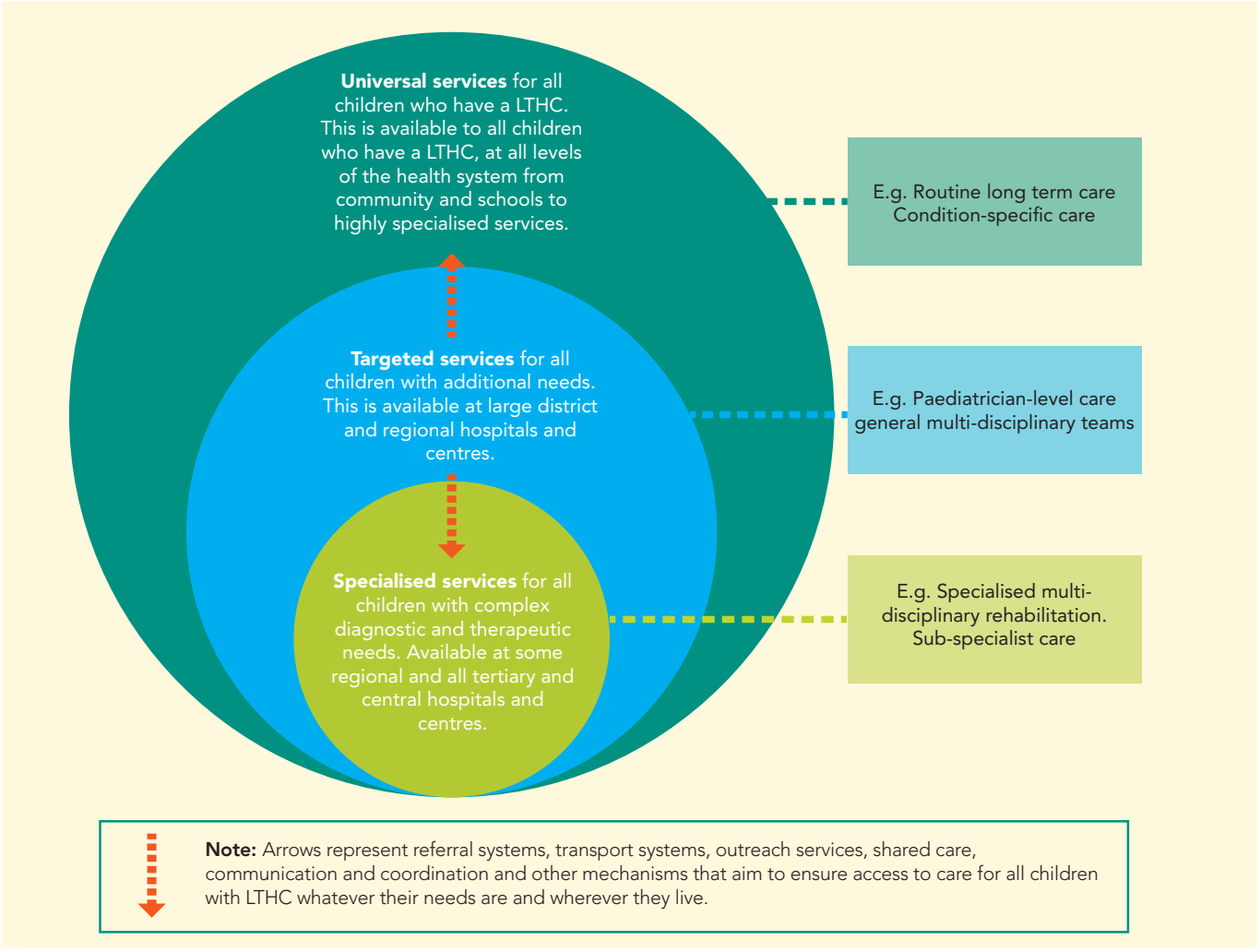
Many parts of the health system, from community level to highly sophisticated services, may be involved in these processes, often repeatedly through childhood. The model of care outlined in Figure 34 shows how non-categorical or routine LTHC care should be available to all children and families at all levels of the health service, while a smaller group of children require special care (e.g. those who need a paediatrician), and an even smaller group who require complex, expensive care involving tertiary services that may include specialised end-of-life care.

These approaches have significant implications for the organisation of services in South Africa's provincially-implemented and inequitably distributed health services at all levels, especially the most sophisticated specialised and highly-specialised services. Interfaces with other services are often necessary, including social and educational services, and non-governmental organisations (such as the Down Syndrome Association), requiring coordinated systems for intersectoral collaboration.

How can care for children with LTHCs be organised to ensure the best outcomes for the child and family? The following attributes characterise such services and systems:

- Services are equitable and accessible to all in need.
- A non-categorical or routine long-term oriented approach is taken at all levels of care.
- Early recognition and intervention occur.
- Multi-disciplinary teams are involved in the care of child and family.

Figure 34. Health services for children with long term health conditions



- Leadership and accountability are found, especially for the coordination of a child's care.
- Care is integrated across sectors.
- A family-centred approach is taken, including building partnerships with the child and family so that they can deal with the consequences of the LTHC.
- A palliative care approach is taken (Case 7).

Any health system for children with LTHCs will be most effective if it is characterised by provision of care that is attentive to a number of principles beginning with C, such as Comprehensive, Coordination, Continuity, Communication, etc. Table 12 presents these principles and gives examples of how they can be translated into actions in the health services. Ensuring that all who work with and in services, from policy development and implementation to frontline service delivery and home-based care, translate these principles into policy, protocols and clinical practice provides the key to ensuring that services respond to children with LTHCs and their families. C-words will be bold in the rest of this chapter to demonstrate their conceptual utility in routine long-term care.

Services are equitable and accessible to all

As with all services, those for children with LTHC need to be organised to mitigate inequities such as those between rural and urban, poor and rich, and historically unequal provision of health resources across provinces. Specifically, for LTHC care, referral systems must be set up to allow children to reach the right level for the complexity of their long-term conditions for both the diagnostic and continuing care phases. This can include intra- and inter-provincial referral pathways, tele-medicine systems, shared care[v] and outreach[vi] systems.

v 'Shared care' refers to systems in which health care teams at more than one level of the health system take agreed joint and complementary care of a child and the family, thereby strengthening care that is closer to the child's home.

vi 'Outreach' refers to individuals and teams from a more specialised level of the health service bringing insights and skills to a more general level of the health service in an agreed and planned way.

Case 5: The Gauteng Early Child Intervention project[a]

In 2010, the rehabilitation sub-directorate of the Gauteng Department of Health established a multi-disciplinary early childhood intervention (ECI) workgroup in response to concerns over the late identification of children with developmental difficulties and disabilities and the fragmented and variable quality of services in the province. The key objectives of the workgroup are to:

- Raise the profile of ECI in the province.
- Provide provincial guidance and leadership around ECI.
- Improve coordination and standardisation of ECI service delivery at all levels of care.
- Link with partners in the field of early childhood development, education, social development, affiliate health directorates and other relevant partners to address issues with ECI service delivery.

The workgroup prioritised a few key areas to initiate change in the province, i.e. building the capacity of health professionals, providing strategic guidance on ECI, developing resources, engaging with stakeholders, and promoting service-level research and innovative approaches to ECI service delivery.

Since its inception, the workgroup has been hosting at least two workshops a year. The first workshop helps strengthen the ECI knowledge and skills of health professionals (therapists, psychologists, social workers, dietitians, podiatrists, among others) who are new to the province. The second workshop provides a platform for health professionals to share their ECI practices to promote benchmarking, shared learning and innovation. These have included a focus on workshops on child development and ECI for caregivers, educators, early learning practitioners and health care providers; workshops on making toys from waste; transdisciplinary screening and intervention services; and specialised interdisciplinary clinics for children with autistic spectrum disorders.

Regular stakeholder meetings with relevant government departments, non-profit organisations and academic partners have been used to address current gaps and challenges and to improve collaboration and the coordination of services for young children and their families.

Strategic inputs include the development of a provincial ECI policy; guidelines on "How to get started with ECI in your workplace"; integrating key ECI indicators into routine provincial data monitoring systems; and including key tenets of ECI service delivery into the provincial facility audit process.

The workgroup hosts an annual conference which attracts academics and service providers from across the country; publishes a bi-annual newsletter; and produces caregiver education materials on the development of young children for health (and other) professionals.

This investment in strategic guidance, tools and support has led to a growing interest in ECI and ECD within Gauteng and is helping to shift practice from a deficit- to strengths-based approach; place families at the centre at all levels of care; strengthen referral systems and networks; and increase the use of community resources outside the health system.

A non-categorical or routine long-term care approach

Regardless of the LTHC being dealt with, policymakers, service managers (clinical and non-clinical) and frontline professionals should provide care that takes into account the common requirements of child and family – set out in Table 12.

Early identification, diagnosis and intervention

Systems must be geared to the early recognition that a child has a continuing health problem or is at risk from one. At that point (even before a medical diagnosis), systematic early intervention is required. Early Childhood Intervention (ECI) for children with or at risk for developmental delays or difficulties is a well-developed example of this approach.[10] Case 1 presents an example of ECI in Gauteng province. Access to genetic services also improves early identification and diagnosis of congenital and other LTHCs.[11]

The multi-disciplinary team (MDT)

The needs of children with LTHCs and their families are dynamic and often too complex to be met by a single discipline or professional. This requires a transdisciplinary approach to **comprehensive** care, in which professionals work together and share roles across disciplinary boundaries so that **communication, cooperation**, shared learning and **coordination** are maximised.[12] Professional roles are not fixed – boundaries are deliberately blurred to allow for

a With contributions from Dr Sadna Balton, Head of Speech Therapy and Audiology Department, Chris Hani Baragwanath Academic Hospital, Soweto and Elma Burger, Deputy Director: Specialised Programmes, Gauteng Department of Health on behalf of the Gauteng ECI Task Team

Case 6: The advanced clinical nurse as a coordinator of complex long term care[b]

In the 1980s all children with tracheostomies were managed as in-patients, often spending many years in hospital. But for the past 30 years, the Breatheasy programme at Red Cross War Memorial Children's Hospital in Cape Town has enabled hundreds of children with tracheostomies to be cared for at home, leading to improved outcomes for the children and saving millions of rands to the health service. Pivotal to this success has been the clinical and service leadership provided by an advanced paediatric clinical nurse (APCN). The role has evolved to include:

- training parents to be independent managers of their children's tracheostomy;
- ensuring full understanding of the home and social circumstances and needs of the family, including through home visits where necessary;
- coordinating the child's and family's care across services and sectors, including the child's school;
- providing psychosocial support to the child and family;
- liaising with community services and organisations, including municipalities (e.g. to arrange electricity supplies to the home) where necessary;
- managing the consumables and equipment needs of the children;
- coordination of the multi-disciplinary team including multiple medical and surgical specialists at the hospital;
- assisting the in-patient nursing team when the children require admission;
- being the go-to person ("medical home") for the families; and
- advocacy and fundraising.

This form of nurse-led clinical leadership has the potential to greatly enhance the efficiency and quality of the care of children with LTHCs, especially in tertiary and school health services.

greater flexibility and responsiveness. A key outcome of transdisciplinary working is the development of "shared meaning" and a joint vision[13] *with the family as an integral part of the team*.

These teams can be constituted at any level of the health service (Figure 34), and often across levels to ensure effective **coordination**. Therapists such as physiotherapists, dieticians, speech and language therapists, and occupational therapists may be part of the initial assessment, and in the follow-up and adjustment of care plans. Para-professionals such as rehabilitation care workers are especially useful in district level services and intermediate care[vii] settings (**community-linked care**). Medical social workers and nurses play crucial roles in supporting the children and their families as they deal with the trauma of learning of the child's condition, the rigours of the medical and therapy regimens over many years, the transitions and ups and downs of life, and in some cases preparing for and following through on the child's death and the family's bereavement.

Leadership and care coordination

This role can be assumed by any member of the MDT, who then becomes the care coordinator or key liaison between the family and the health care team. In countries where this approach has been adopted, e.g. England, this includes care across sectors (health, education and social protection).

Advanced paediatric clinical nurses (APCN) have the potential to strengthen and coordinate care for children with LTHCs in South Africa, but their role is as yet underdeveloped.[14] Case 2 illustrates how the care of children with tracheostomies in Cape Town has been revolutionised (and money saved) through deployment of an APCN to lead the team and coordinate comprehensive care.

Integrated care

As LTHCs affect the child and family in many ways, **comprehensive** support from a variety of services, agencies and organisations is necessary. There may financial support, support in the classroom, or home visits by community workers or faith-based support groups (**community-linked**). This requires care that is integrated and **coordinated** across services (such as health, education and social services) and support systems at district or regional levels. Integrated care is not yet well developed or known in South Africa.

A family-centred approach

Families and caregivers of children with LTHCs assume a central role in optimising the function and participation of these children. Likewise, LTHCs have a profound effect on the child's family including siblings; so a **compassionate** family-centred supportive approach to service delivery is essential.

vii 'Intermediate care' is facility-based care that occurs outside of acute hospital care as a bridge to re-integrating children with LTHCs or rehabilitation needs into their home or alternative care.

b With contributions from Jane Booth, formerly APCN on the Breathe Easy programme, Red Cross War Memorial Children's Hospital, Cape Town

Case 7: The essentials of palliative care[c]

"Palliative care no longer means helping children die well, it means helping children and their families to live well, and then, when the time is certain, to help them die gently."

Mattie Stepanik 1990 – 2007.

Palliative care for a child with a LTHC is the active total care of the child's body, mind and spirit. It also involves giving support to the family. A common misconception is that palliative care is limited to care of the dying child. Palliative care begins when a LTHC is diagnosed whether it is potentially curable, controllable or clearly life-limiting. It should be practised alongside cure-focused interventions. Palliative care takes a holistic view of the needs of the child and family with a LTHC and attempts to meet these needs. The focus is particularly on relieving physical, psychological and spiritual suffering. Where a child does die from a LTHC, palliative care does not end with the death of the child but extends to support for the family during the bereavement stage.

Children have a right to access palliative care. The UNCRC specifically refers to palliative care as a component of children's right to health. This includes the right of access to effective pain relief.

A UNICEF study in partnership with the International Children's Palliative Care Network in 2013 estimated that 801,155 children needed palliative care in South Africa – of these, 304,441 needed more specialised palliative care.[15] The systematic exclusion of certain groups of children means that the numbers of children requiring palliative care are likely to be higher than these estimates.

Given the extent of the need, a key strategy to improve access to palliative care is to integrate such care into the public health system at all levels. This is a key principle in South Africa's National Palliative Care Policy[16] which identifies children as a vulnerable group.

Given the broad range of needs, effective palliative care requires a multi-disciplinary approach that includes the family and makes use of available community resources. It can be successfully implemented even if resources are limited. The Palliative Care Policy recognises that training in palliative care is required across the system; that access to appropriate medication, especially those aimed at pain relief, is mandatory; and expects all provinces to develop implementation plans based on the policy. It also recognises that, beyond the general need for all health professionals to be able to practise palliative care together in a coordinated way, the need for a small number of paediatric palliative care specialists to drive the development of this field and provide specialised support to teams that care of children with LTHCs, especially in the later phases of the care of children with life-limiting conditions.

Priority needs to be given to:

- funding implementation of the national policy;
- improving access to appropriate pain relief (e.g. by including paediatric drugs and formulations in the Standard Treatment Guidelines);
- mainstreaming education in palliative care in all basic health and post-basic professional training; and
- putting practical measures in place to support families after the loss of the child, e.g. by continuing access to the Care Dependency Grant for a period of the death of the child (see Table 13).

Capacitating the child and family

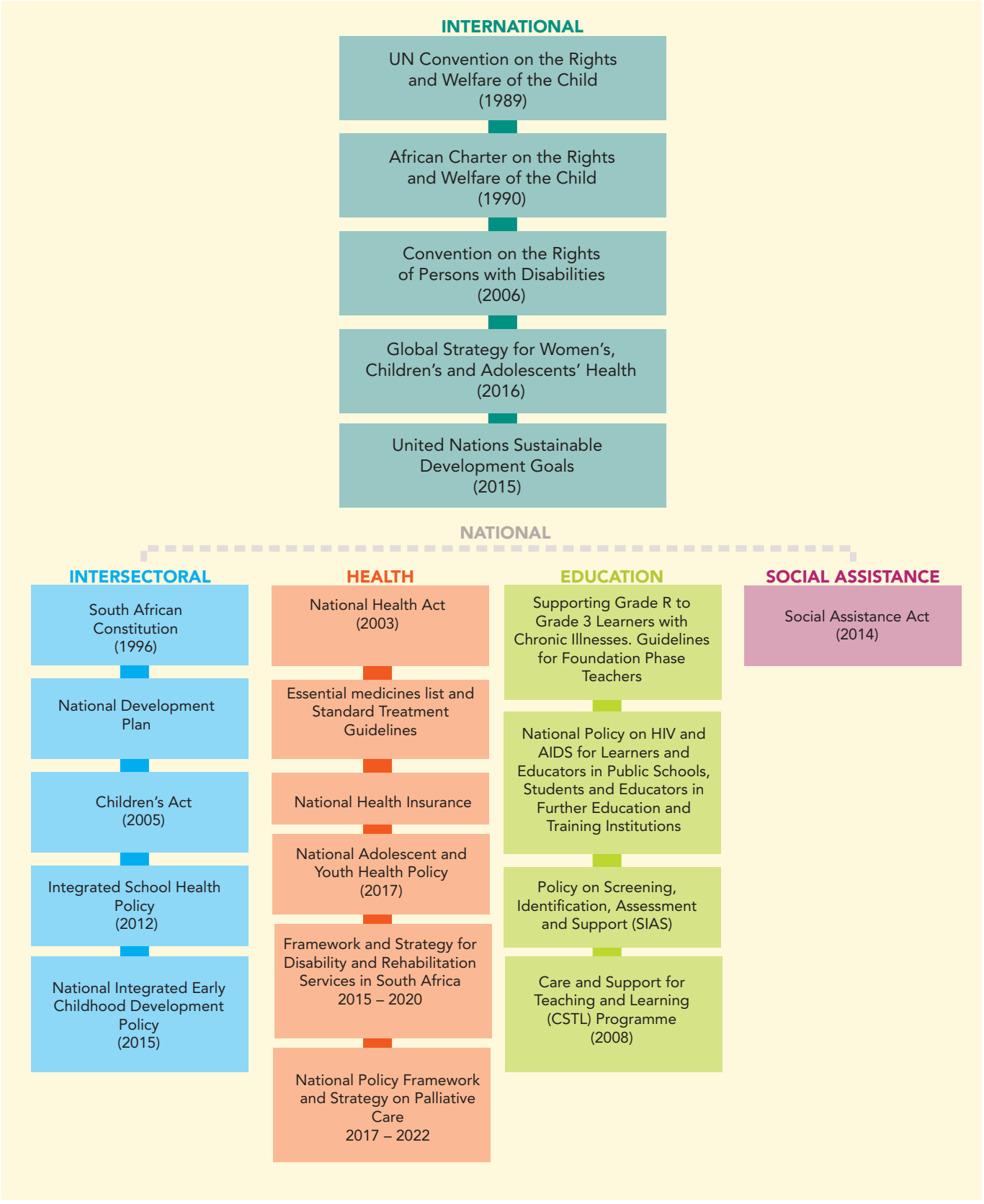
However well organised the long-term care is, it will be most effective if the child and family are active participants and partners in the planning and execution of care. **Building the capacity** of the child and family and allowing their voices to be heard as part of the MDT are crucial elements of care. **Community organisations** can play a vital role in this **capacitation** and partnering with the family.

A palliative care approach

The above principles and practices are all part of palliative care, which aims to reduce pain and suffering and to improve quality of life. This approach requires a view of the purpose of LTHC care that goes beyond medical and rehabilitation care to dealing **comprehensively** with all needs of the child and family. Case 3 expands further on palliative care in South Africa, especially as it applies to children in the later stages of life-limiting LTHCs and children who have intractable symptoms.

c With contributions from Dr Michelle Meiring, CEO PaedsPal and Senior Lecturer, Division of Family Medicine and Department of Paediatrics, University of Cape Town

Figure 35: Summary of the laws and policies that should guide care for children with LTHCs and their families



What laws and policies are there to guide service providers and society in meeting the needs of children with LTHCs and their families?

Figure 35 illustrates the many instruments that South Africa has ratified and developed and which should guide services for children with LTHCs and disabilities.

The international legal and developmental framework

The Government has demonstrated its commitment to realising rights for all children at the highest political level by ratifying and/or endorsing a number of international and regional rights instruments that promote and protect children's rights (including those with disabilities and LTHCs).

Most notably, the ratification of the United Nations Convention on the Rights of the Child (UNCRC) and the UN Convention on the Rights of Persons with Disabilities (UNCRPD) reinforces the importance of protecting and realising fundamental children's rights, including access to education for all children, and emphasises that families of children with disabilities and other LTHCs must be adequately supported to promote their children's participation, inclusion and quality of life.

In 2015, UN member states adopted 17 Sustainable Development Goals (SDGs) to be reached by 2030.[17] Children with LTHCs are not specifically mentioned in SDG 3, the "health goal", although would be included by implication in Goal 3.4: "reduce by one third premature mortality from non-communicable diseases …". Goal 4 for educational development calls on states to "ensure inclusive and quality education for all and promote lifelong learning" … "including persons with disabilities" and stipulates that states shall provide safe, non-violent, inclusive and effective learning environments for all. SDG 10 aims to reduce inequality in part by reducing discrimination against those who have disabilities. The SDGs also call for governments to ensure that "no one [is] to be left behind", which should include the majority of children with LTHCs living in low- and middle-income countries.

National instruments

There is a wide (though not well coordinated) range of laws, policies and guidelines that seek to address the special needs of children with LTHCs and their families from birth through adolescence.

Intersectoral policies and legislation

South Africa is one of a few countries to include disability issues within its Constitution. Consequently, the country has comprehensive legislation and policies protecting and promoting the rights of children with disabilities. The Children's Act[18] provides a comprehensive child protection framework for South Africa. It has a specific section referring to children with disabilities and "chronic illnesses", an outdated term. Section 11 (3) of the Children's Act provides that a child with a disability or "chronic illness" has the right not to be subjected to medical, social, cultural or religious practices that are detrimental to his/her health, well-being or dignity.

The National Integrated Early Childhood Development (ECD) Policy of 2015 in concert with Pillar 4 of the White Paper on the Rights of Persons with Disabilities of 2016 prioritises the prevention of disability, early identification and intervention for children with health, growth or developmental concerns and the inclusion of children with developmental difficulties, disabilities and other conditions that place them at risk.

The 2012 National Integrated School Health Policy (ISHP) includes a focus on (among others) psychosocial and mental health, sexual and reproductive health (particularly among adolescents), and support of children with "chronic illnesses" as an integral component of the school health service. The Integrated Strategy of the Department of Basic Education (DBE) on HIV, sexually transmitted infections and tuberculosis for 2012 – 2016 intersects with the outcomes that relate to learner sexual and reproductive health and LTHCs in the ISHP strategy.

Health

The National Health Act[19] (effective from 2005) provides for free primary level health services for children. However, the provision of free referral services at higher levels of care only applies to children under six years of age as well as children with "moderate to severe disabilities" who are not beneficiaries of a medical aid scheme.

The re-engineering of primary health care (PHC), a core element of the country's National Health Insurance (NHI) plan, aims to improve the quality and reach of essential preventative and curative health interventions, with a focus on maternal and child health. These will mainly be achieved through three complementary delivery strategies: district clinical specialist teams (DCST) providing direction and governance focused on maternal and child health; school health teams; and municipal ward-based outreach teams that deliver health services at household level, largely by community health workers (CHWs). School health is the only delivery strategy that specifically refers to children with LTHCs.

The Framework and Strategy for Disability and Rehabilitation Services in South Africa (2015 – 2020) outlines the suite of comprehensive and integrated disability and

rehabilitation services that should be available and accessible at all levels of health care.[20] Although it is largely written with a disability focus, the approaches and services outlined apply to a range of childhood LTHCs.

The continuously updated hospital-level paediatric Essential Medicine List and Standard Treatment Guidelines (STGs) contain an outline of care for many LTHCs. It is strongest on the essential medicines but does not provide enough detail for the comprehensive and stratified management of LTHCs. STGs and essential medicines for children with some LTHCs are found in the Primary Level Essential Medicines List.

The National Adolescent and Youth Health Policy of 2017 seeks to improve the health status of young people through the prevention of ill health, the promotion of healthy lifestyles (prevention of LTHCs) and the improvement of health care delivery systems. From a LTHC perspective, the policy covers HIV and AIDS, tuberculosis, chronic or non-communicable disease, disability, drug and substance abuse, and mental health. The policy also highlights the importance of improving the transition from paediatric to adolescent/adult care and referral processes for adolescents with LTHCs from specialised to primary level services. However, this only currently covers HIV-positive adolescents.

The National Policy Framework and Strategy on Palliative Care for 2017 – 2022, a key development in comprehensive LTHC care, is discussed in Case 7.

In 2018, South Africa launched its new Road to Health Book (RTHB) together with a campaign to link parents and health providers in partnership around the health of young children. For the first time the RTHB contains a specific section on LTHCs that encourages communication and continuity in care. Limpopo and the Western Cape provinces have developed specific LTHC patient-held medical records to encourage communication among service providers.

Education

In 2009, the DBE published Guidelines for Supporting Grade R to Grade 3 learners with "chronic illnesses". They aim to enable educators to attend to the basic needs of learners with LTHCs in their care. They encourage educators to work together with all involved in the child's life to ensure that children feel safe and secure in the classroom, can participate in activities and have a positive school experience. The guidelines align with White Paper 6 on Inclusive Education, the National Policy on HIV and AIDS for Learners and Educators in Public Schools, Students and Educators in Further Education and Training Institutions and the Policy on Screening, Identification, Assessment and Support (SIAS) that includes a toolkit to identify barriers to learning (including health conditions). Case 8 reports on the implementation of SIAS in the Western Cape province.

White Paper 6 on Inclusive Education (2001) promotes an inclusive system for vulnerable learners through the establishment of procedures for early identification and intervention for children who have barriers to learning, including children with disabilities and LTHCs. This intersects well with the aims of the SIAS policy.

Social support and protection

The Social Assistance Act[21] and its regulations make provision for unconditional cash transfer programmes targeting eligible children living in poverty through the Child Support Grant and for those children with disabilities who are requiring permanent care or support services through the Care Dependency Grant (CDG). These grants extend from birth until the child reaches 18 years.

The White Paper on the Rights of Persons with Disabilities in 2016, outlines South Africa's response to the United Nations CRPD, and sets the course for legislation and policy to meet these rights, including those for children. Specific legislative responses have yet to appear.

What are the policy and implementation gaps, and what are the recommendations?

Are these instruments comprehensive and coordinated enough to ensure that children with LTHCs and disabilities and their families enjoy comprehensive, appropriate and accessible support and services? Have they resulted in the delivery of the essentials of long-term care for children and their families from frontline clinical and other services, thereby realising their rights to basic health care and resulting in optimal outcomes for these children and their families?

In short, there are still fundamental deficiencies in access to and the orientation and practice of long-term and disability care for children and their families across most of the service platforms in South Africa. In general, services remain as they historically have been:

- orientated to preventive, promotive and short-term curative care for children under five years,
- providing services for children with HIV infection, and
- more available in urban areas and historically better-resourced provinces.

Much less attention has been given to the equitable organisation and orientation of services for all children with LTHCs and disabilities, despite the policy initiatives described above.

Case 8: SIAS[d]

The Policy on Screening, Identification, Assessment and Support (SIAS) was launched by the Department of Basic Education in Pretoria in 2014. It is aligned to the Education White Paper 6 on Special Needs Education: Building an Inclusive Education and Training System (2001). The purpose of SIAS is to standardise the procedures to identify, assess and provide programs for learners who require additional support to enhance their participation and inclusion in school. It aims to work seamlessly with the Integrated School Health Policy and integrates with learner support structures at classroom, school and district levels.

Additional support may be needed if barriers to learning are identified. The effect that the barrier has on the individual child's learning varies from child to child and may need short- or long-term support. The barriers are not always intrinsic to the child and arise due to the teachers' lack of skills or challenges in the class, school or home or education system.

The Western Cape Education Department (WCED) has developed a comprehensive support pathway for learners who experience barriers to learning, including those with long term health conditions. This involved a geographical mapping of assets and external sources of support, including allied health services, which was then shared with the provincial Department of Health at provincial and district levels.

The support pathway begins with the teacher/parent/guardian/health practitioner identifying a learner who is experiencing a barrier to learning. It is expected that the classroom teacher tries to address the barrier to learning. If the intervention by the teacher is not sufficient, the teacher may request a school-based support team (SBST) meeting to discuss the learner or group of learners. The SBST may advise additional classroom interventions, or refer the child for further support.

If the support available at school level is not sufficient to address the barrier, assistance may be requested from the education department's district-based support team which includes the psychologists, social workers, therapists, learning/remedial support advisors, special school specialists or other intersectoral partners. This could include school health services from the Department of Health, social services from the Department of Social Development and local NGOs. A determination will be made by the circuit/district-based support whether the need for support is low, moderate or high and where the support will be provided.

Over the last three years, training of all those involved in this form of learner support has been rolled out incrementally starting with district-based support teams, full-service/inclusive schools (ordinary schools resourced to provide low-to-moderate levels of support), special schools and school-based support teams at all ordinary schools.

How are these deficiencies to be overcome?

First and foremost, there is a lack of guidance for service and clinical managers at national, provincial and facility levels on how to organise and orientate services to provide long-term care and to do so equitably. None of the instruments described is specific or comprehensive enough to achieve this end. Specifically, policies and strategies on disability and rehabilitation in South Africa do not cover all other children with LTHCs. For the reasons demonstrated in this chapter, this dichotomous approach must cease.

An overarching policy and implementation guidelines for services for children with LTHCs

An initiative to achieve this end, begun in the national Department of Health at the end of the last millennium, was never completed. An overarching policy and implementation guidelines on the care of children with LTHCs (called "non-communicable diseases" at the time) were developed and approved, but not implemented. The re-organisation of services and "baskets of care" envisaged by the NHI initiative, together with the ministerial Committee on Mortality and Morbidity in Children's (CoMMiC)[22] call for an essential package of health care for children, provide an opportunity to revise and update the LTHC policy and guidelines.

These should:

- link and coordinate existing childhood LTHC and disability policies, guidelines and regulations;
- give clear guidance on improving equity of access to all aspects of long-term care;
- provide guidance on how best to deliver comprehensive long-term care;

d With contributions from Berenice Daniels, Director: Inclusive and Specialised Education Support, Western Cape Education Department

- provide a framework for a detailed essential package of long-term and disability care for children, based on the CoMMiC recommendations,[23] NHI deliverables and relevant policies, frameworks and strategies, including those overseen by the Office of Health Standards Compliance, and the Essential Medicines programme;
- give clear guidance on how intersectoral aspects of long-term care will be provided, including integrated care; and
- set out a simple monitoring and evaluation system for facilities and services.

Leadership and governance mechanisms that coordinate the policy, standards, and delivery of services to children with LTHC and disabilities are required, e.g. monitoring from the Office for Disabilities in the Presidency and the South African Human Rights Commission, and with intersectoral coordination led by the Department of Health.

Opportunities to strengthen LTHC care through NHI

The NHI provides further opportunities for improving long-term care for children. The concept of "baskets of care" in NHI is well suited to LTHC care. CoMMiC has long advocated for children with LTHCs in their triennial reports. Their framework for an essential package includes children with LTHCs, and those requiring palliative care. This framework should be brought into the cost-utility work around "baskets of care" under the NHI as soon as possible.

NHI primary health care re-engineering originally included the re-engineering of rehabilitation services at district level. This component should be revived as the current re-engineering programmes have insufficient focus on the large numbers of children with LTHCs and disability. This is especially the case in rural areas.[24] Helping to coordinate long-term and palliative care for children in the district health system and across sectors and to train staff in routine long-term and shared care and outreach should be introduced into the work of the district clinical specialist teams.

Ward-based outreach teams (WBOTS) which, together with the DCSTs, are pillars on PHC re-engineering in NHI, hold potential for increasing access to services for children with LTHCs and disabilities. Roles that community health workers could play to assist children with LTHCs and their families include early identification, family support in long-term care, service linkages, basic palliative care, and delivery of preventive care in the home.[25] WBOTS need to include community rehabilitation workers – these are community health workers with special skills in rehabilitation who are supported by therapists. Section 5.1 of the Framework and Strategy for Disability and Rehabilitation Services in South Africa 2015 – 2020 outlines these roles.[26] Priority should be given to ensuring coverage of these 'reinforced' WBOTS in dispersed and deprived areas in South Africa.[27]

School health service teams are a third pillar of PHC re-engineering. Recommendations for their role in the care of children and adolescents with LTHCs in concert with education services are in Table 13.

NHI, while aiming to cover the maximum proportion of the population with an affordable basket of care, cannot provide for everyone's needs. It needs to have an appeal fund mechanism for the needs of children with rare LTHCs (usually inborn metabolic disorders) that are very expensive to treat.

NHI aims to contract private practitioners as part of its service platform. The private sector is no model of long-term care. Indeed, its current funding methodologies and individualised practices are inimical to the teamwork required for long-term care. Most prescribed minimum benefits are aimed at adult onset disorders, with little provision for some common disabling disorders in children. NHI provides an opportunity to redress some of these deficiencies through funding and accreditation mechanisms that encourage good long-term care as outlined earlier.

Coordination of care and communication across services would be taken forward considerably if the NHI-linked single patient number was introduced as soon as possible.

Other gaps and recommendations

While the overarching LTHC policy and the changes that should come as part of the service re-organisation associated with NHI might be considered medium-term approaches, there are many things that can be done in the short-term to plug gaps in the policy and service delivery environments to better realise the rights of children with LTHCs.

Table 5 indicates the main gaps at policy, service, training and data levels and makes recommendations for each.

In general, there is much to do and much that can be done in the short and medium terms to improve access to quality, comprehensive long-term care for children and adolescents in South Africa.

Table 13: Gaps and recommendations

LEVEL	GAPS	RECOMMENDATIONS
POLICY	*Access* *General services for children* Access to primary care services for children is inadequate in many parts of the country due to distance, topography and other factors. These affect children with LTHCs more than other children as they have greater requirements for health services and often have reduced mobility. *Specialised paediatric services* 1. Access to general paediatricians, skilled paediatric nurses and therapists with paediatric skills is very limited in many parts of the country. 2. There are marked inequities in access to tertiary services for children and adolescents with LTHCs. Some provinces have limited or no tertiary services and there is inadequate access to the services in neighbouring provinces. Many children with LTHCs require tertiary services for the management of common conditions such as congenital heart defects. Paediatric surgical services are commonly required for congenital malformations.	• Prioritise policy and associated funding to improve equity of access to comprehensive primary care services for children and adolescents in under-served areas. The role of NHI in guaranteeing this redress is highlighted. • Strengthen efforts to train, attract and deploy paediatricians, paediatric nurses, and therapists with paediatric skills to under-served – largely rural – areas. Human resources planning related to NHI should rapidly guide the provision of posts for these cadres in under-served areas. • Strengthen outreach services by these cadres and teams within and, where feasible, across provinces. Develop clear mechanisms including service-level agreements between provincial health services that have comprehensive tertiary services and those that do not, especially for paediatric surgical services. This applies particularly to the provinces that surround Gauteng province. • Strengthen the developing paediatric tertiary services in large rural provinces such as the Eastern Cape and Limpopo.
	Financial barriers Many children with LTHCs face the same problems with finance and access as children with moderate-to-severe disability who currently have free health care. Eligibility criteria and implementation of the CDG are inconsistent and don't include some LTHCs. When children with a life-limiting condition die, the sudden withdrawal of the CDG can have severe consequences for a family who have given up earning capacity to support the dying child, and still need time to find employment.	• Ensure that children from rural areas within provinces have equal access to paediatric tertiary services via referral and transport systems. • Provide children who have complex LTHCs with free health care at all levels of the health service and with eligibility criteria similar to those for the CDG but that take account of the child's needs, for example care at multiple services levels, frequent review, multiple admissions to hospital. (See below for further recommendations regarding the CDG.) • Review the eligibility criteria to take into account the burden of care for children with complex LTHCs. • Strengthen consistent implementation of the CDG. • Allow the CDG to continue for three months after a child with a severe LTHC has died.
	Palliative care The 2017 Palliative Care Policy does not have implementation guidelines and a budget at national or provincial levels.	• Provide funding, support and direction for this implementation, with a specific implementation group focused on children (see Case 13).
SERVICES	*Routine or non-categorical long-term care* 1. The most significant gap at service level is the lack of a systematised approach to routine long-term service provision at all levels for children with LTHCs. Such non-categorical care should be seen as "basic health care services" for these children, mandated under section 28 (1)(c) of the Constitution. Coordination of care and communication are generally weak across services and sectors. In all provinces there is sub-optimal use of primary and secondary levels of care to provide care to children and adolescents who have LTHCs.	• Strengthen comprehensive long-term care across the health and associated systems. Clinical managers and frontline teams at and across levels, supported by service managers, can implement many of the attributes of routine LTHC care outlined in this chapter, including practical expressions of the principles outlined in Table 12. • Ensure functional referral pathways and outreach systems. • Develop care plans for all children with LTHCs. (A template was developed in the unimplemented overarching LTHC policy and has been incorporated into the Limpopo and Western Cape provinces' patient-held medical records for children with LTHCs.)

LEVEL	GAPS	RECOMMENDATIONS
SERVICES	*Rehabilitation services* Rehabilitation services for children are inequitable and inadequate.	• Follow through on the provisions of the Framework and Strategy for Disability and Rehabilitation Services in South Africa 2015 – 2020. Specifically, for children, community-based rehabilitation, screening within the Integrated School Health Policy, and developing norms for disability and rehabilitation services need prioritisation. • Develop mechanisms through NHI specifically to improve rural children's access to rehabilitation services.
	School health services The "chronic illnesses" aspects of the Integrated School Health Policy have not been implemented.	• Appoint senior nurses to lead and coordinate the whole system and its links to the health and other systems as part of the NHI PHC re-engineering. • Develop strong links with the health system by the SIAS policy and Care and Support for Teaching and Learning initiatives via mechanisms such as common databases and communication channels. This would significantly improve comprehensive and coordinated care in schools for children and adolescents with LTHCs.
TRAINING	*Education systems for children with special needs* 1. Children with special needs in education, especially those with neuro-behavioural and cognitive disorders, are generally not getting what they require, even from the few full-service schools. The transition of therapeutic care for children from health services to the education sector when they enter formal schooling is fragmented, as there are few professionals such as occupational therapists available to take over their care in the education sector. 2. There has been insufficient progress on inclusive education.	• Improve coordination between health and education sectors (and professionals) to ensure appropriate placement and care of children when they start school. Mechanisms for this coordination and its oversight must be developed. • Put in place strengthened and expanded support systems in the education sector, including the availability of appropriate staff (such as therapists, psychologists etc.) to deliver support as envisioned in the White Paper 6 on Inclusive Education. • Increase dedicated funding to realise the vision of White Paper 6.
	Education and training of health and allied professionals 1. There are major gaps in basic and post-basic training in long-term care for children. 2. Interdisciplinary teamwork is underdeveloped. 3. Certain key multi-disciplinary team health workers are missing in most parts of South Africa: community rehabilitation workers and advanced clinical paediatric nurses. 4. Inadequate care (including transition care) is provided for adolescents with LTHCs and disabilities.	• Introduce standard interdisciplinary modules of training into basic training for all professionals. • Paediatric rotations should include a long-term care case study. • Mainstream interdisciplinary training and training in interdisciplinary care. • Resuscitate programmes that trained rehabilitation workers for incorporation into MDTs and ward-based outreach teams. • Create posts for APCNs. The South African Nursing Council and the Human Resources and Child, Adolescent and School Health directorates in the National Department of Health should take the lead. • Basic training: Ensure a specific focus on adolescent long-term care in basic training, and with an assessment. Specialist training: Strengthen learning opportunities and assessment in adolescent care, including long-term care.
DATA SYSTEMS	Children with LTHCs are largely uncounted.	• Include a new module in the General Household Survey, such as the UNICEF/Washington Group's Extended Set on Child Functioning and Disability[28] to count children with LTHCs and improve understanding of their lives and service experiences. • Add indicators of throughput, quality of care, and outcome for sentinel LTHCs to the District Health Information System. • Ensure that NHI resource allocations are based on service data that adequately reflect ambulatory care, as this is where children with LTHCs receive the bulk of their care and rehabilitation.

Conclusions

This chapter has highlighted the needs of a significant number of South African children who have been left behind in policy and practice in recent decades. It has outlined approaches to improving care provision.

Improving care for children and their families will require re-orientation in training, human resource practices, and organisation of health services. Policies and funding mechanisms that promote these changes are required, with the Department of Health leading, and engaging partner departments such as Basic Education and Social Development and the Office of Health Standards Compliance, as well as higher education institutions and examining bodies, specialist organisations, and non-government and non-profit patient support organisations. At service level, district clinical specialist teams can take a leading role.

NHI provides an opportunity to set the agenda and coordinate these changes so that children with LTHCs and disabilities and their families experience comprehensive, coordinated and continuous quality integrated care from capacitated services, from the time that a problem is suspected, throughout their childhood and adolescence, and into adulthood.

References

1 Stein REK, Bauman LJ, Westbrook LE, Coupey SM & Ireys HT (1993) Framework for identifying children who have chronic conditions: The case of a new definition. *Journal of Pediatrics*, 112: 342-347.
2 Malherbe HL, Aldous C, Woods, D & Christianson A (2016) The contribution of congenital disorders to child mortality in South Africa. In: Padarath A, King J, Mackie E, Casciola J (eds) *South African Health Review 2016*. Durban: HST.
3 Statistics South Africa (2014) *Census 2011: Profile of persons with disabilities in South Africa*. Pretoria: Stats SA.
4 Global Research on Developmental Disabilities Collaborators (2018) Developmental disabilities among children younger than 5 years in 195 countries and territories, 1990-2016: A systematic analysis for the Global Burden of disease study 2016. *Lancet Global Health*, 6 e: 1100-1121.
5 Halfon N & Newacheck PW (2010) Moaning notions of childhood chronic illness. *Journal of the American Medical Association*, 303: 665-666.
6 Bjornson KF & McLaughlin JF (2001) The measurement of health-related quality of life (HRQL) in children with cerebral palsy. *European Journal of Neurology*, 8(suppl 5): 183-193.;
Rosenbaum P (1998) Screening tests and standardized assessments used to identify and characterize developmental delays. *Seminars in Pediatric Neurology*, 5: 27-32.
7 World Health Organization (2007) *International Classification of Functioning, Disability and Health: Children and youth version*. WHO.
8 Slemming W & Balton S (2016) Child disability and the family. In: Makiwane M, Nduna M, Mophosho M & Khalema E (eds) *Lives and Times: Children in South African Families*. London: Cambridge Scholars.
9 See no. 1 above. [Stein et al]
10 World Health Organisation & UNICEF (2012) *Early Childhood Development and Disability: A discussion paper*. Geneva: WHO.
11 See no. 2 above.
12 See no. 8 above.
13 Davies S (ed) (2007) *Team around the Child: Working together in early childhood education*. Wagga Wagga, Australia: Kurrajong Early Intervention Service;
McGonigel MJ, Woodruff G & Roszmann-Millican M (1994) The transdisciplinary team: A model for family-centered early intervention. In: Johnson LJ, Gallagher RJ, LaMontagne MJ, et al (eds) *Meeting Early Intervention Challenges: Issues from birth to three*. 2nd edition. Baltimore: Paul H. Brookes.
14 South African Nursing Council (2019) *Advanced Practice Nursing. SANC 's Position Paper/Statement*. SANC website. Viewed 10 October 2019: https://www.sanc.co.za/position_advanced_practice_nursing.htm
15 UNICEF and ICPCN (2013) *Assessment of the need for palliative care for children. Three country report: South Africa, Kenya and Zimbabwe*. https://www.unicef.org/aids/files/Palliative_Care_Three_Country_Report_Nov13.pdf
16 Department of Health (2017) *Policy Framework and Strategy on Palliative Care 2017-2022*. Pretoria: DoH.
17 United Nations (2019) *Sustainable Development Goals*. Viewed 12 October 2019: sustainabledevelopment.un.org/?menu=1300.
18 Children's Act 38 of 2005
19 National Health Act 60 of 2003
20 Department of Health (2015) *Framework and Strategy for Disability and Rehabilitation in South Africa 2015 – 2020*. Pretoria: DoH.
21 The Social Assistance Act 13 of 2004.
22 Department of Health (2011) *1st Triennial Report. Ministerial Committee on Mortality and Morbidity in Children under 5 Years of Age in South Africa*. Pretoria: DoH.
23 See no. 20 above.
24 Rural Health Partner Network (2016) *Submission on National Health Insurance White Paper, May 2016*. Available at www.ruralrehab.co.za/uploads/3/0/9/0/3090989/ruresa_nhi_2011.doc.
25 Schneider H, Daviaud E, Besada D, Rohde S & Sanders D (2018) Ward-based primary health care outreach teams in South Africa: Developments, challenges and future directions. In: Rispel LC & Padarath A (eds) *South African Health Review 2018*. Durban: Health Systems Trust. PP. 59-65.
26 See no. 18 above.
27 See no. 23 above.
28 Washington Group on Disability Statistics (2016) *Child Functioning*. Viewed 13 October 2019: www.washingtongroup-disability.com/washington-group-question-sets/child-disability/).

Violence, injury and child safety: The new challenge for child health

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Large numbers of children die each year from violence and injuries, while many more suffer resultant physical disability and mental health problems.[1] The burden of violence and injury among children and adolescents is greatest in low- and middle-income countries which account for 80 – 95% of fatalities globally.[2] In South Africa, injuries make up an increasing proportion of child deaths and are the leading cause of death amongst adolescents. In addition, non-fatal injuries contribute to a growing burden of disability in childhood, are concentrated among poor children, and increase as children age. Despite this growing public health problem, a coordinated focus on injury and violence has not been prioritised by the state or the health sector.[3]

Violence (intentional injuries) and unintentional injuries share some common risk factors such as poverty, poor education, and substance and alcohol use, among others. However, unintentional injury prevention and control have mainly been addressed from a biomedical approach with a limited recognition of the common risks, long-term psychosocial consequences beyond the injuries, and a lack of intersectoral responses to address the burden. There is an opportunity to bridge this divide, particularly considering common approaches to intervene through communities and parents to develop safe, stable and healthy relationships with young children to reduce the effects of trauma, the ongoing exposure to unintentional injury, as well as the intergenerational effects of violence.

Global and local policy initiatives, including the Sustainable Development Goals (SDGs) adopted by all United Nations member states in 2015, have set targets for the prevention of violence and injury. Such initiatives offer an opportunity to strengthen intersectoral collaboration and create a safe environment by e.g. addressing poverty and inequality and promoting safe energy across settings (in homes, schools and communities). The SDGs and other initiatives also include targets to reduce specific forms of injuries and violence.[4] But, these efforts will only succeed if government makes child safety a priority.

This chapter focuses on violence and injuries during childhood and adolescence and addresses the following:

- What do we mean by intentional and unintentional injuries?
- What do we know about the extent and causes of childhood injuries?
- How does the pattern of childhood injury change across the life course?
- What are the key common and injury specific risk and protective factors?
- What are the opportunities for intervention?
- What are the implications of current knowledge for the policies and programmes that are in place?
- What is needed to promote a coordinated national child safety agenda?

What do we mean by intentional and unintentional injuries?

The field of injury prevention includes both violence and injury, but they have emerged as two distinct areas globally and in South Africa. The World Health Organization's framework and injury classification make a distinction between unintentional and intentional injuries. Intentional injuries are those that are deliberately inflicted and include self-inflicted, interpersonal and collective violence. Unintentional or "accidental" injuries are sustained in the absence of an intention to harm and are usually classified according to their causal mechanism – the most-common causes include road traffic injuries, falls, burns and scalds, drowning and poisonings.

The term 'accident' is often colloquially used to refer to the inevitability of events that lead to an injury. This is however contrary to a growing body of evidence that highlights the preventable nature of an injury event and therefore the term unintentional injury is better aligned to a prevention agenda.[5] Injury is therefore classified as either intentional or unintentional; yet these categories are often not as distinct as they are made out to be.[6] There are many connections that exist between the two problems, such as similar associated

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factors, common consequences, and common prevention measures.[7] For example, the distinction between inadequate supervision and deliberate neglect may require careful investigation to establish the circumstances and history of the injury, as illustrated in Case 1. A history of injuries that at first sight may look unintentional is often a sign of abuse and neglect. For example, the Child Death Review Project found that 11% of out-of-hospital child deaths were associated with child abuse.[8] Decisions to define injuries as unintentional are often made without sufficient consideration of the social and structural factors that may lead or contribute to an injury. Such factors may also include harmful practices sanctioned by the state or industry, for example, the production, marketing and use of dangerous paraffin stoves.[9]

What do we know about the extent and nature of violence and injuries?

Despite extensive global and national policy frameworks, South Africa's children continue to be threatened by both intentional and unintentional injuries.

Mortality rates

Injury is a leading cause of death and disability amongst children and adolescents, with a global annual child-injury mortality of 8.6 per 100,000 in high-income countries compared with 41.8 per 100 000 in low- and middle-income countries.[10] Injury deaths in South Africa are high at a rate of 38.9 per 100,000 for children 19 years and younger.[11] Since 2000, injury mortality rates have declined for both adults and children;[12] yet the recent escalation in homicides[13] and persistently high levels of road traffic mortality[14] are causes for concern. The second National Burden of Disease Study indicates that child injury deaths are concentrated among children under five years old and among older adolescents.[15] Globally, the contribution of injury deaths to under-five mortality is increasing as child mortality from communicable diseases declines.[16]

The leading causes of child injury deaths in South Africa are road traffic injuries (36.0%), homicide (28.2%), other unintentional injuries such as burns and drowning (27.3%), and suicide (8.5%). The causes of injury mortality vary by age as illustrated in Table 14.

Deaths due to road traffic and other unintentional injuries (especially burns and drowning) are most concentrated among young, pre-school children.[17] Deaths due to road traffic injuries are higher than global rates particularly for ages 0 – 4 years, at 15 per 100,000 children;[18] but decline to 10.4 per 100,000 for 5 – 14-year olds; and then escalate to peak amongst older adolescents, with a rate for 15 – 29-year-olds at 39.7 per 100,000[19].

Deaths due to other unintentional injuries also tend to decline after the first four years,[20] e.g. the highest childhood burn mortality rates are reported in the under-five age group and thereafter rates decrease until adolescence when burn mortality rates start to increase again into adulthood.[21] There appears to be a similar pattern for drowning deaths, with a provincial study reporting a decline after early childhood and a slight increase in rates during adolescence.[22]

Child homicides are classified as intentional injuries and the pattern reflects an initial peak amongst infants, followed by a decline and then a significant increase among older adolescents and into adulthood. The South African child homicide rate of 5.5 per 100,000 children[23] is significantly higher than the estimated global rate of 4 per 100,000 children.[24] Nearly half (44.6%) of child homicides were associated with child abuse and neglect and nearly three-quarters (74%) of these child abuse deaths were in the under-five age group and occurred in the home.[25] Rape-murder rates are high at 1.03 per 100,000 girls, and with older adolescent girls most at risk from known perpetrators.[26] The homicide rate from early adolescence increases eight fold among older adolescents and mainly affects males.[27] Adolescent males are mainly killed in public spaces, and with the perpetrator known to them, and have much higher mean blood alcohol (0.10g/100ml) than adolescent females.[28]

Case 9: Investigating cause of death – unintentional or intentional injury?

An 18-month-old child was brought to Salt River mortuary after a fatal hit-and-run road traffic accident. The autopsy confirmed a severe head injury and he died on the scene at 21.00 hours on a Wednesday evening. The case was reviewed by the Child Death Review team to determine the circumstances that led to his death and whether there were any modifiable factors. The review established that the child was walking on his own at 21.00 hours. His mother had been drinking since the afternoon with friends and the child was left roaming the street unattended. The case was investigated by Department of Social Development for deliberate neglect – highlighting the difficulty in distinguishing between intentional and unintentional injuries in children.

Source: Unpublished data from the Child Death Review Project, Children's Institute, University of Cape Town.

Suicide first manifests in early adolescence, and then increases in older adolescence,[29] although recent data from the Child Death Review Project reveals a worrying trend with children as young as nine years old committing suicide.[30] The available rates for child mortality are not consistently reported, with rates from the most-recent Injury Mortality Survey in 2009 now dated and limited in its presentation of age categories that differ from international age ranges.

Non-fatal injuries

Fatal injuries are considered to be the "tip of an iceberg". For example, in the United States, childhood injury surveillance data show that, for every unintentional injury death amongst young people, there are 33 hospitalisations and 1,053 emergency department visits.[31] Furthermore, one in four children in the United States are injured severely enough to miss school or require medical attention or bed rest.[32]

South African routine hospital injury surveillance data are limited. ChildSafe, based at Red Cross War Memorial Children's Hospital drawing in the City of Cape Town Metro West catchment area, is the only child injury surveillance system in the country that monitors child injury trends, but only includes children to the age of 12 years. This data source over time provides trend descriptions of the most important forms of injury and information on their occurrence and can alert the City authorities to emerging priorities, all vital for timely prevention.

As with most non-fatal injury information systems and studies, there are limitations to the ChildSafe data. It has an urban bias and does not capture unintentional and intentional injuries during adolescence due to the age cut off. ChildSafe is also located at a specialised, tertiary hospital and thus receives referrals beyond its catchment area, making population-based rates a challenge. Nevertheless, hospital surveillance systems are important, as the leading causes of hospitalisation differ from the causes of fatal injuries.[33]

Table 15 indicates that falls, pedestrian traffic injuries, scalding burns and "being struck" are amongst the primary reasons for hospitalisation, with the numbers of pedestrian injuries in particular appearing to be on the increase. Unlike the ChildSafe surveillance system, most information systems are injury specific. Hence there is still a need for a comprehensive coverage of non-fatal injuries, considering their extensive occurrence and their long-term physical, psychosocial and economic consequences.

Injury surveillance systems under-report child maltreatment, therefore dedicated studies are needed to provide a more comprehensive understanding of the nature and magnitude of violence against children. These studies indicate that violence during childhood is widespread, with 42% of children reporting some form of maltreatment in the first national prevalence study.[34] Violence is conceptualised as: physical abuse, sexual abuse, emotional abuse which all intersect. Importantly, these forms of violence may co-occur. Violence also includes sexual exploitation, cultural practices and corporal punishment.

There is no routine data source that tracks the incidence of violence against children and most data sources thus underestimate the extent of the problem. Children lack the capacity to report and often a perpetrator is someone close to the child, limiting the child's ability to speak up to end the abuse. In addition, injuries due to violence are often not reported and missed as a case of abuse, therefore limiting data on the incidence of child abuse.

Table 14: Causes of child injury deaths, by age, 2009

	Road traffic deaths	Other unintentional injuries	Homicide	Suicide	Total injury deaths
< 1 year	132	239	160	-	531
1 – 4 years	609	806	126	-	1,541
5 – 9 years	615	422	83	-	1,120
10 – 14 years	433	286	203	127	1,049
15 – 19 years	1,094	434	1,683	554	3,765
Total injuries	**2,883**	**2,187**	**2,255**	**681**	**8,006**[i]

Source: Matzopoulos R, Prinsloo M, Bradshaw D, Pillay-van Wyk V, Gwebushe N, Mathews S, Martin L, Laubscher R, Lombard C & Abrahams N (2013) *The Injury Mortality Survey: A national study of injury mortality levels and causes in South Africa in 2009*. Report for the national and provincial Departments of Health. South African Medical Research Council.

i 359 undetermined deaths excluded.

Table 15: ChildSafe injury surveillance, 2015 – 2018

Type of injury	2015	2016	2017	2018
Road traffic injury				
Pedestrian	783	742	606	892
Passenger: restrained	44	38	48	15
Passenger: unrestrained	130	127	120	88
Passenger: bakkie/minibus	89	68	52	56
Cycle	78	51	51	36
Other	22	18	20	10
Total	1,146	1,044	897	1,097
Assault				
Blunt	171	165	127	147
Sharp	39	29	30	16
Rape/sexual assault	82	58	45	84
Other	30	28	26	19
Total	322	280	228	266
Burn				
Flame	130	80	76	80
Fluid	1,565	1,037	957	892
Heat contact	73	72	83	80
Electrical	31	40	18	27
Explosion	15	16	11	7
Other (incl. chemical)	37	39	22	31
Total	1,851	1,284	1,167	1,117
Fall				
Off bed	332	259	381	372
Stairs/steps	170	196	180	166
Attendant's arms	74	70	92	89
Playground equipment	503	565	439	338
Mobiles	113	176	206	141
Other heights	429	561	424	404
Other	1,005	1,090	1,045	1,240
Total	2,626	3,017	2,767	2,750
Miscellaneous				
Struck by/against	601	648	617	590
Other cause	1,003	1,157	1,126	1,174
	1,604	1,805	1,743	1,764
Unknown	160	111	162	134
Total	7,709	7,541	6,964	7,128

Source: Data provided by ChildSafe South Africa (www.childsafe.org.za).

How does the pattern of childhood injury change across the life course?

The settings in which children are exposed to injury, the patterns of injury and associated risk factors change across the life course depending on the child's developmental phase. As children become more independent and move out of home into schools and the wider community, their safety is increasingly challenged by factors outside the home and parental control.

Infants and young children

Infants and young children are particularly vulnerable to injuries within the home and at early childhood development (ECD) centres where they depend on adult caregivers to provide care, supervision and a safe environment in which to explore. Developmentally younger children suffer injuries in the home due to their increased curiosity, activeness and interest in exploring their surroundings – falls, burns, fires, drowning, poisoning and physical abuse (including corporal punishment) and witnessing domestic violence all affect children of this age group.

Infanticide (the killing of an infant in the first year of life) is common in South Africa. The country's infanticide rate of 28.4 per 100,000 live births is one of the highest reported rates globally and infants are most at risk in the first six days of life.[35] Flame and hot water burns are also concentrated in this age group[36] where inadequate care and toddlers' increasing mobility and limited capacity to anticipate danger place them at risk. Informal dwellings and overcrowded living conditions also increase the risk of poisoning, falling, and drowning. Similarly, without adequate supervision and safe playgrounds, young children venture out into the roads and, due to their inability to anticipate traffic dangers, are at risk of road traffic injury. Physical punishment and domestic violence are the most-common forms of violence experienced and/or witnessed by young children, with long-lasting negative effects on their mental health.[37]

School-age children

School-age children (6 – 12 years) are at increased risk of road traffic injuries while travelling to school as passengers and pedestrians. Many children walk to and from school without adult supervision, and children are particularly vulnerable in informal settlements or poorly maintained neighbourhoods where the absence of pavements and poor enforcement of road traffic legislation increases the risk of pedestrian injury (Table 16).

Corporal punishment, bullying and sexual violence are common in South African schools. Sexual, physical and

Table 16: Primary settings and main types of injuries at different stages of development

Developmental stage	Primary settings	Intentional injuries	Unintentional injuries
Early childhood (0 – 5 years)	• Home • ECD centres • Roads and travel paths	• Infanticide • Physical abuse including corporal punishment	• Burns • Falls • Road traffic • Drowning
Middle childhood (6 – 12 years)	• Home • Primary school • Roads and travel paths	• Sexual abuse • Bullying • Corporal punishment at home and/or school	• Road traffic
Adolescence (13 – 19 years)	• Home • High school • Roads and travel paths • Recreational spaces	• Sexual abuse • Peer-on-peer violence • Gang violence • Suicide • Intimate partner violence	• Road traffic • Drowning

psychological violence occur across a range of settings – including the home, school and community. School-age children are therefore at increased risk of sexual violence from both known and unknown perpetrators. Girls and boys are equally at risk.[38]

Adolescents

Adolescents (13 – 19 years) are at an increased risk for road traffic injuries with the highest number of such deaths occurring between ages 15 and 19 years. Despite their increasing physical and cognitive capacities, adolescents are still at risk because they may overestimate their ability to negotiate often complex and hazardous traffic environments, while risk-taking behaviour is also a mark of this age group.[39]

At the same time, the risk of violent injury and homicide intensifies among adolescent boys, who are more likely to be victims of interpersonal violence in community settings. These risks increase due to young men's involvement in fights and the ready use of weapons linked to ideals of what it means to be a man. Conversely, teenage girls may experience early forms of intimate partner violence in dating relationships and sexual violence, mainly by known perpetrators, can occur across settings. Large numbers of South Africa's girls report that their first sexual experience was forced or coerced, yet many girls and boys do not consider this as sexual violence as they view such behaviour as a norm in intimate relationships.[40]

These injuries may result in varying degrees of disability and psychological harm,[41] with long-lasting educational, social and economic consequences for the affected individuals and their families. To prevent these long-term negative consequences, it is critical that emergency medical services are accessible, and that rehabilitation and therapeutic services are prioritised to reduce physical and mental effects. While the actual costs associated with childhood injuries are relatively unknown, the estimated costs of medical treatment, rehabilitation and administration may run into billions of Rands.[42] A recent costing study focused on the social and economic impact of violence against children and noted that preventing children from witnessing family violence and experiencing violence or neglect could lead to a 14% reduction in later drug abuse, 23% reduction in self-harm, 10% reduction in anxiety, 14% reduction in alcohol abuse and 16% reduction in interpersonal violence. The failure to prevent violence against children was estimated to cost nearly 5% of South Africa's gross domestic product in 2015.[43]

What are the key risk factors?

The determinants of injuries and violence are complex but understanding what increase the risk for children to experience injuries and violence can help to identify target prevention interventions. The socio-ecological model recognises that children's exposure to injury (and specific types of injury) and violence is influenced by a host of interrelated factors such as their individual attributes; evolving capacities; and the physical, social and cultural environments in which they live, learn and play.

This model emphasises that no single factor can explain why some children may be more vulnerable to injury than others, or why injury may be more prevalent in some settings or communities. Rather, injury is the result of the complex interplay of individual, relationship, community, cultural and historical factors. Understanding how these factors contribute to child injuries is an important step in the development of appropriately targeted prevention interventions. Ideally these should recognise the multi-faceted causes of injury and adopt a multi-sectoral and multi-disciplinary approach, including policy and legislative measures to ensure a coordinated and cohesive response.

Cross-cutting risks

There is recognition that some risks may contribute to more than one – if not all – types of injury, irrespective of cause, and even to other health and social conditions beyond injury (see Figure 36). These may signify key underlying social or structural causes that may underpin, and in part may explain, the pervasiveness of child vulnerability in South Africa.[44]

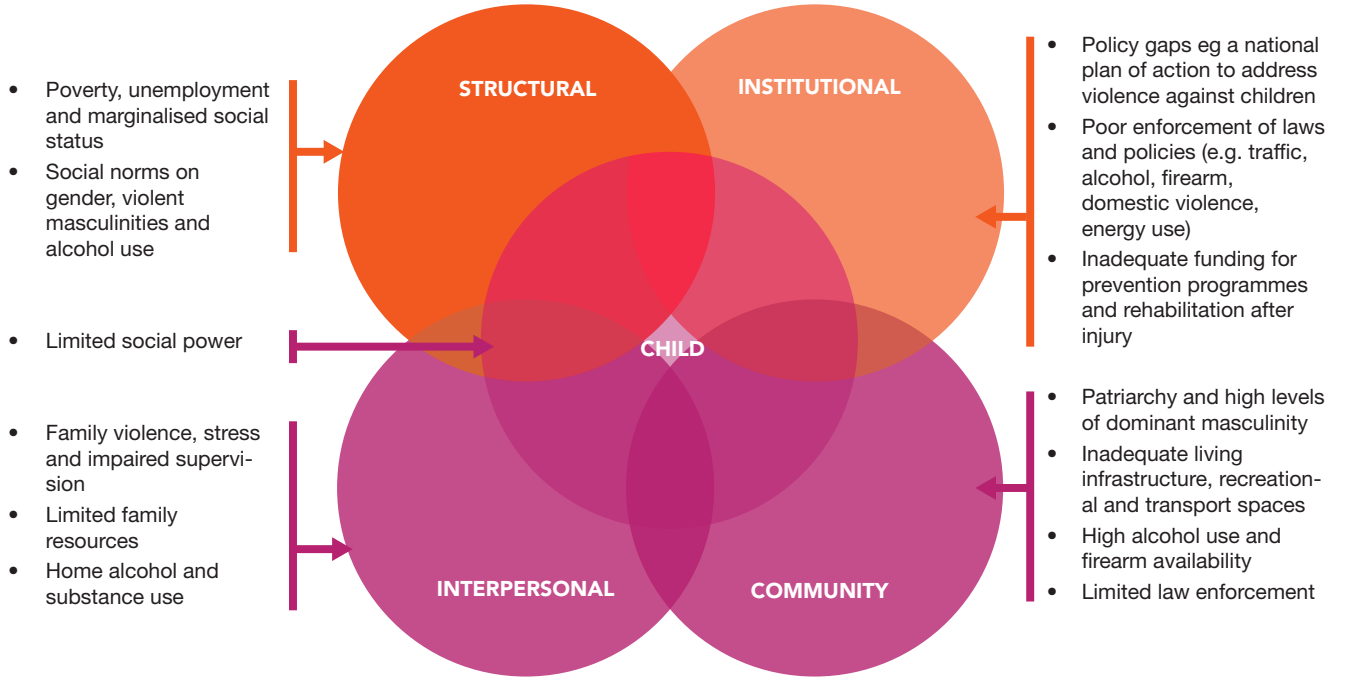
Such underlying causes include high levels of poverty and socio-economic inequality. With unemployment increasing to 29% [45] in 2019, poverty and inequality are crucial social dynamics that contribute to the marginalisation of communities and the consequent burden of stress on affected families. Income inequality, low economic development, in combination with high levels of gender inequity, are strong positive predictors of rates of violence, including homicides and major assaults, but also increase children's vulnerability to various unintentional injuries such as road traffic, poisoning and burn injuries.[46] The lack of adequate community infrastructure, including housing, community, transport routes and energy access, and the consequent impoverishment, may compound the risk for all injuries, and arguably impair family efforts to prevent or address these.

In South Africa, gender inequality is illustrated by high levels of violence against women and children and the recent gruesome accounts of femicide, rape and sexual assaults in the news media. The dominant constructions of masculinity in South Africa has been shown to emphasise competition between men, ready use of violence to defend honour, and heavy use of alcohol which often fuels violent behaviour.[47] These readily translate into risk-taking behaviours that result in injuries, including road traffic injuries and drowning, with both argued to result from enactments of toughness and risk-taking.[48]

The hazards faced by families are compounded by the widespread use of alcohol and substances – South Africa reports a high prevalence of harmful and hazardous use of alcohol and a high consumption of illicit drugs.[49] These contribute to homicides, intimate partner violence, rape, abuse of children, road deaths, and other unintentional injuries such as burns. Furthermore, South Africa has a wide availability of firearms, an entrenched gun culture, and such weapons are used at home often to threaten and exert power and control over women and families. This raises concerns about the increasing direct and indirect impact on child injury and long-term physical and emotional harm.

Furthermore, law enforcement is often weak, with many crimes going unpunished especially in poor communities where police services are under-resourced. Similarly, on the roads, there has been a similar reluctance to enforce safety measures, especially where it involves the powerful taxi industry, and there has been little regulation of the manufacture and sale of unsafe and potentially harmful home appliances often

Figure 36: Common cross-cutting risks for child injury and violence



Source: Maternowska MC & Potts A (2017) *The Multi-Country Study on the Drivers of Violence Affecting Children: A child-centred integrated framework for violence prevention*. Florence, Italy: UNICEF Office of Research.

Table 17: Risk and protective factors for burns

Individual factors	Relationship factors	Community factors	Societal factors
Risk factors			
• Male children (0 – 4 years)	• Alcohol intoxication in caregivers • Psychosocial stress • Supervision barriers • High child–adult ratios	• Restricted home spaces • 1 – 2 rooms house and temporary room divisions • Rooms with multiple functions	• Low socio-economic status • Low literacy and income • Poor overall health status
Protective factors			
• Caregiver support	• Caregiver knowledge of child safety • Care support	• Larger homes • Multiple rooms, each with permanent designated function	• Middle- and high socio-economic status • High literacy levels • Good health status

used for cooking and heating by people living in poverty. These entrenched economic and social features of South Africa undermine the capacities of the state, communities and families to provide the requisite living spaces and care for children and are reflected in the widespread abuse and vulnerability of children and compounded by children's low status and lack of power in South African society.

More specific risk factors for burns, road traffic injury and violence are discussed below.

Factors for burns

Burn injury has been a persistent cause of child mortality and morbidity in South Africa, with past reports indicating up to 1,300 child deaths a year as a result of these injuries.[50] Serious burn injuries are concentrated in marginalised, low-income settings[51] where overcrowded and congested homes increase the risk of children coming into contact with candles, hot water or foodstuffs, and paraffin stoves;[52] and where care and supervision may be undermined by the competing demands of work, chores, child care, unexpected events and crises[53]. In smaller homes, including informal dwellings, limited space means children are in greater proximity to cooking areas, which is compounded in homes with increased numbers of children. Homes with more children may also reflect greater caretaking demands and stress.

Parent or caregiver sociodemographic factors such as gender, age, and especially education have been linked to child burns.[54] Such factors may affect caregiver supervision styles and underlying attitudes and beliefs, with increased supervision and closer proximity of caregivers to especially younger children associated with a lower risk of burns.[55] In other settings, parents reported that children were more at risk of injuries outside of the house (such as getting hit by a car or kidnapped), than from injuries in the house, such as burns.[56]

The home environment, across socio-economic classes, may therefore be assessed as less hazardous than open, public spaces and, as a result, caregivers may allow their children to play out of reach or unsupervised more often when inside the house. This elevates the child's risk in a small home where heating and cooking appliances are close to each other.

Factors for road traffic and pedestrian injuries

Pedestrian injury is the leading cause of injury mortality and morbidity amongst children. Rates of road traffic mortality are high amongst young children especially young boys[57] which may reflect patterns of child care and socialisation that allow boys greater autonomy.[58] One in five (21%) pedestrian fatalities involve children younger than 15 years.[59] This is unsurprising, given that 68% of South African children walk to and from school.[60] A study in Khayelitsha, Cape Town, reported a significant proportion of children walk to school unsupervised – often alone, young and with riskier road-crossing behaviour.[61]

The absence of adult supervisors, along with impairments in adult and child road safety knowledge are reported to place children at risk across settings.[62] The presence of significant environmental risks is reported to be amplified in lower-income neighbourhoods which may have fewer demarcated pedestrian pathways and crossing points, a greater density of children with more limited and secure play areas, and weaker law enforcement.[63] Environmental risk factors such as poor road infrastructure[64] and limited adult supervision (due to competing domestic or work demands) increase the risk of injury.[65]

There are also a multitude of societal risk factors that place children at risk of road traffic injuries, including higher normative levels of road rage, failure to enforce and/or comply with traffic rules, and driving under the influence of alcohol.[66] In general, children and young people living in working-class

Table 18: Risk and protective factors for road traffic injuries

Individual factors	Relationship factors	Community factors	Societal factors
Risk factors			
• 0 – 4 years: limited risk appraisal skills for complex road situations; evolving capacity to respond to hazards; smaller physique. • Male children: engagement in risk-taking	• Low socio-economic household • Barriers to adult supervision • Lack of education and road safety knowledge	• Low-income neighbourhoods: children cross streets more often, travel to school on foot • Limited crossing points and poor pedestrian pathways • Lack of law enforcement • Alcohol consumption	• Infrastructure: quality of road surface, traffic modes, vehicle conditions • Number of parked vehicles on a street, more than two travel lanes • High population density of children, absence of play areas • Road rage and anger
Protective factors			
• Adult supervision • Road safety knowledge	• Adult supervision • Educational programmes • Safety-oriented drivers • Appropriate child car seat restraint	• School transport system • Demarcated and protected pathways and play areas • Children in middle- or high-income neighbourhood • Effective law enforcement	• Living in a low-density area • Regular road and pathway maintenance • Law enforcement of unroadworthy vehicles • Norms on sober driving • Norms on non-aggression

neighbourhoods with limited land-use planning, pedestrian infrastructure, protected play areas, road and street lighting are at greater risk.

Factors for violence and abuse

Many of the factors that affect individuals' risks of violence and abuse result from early experiences. For example, children can be at greater risk of abuse if they are born to parents that are young, single, who suffer from mental health conditions or substance abuse, or where there is violence in the home.[67] The relationship between these early experiences and child abuse can stem from poor attachment between parents and children and harsh parenting in the context of limited financial resources and social support.[68]

These early experiences that children have also impact on their risks of involvement in violence in adolescence both as perpetrators and victims.[69] Sexual abuse features across the life course of a child but peaks among adolescent girls.[70] Sexual violence appear to be related to the broader context of gender inequality and the underlying system of patriarchy which drives violence against women and children.[71]

The Optimus Study, the first national violence prevalence study, found that physical abuse, emotional abuse, neglect, and family violence were all strongly associated with experience of sexual abuse. Key risk factors for sexual abuse include substance misuse by the child and/or caregiver, a poor relationship between the caregiver and child, poor knowledge of the child's whereabouts and activities, and high-risk sexual behaviour by the child.[72]

Adolescent males are more likely than females to be involved in peer-on-peer violence and also are at increased risk to be murdered than adolescent girls, with young men primarily killed in the context of male-on-male interpersonal violence. This appears to be linked to male risk-taking behaviour in adolescence and a culture of violence in communities where dominant notions of masculinity glamorise risk-taking and the use of violence.[73]

Adverse childhood experiences such as losing a parent or exposure to violence in the home are known risk factors for adolescent risk behaviour and later perpetration of violence.[74] Poverty, unemployment experienced as severe deprivation combined with disorganised family life also contribute to young men adopting violent behaviour which is based on notions of what it means to be a "real man" (masculinity) and patriarchy in South Africa.[75]

The experience of violence has immediate consequences, like injuries, but also significant long-lasting emotional and social consequences that drive an intergenerational cycle of violence. For example, children who are abused or who witness violence at home are at increased risk of youth violence and of both suffering and perpetrating intimate partner violence in adulthood.[76]

This cyclical nature of violence means that early primary prevention interventions that protect children from becoming victims or reduce violent behaviour can protect them from violence throughout life.

What are the opportunities for intervention?

Despite the many prevention programmes promoted by the World Health Organization (WHO) and other international and regional agencies, the evidence base for their effectiveness is mostly limited to interventions at the individual and

Table 19: Risk and protective factors for violence and abuse

	Individual factors	Relationship	Community factors	Societal factors
Child abuse (including fatal child abuse)	**Risk factors**			
	• Female • Neonatal period (infanticide) • Under five years old • Vulnerable groups include: premature infants, twins, and disabled children	• Young parents • Single parent families • Families with large number of children • Mothers with children at young age • Low socio-economic status • Low family cohesion • Substance use in the home	• High level of substance abuse in the community • High level of crime • Overcrowding • Poor/inadequate social services • High unemployment	• High levels of inequality and social exclusion • Patriarchal norms • Gender inequality • Social and cultural norms that permit corporal punishment
	Protective factors			
	• Intact families (well-structured households) • Secure attachment to parents	• Secure attachment to infant and child • Parents with supportive relationship with children • Parental monitoring and social support	• Cohesive communities with structures to support responsive policing and criminal justice system • Adequate child-care facilities • Supportive and safe school environment	• Economic empowerment programmes including job creation • Policies to regulate alcohol use • Social norms campaigns to address positive forms of parenting
Youth violence	**Risk factors**			
	• Male • Involvement in physical fights • Carrying weapons • Gang involvement • Not attending school • Substance abuse	• Bullying • Low family cohesion • Violence in the home (including child abuse)	• Peer pressure to use alcohol and drugs • Lack of positive peer group support • Violent communities with gang and gun violence • High unemployment • Communities with reduced social capital	• High levels of inequality and social exclusion • Patriarchal norms • Gender inequality and social exclusion • Social and cultural norms that condone the use of violence
	Protective factors			
	• Education • Reducing alcohol consumption	• Conflict management skills • Positive male role model in the home	• Strengthening interpersonal relations • Increase social interaction among other positive youths • Reducing availability of alcohol • Extracurricular activities such as sport • School connectedness	• Social norms campaigns that promote gender equity • Enforced criminal justice sanctions for perpetrators of violence • Policies to regulate gun control and substance abuse and their enforcement

relationship level which tend to be more affordable, easier to implement and easier to evaluate. There remains limited knowledge of "what works" in low- and middle-income settings.[77]

From treatment to primary, secondary and tertiary prevention

The WHO has released a series of reports on violence, traffic and child injury prevention, including the World Report on Child Injury Prevention,[78] the Global Status Report on Violence Prevention 2014,[79] the World Report on Road Traffic Injury Prevention,[80] and the INSPIRE framework[81] to reduce and prevent violence against children. These have collectively identified a range of strategies and programmes to prevent injury and violence, emphasising especially primary prevention interventions which aim to avert injury before it occurs.

Secondary prevention focuses on the immediate responses once an injury has occurred. This includes accessible and responsive emergency medical services to address physical trauma, and social services to investigate cases of child abuse and neglect and ensure and promote the safety of the

child. Health-care providers fulfil a critical role in secondary prevention – when children attend a health-care facility for an injury, critical questions should be asked about the context in which the injury occurred. Health-care providers can identify how children were injured and consider the risks for further injury or abuse and refer to appropriate support services, for example when a non-accidental injury is suspected or when a child shows signs of trauma due the injury.

Tertiary prevention focuses on rehabilitation and includes individual and family counselling, reconstruction and aftercare services as required by the Children's Act.[82]

Universal, selected and indicated interventions

Interventions may be directed at the general population or targeted at specific subsets of the population. For example, universal interventions include pedestrian safety campaigns directed at entire communities, and conflict resolution training for all high-school children.

Selected interventions target groups known to be specifically at risk of injury; for example, home visits for marginalised families with young children, or teen parenting programmes to reduce harsh parenting, promote attachment and encourage responsive and nurturing care.

Table 20: Injury prevention strategies and modifiable factors by ecological context

Injury priority	Ecological context	Selected modifiable factors	Intervention strategies and illustrations
Child abuse and youth violence	**Relationship**	• Conflict and domestic violence in the home • Alcohol and drug use • Poverty and food insecurity • Trauma •	• Parent and caregiver support (Parenting for Lifelong Health)[83] • Cash transfers combined with gender transformative interventions (Stepping Stones combined with Creating Futures)[84] • Evidence-based trauma-focused social support and counselling (Zambian Trauma-Focused Cognitive Behavioral Therapy Model using trained community-based lay counsellors)[85] • Youth participation project (Gun Free South Africa)[86]
	Community	• Alcohol and drug use • Social and cultural norms on gender • Safe environments including schools	• Walking Bus initiative (Centre for the Study of Violence and Reconciliation)[87] • Changing social norms (Raising Voices Uganda)[88] • Violence Prevention through Urban Upgrading (VPUU NPC)[89] • Education and life-skills programmes for in/out-of-school youth (PREPARE)[90] • Intimate partner violence prevention programme (Respect 4 U)[91] • Reduction of sexual violence against young girls in schools in South Africa (Centre for Justice and Crime Prevention)[92]
	Society	• Social and cultural norms on gender and violent masculinities • Weak enforcement of laws and policies	• Integrated Urban Upgrading Framework[93] • Lobbying for the promulgation of legislation to ban corporal punishment in the home[94] • Uganda National Strategic Plan to Prevent Violence Against Children[95]
Traffic injury	**Relationship**	• Poor supervision	• Adult pedestrian supervision (Walking Bus initiative)[96]
	Community	• Pedestrian infrastructure • Neighbourhood speed control • Protected play areas	• Education, reflective bag tags, and supervision of pedestrians from school (ChildSafe Walk this Way)[97] • School driver education, vehicle support and incentivisation (ChildSafe Safe Travel to School Project)[98]
	Society	• Driver norms and education	• Speed reduction strategies (World Report on Road Traffic Injury)[99]
Burns	**Relationship**	• Adult supervision	• Safe stove education (WHO Plan for Burn Prevention and Care)[100] • Caregiver support (Home Visitation Programmes)[101]
	Community	• Energy sources • Energy appliances	• Smoke detectors (Western Cape Disaster Management)[102] • Safe candle use (ChildSafe Safe Candle Project)[103]
	Society	• Paraffin appliance access and use • Excessive domestic water temperatures	• Paraffin stove regulation, substitution and enforcement (South African National Standards for paraffin stoves)[104] • Hot-water cylinder temperature regulation (21st Century Solutions for Child Safety)[105]

Case 10: Walking Bus initiative
Jemayne Andrews, Department of Community Safety, Western Cape

The Walking Bus project aims to improve learner safety on the way to and from school. Parents and volunteers from the community walk groups of children to and from school, providing safety and supervision in areas that are ridden by gang activity. The Walking Bus acts as a deterrent to would be perpetrators of criminal activities, and also helps prevent children from engaging in deviant behaviour. Some Walking Bus volunteers also monitor the perimeters of their local schools to ensure that they are kept clear and free from perpetrators. Others have been instrumental in ensuring that no drugs or weapons access the school grounds. Youth are searched and checked at the school gates, in the presence of law enforcement officers, as well as during the walk to school.[106]

Indicated interventions are aimed at groups who have already been exposed to injury, either as perpetrators or survivors. These interventions may include family strengthening to reduce conflict and domestic violence in the home. There is some evidence of the effectiveness of these interventions; however, many evaluations are restricted in their focus and evaluation of impact.

Established and promising programmes

In South Africa, and other similar low- and middle-income settings, there are a range of promising interventions, as outlined in Table 20. These may address individual, or multiple safety concerns (see examples in Case 10), the road environment (see Case 11), the community and home environment (Case 12),[107] the control of a key agent, e.g. firearms, which are associated with severe and lethal violence (Case 13)[108] or parenting programmes such as Parenting for Lifelong Health which aim to strengthen parenting and reduce child maltreatment (Case 14).

Despite South Africa's elevated levels of child injury mortality and morbidity, the country's prevention responses have in general been characterised by insufficient intersectoral collaboration; fragmentation; inadequate coordination; inappropriate resource allocation; and insufficient adoption of evidence in planning, implementing and monitoring interventions.[109] Furthermore, the extent of those interventions that are beneficial for more than one injury type has yet to be realised fully. These interventions include those directed at the key crosscutting risks for injury and violence, i.e. poverty, socio-economic inequality and inadequate community infrastructure; social norms focusing on gender inequality and patriarchy; and others. Such interventions may possibly also impact on other causes of childhood illness and mortality, e.g. the Department of Health's First 1,000 Days[110] and the Western Cape Department of Health's Side-by-Side campaign,[111] amongst others, that for example aim to promote safe, stable and nurturing relationships between children and their parents, and with multiple health and social benefits.

What are the implications of current knowledge for the policies and programmes that are in place?

In May 2011, South Africa endorsed the Sixty-Fourth World Health Assembly resolution on child injury prevention which entails prioritising the prevention of child injuries and implement multi-sectoral science-based policies and plans of action as recommended by the World Report on Child Injury Prevention.[112] The resolution built on the United Nations Convention on the Rights of the Child[113] which highlights public responsibility for ensuring children's rights to protection from all forms of violence and abuse. South Africa has since signed further supportive resolutions, notably the Sustainable Development Goals which include targets for reducing violence-related and road traffic deaths and injuries; the provision of inclusive, safe, resilient and sustainable cities

Case 11: Safe Travel to School Programme
Yolande Baker, ChildSafe South Africa

Minibuses provide a significant component of school transport in South Africa. This is especially true for children from working-class communities who reside far from schools. However, the industry is often criticised for using substandard vehicles, overloading and high-risk driving such as speeding. The Safe Travel to School Programme, implemented by Childsafe South Africa, focuses on road safety awareness, defensive driver training, eye-testing, roadworthy inspections, selected upgrades, incentives for safe performance, and the implementation of a vehicle tracking system with regular, individual driving behaviour information updates. Despite concerns that some school transport vehicles are used for multiple purposes outside of school, at night and for longer distances, drivers on the programme recorded less speeding, harsh braking, and harsh cornering and acceleration than general drivers.[114]

Case 12: Creating Safer Communities through Urban Upgrading
Fathima Rawaat, Violence Prevention through Urban Upgrading

Violence Prevention through Urban Upgrading (VPUU) works with local communities to co-create safe public spaces and neighbourhood resource centres called "Active Boxes". These multifunctional community buildings are strategically placed along a major pedestrian route and adjacent to a public square, park or sports field. Community members are actively involved in deciding on the location, design and function of the Active Boxes and the spaces are then activated through partnerships with residents, non-governmental organisations (NGOs) and local government in order to provide a range of services, recreational and economic opportunities.

For example, the Safe Hub at Nyanga Junction is located outside a busy train station at the intersection of Guguletu and Mannenberg (two of the most violent areas in Cape Town). It includes an AstroTurf operated by Amandla Football and provides a positive alternative to gangsterism and violence. Similarly, the Active Box in Monwabisi Park incorporates an ECD resource centre, community hall, open-air classroom, community information office, caretaker's flat, public toilets, kitchen, and offices for local government, NGOs and local leadership.

The ECD resource centres include a toy library and provide teacher training and an outreach programme to unlock the potential of young children. Training local women as ECD teachers helps make the project more sustainable and easier to scale and is aligned to an asset-based model of development.

and human settlements with access to safe, affordable, accessible and sustainable educational, mental health and transport systems for all; and special considerations for those in vulnerable situations, including women, children, persons with disabilities and older persons.[115] More specific global instruments, such as the United Nations Decade of Action for Road Safety,[116] emphasise safer road environments, safer vehicles, safer road users and efficient post-crash response systems.

These global commitments to child health and safety are echoed in the South African Constitution and Bill of Rights, and given effect through a range of laws, policies, regulations and standards. Some of these specifically focus on violence and injury prevention and child protection, while others address the upstream crosscutting determinants by strengthening the rights of all South Africa's, including the rights to life, dignity, equality, social assistance, housing, and an environment that is not harmful to health. These include:

- the Children's Act,[117] Child Justice Act,[118] and the Sexual Offences Act[119] which collectively enhance the child's protection from violence and abuse;
- the National Road Traffic Amendment Act[120] and National Road Safety Strategy 2016 – 2030 which focus on road safety;
- the South African National Standards for non-pressurised and pressurised paraffin stoves which focus on environmental and energy safety in the home;[121]
- the Notice of Destruction of Firearms[122] under the Firearms Control Act[123] which focuses on firearm reduction;

Case 13: South African teenagers using radio to fight gun crime
Sara Chitambo, Gun Free South Africa

For the past two years, Gun Free South Africa has been working in partnership with the Children's Radio Foundation. Youth reporters draw on a community safety toolkit to raise awareness and empower other youth to act against gun violence through Alex FM radio, social media and outreach events at schools. This has led to greater civic engagement and youth-led advocacy calling on local leaders, police and businesses to build safer communities, including creating gun-free zones in primary schools in Alexandra.

Through the programme, more young people have become aware of the risks of gun violence in their communities and their own power to help create safer communities and to take action, for example, by petitioning the police to remove illegal guns. In the process, strong operational networks have been built between the reporters, youth-focused community-based organisations, learners and educators at primary and high schools, community radio stations, and local community stakeholders – all committed to promoting safer communities.

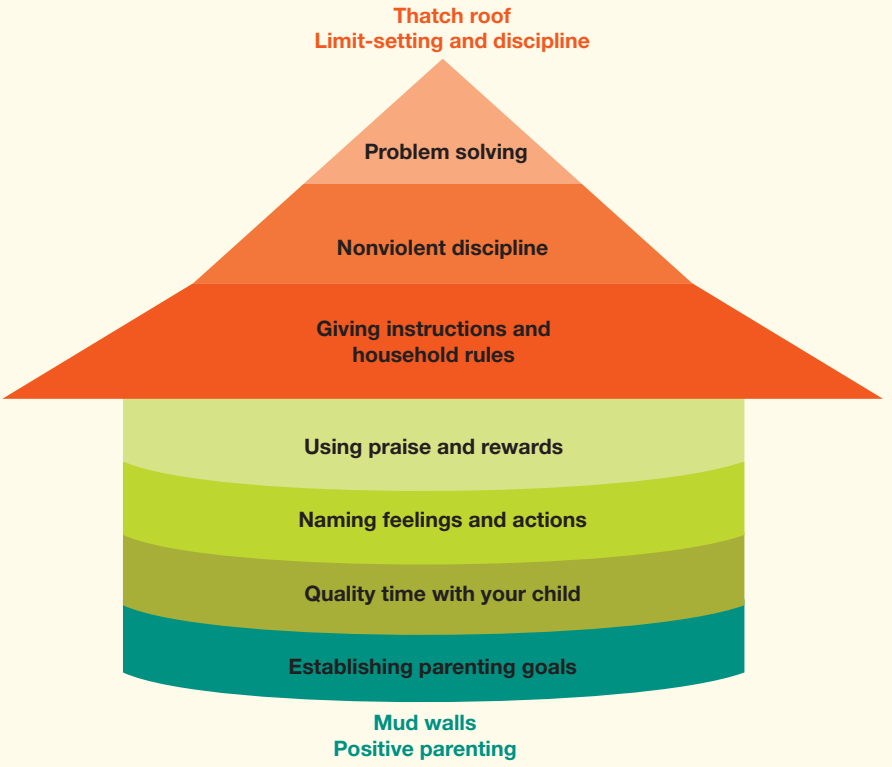
- the Prevention of and Treatment for Substance Abuse Act[124] and the Control of Alcohol Marketing Bill which both focus on control of alcohol, and

Case 14: Parenting for Lifelong Health

Catherine Ward, Department of Psychology, University of Cape Town

Parenting for Lifelong Health for Young Children[125] known as Sinovuyo Kids in South Africa, is the first parenting programme for parents of 2 – 9-year-olds that has been developed and rigorously tested in Africa. This programme was developed in response to the need for an effective and low-cost intervention to strengthen parenting and reduce child maltreatment. The programme is based on social learning theory and was designed by a team of researchers together with parents in South Africa and colleagues at the World Health Organization, UNICEF and local NGOs. It is delivered by trained and supervised facilitators (often lay community members) to groups of caregivers over 12 weekly sessions. Sessions focus on building a strong parent–child relationship and equipping parents with positive discipline strategies – the programme uses the analogy of a "rondavel of support" for this: helping parents first build strong walls (i.e. a loving and warm relationship) before constructing a roof (i.e., manage difficult behaviour positively). A study of the programme with 296 parents in Nyanga and Khayelitsha showed promising results. Parents who participated in the programme said that they used positive parenting more often and used less physical and emotional punishment than those who had not. They also had more positive interactions with their children, who behaved better, during the structured play task. One year later, the participating parents still reported using more non-violent discipline strategies. For other factors, there was no difference, though, such as the behaviour of children as reported by their caregivers, the level of poor monitoring or supervision, and caregiver social support. The study showed that evidence-based parenting programmes, like Sinovuyo Kids, are feasible in South Africa and can contribute to family strengthening in the country.

Figure 37: Rondawel of support



- a recent 2019 ruling by the Constitutional Court which has declared the common law defence of "reasonable chastisement" unconstitutional. The Court found that a child has the right to be free from all forms of violence in the home and should not be subject to corporal punishment (see case 15).

However, the full extent to which factors such as poverty, socio-economic inequality and inadequate community infrastructure; gender inequality and dominant masculinity norms; alcohol and drug abuse; access to firearms; the lack of a culture of law enforcement and safety; and the intergenerational cycle of violence are addressed by the current policy and legislative frameworks requires a critical reflection of the latter's contributions, strengths and limitations.

What is needed to promote a coordinated national child safety agenda?

While South Africa has adopted various laws, policies and programmes in line with international instruments to prevent child violence and injury, the country's response has been fragmented by a lack of coordination and stewardship at the highest level. At the same time, existing research on child violence and injury is limited in scale, and located within disciplinary and institutional silos, thereby reducing its influence on policy, financing and intervention decisions.

Countries that have seen the greatest gains in violence and injury prevention have invested in injury and violence prevention implementation research.[126] Implementation research requires funding and knowledge of implementation

Case 15: Corporal punishment in the home "unconstitutional"

Lucy Jamieson, Children's Institute, University of Cape Town

Corporal, or physical, punishment is any punishment in which "physical force is used and intended to cause some degree of pain or discomfort, however light".[127]

It involves, but is not limited to, hitting (smacking, slapping, spanking) children in any environment or context, including the home setting, with the hand or instruments such as a whip, stick, belt, shoe or wooden spoon. It can also involve, for example, kicking, shaking or throwing children, scratching, pinching, biting, pulling hair or boxing ears, caning, forcing children to stay in uncomfortable positions, burning, scalding, or forced ingestion.

On 18 September 2019, Chief Justice Mogoeng Mogoeng announced the Constitutional Court's decision on corporal punishment in the home.[128] In a unanimous judgment, the court declared the common law defence of "reasonable and moderate chastisement" invalid and unconstitutional. This means that the law no longer protects parents who use force, even a light smack, or the threat of force to discipline a child. In addition to the legal arguments made during the hearing, the Children's Institute and other experts submitted evidence showing that corporal punishment is inherently degrading, ineffective,[129] can lead to more severe forms of abuse,[130] has negative long-term effects on individuals, and stimulates an intergenerational cycle of violence[131].

Building the capacity of parents to use positive, non-violent discipline improves the quality of the parent–child relationship and can reduce other forms of violence including intimate partner violence.[132] The court concluded that corporal punishment is a violation of the best interest principle and children's rights to dignity, equality and freedom from violence, and because parents can use positive discipline to raise their children, it is not justifiable to hit children.[133]

Recognising that it is not in the best interest of children for parents to be criminalised for something that has been common practice, the Court called on Parliament to consult with parents, children and other interested parties on a regulatory framework that would outline how the state and child protection agencies should deal with reports. According to the legal principle *de minimis non curat lex*, the law does not concern itself with excusable and/or trivial conduct, hence, prosecutors have discretion on whether or not to prosecute cases of assault. But there needs to be a clear set of principles based on restorative justice that determines how cases should be handled, including the option to refer parents to community-based parenting programmes.

The law should place a clear obligation on the state to promote change. The use of corporal punishment is still widespread and will require significant investment to shift attitudes and change behaviours of parents, professionals, community leaders and children. The Children's Amendment Bill submitted to Parliament presents an opportunity to create awareness, and to develop programmes to support parents to learn positive discipline so that we end the use of corporal punishment.

science to identify what is required to support the implementation and scale-up of programmes to address the complex multi-dimensional nature of violence and injuries.[134] There is still limited support for evidence-led solutions with increasing – but still relatively limited – research and intervention funding. While child violence and injury prevention solutions do exist, more investment is required.

A massive shift is therefore needed to deliver interventions and services to communities at scale. This is contingent on government identifying child safety as a strategic priority, fostering partnerships between government and non-governmental organisations, supporting the evaluation of programmes to determine "what works" to prevent injury and violence in the South African context, and developing an intersectoral prevention plan guided by the following broad principles:

- *Effective leadership* is needed at all levels of government and civil society to ensure that safety risks to children are understood and addressed. This includes the coordination and implementation of appropriate priority intervention strategies. Leadership needs to be institutionalised nationally, with the requisite authority and resources to mobilise an intersectoral response that upholds children's rights through the delivery of health, housing, energy, education, transport and social services. Such leadership needs to support intersectoral collaboration across the various violence and injury prevention disciplines and sectors. A structure, such as an office in the Presidency, may be well placed to coordinate and mobilise a national child violence and injury prevention strategy.
- *Intersectoral collaboration* is essential to support the design and implementation of a national strategy and the comprehensive programmes required to address the common, crosscutting and injury-specific risk factors at different levels of the socio-ecological system. There is a need to identify the role of each of the state departments and non-governmental agencies that have a mandate for child violence and injury prevention. The implementation of interventions on crosscutting and key drivers of child violence and injury should be a priority across the programmes in the Social Protection, Community and Human Development cluster which already include a focus on (i) early childhood development, (ii) challenges of housing and human settlements, (iii) poverty alleviation, and (iv) building cohesive and sustainable communities,[135] and with selected crosscutting child safety factors also prioritised by a number of non-governmental agencies[136].
- *Strengthened surveillance and information systems* are required to monitor patterns of childhood injury and violence – besides mortality, to ensure that prevention and treatment programmes respond timeously to emerging trends. There is a need for a national child safety surveillance system that includes monitoring hospital admissions at sentinel sites to guide priority setting and resource allocations, and monitor the impact of interventions.
- *Evidence-based early prevention interventions across a life course approach* is recommended to respond to the complex and multi-dimensional nature of violence and unintentional forms of injury. Interventions should be evidence led and research should honour both scientific and community-embedded knowledge to ensure the development of locally relevant and context-situated prevention programmes. Monitoring and evaluation need to be built into programme design and lessons learnt should be disseminated to support the wider uptake of good practices and scaling up of interventions. Interventions aimed at prevention also need to be costed as this can guide what is practically feasible and sustainable and alert policymakers to the cost of not investing in prevention.

References

1 Mock C, Peden M, Hyder A, Butchart A & Krug E (2008) Child injuries and violence: The new challenge for child health. *Bulletin of the World Health Organization*, 86 (6): 420.
2 Global Burden of Disease Child and Adolescent Health Collaboration (2017) Child and adolescent health from 1990 to 2015. Findings from the Global Burden of Diseases, Injuries, and Risk Factors 2015 Study. *JAMA Pediatrics*, 171(6): 573-592.
3 Seedat M, Van Niekerk A, Jewkes R, Suffla S & Ratele K (2009) Violence and injuries in South Africa: Prioritising an agenda for prevention. *The Lancet*, 374: 68-79.
4 United Nations (2015) *Sustainable Development Goals Knowledge Platform*. Viewed 30 September 2019: https://sustainabledevelopment.un.org/.
5 See no. 3 above.
6 Du Toit N, Van Niekerk A & Van As AB (2006) Childhood injuries and prevention. In: Van As AB & Naidoo S (eds) *Paediatric Trauma and Child Abuse Handbook*. Cape Town: Oxford. PP. 3-18.
7 Pike I, Richmond S, Rothman L & Macpherson A (eds) (2015) *Canadian Injury Prevention Resource*. Toronto, ON: Parachute.
8 Mathews S, Martin LJ, Coetzee D, Scott C, Naidoo T, Brijmohun Y & Quarrie K (2016) The South African child death review pilot: A multiagency approach to strengthen healthcare and protection for children. *South African Medical Journal*, 106(9): 895-899.
9 Kimemia DK & Van Niekerk A (2017) Cookstove options for safety and health: Comparative analysis of technological and usability attributes. *Energy Policy*, 105: 451-457;
Kimemia D, Van Niekerk A, Govender R & Seedat M (2018) Burns and fires in South Africa's informal settlements: Have approved kerosene stoves improved safety? *Burns*, 44(4): 969-979.
10 Mock C, Peck M, Peden M & Krug E (eds) (2008) *A WHO Plan for Burn Prevention and Care*. Geneva: World Health Organization.
11 Rate calculated using data from: Matzopoulos R, Prinsloo M, Bradshaw D, Pillay-van Wyk V, Gwebushe N, Mathews S, Martin L, Laubscher R, Lombard C & Abrahams N (2013) *The Injury Mortality Survey: A national*

study of injury mortality levels and causes in South Africa in 2009. Report for the national and provincial Departments of Health. South African Medical Research Council.
12 Pillay-van Wyk V, Msemburi W, Laubscher R, Dorrington RE, Groenewald P, Glass T, Nojilana B, Joubert JD, Matzopoulos R, Prinsloo M, Nannan N, Gwebushe N, Vos T, Somdyala N, Sithole N, Neethling I, Nicol E, Rossouw A & Bradshaw D (2016) Mortality trends and differentials in South Africa from 1997 to 2012: Second National Burden of Disease Study. *The Lancet Global Health*, 4(9): e642-653. doi: 10.1016/S2214-109X(16)30113-9.
13 South African Police Service (2019) *Annual Report 2018/2019*. Pretoria: SAPS.
14 Road Traffic Management Corporation (2018) *Annual Report 2018/2019*. Pretoria: RTMC.
15 See no. 12 above.
16 Adeloye D, Bowman K, Chan KY, Patel S, Campbell H & Rudan I (2018) Global and regional child deaths due to injuries: An assessment of the evidence. *Journal of Global Health,* 8(2): 021104.
17 See no. 11 above.
18 World Health Organization (2004) *Global Road Safety Report*. Geneva: WHO.
19 See no. 11 above.
20 See no. 11 above.
21 Van Niekerk A, Laubscher R & Laflamme L (2009) Demographic and circumstantial accounts of fatal burn injuries in Cape Town. A register based cross-sectional study. *BMC Public Health*, 9: 374. doi: 10.1186/1471-2458-9-374.
22 Saunders C, Singh R, Simons A & Van Niekerk A (2018) Fatal drowning in the Western Cape, South Africa: A seven-year retrospective, epidemiological study. *Injury Prevention*, 0: 1-6. doi:10.1136/injuryprev-2018-042945.
23 Mathews S, Abrahams N, Jewkes R, Martin LJ & Lombard C (2013) The epidemiology of child homicides in South Africa. *Bulletin of the World Health Organization*, 91(8): 562-568.
24 United Nations Children's Fund (2014) *Hidden in Plain Sight: A statistical analysis of violence against children*. New York: UNICEF.
25 See no. 23 above.
26 Abrahams N, Mathews S, Lombard C, Martin LJ & Jewkes R (2017) Sexual homicides in South Africa: A national cross-sectional epidemiological study of adult women and children. *PLOS ONE*, 12(10): e0186432. https://doi.org/10.1371/journal.pone.0186432
27 Mathews S, Abrahams N, Martin LJ, Lombard C & Jewkes R (2019) Homicide pattern among adolescents: A national epidemiological study of child homicide in South Africa. *PLOS ONE*, 14(8): e0221415. https://doi.org/10.1371/journal.pone.0221415.
28 See no. 27 above.
29 See no. 11 above.
30 Mathews S, Martin L, Scott C, Coetzee D & Lake L (2015) *Every Child Counts: Lessons Learned from the South African Child Death Review Pilot. A Research Brief*. Cape Town: Children's Institute, UCT.
31 Centers for Disease Control and Prevention (2018) *Web-Based Injury Statistics Query and Reporting System (WISQARS)*. Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Viewed 10 August 2018: www.cdc.gov/injury/wisqars/index.html.
32 Sleet D (2018) The global challenge of child injury prevention. *International Journal of Environmental Research and Public Health*, 15(9): 1921. doi: 10.3390/ijerph15091921.
33 Wesson HKH, Bachani AM, Mtambeka P, Schulman D, Mavengere C, Stevens KA, Miller AJ, Hyder AA & Van As AB (2013) Pediatric burn injuries in South Africa: A 15-year analysis of hospital data. *Injury*, 44(11): 1477-1482;
Wesson HKH, Bachani AM, Mtambeka P, Schulman D, Mavengere C, Ward Millar AJ, Hyder AA & Van As AB (2017) Changing state of pediatric injuries in South Africa: an analysis of surveillance data from a pediatric emergency department from 2007 to 2011. *Surgery*, 162(6S): 4-11.
34 Burton P, Ward CL, Artz L & Leoschut L (2016) *The Optimus Study on Child Abuse, Violence and Neglect in South Africa (Research Report)*. Cape Town: Centre for Justice and Crime Prevention, UCT.
35 See. no. 26 above.
36 Blom L, Klingberg A, Laflamme L, Wallis L & Hasselberg M (2016) Gender differences in burns: A study from emergency centres in the Western Cape, South Africa. *Burns*, 42(7): 1600-1608;
See no. 21 above.
37 See no. 3 above.
38 Ward CL, Artz L, Leoschut L, Kassanjee R & Burton P (2018) Sexual violence against children in South Africa: A nationally representative cross-sectional study of prevalence and correlates. *The Lancet Global Health*, 6(4): 460-468.
39 Pretorius K & Van Niekerk A (2015) Childhood psychosocial development and fatal injuries in Gauteng, South Africa. *Child: Care, Health and Development*, 41(1): 35-44.
40 See no. 27 above.
41 See no. 3 above.
42 Stevens G & Bowman B (2009) Towards a national injury costing system? Lessons from a public-private injury costing pilot study in South Africa. *African Safety Promotion Journal*, 7(2): 1-16.
43 Hsiao C, Fry D, Ward CL, Ganz G, Casey T, Zheng X & Fang X (2018) Violence against children in South Africa: The cost of inaction to society and the economy. *British Medical Journal Global Health*, 3(1): e000573.
44 See no. 3 above.
45 Statistics South Africa (2019) *Quarterly Labour Force Survey – Q2:2019. Media Release*. 30 July 2019: Viewed 30 September 2019: www.statssa.gov.za/?p=12370.
46 See no. 3 above.
47 Morrell R, Jewkes R & Lindegger G (2012) Hegemonic masculinity/masculinities in South Africa culture, power, and gender politics. *Men and Masculinities*, 15: 20.
48 See no. 3 above.
49 Vellios NG & Van Walbeek CP (2018) Self-reported alcohol use and binge drinking in South Africa: evidence from the National Income Dynamics Study, 2014 – 2015. *South African Medical Journal*, 108(1): 33-39.
Peltzer K & Phaswana-Mafuya N (2018) Drug use among youth and adults in a population-based survey in South Africa. *South African Journal of Psychiatry*, 24(0): a1139. doi: https://doi.org/10.4102/sajpsychiatry.v24i0.1139.
50 Bradshaw D, Bourn D & Nannan N (2003) *What are the Leading Causes of Death among South African children?* Policy Brief No. 3 of 2003. Cape Town: South Africa Medical Research Council & UNICEF.
51 See no. 21 above.
52 Cervantes RJ, Schulman D, Baker Y, Van Niekerk A & Van As AB (2019) The Safer Candle Project: Preventing fires from fallen candles. *Global Health Innovation*, 2(1): dio: 10.15641/ghi.v2i1.731;
Van Niekerk A, Govender R, Hornsby N & Swart L (2017) Household and caregiver characteristics and behaviours as predictors of unsafe exposure of children to paraffin appliances. *Burns*, 43: 866-876.
53 Titi N, Van Niekerk A & Ahmed R (2018) Child understandings of the causation of childhood burn injuries: Child activity, parental domestic demands, and impoverished settings. *Child: Care Health and Development*, 44(3): 494-500;
Van Niekerk A, Menckel E & Laflamme L (2010) The barriers and enablers to childhood scalding burn injury prevention in the home. *Public Health Nursing*, 27(3): 203-220.
54 Van Niekerk A, Govender R, Jacobs R & Van As AB (2017) Schoolbus driver performance can be improved with driver training, safety incentivisation, and vehicle roadworthy modifications. *South African Medical Journal*, 107(3): 188-191.
55 Morrongiello BA & Schell SL (2010) Child injury: The role of supervision in prevention. *American Journal of Lifestyle Medicine*, 4: 65-74.
56 Vincenten JA, Sector MJ, Rogmans W & Bouter L (2005) Parents' perceptions, attitudes and behaviours towards child safety: A study in 14 European countries. *International Journal of Injury Control and Safety Promotion*, 12(3): 183-189.
57 See no. 11 above.
58 See no. 39 above.
59 Simons A, Koekemoer K, Van Niekerk & Govender R (2018) Parental supervision and discomfort with children walking to school in low-income communities. *Traffic Injury Prevention,* 19(4): 391-398.
60 Statistics South Africa (2014) *National Household Travel Survey – Western Cape Profile*. Pretoria: Stats SA.
61 Koekemoer K, Van Gesselleen M, Van Niekerk A, Govender R & Van As AB (2017) Child pedestrian safety knowledge, behaviour and road injury in Cape Town, South Africa. *Accident Analysis & Prevention*, 99: 202-209.
62 See no. 52 above.
63 Sukhai A & Jones AP (2013) Understanding geographical variations in road traffic fatalities in South Africa. *South African Geographical Journal*, 98(2): 187-204.
64 Ribbens H, Everitt P & Noah M (2008) Impact of an adequate road environment on the safety of non-motorised road users. In: Van Niekerk A, Suffla S & Seedat M (eds) *Crime, Violence and Injury Prevention in South Africa: Data to Action*. Tygerberg, Cape Town: Medical Research Council-UNISA Crime, Violence and Injury Lead Programme. PP. 48-69.
65 See no. 50 above;
See no. 52 above.
66 Sukhai A, Seedat M, Jordaan E & Jackson D (2005) A city-level study of aggressive road behaviours: Magnitude, and predictors and implications for traffic safety. *South African Journal of Psychology*, 35(2): 244-269;
See no. 57 above.
67 Ward C, Van der Merwe A & Dawes A (2012) *Youth Violence Sources and Solutions in South Africa*. Cape Town: UCT Press.
68 See no. 58 above.
69 Abrahams N & Jewkes R (2005) Effects of South African men's having witnessed abuse of their mothers during childhood on their levels of violence in adulthood. *American Journal of Public Health*, 95(10): 1811-1816.
70 See no. 26 above.
71 Jewkes R, Fulu E, Roselli T & Garcia-Moreno C (2013) Prevalence of and

factors associated with non-partner rape perpetration: Findings from the UN Multi-country Cross-sectional Study on Men and Violence in Asia and the Pacific. *The Lancet Global Health*,1(4): e187-207.
72 See no. 38 above.
73 See no. 3 above.
74 See no. 58 above.
75 Morrell R, Jewkes R, Lindegger G & Hamlall V (2013) Hegemonic masculinity: Reviewing the gendered analysis of men's power in South Africa. *South African Review of Sociology*, 44(1): 3-21. doi: 10.1080/21528586.2013.784445;
See no. 47 above.
76 Woollett N & Thomson K (2016) Understanding the intergenerational transmission of violence. *South African Medical Journal*, 106(11): 1068-1070.
77 Krug E, Dahlberg LL, Mercy JA, Zwi AB & Lozano R (2002) *World Report on Violence and Health*. Geneva: World Health Organization.
78 Peden M, Oyegbite K, Ozanne-Smith J, Hyder AA, Branche C, Fazlur Rahman AKM, Rivara F & Bartolomeos K (2008) *World Report on Child Injury Prevention*. Geneva: World Health Organization/UNICEF.
79 World Health Organization (2014) *Global Status Report on Violence Prevention 2014*. Geneva: WHO.
80 Peden M, Scurfield R, Sleet D, Mohan D, Hyder AA, Jarawan E & Mathers C (2004) *World Report on Road Traffic Injury Prevention*. Geneva: World Health Organization.
81 World Health Organization (2016) *INSPIRE: Seven Strategies for Ending Violence Against Children*. Geneva: WHO.
82 Dawes A (2009) The South African Children's Act. *Journal of Child & Adolescent Mental Health*, 21(2): iii–vi.
83 World Health Organization (2019) *Parenting for Lifelong Health*. Viewed 20 September 2019: www.who.int/violence_injury_prevention/violence/child/plh/en/.
84 Gibbs A, Duvvury N & Scriver S (2017) What Works evidence review: The relationship between poverty and intimate partner violence. *UK Aid*, September 2017.
85 SaferSpaces (2019) *Walking Bus Project*. Viewed 30 September 2019: www.saferspaces.org.za/be-inspired/entry/walking-bus-initiative.
86 Gun Free South Africa (2019) Viewed 30 September 2019: www.gfsa.org.za/.
87 See no. 85 above.
88 Raising Voices: Preventing Violence Against Women (2019). Viewed 30 September 2019: http://raisingvoices.org/.
89 SaferSpaces (2019) Violence Prevention through Urban Upgrading. Viewed 30 September 2019: www.saferspaces.org.za/organisation/entry/violence-prevention-through-urban-upgrading-vpuu-npc.
90 Mathews C, Eggers SM Townsend L,Aarø LE, De Vries PJ, Mason-Jones AJ, De Koker P, McClinton Appollis T, Mtshizana Y, Koech J, Wubs A & De Vries H (2016) Effects of PREPARE, a multi-component, school-based HIV and intimate partner violence (IPV) prevention programme on adolescent sexual risk behaviour and IPV: Cluster randomised controlled trial. *AIDS Behaviour*, 20: 1821.
91 South African Medical Research Council (2019) *Respect 4 U*. Viewed 30 August 2019: www.mrc.ac.za/other/respect-4-u?bc=277.
92 SaferSpaces (2019) *Addressing Sexual Violence against Young Girls in Schools in South Africa*. Viewed 12 October 2019: www.saferspaces.org.za/be-inspired/entry/sevissa
93 Ministry of Cooperative Governance and Traditional Affairs (2016) *Integrated Urban Development Framework*. Pretoria: COGTA.
94 Children's Institute, University of Cape Town (2019) Children's Institute welcomes ruling on hitting children. Viewed 30 September 2019: www.ci.uct.ac.za/news/children%E2%80%99s-institute-welcomes-ruling-hitting-children.
95 Uganda Ministry of Education, Science, Technology and Sports (2015) *National Strategic Plan On Violence Against Children In Schools [2015 – 2020]*. Kampala: MESTS.
96 See no. 85 above.
97 Childsafe South Africa (2019) Viewed 30 September 2019: www.childsafe.org.za.
98 See no. 97 above.
99 See no. 80 above.
100 See no. 10 above.
101 Odendaal WA, Van Niekerk A, Jordaan E & Seedat M (2009) The impact of a home visitation programme on household hazards associated with unintentional childhood injuries: A randomised controlled trial. *Accident Analysis and Prevention*, 41: 183-190.
102 Zweig P, Pharoah R, Eksteen R & Walls R (no date) *Installation of Smoke Alarms in an Informal Settlement Community in Cape Town, South Africa – Final Report*. Parow: Western Cape Disaster Management.
103 See no. 52 above.
104 See no. 9 above.
105 Van Niekerk A, Titi N, Lau U & Arendse N (2012) Childhood burns in South Africa: Towards evidence for prevention action and policy. In: Van Niekerk A, Suffla S & Seedat M (eds.) *Crime, Violence and Injury in South Africa: 21st Century Solutions for Child Safety* Johannesburg: PsySSA Press.
106 See no. 85 above.
107 See no. 89 above.
108 See no. 86 above.
109 Van Niekerk A, Suffla S & Seedat M (eds) (2012) *Crime, Violence and Injury in South Africa: 21st Century Solutions for Child Safety*. Johannesburg: PsySSA Press.
110 Western Cape Government (2019) *First 1 000 Days Campaign*. Viewed 20 September 2019: www.westerncape.gov.za/general-publication/first-1-000-days-campaign.
111 Side-by-Side (2019) *What is Side-by-Side?* Viewed 30 September 2019: https://sidebyside.co.za/.
112 See no. 78 above.
113 Office of the High Commissioner of Human Rights (1989) *Convention on the Rights of the Child, UN General Assembly Resolution 44/25*. Geneva: United Nations.
114 See no. 54 above.
115 See no. 4 above.
116 United Nations Road Safety Collaboration (2019). *Global Plan for the Decade of Action for Road Safety 2011 – 2020. Version 3*. United Nations.
117 Children's Act 38 of 2005.
118 Child Justice Act 75 of 2008.
119 Criminal Law (Sexual Offences and Related Matters) Amendment Act 32 of 2007.
120 National Road Traffic Amendment Act 64 of 2008.
121 Department of Trade and Industry (2013) Amendment to the compulsory specification for non-pressure paraffin stoves and heaters – VC 9089. Notice R.1091, *Government Gazette* No. 29338, 1 November 2006; Department of Trade and Industry (2012) The introduction of the compulsory specification for pressurised paraffin appliances – VC 9093. Notice R. 929. *Government Gazette* No. 35867, 16 November 2012
122 Republic of South Africa (2011) Notice under section 136 (1) of the Firearms Contol Act: Destruction of firearms. *Government Gazette*, Notice 33919, 7 January 2011.
123 Firearms Control Act 60 of 2000
124 Prevention of and Treatment for Substance Abuse Act 70 of 2008.
125 See no. 83 above.
126 Alonge O & Hyder AA (2014) Reducing the global burden of childhood unintentional injuries. *Archives of Disease in Childhood*, 99(1): 62-69.
127 UN Committee on the Rights of the Child (2006) *General Comment No. 8: The Right of the Child to Protection from Corporal Punishment and Other Cruel or Degrading Forms of Punishment (Arts. 19; 28, Para. 2; and 37, inter alia), 2 March 2007*, CRC/C/GC/8.
128 The ruling follows a 2017 High Court judgment which effectively made all forms of physical correction of children by their parents – no matter how light or well-intended – unlawful. For more information see Proudlock P & Röhrs S (2018) Recent developments in law and policy affecting children 2017/2018. In: Hall K, Richter L, Mokomane Z & Lake L (eds) *South African Child Gauge 2018*. Cape Town: Children's Institute, UCT. P. 16.
129 Gershoff ET (2013) Spanking and Child Development: We know enough now to stop hitting our children. *Child Development Perspective*, 7(3): 133-137.
130 Röhrs S, Mathews S & Mahlangu P (2018) *Reducing Physical Punishment of Children: Using Schools as Nodes of Intervention*. Policy Brief. Cape Town & Pretoria: Children's Institute, UCT & Gender & Health Research Unit, South African Medical Research Council;
Röhrs S (2017) *Shifting Attitudes and Behaviours Underpinning Physical Punishment of Children: A literature review on largescale interventions. Research paper for PSPPD: The Presidency*. Cape Town: Children's Institute, UCT.
131 Fulu E, Miedema S, Roselli T, McCook S, Chan KL, Haardörfer R & Jewkes R (2017) Pathways between childhood trauma, intimate partner violence, and harsh parenting: Findings from the UN Multi-country Study on Men and Violence in Asia and the Pacific. *Lancet Global Health*, 5: e512-522.
132 Jamieson L, Mathews S & Röhrs S (2018) Stopping family violence: Integrated approaches to address violence against women and children. In: Hall K, Richter L, Mokomane Z & Lake L (2018) *Children, Families and the State: Collaboration and Contestation. South African Child Gauge 2018*. Cape Town: Children's Institute, UCT.
133 *Freedom of Religion South Africa v Minister of Justice and Constitutional Development and Others* [2019] ZACC 34 at para 74.
134 Peters DH, Adam T, Alonge O, Agyepong IA & Tran N (2014) Implementation research: What it is and how to do it. *British Journal of Sports Medicine*, 8: 731-736.
135 Government of South Africa (2019) *Social Protection and Community Development Cluster*. Viewed 30 August 2019: www.gov.za/about-government/social-protection-and-community-development-cluster.
136 UNICEF South Africa (2019) *Child Poverty*. Viewed 10 September 2019: www.unicef.org/southafrica/resources_708.html.

Maternal, child and adolescent mental health: An ecological life course perspective

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Mental health is about how we feel, think and behave, and our ability to function in our daily lives. Like our physical health, mental health is essential to our well-being. Mental health problems can affect anyone, but circumstances such as poverty and inequality, intractable violence and a lack of access to suitable services can intensify these problems. Yet, the mental health needs of children and adolescents have tended to be neglected, especially in low-income and middle-income countries.[1]

South Africa has one of the highest violent crime rates in the world, ranking 8th out of 230 countries for homicide alone.[2] By the end of grade four (age 11), 78 percent of South African children cannot read for meaning.[3] At first these two statistics may appear only tangentially related, yet the relationship between them is strong. They illustrate one of the challenges of investing in South African public health in general, and in mental health and violence prevention in particular, as the link between causes and consequences doesn't always follow a neat linear chain. The pathways from an insult in early childhood to adult homicide, or from struggling to read to dropping out of school and developing a mental health condition are often long and complicated. Therefore, interventions must span the life course, and interrupt risks and promote flourishing at every possible point in time.

In this chapter, we illustrate two interrelated points, which, taken together, make a concrete case for greater investment in child development, maternal health, community development and policy – investment not simply in child mental health, but for child mental health.

1. In order to reduce the burden of mental health conditions, substance abuse, and violence, we need to intervene, universally, early in the life course, and in so doing reduce the number of individuals who require later, intensive intervention; and
2. Investment in mental health cannot simply focus on psychosocial programs: it must extend into schools, communities, the economy, and beyond.

What is the burden of mental health conditions across the life course in South Africa?

Mental health problems exist along a continuum from mild, time-limited distress to chronic, progressive, and severely disabling mental health conditions.[4] The term mental health conditions is used to describe conditions – like depression, anxiety, or post-traumatic stress – which severely impact on an individual's capacity to function.

Nearly one in three South Africans will suffer from a mental health condition in their lifetime.[5] The South African Stress and Health Survey showed that, for lifetime prevalence, the most prevalent mental health conditions were anxiety disorders (15.8%), followed by substance use disorders (13.3%) and mood disorders (like depression and bipolar disorder) (9.8%).[6] The economic cost of mental health conditions is rising: mental health spending by individuals[i] in South Africa has increased by more than 80% in the past five years, reaching R2 billion in 2016 according to one private insurer.[7] This figure only represents a small proportion of South Africans' spending on mental health.

It is estimated that mental health problems affect 10 – 20% of children and adolescents in low-income and middle-income countries.[8] This is similar to the estimates for high-income countries. There are no national estimates of the prevalence of child and adolescent mental health problems in South Africa, but estimates for the Western Cape suggest that 17% of children in the province have a diagnosable mental health condition.[9]

More research is needed to fully understand the size of the mental health burden for children and adolescents in

i Not to be confused with government spending

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South Africa. But there is substantial evidence of the ways in which social and economic factors – such as poverty, illness and violence – influence and exacerbate mental health outcomes.[10] Given the high levels of adversity facing children and adolescents in South Africa, more attention needs to be paid to meeting the mental health needs of this age group. These investments must start early on, and continue into adolescence and adulthood, to avoid the risk of the gains made being lost.

There are clear age-related patterns in mental health morbidity: different mental health conditions typically emerge at particular time points, and early development trauma increases the risk of subsequent mental health conditions.[11] Figure 38 illustrates how rates of self-harm peak in adolescence, and mental and substance use disorders are most prevalent in young adulthood (around age 25). In South Africa, the National Youth Risk Behaviour Survey, last administered in 2011, showed that 24.7% of learners had felt so sad or hopeless during the past six months that they stopped doing some usual activities for two or more weeks in a row. The prevalence of sad and hopeless feelings among learners increased with age.[12]

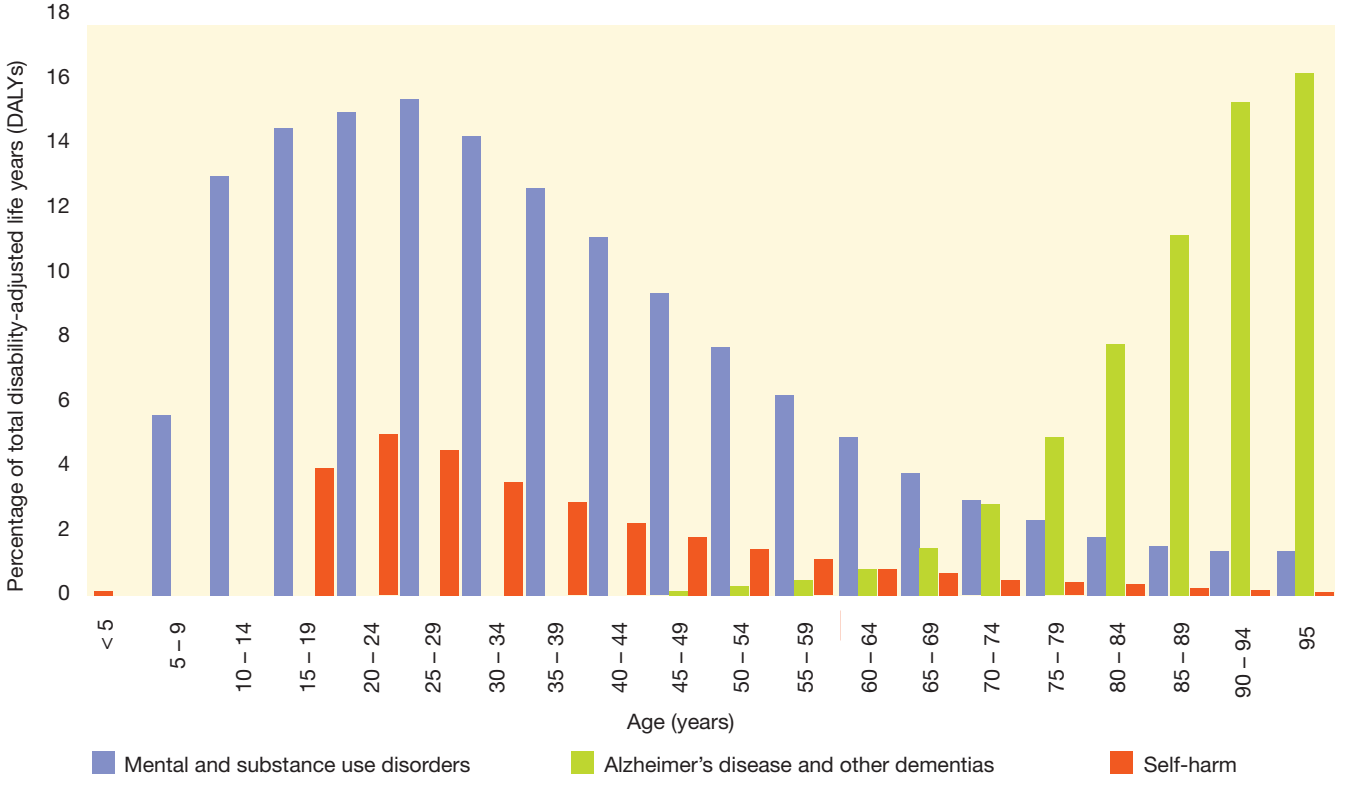
There are at least three arguments for an increased focus on – and investment in – child and adolescent mental health and well-being. First, there is an obligation to promote the wellbeing and optimal development of children and adolescents. Second, a substantial proportion of adult mental health conditions have their origins in childhood so by intervening early we can help reduce their chances of developing mental health problems in adulthood. Third, we have the potential to break the intergenerational cycle and reduce the burden of mental health problems in future generations.

Yet, there is a substantial gap in terms of services for children and adolescents in South Africa.[13] Despite epidemiological data suggesting a high burden of mental health conditions among youth, only 6.8% of mental health inpatient admissions and 5.8% of outpatient visits were for patients below 18 years; and only three provinces reported the existence of any public-sector child psychiatrists. Despite efforts to cost mental health promotion and prevention campaigns for children and adolescents subsidised by the Department of Health, none could be identified.[14]

Why is it essential to adopt a life course approach?

In the introduction we noted two figures related to violence and education. At this point, it is worth exploring the

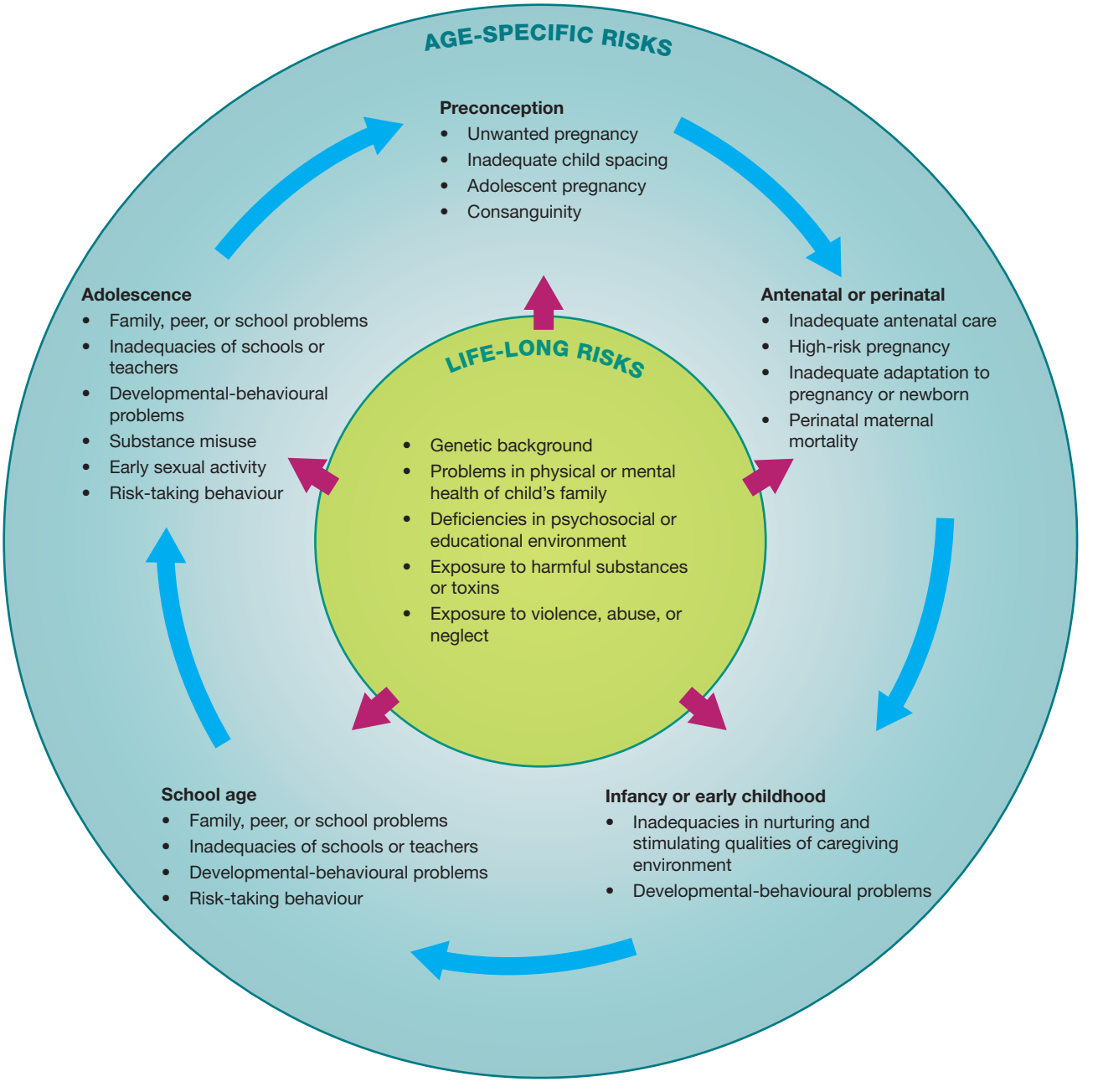
Figure 38: The global burden of mental health conditions across the life course



Source: Global Burden of Disease health data (2016) Reproduced with permission from: Patel V, Saxena S, Lund C, et al (2018) The Lancet Commission on Global Mental Health and Sustainable Development. *The Lancet*, 392: 1553-1598.

relationship between these statistics. When young children are exposed to violence in the home, they are more likely to struggle at school; their attention spans may be affected, and they may experience difficulties in emotion and cognition which hamper learning.[15] If, in this scenario, they are exposed to domestic violence perpetrated against their mothers, then it is likely that their caregivers are stressed and possibly depressed, due to their own experiences of victimisation.[16] Linked to this we know that low educational attainment and maternal depression pose risks to child development.[17] When these children reach adolescence, they are more likely to be frustrated at school, and fall increasingly behind with their school work, and come into increasing conflict with their teachers, which in turn undermines their academic performance.[18] In most poorly resourced schools, teachers are not able to refer children to specialised counsellors as none exist. Instead, children may be harshly punished, or sent out of the classroom to sit in the playground. This increases the risk of aggressive, impulsive or disruptive behaviour and the child or adolescent is increasingly likely to drop out of school.[19] School dropout, in turn, increases risk for gang involvement and substance use.[20]

Figure 39: Risk factors for mental health conditions across the life course



Source: Kieling C, Baker-Henningham H, Belfer M, Conti G, Ertem I, Omigbodun O, et al. (2011) Child and adolescent mental health worldwide: Evidence for action. *The Lancet*, 378(9801): 1515-1525.

Figure 39 (above) and Table 21 (below) outline some of the key risks and important protective factors for child development and mental health which come into focus at different points in the life course – and which may exacerbate existing life-long risks. Although some factors may be more salient at certain periods of development (for example, the impacts of maternal depression or anxiety might be most harmful to an infant), their effects on subsequent development may endure. It is therefore vital to strengthen protective factors and minimise risks during each phase of development in order to reap benefits later on.

Emerging evidence from developmental psychology, genetics, biology, and neurology helps us to understand how risk is conferred – or individuals develop resilience – over time. Developmental cascades, cumulative risk and embedding are concepts from this work which are useful ways to think about the origins of mental health conditions.[21]

Biological embedding refers to the way in which children's early environments influence their biology. This process of adaptation is referred to as embedding – or "the environment getting under the skin"[22] and causing biological changes which result in different patterns of development across the life course.[23] For example, exposure to violence early in life causes changes in physiology that may make a person more susceptible to substance abuse or mood disorders.

Cumulative risk also describes a mechanism by which the social environment in which an individual is raised influences their long-term health and developmental outcomes. Simply put, cumulative risk proposes that the more risks a child encounters, the more it will compromise their health and development.[24] For instance, if a child lives in poverty, in a high HIV-prevalence area, with high rates of community violence, and is exposed to maternal depression and violence in the home, their development would be more compromised than the development of a child who only encounters one of these risk factors.[25] Cumulative risk does not only apply to children. Mothers and other caregivers may be exposed to cumulative risk during their adult lives which may impact on their own wellbeing as well as the children they care for.

Finally, **developmental cascades** describe the way in which all individual functioning[26] either builds upon or is limited by prior experience. Early functioning in one area of development will influence functioning in other domains. For example, a child who develops emotional problems in response to violence in the home, may go on to have academic difficulties later in life, because their capacity

Table 21: Key risk and protective factors in childhood and adolescence

	Antenatal period	Infancy	Early childhood	Later childhood	Adolescence
Key risk factors	• Alcohol exposure • Maternal depression and anxiety • Poverty • HIV exposure • Violence exposure • Maternal substance use • Toxin and pollutant exposure	• Maternal depression and anxiety • Poverty • Experiences of/ exposure to violence and abuse • Unresponsive caregiving or neglect • Toxin and pollutant exposure	• Maternal depression and anxiety • Poverty • Experiences of/ exposure to violence and abuse • Unresponsive caregiving or neglect • Toxin and pollutant exposure	• Poverty • Experiences of/ exposure to violence and abuse • Early exposure to substances • Low parental supervision • Toxin and pollutant exposure	• Poverty • Experiences of/ exposure to violence and abuse • Early exposure to substances • Low parental supervision • Negative peer influences • Toxin and pollutant exposure
Key protective factors	• Maternal social support • Breastfeeding • Maternal employment •	• Caregiver social support • Responsive caregiving and opportunities for early learning • Clean environment free of toxins	• Social protection • Presence of early childhood learning centres • Responsive caregiving and opportunities for early learning • Clean environment free of toxins	• Social protection • School attendance • Postive parenting • Clean environment free of toxins	• Positive parenting • Positive peer network • Social protection • Family connectedness • High school completion • Clean environment free of toxins

Adapted from: Department of Health (2003) *National Child and Adolescent Mental Health Policy*. Pretoria: DoH.

to focus is limited. Positive and negative outcomes are underpinned by the same processes, so good outcomes can be laid in motion by good early foundations, and poor outcomes can be set in place by negative early experiences.[27]

Each of these concepts describe the developmental origins of adolescent and adult mental health problems. If we want to act effectively to address risks to mental health, we need to acknowledge this temporal dimension and intervene appropriately – beginning early and continuing across the life course.

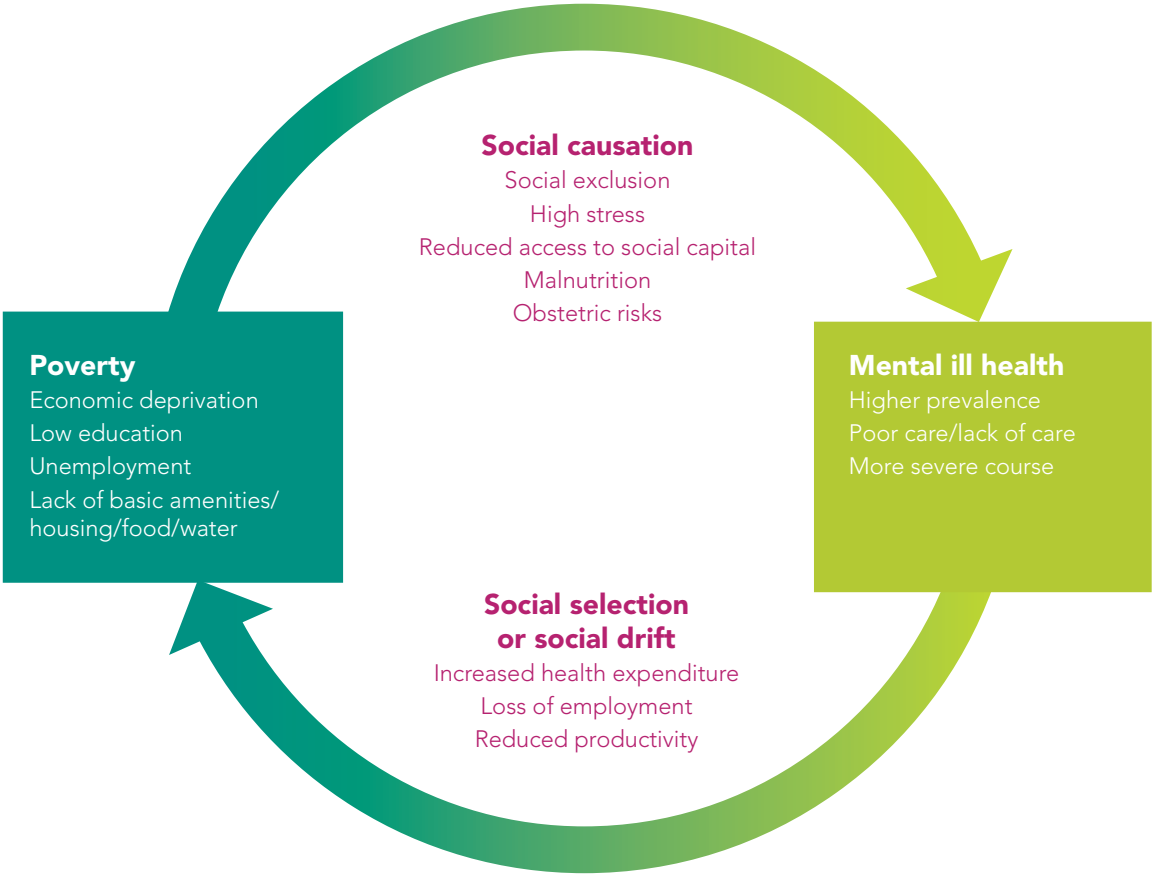
Thinking about time is important when we consider mental health, as the causal chains in the origins of mental health disorders are long. A life course approach to mental health and mental health conditions alerts us to the importance of thinking about development cumulatively, rather than as discrete events characterised by entirely novel and unprecedented risks; and to consider the differential impact of acute versus chronic mental health problems on child and adolescent development over time.

A note on the importance of context and ecology

While attention needs to be paid to the dimension of time, it is equally important to attend to context. **Social factors** influence human mental health in many, interconnected ways. Three explanatory mechanisms can be used to conceptualise the relationship between mental health and the social and physical environment.[28] These include social drift, social causation and a life course perspective.

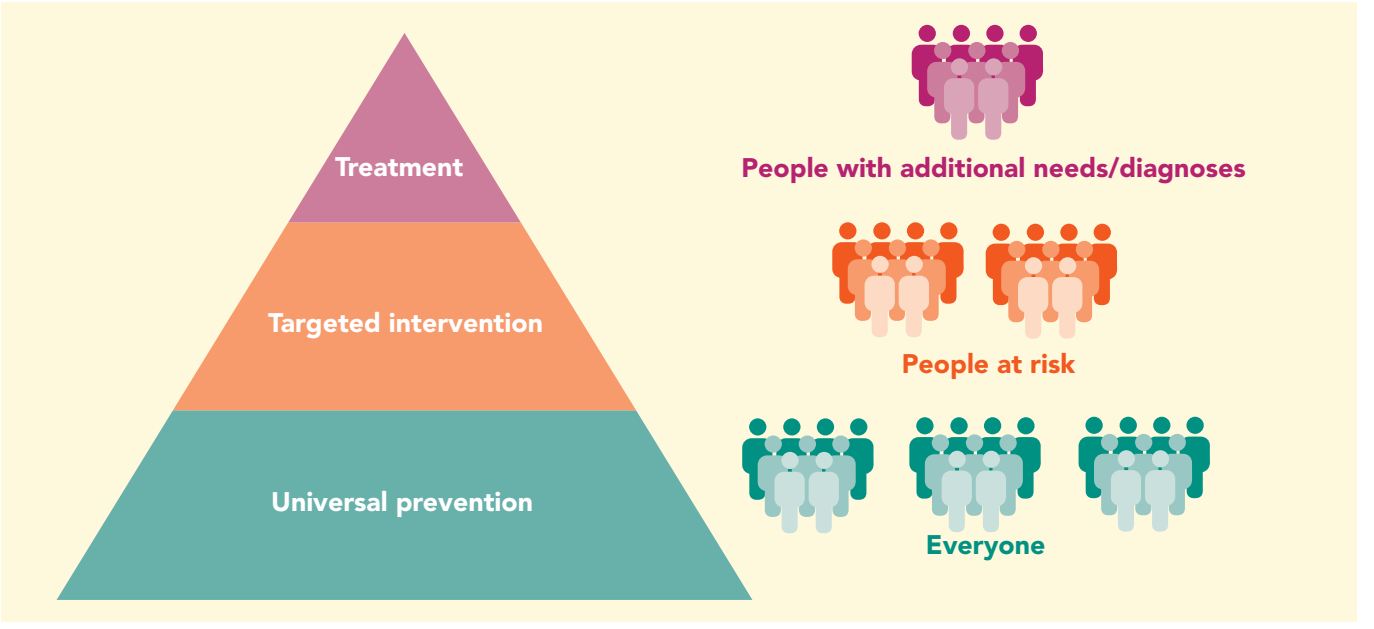
Social drift holds that an individual's mental health influences their socio-economic status (SES).[29] For instance, a person who has a mental health condition may be discriminated against and be excluded from employment opportunities, leading to financial stress. **Social causation** describes the converse of this relationship; and how SES influences health, including mental health. Here, people facing socio-economic adversity are more likely to experience mental health conditions. For instance, an adolescent living in a poor household or community may be exposed to daily financial stressors which weigh on them, resulting in stress and depression. Importantly, these processes are cyclical and can be linked over generations, with one person acquiring

Figure 40: The cycle of poverty and mental ill health



Source: Lund C, de Silva M, Plagerson S, Cooper S, Chisholm D, Das J, Knapp M & Patel V (2012) *Poverty and /mental Health Conditions: Breaking the cycle in in low-income and middle-income countries. Prime Policy Brief 1.* Cape Town: Programme for Improving Mental Health Care, UCT.

Figure 41: The public health pyramid



a mental health condition and falling into poverty, and their child living in poverty and being at risk for a mental health condition.[30] A life course perspective recognises the influence of both mechanisms over time.

Social inequalities and poverty increase the risk of common mental health conditions in caregivers, which have detrimental effects on their children.[31] Importantly, exposure to adversity – in the shape of poverty, violence, unstable housing and other social determinants – can influence child, adolescent and adult mental health in a number of indirect ways, meaning that if we are looking for causes of mental health conditions, we not only need to take a temporal perspective: We also need to look outside of the individual – to their community, context and the policies in their countries – to understand and address their mental health. Mental health can be undermind or promoted through social norms, including patriarchy; political and economic forces, including inequality; and national laws, policies and programmes, including whether or not mental health is adequately budgeted for at the national level.

What are the implications for intervention?

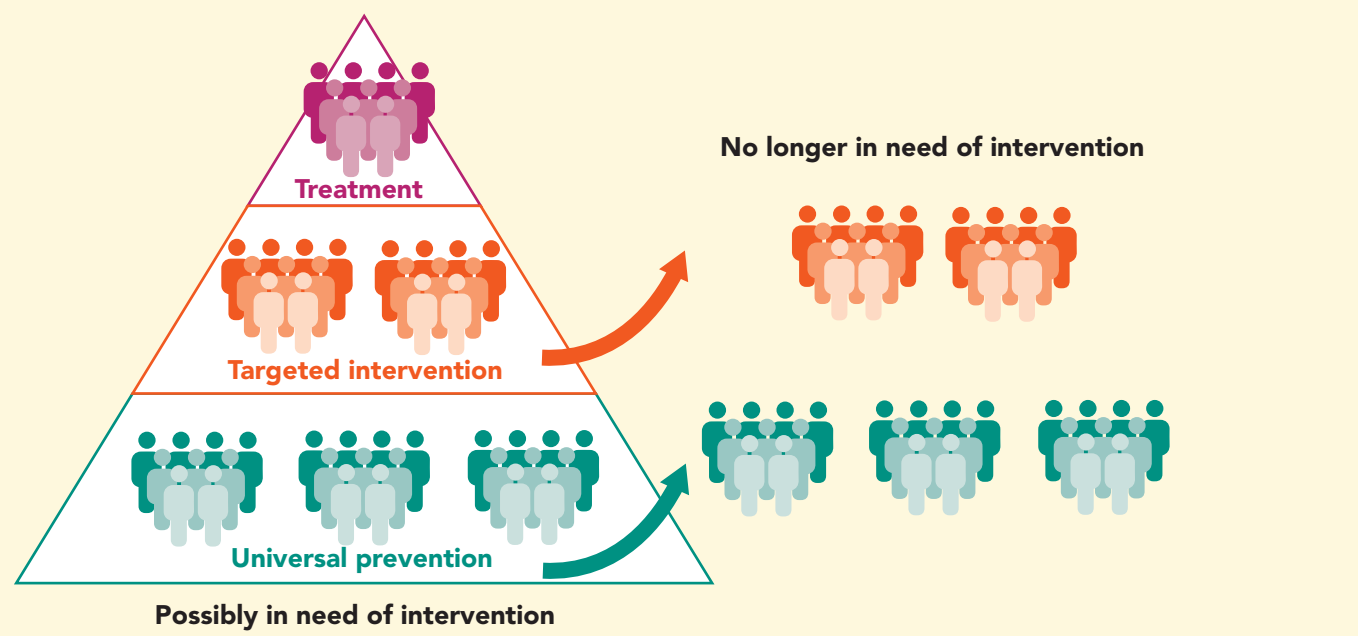
Taking an ecological life course perspective on mental health has implications for intervention. The origins of mental health and mental health conditions lie early in life and – often – far away from emerging conditions. As complex as the causes are, so do our prevention and intervention efforts need to be multipronged and multilevel. Figure 41 (adapted from the Nurturing Care Framework[32]) illustrates how different intensities of intervention are necessary for different segments of the population, based on their risk exposure and outcomes over time. A large number of people require universal interventions, followed by those individuals at risk and in need of targeted interventions, while relatively few people require treatment.

In our violence example, investment in early literacy projects (universal intervention) or maternal mental health programmes for women at risk (targeted intervention) are not silver bullets. Neither is directly investing only in rehabilitating violent individuals (treatment). Even with world class universal preventative interventions, some individuals will go on to develop mental health problems, abuse substances and engage in violence. However, as our violence example illustrates, there are a number of potential points at which to intervene – where targeted evidence-based action can limit the flow of individuals from one level of risk exposure to the next.

As illustrated in Figure 42, there will always be individuals who require targeted, evidence-based, high quality intervention for mental health conditions. But timeous intervention at the correct level prevents a proportion of individuals from requiring future, more targeted intervention. If we invest extensively in interventions and environments which we know protect individuals against risk for mental health conditions, the number of people requiring treatment, will, in the long term, decline.

In the section that follows, we highlight case studies of evidence-based interventions for the mental health of South African children, adolescents and families. Before doing

Figure 42: Leaving the pyramid



so, it is worth highlighting some cross-cutting principles of intervention:

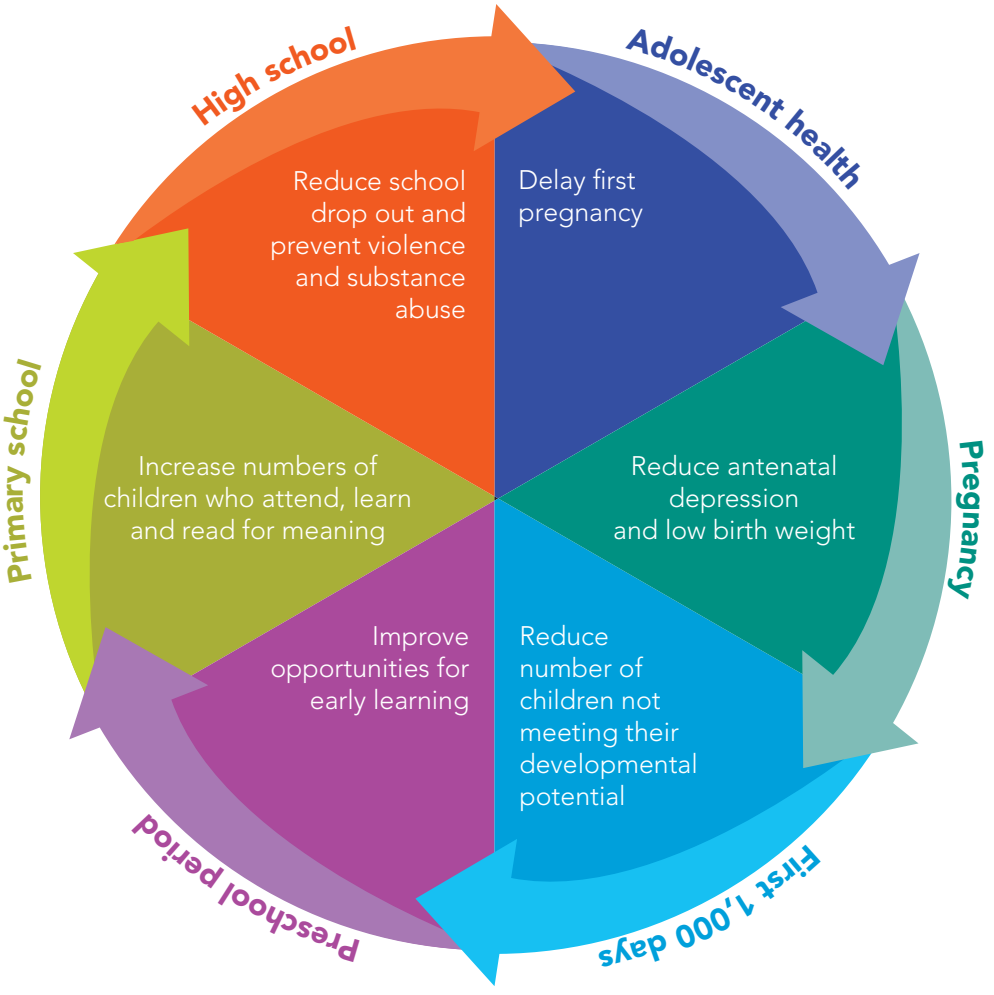
- **Public health pyramid approach:** It is essential to think beyond treatment, and to invest in prevention and promotion in order to ensure maximum benefit for the largest number of people. Recognising the temporal and social influences on mental health brings into focus the importance of prevention, universal, targeted and indicated services.[33]
- **Starting early:** There is significant value to early intervention, as evidenced by the earlier discussion of embedding and cumulative risk. Early exposure to risk and adversity can set children on a detrimental developmental path. Investing early in the life course and adopting a staged approach to mental health – starting with promotion (for everyone), followed by prevention (for those at risk) and treatment (for those who have developed a mental health or substance use disorder),[34] is one way to prevent toxic stress and ensure that risk does not accumulate.
- **Timing:** Early intervention is built on by later interventions, and the timing of interventions should be considered to ensure optimal positive effects for children. A life course perspective necessitates that we focus on the first 1,000 days of life and early adolescence as two sensitive periods of development when interventions can have a significant impact.[35]
- **Integrating mental health:** There is a need to mainstream and integrate mental health into the broader package of care, because risks in any domain of child development can impact on long-term mental health.[36]
- **Building an enabling environment:** Policies and programmes are required to address the broader social determinants of health, such as social protection, alcohol regulations.[37]

Investing in child and adolescent mental health is unlike many other public health priorities, as it cannot be fixed with a once-off innoculation. It requires sustained investment and intervention at strategic points throughout the life course (as illustrated in Figure 43). It requires investment which has universal aspects (everybody gets something – such as improved health care and education), targeted aspects (maternal depression), and indicated/treatment aspects (specialised help such as for disability). There is no quick fix, no single time point, and no magic bullet.

What is in place in South Africa, and what do we need?

In South Africa, the National Child and Adolescent Mental Health Policy Framework of 2003 was developed to guide the establishment of provincial policies in this area. The document is underpinned by a focus on primary care and intersectoral coordination. The policy also centralises protective factors in conceptualisations of child and adolescent mental health. It highlights positive influences at all levels, which can provide strengths and cultivate resilience for children, adolescents and their families. These include:

Figure 43: Intervening at strategic points across the life course to disrupt the cascade of poor mental health



Box 12: The role of the workforce

In order to implement an evidence-based mental health agenda in the public health system, two things are necessary: first, mainstream health-care workers need to be sensitised to mental health and capacitated to delivery mental health-informed interventions; second, additional workers are needed to deliver mental health-care services in a more specialised capacity. The same applies for the integration of mental health-informed interventions in education or any other sector.

In the health-care sector, systems strengthening for mental health will include initiatives aimed at training nurses working in maternity care to be sensitive to maternal mental health; and training health-care workers at clinics to deliver brief early child development content on stimulation and responsive care to mothers of young children. There is a widespread recognition that task-shifting approaches are effective in improving mental health care coverage, and so cadres of community health workers should be trained and leveraged to deliver mental health interventions.

However, in employing these approaches, it is imperative for the feel of services – the quality of delivery as perceived by users – not to be compromised. Training health workers is central to the success of task-shifting in mental health. They should be trained to provide child- and adolescent-centred care; to identity and respond to signs of substance abuse anxiety, depression and trauma; and to do so in a manner which is sensitive, evidence-based and does not further alienate vulnerable populations.

- biological factors (including age-appropriate physical development and good physical health),
- psychological factors (including the ability to learn from experiences and social skills),
- family factors (including family attachment and rewards for involvement in family),
- school factors (including opportunities for involvement in school life), and
- community factors (including positive cultural experiences and legislation that is favourable for development).

It is worth noting that the Child and Adolescent Mental Health Policy in South Africa has subsequently been included under the National Mental Health Policy Framework and Strategic Plan 2013 – 2020.[38] This document includes a focus on child and adolescent mental health in the context of school (including early childhood development, primary and high school), highlighting them as sites of prevention and early intervention. This makes an important contribution to our thinking about child and adolescent mental health: multi-sectoral action is needed. While much work situates mental health and mental health conditions within the purview of health-care services alone, the National Framework points to the need for intersectoral interventions. This underscores the need to address the social determinants of health in supporting maternal, child and adolescent mental health from multiple perspectives and sectors.

(universal, targeted, and indicated, as well as health promotion, prevention and treatment) to support mothers, children and adolescents. While universal interventions are aimed at all children in a particular setting, selective and indicated interventions are targeted at children who are at a higher risk of developing mental health problems. For instance, children with developmental disabilities and their caregivers may be targeted for additional support to prevent the development of mental health comorbidities. Such programmes can include parenting support as well as evidence-based content for children with developmental disabilities.

Research on what interventions work in low- and middle-income countries remains limited, but there is a growing evidence base of promising interventions.[39] In early childhood, a universal approach targeting overall child development has been shown to have benefits for longer-term child mental health. These include early stimulation interventions (through "play, praise and reading");[40] interventions to improve caregivers' sensitivity and responsiveness; integrated nutrition, health, and stimulation programmes; high-quality preschool; and cash transfers to families.[41] Evidence-based interventions for prevention of behavioural disorders include parent training in behaviour management, teacher training in classroom management, and psychosocial interventions with children. School-based interventions to prevent emotional disorders in older children and young adolescents have also shown benefits.

Table 22: Priorities for investment in mental health in South Africa

	Antenatal- and postnatal period (mothers and infants)	0 – 5 years	6 – 10 years	11 – 19 years
Platform	• Health facilities • Community health workers • Caregiver groups • Family	• ECD centres • Health facilities • Family	• Primary schools Caregiver groups • Family	• High schools • Healthcare facilities • Community • Family • mHealth
Interventions	• Screening and counselling for antenatal and postnatal depression and anxiety • Life skills and problem-solving interventions • Stunting prevention including macro- and micro-nutrient supplementation	• Nurturing care interventions • Quality ECD programmes • ECD feeding programs • Screening for developmental delay and disability • Child protection	• Quality schooling and after-school facilities • Universal prevention of violence, bullying and substance use prevention • Early monitoring of prodromal symptoms of mental disorders	• Quality schooling and after-school facilities • Targeted prevention of violence, bullying and substance use • Access to quality sexual and reproductive and mental healthcare interventions

Case 16: The Perinatal Mental Health Project
Preventing childhood adversity by preventing and treating maternal depression and anxiety

For nearly two decades, the Perinatal Mental Health Project (PMHP) has been developing and refining a package of integrated mental health services for pregnant and postnatal (perinatal) women in collaboration with the Departments of Health and Social Development and the NGO sector.[42] The services consist of several components that include universal health promotion and prevention, and capacity development.

The PMHP service design has predominantly focussed on the primary level maternity service environment as its entry point to care. Here, a universal approach is taken where those waiting for their antenatal appointments are given basic education and engaging reading materials on maternal mental health conditions and intervention options. At the first antenatal visit, all mothers are offered mental health screening as a routine part of the general history-taking process. PMHP developed a brief, locally validated screening tool for depression and anxiety which is now included in the standard maternity care stationery. This education and screening intervention has the potential to prevent the progression of existing conditions or the development of new mental health conditions later in pregnancy or the postnatal period. Women who screen positive for risk factors or mental health symptoms are actively referred to supportive counselling.

The PMHP also works closely with a wide range of existing service stakeholders to develop a strategy for integrating mental health services into primary care in order to empower staff and ensure ownership. For this to happen, key factors for frontline workers are addressed, including mental health literacy, capacity-building and support for the mental health of staff, themselves.

High levels of staff compassion fatigue, burnout and mental ill-health have been documented amongst South African healthcare workers,[43] particularly in maternity settings.[44] Furthermore, disrespectful and abusive maternity care has been widely reported.[45] This capacity building approach directly addresses these realities and includes the strategies for embedding simple self-care practices into personal and professional routines. Possible avenues for self- and peer-referral for mental health support are described and normalised. The capacity-building work integrates care for self with care for mothers in distress. Several multi-media resources have been developed to support this training, which has now been incorporated in national and provincial training platforms.

A recent global review[46] found that universally delivered interventions can improve adolescent mental health and reduce risk behaviour; and identified three key programme components – interpersonal skills, emotional regulation, and alcohol and drug education – as being consistently effective across multiple mental health outcomes. However, most of the studies identified by the review were from high-income settings, highlighting the need for further research to build the evidence base of effective models of prevention and treatment in low-income and middle-income countries.

All of these interventions will require greater investment in order to strengthen the workforce for mental health, as outlined in Box 12.

What actions need to be prioritised?

There is a strong temporal dimension to mental health and wellness as most mental health conditions have their origins in earlier periods of development. Therefore, a life course perspective is essential. Multiple levels of a child's environment influence their mental health, so it is imperative to address causes at different levels and across a range of platforms as outlined in Table 22.

A range of innovative prevention and treatment programmes have been developed in South Africa and we are in the process of building an evidence base to establish what works, drawing on the lessons internationally. Three local case studies illustrate important areas of work in South Africa which aim to provide sustainable services, at scale. This includes:

- The Perinatal Mental Health Project – which aims to build the capacity of health workers to integrate mental health screening in antenatal care (Case 16);
- Flourish – a community-based programme initiated by Grow Great that supports pregnant women and new mothers (Case 17); and
- Helping Adolescents Thrive – a global collaboration designed to prevent mental health disorders, violence and substance abuse in adolescence (Case 18).

Case 17: Flourish – Grow Great
Preventing stunting by promoting maternal mental health

The Grow Great Campaign was founded in 2018 in response to the alarmingly high levels of stunting in South Africa that affect an estimated 27% of children under five.[47] Stunting is a preventable condition that results from chronic malnutrition and hampers the long-term health, educational, socio-emotional and economic prospects of affected children. The drivers of stunting are complex, begin in utero and include factors in the home (like access to nutritious food) and in the community (like access to clean water and adequate sanitation). Promising progress in addressing stunting has been achieved by supporting pregnant and new mothers in the first 1,000 days, from conception to age two, when babies are most vulnerable to the effects of chronic malnutrition and when caregivers are forming their approaches to parenting and require a great deal of support.[48] With this in mind, the Grow Great Campaign launched Flourish, a national social franchise of community-based antenatal and postnatal groups that support and empower pregnant women and new mothers through the critical first 1,000 days. The ten-week programme uses a carefully crafted universal promotion and prevention curriculum that addresses the various drivers of stunting through the promotion of breastfeeding and complementary feeding, early antenatal booking, maternal nutrition and maternal mental health. The antenatal and postnatal groups seek to drive mother-empowered behaviour change and also provide essential social support which has the potential to improve maternal mental health which, if not protected, can adversely affect infant feeding practices, infant growth and cognitive development and food security.[497]

A 2018 internal analysis of entry and exit surveys showed a statistically significant improvement in pregnant women's perceptions of whether they were coping with their pregnancy and the prospect of a new baby. The Grow Great internal evaluation suggests that antenatal support groups such as those provided by Flourish offer an important source of support for South Africa's mothers. This form of social support may not be readily available in most of our country's communities, but shows promise in helping mothers cope with the demands of pregnancy and a new baby.

Conclusion

The three case studies showcase the importance of designing evidence-based programmes and building capacity – including supportive supervision. National attention and budget need to be allocated to developing, enabling and caring for the personnel required to provide support for mental health, particularly the mental health of women and children. The importance of this work for the development of our society should be acknowledged through allocation of adequate status and resources by government.

The cases illustrate the importance of investing early and taking an upstream approach to promote health and prevent mental health conditions. Interventions should recognise the temporal and social influences on mental health and be appropriately targeted. They should also start early – and the timing of interventions should be considered to ensure optimal positive effects for children. Where possible, mental health services should be integrated into broader packages of care, because risks in any domain of child development can impact on their long-term mental health. To echo the statements positioned at the outset of this chapter:

- In order to reduce the burden of mental health disorders, substance abuse, and violence, we need to intervene, universally, early in the life course, in order to reduce the number of individuals who require later, intensive intervention.
- In addition, it is vital to adopt a broad, ecological approach: investment in mental health cannot simply entail investment in mental health services or psychosocial programmes, but must extend into schools, communities, the economy, and beyond.

Case 18: Helping Adolescents Thrive
Preventing mental health disorders, violence and substance abuse in adolescence

The Helping Adolescents Thrive (HAT) project aims to promote and improve adolescent mental health – and mental health across the life course – by designing a package of interventions that affect multiple outcomes. The project is a collaboration between the World Health Organization, UNICEF, Stellenbosch University and University of Cape Town. The project aims to develop an open access package of empirically supported psychosocial interventions to enhance adolescents' cognitive, emotional and social capabilities and skills, applicable for use in less resourced settings through different delivery platforms.

The HAT intervention package will be targeted at adolescents (10 – 19-years old). This stage is recognised as one of the optimal timeframes for intervention due to the adolescent brain's neuroplasticity (capacity to change) and the development of multiple areas of brain connectivity in this period. The package will adopt a range of strategies, including universal, targeted and indicated interventions. Universally delivered interventions are programmes that are targeted at the whole adolescent population and designed to benefit everyone. Targeted interventions focus on individuals or communities at risk of developing mental health problems or risk behaviours due to factors such as poverty, health status (including HIV and pregnancy), migration, and exposure to violence. Indicated interventions are programmes for adolescents who have existing symptoms of mental health condition or elevated risk behaviours.

HAT is engaging partners – including other UN agencies, youth associations and civil society organisations – in initial planning and later field testing, to facilitate multidisciplinary input into programme design and development, and to support the dissemination and sustainability of the final product. Ultimately, HAT will support governments and other partners to implement the package – helping build capacity and monitoring implementation.

References

1 Kieling C, Baker-Henningham H, Belfer M, Conti G, Ertem I, Omigbodun O, et al. (2011) Child and adolescent mental health worldwide: Evidence for action. *The Lancet*, 378(9801): 1515-1525.
2 United Nations Office on Drugs and Crime (2016) UNDOC Statistics Online 2016. Viewed on 10 October 2019 at: https://dataunodc.un.org/crime/intentional-homicide-victims.
3 Howie SJ, Combrinck C, Tshele M, Roux K, McLeod Palane N & Mokoena GM (2017) *PIRLS 2016 Progress in International Reading Literacy Study 2016 Grade 5 Benchmark Participation: South African Children's Reading Literacy Achievement*. Pretoria: Centre for Evaluation and Assessment.
4 Patel V, Saxena S, Lund C, Thornicroft G, Baingana F, Bolton P, et al. (2018) The Lancet Commission on Global Mental Health and Sustainable Development. *The Lancet*, 392(10157): 1553-1598.
5 Jack H, Wagner RG, Petersen I, Thom R, Newton CR, Stein A, et al. (2014) Closing the mental health treatment gap in South Africa: A review of costs and cost-effectiveness. *Global Health Action*, 7(1): 23431.
6 Herman AA, Stein DJ, Seedat S, Heeringa SG, Moomal H & Williams DR (2009) The South African Stress and Health (SASH) study: 12-month and lifetime prevalence of common mental disorders. *South African Medical Journal*, 99(5): 339-344.
7 Ismail A (2017) *The mental illnesses costing SA billions*. Fin24 website. Accessed: 7 October 2019: https://www.fin24.com/Companies/Health/revealed-the-mental-illnesses-costing-sa-billions-20170724.
8 See no. 1 above.
9 Kleintjes S, Flisher A, Fick M, Railoun A, Lund C, Molteno C, et al. (2006) The prevalence of mental disorders among children, adolescents and adults in the Western Cape, South Africa. *African Journal of Psychiatry*, 9 157-160. doi: 10.4314/ajpsy.v9i3.30217.
10 Lund C, Brooke-Sumner C, Baingana F, Baron EC, Breuer E, Chandra P, et al. (2018) Social determinants of mental disorders and the Sustainable Development Goals: A systematic review of reviews. *The Lancet Psychiatry*, 5(4): 357-69.
11 Hankin BL & Abela JR (2005) *Development of Psychopathology: A Vulnerability-stress Perspective*: Sage:Thousand Oaks, California, US; Maughan B & Collishaw S (2015) Development and psychopathology: A life course perspective. *Rutter's Child and Adolescent Psychiatry*. PP. 5-16.
12 Reddy SP JS, Sewpaul R, Sifunda S, Ellahebokus A, Kambaran NS & Omardien RG (2013) *Umthente Uhlaba Usamila: The 3rd South African National Youth Risk Behaviour Survey: 2011*. Cape Town: South African Medical Research Council.
13 Docrat S, Besada D, Cleary S, Daviaud E & Lund C (2019) Mental health system costs, resources and constraints in South Africa: A national survey. *Health Policy and Planning*.
14 See no. 13 above.
15 Hurt H, Malmud E, Brodsky NL & Giannetta J (2001) Exposure to violence: Psychological and academic correlates in child witnesses. Archives of Pediatrics & Adolescent Medicine, 155(12): 1351-1356;
Silverstein M, Augustyn M, Cabral H & Zuckerman B (2006) Maternal depression and violence exposure: Double jeopardy for child school functioning. *Pediatrics*, 118(3): e792-e800.
16 See no. 15 (Silverstein et al, 2006) above.
17 See no. 15 (Silverstein et al, 2006) above.
Petterson SM & Albers AB (2001) Effects of poverty and maternal depression on early child development. *Child Development*, 72(6): 1794-1813;
Gelaye B, Rondon MB, Araya R & Williams MA (2016) Epidemiology of maternal depression, risk factors, and child outcomes in low-income and middle-income countries. *The Lancet Psychiatry*, 3(10): 973-982;
Ensminger ME, Hanson SG, Riley AW & Juon H-S (2003) Maternal psychological distress: Adult sons' and daughters' mental health and educational attainment. *Journal of the American Academy of Child & Adolescent Psychiatry*, 42(9): 1108-1115.
18 Masten AS, Roisman GI, Long JD, Burt KB, Obradović J, Riley JR, et al. (2005) Developmental cascades: Linking academic achievement and externalizing and internalizing symptoms over 20 years. *Developmental Psychology*, 41(5): 733.
19 See no. 18 above;
Kokko K, Tremblay RE, Lacourse E, Nagin DS & Vitaro F (2006) Trajectories of prosocial behavior and physical aggression in middle childhood: Links to adolescent school dropout and physical violence. *Journal of Research on Adolescence*, 16(3): 403-428.
20 Henry KL, Knight KE & Thornberry TP (2012) School disengagement as a predictor of dropout, delinquency, and problem substance use during adolescence and early adulthood. *Journal of Youth and Adolescence*, 41(2): 156-166;
Krohn MD, Ward JT, Thornberry TP, Lizotte AJ & Chu R (2011) The cascading effects of adolescent gang involvement across the life course. *Criminology*, 49(4): 991-1028;
Wang MT & Fredricks JA (2014) The reciprocal links between school engagement, youth problem behaviors, and school dropout during adolescence. *Child Development*, 85(2): 722-737;
Maynard BR, Salas-Wright CP & Vaughn MG (2015) High school dropouts in emerging adulthood: Substance use, mental health problems, and crime. *Community Mental Health Journal*, 51(3): 289-299.
21 Hunt X & Tomlinson M (2018) Child Developmental Trajectories in Adversity: Environmental Embedding and Developmental Cascades in Contexts of Risk. In: Hodes M, Gau SS & De Vries P (eds) *Understanding Uniqueness and Diversity in Child and Adolescent Mental Health*. Cambridge, Massachusetts: Academic Press.
22 McEwen BS (2012) Brain on stress: How the social environment gets under the skin. *Proceedings of the National Academy of Sciences*, 109(Supplement 2): 17180-17185.
See no. 21 above.
23 Hertzman C (2012) Putting the concept of biological embedding in historical perspective. *Proceedings of the National Academy of Sciences*, 109(Supplement 2): 17160-17167;
Hertzman C & Boyce T (2010) How experience gets under the skin to create gradients in developmental health. *Annual Review of Public Health*, 31: 329-347.
24 Sameroff A (2010) A unified theory of development: a dialectic integration of nature and nurture. *Child Development*, 81(1): 6-22. doi: 10.1111/j.1467-8624.2009.01378.x.
25 Evans GW & English K (2002) The environment of poverty: Multiple stressor exposure, psychophysiological stress, and socioemotional adjustment. *Child Development*, 73(4): 1238-1248;
Evans GW & Kim P (2007) Childhood poverty and health: cumulative risk exposure and stress dysregulation. *Psychological Science*, 18(11): 953-957.
26 See no. 21 above.
27 Sroufe LA ((2007) The place of development in developmental psychopathology. In: Multilevel dynamics in developmental psychopathology. *The Minnesota Symposia in Child Psychology*, 34: 285-299.
28 Henderson C, Thornicroft G & Glover G (1998) Inequalities in mental health. *The British Journal of Psychiatry*, 173(2): 105-109.
29 Lund C (2012) Poverty and mental health: A review of practice and policies. *Neuropsychiatry*, 2(3): 213-219.
30 Lund C & Cois A (2018) Simultaneous social causation and social drift: Longitudinal analysis of depression and poverty in South Africa. *Journal of Affective Disorders*, 229: 396-402.
31 World Health Organization and Calouste Gulbenkian Foundation (2014) *Social Determinants of Mental Health*. Geneva: WHO.
32 Britto PR, Lye SJ, Proulx K, Yousafzai AK, Matthews SG, Vaivada T, et al. (2017) Nurturing care: Promoting early childhood development. *The Lancet*, 389(10064): 91-102;
World Health Organization, United Nations Children's Fund, World Bank Group (2018) *Nurturing Care for Early Childhood Development: A framework for helping children survive and thrive to transform health and human potential*. Geneva: WHO.
33 World Health Organization (2013) *Mental Health Action Plan 2013 – 2020*. Geneva: WHO.
34 See no. 33 above.
35 Patton GC, Sawyer SM, Santelli JS, Ross DA, Afifi R, Allen NB, et al. (2016) Our future: A Lancet Commission on Adolescent Health and Wellbeing. *The Lancet*, 387(10036): 2423-2478.
36 See no. 33 above;
Lund C, Tomlinson M & Patel V (2016) Integration of mental health into primary care in low-and middle-income countries: The PRIME mental healthcare plans. *The British Journal of Psychiatry*, 208(s56): s1-s3.
37 See no. 10 and 33 above;
Lund C, Stansfeld S & De Silva M (2014) Social determinants of mental health. In: Patel V, Minas H, Cohen A & Prince MJ (eds) (2013) *Global Mental Health: Principles and practice*. Oxford: Oxford University Press.
38 Department of Health (2013) *National Mental Health Policy Framework and Strategic Plan 2013-2020*. Pretoria: DoH.
39 See no. 1 above.
40 Klasen H & Crombag A-C (2013) What works where? A systematic review of child and adolescent mental health interventions for low and middle income countries. *Social Psychiatry and Psychiatric Epidemiology*, 48(4): 595-611.
41 See no. 1 above.
42 Honikman S, Van Heyningen T, Field S, Baron E & Tomlinson M (2012) Stepped care for maternal mental health: A case study of the perinatal mental health project in South Africa. *PLoS medicine*, 9(5): e1001222;
Honikman S (2014) Maternal mental health care: Refining the components in a South African setting. In: Okpaku SO (ed) *Essentials of Global Mental Health*. P. 173.
43 Khamisa N, Peltzer K, Ilic D & Oldenburg B (2016) Work related stress, burnout, job satisfaction and general health of nurses: A follow-up study.

International Journal of Nursing Practice, 22(6): 538-545.
44 Mashego T-AB, Nesengani DS, Ntuli T & Wyatt G (2016) Burnout, compassion fatigue and compassion satisfaction among nurses in the context of maternal and perinatal deaths. *Journal of Psychology in Africa*, 26(5): 469-472.
45 Chadwick RJ (2016) Obstetric violence in South Africa. *South African Medical Journal*, 106(5): 423-424;
Oosthuizen SJ, Bergh AM, Pattinson RC & Grimbeek J (2017) It does matter where you come from: mothers' experiences of childbirth in midwife obstetric units, Tshwane, South Africa. *Reproductive Health*, 14(1): 151.
46 Skeen S, Laurenzi CA, Gordon SL, du Toit S, Tomlinson M, Dua T, et al. (2019) Adolescent mental health program components and behavior risk reduction: A meta-analysis. *Pediatrics*,144(2): e20183488.
47 Bank W (2016) Prevalence of stunting, height for age (% of children under 5). Available from: https://data.worldbank.org/indicator/sh.sta.stnt.zs.
48 Bhutta ZA, Ahmed T, Black RE, Cousens S, Dewey K, Giugliani E, ... & Shekar M (2008) What works? Interventions for maternal and child undernutrition and survival. *The Lancet*, 371(9610): 417-440.
49 Britto PR, Lye SJ, Proulx K, Yousafzai AK, Matthews SG, Vaivada T, et al. (2017) Nurturing care: promoting early childhood development. *The Lancet*, 389(10064): 91-102;
Madlala SS & Kassier SM (2018) Antenatal and postpartum depression: Effects on infant and young child health and feeding practices. *South African Journal of Clinical Nutrition*,31(1): 1-7.

The triple burden of malnutrition in childhood: Causes, policy implementation and recommendations

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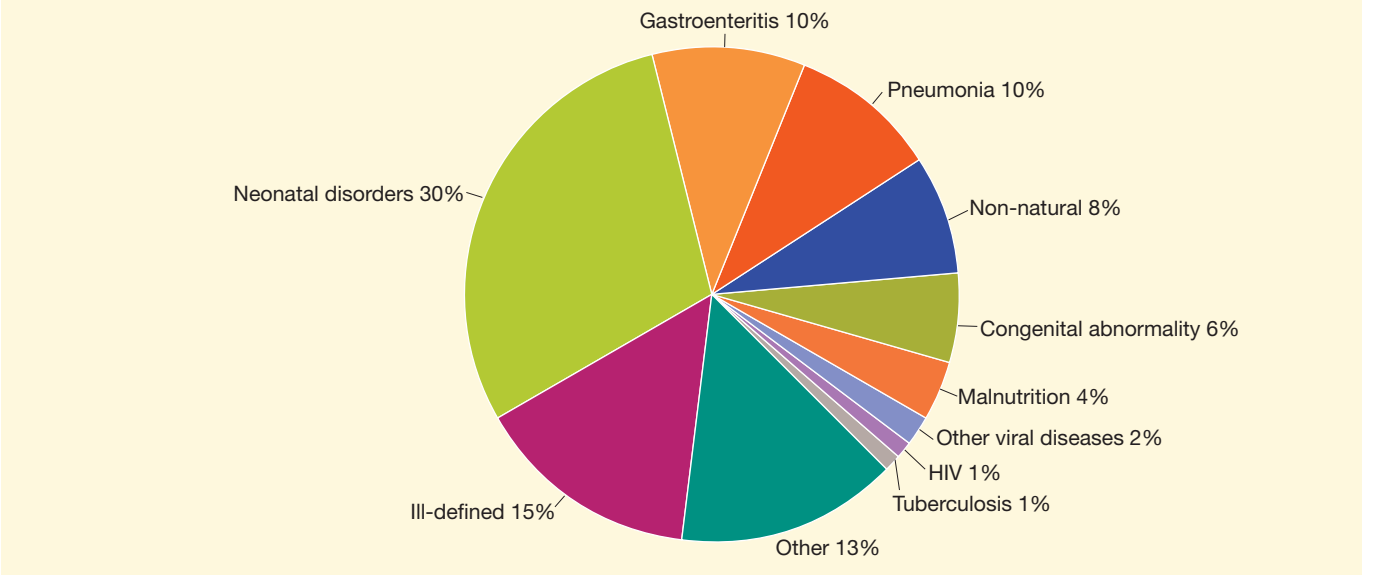
Evidence shows that investing in children's nutrition early in the life course can enhance their survival, health, development and school achievement. It is important to prevent stunting, overweight, obesity and micronutrient deficiencies (e.g. vitamin A, zinc, iron and iodine) in childhood as these are risk factors for child mortality, poor development, adult obesity, the metabolic syndrome, non-communicable diseases and early adult mortality.[1] This chapter focuses attention on efforts to address the triple burden of undernutrition,[i] overnutrition[ii] and micronutrient deficiencies in South Africa by exploring the following questions:

- How does undernutrition impact on children's health, development and survival?
- Is South Africa making progress towards the World Health Organization's nutritional targets?
- What are the key drivers of childhood undernutrition and overnutrition?
- What are the challenges in implementing nutrition policies and programmes?
- What are the key recommendations for addressing the burden of childhood undernutrition and overnutrition?

Figure 44: Causes of under-five mortality in South Africa, 2015



Source: National Department of Health (2017) *3rd Triennial Report of the Committee on Morbidity and Mortality in Children under 5 Years (COMMIC): 2017-2017*. Pretoria: NDoH.

i Undernutrition encompasses stunting (low height-for-age), underweight (low weight-for-age), wasting (low weight-for-height) and micronutrient (iron, vitamin A and iodine) deficiencies.
ii Overnutrition encompasses overweight and obesity.

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Table 23: Indicators of children's anthropometric and micronutrient status: 1999 – 2016

	NFCS 1999 1 – 9 years (n=2,613)	NFCS-FB 2005 1 – 9 years (n=2,157)	SANHANES 2012 0 – 14 years (n=2,123)	SADHS 2016 Under-five years (n=2,024)	
Wasting[a]	3.7%	4.5%	2.9%	2.5%	
Underweight[b]	10.3%	9.3%	5.8%	6%	
Stunting[c]	25.5% (1-3 years)	23.4% (1-3 years)	26.5% (1-3 years)	27%	
Overweight[d]	12.4%	10.6%	16.5% (girls) 11.5% (boys)	13.3%	
Obesity[e]	6.6%	4.8%	7.1% (girls) 4.7% (boys)	N/A	
Vitamin A deficiency*	N/A	64%	43.6%	N/A	
Zinc deficiency	N/A	45%	N/A	N/A	
Iron deficiency and iron deficiency anaemia	N/A	20%	10%	N/A	
Iodine deficiency	N/A	15%	N/A	N/A	

Source: NFCS: National Food Consumption Survey;[13] NFCS-FB: National Food Consumption Survey- Fortification Baseline;[14] SANHANES: South African National Health and Nutrition Examination Survey;[15] SADHS: South African Demographic Health Survey.[16] N/A: not available.

No progress | Progress made | Target achieved

a Wasting is determined by measuring the child's weight-for-height which relates the body mass to height or length; the child is considered to have acute malnutrition when the weight-for-height is below two standard deviations (-2SD) of the median of the reference population.
b Underweight is determined by measuring the child's weight-for-age which is a composite of the child's weight and height; the child is underweight indicating acute or chronic malnutrition when the weight-for-age is below two standard deviations (-2SD) of the median of the reference population.
c Stunting is determined by measuring height-for-age which relates to linear growth. The child whose height-for-age is below two standard deviations (-2 SD) of the median of the reference population is considered short for their age (stunted) which could result from chronic malnutrition; there are other reasons for a child being short.
d Overweight in children 2 – 18 years is based on age-appropriate body mass index (BMI) cut-offs corresponding to a BMI at 18 years of over 25 and less than 30kg/m^2 and obesity BMI≥30kg/m^2.
e Obesity in children 2 – 18 years is based on age-appropriate body mass index (BMI) cut-offs corresponding to a BMI at 18 years ≥30kg/ m^2.

How does undernutrition impact on children's health, survival and development?

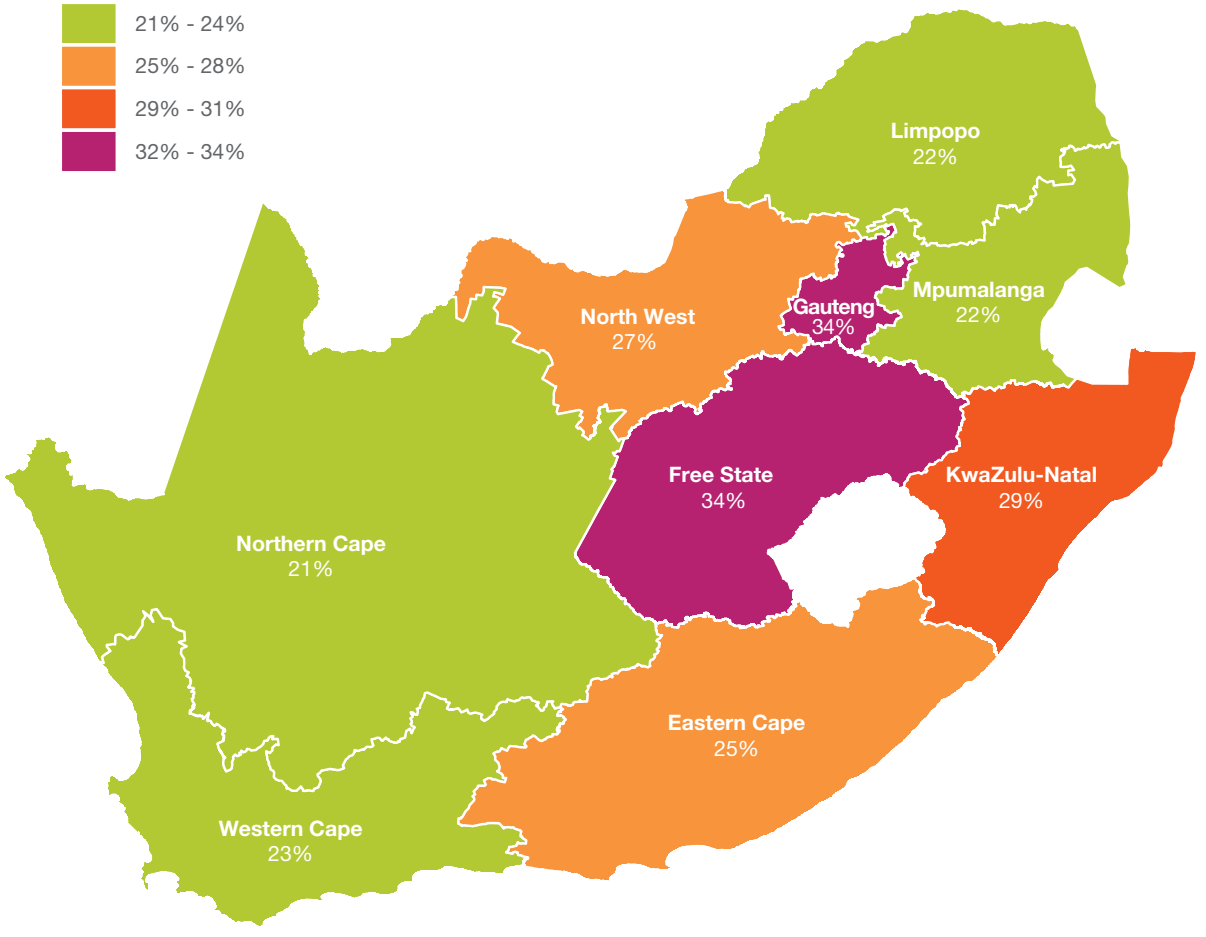
Undernutrition is a key driver of infant and young child mortality and morbidity. Although only 4% of under-five mortality was directly due to severe acute malnutrition (SAM) in 2015 (Figure 44), undernutrition increases children's risk of dying from neonatal disorders and infectious diseases such as diarrhoea and pneumonia.[2] In 2018, the National Child Healthcare Problem Identification Programme (Child PIP) found that 25% and 24% of hospital deaths were associated with SAM and moderate acute malnutrition (MAM), respectively.[3] Undernutrition, especially stunting, together with deficiencies of iron and iodine, can contribute to impaired motor and cognitive function and to children not reaching their developmental potential.

Is South Africa making progress towards the World Health Organization's nutritional targets?

South Africa is facing a triple burden of malnutrition[iii] like other low- and middle-income countries,[4] with the co-existence of undernutrition and overnutrition. Table 23 presents nutrition surveys that were conducted in children across different age groups and over a 17-year period. There has been a decline in acute malnutrition as shown in the decreasing prevalence of wasting to 2.5% in 2016. The prevalence of stunting, an indicator of long-standing undernutrition, has remained stubbornly high over a 20-year period[5] and was estimated at 27% in 2016.[6] The stunting prevalence varies within the country and is highest in Gauteng and the Free State (as illustrated in Figure 45).[7]

iii Malnutrition refers to an inadequate, unbalanced or excessive consumption of macronutrients (energy or protein) or micronutrients. It encompasses both undernutrition and overnutrition.

Figure 45: Percentage of children under five years who are stunted, by province, 2016



Source: National Department of Health, Statistics South Africa, South African Medical Research Council and ICF (2019) *South Africa Demographic and Health Survey 2016*. Pretoria, South Africa, and Rockville, Maryland, USA: NDoH, Stats SA, SAMRC & ICF.

The prevalence of overweight in children increased from 10.6% in 2005 to 13.3% in 2016,[8] which is more than twice the global prevalence of 5.6%.[9] Data from smaller in-depth studies, such as a prospective study conducted in a rural village in Limpopo, also show that a proportion (19%) of children are both stunted and overweight.[10]

National data also show poor micronutrient status (particularly vitamin A and iron) in children under five years. Children deficient in vitamin A are at increased risk of mortality from diarrhoea, HIV and measles; while those with iron deficiency are at increased risk of morbidity, poor cognition and development. Although the prevalence of vitamin A deficiency has decreased over time, 43.6% of children were vitamin A deficient in 2012,[11] and zinc deficiency stood at 45% in 2005. Anaemia and iron status in children have improved, and in 2012 the prevalence of anaemia, iron deficiency and iron deficiency anaemia were 10.7%, 8.1% and 1.9% respectively.[12]

Global and national targets

The World Health Organization (WHO) has adopted a resolution on maternal, infant and young child nutrition that includes six targets aimed at reducing the burden of disease from malnutrition by 2025. This is consistent with Sustainable Development Goal 2 which aims to end all forms of malnutrition – including undernutrition, obesity and micronutrient deficiencies – by 2030.[17] The WHO targets include a 40% reduction in global stunting in children under-five years; a 50% reduction in low birth weight; a 50% reduction in anaemia in women of reproductive age; no further increase in overweight in children under five years; an increase in exclusive breastfeeding in the first six months to 50% and a reduction in wasting to less than 5%.[18] In South Africa, this would entail a reduction in the prevalence of stunting to 14.2% and in the estimated number of stunted children by 526,600 at an average annual relative reduction rate of 3.9% per year.[19] The target for wasting has been

achieved. However, the current trends indicate that there is no progress in reducing the prevalence of stunting nationally.

What are the key drivers of undernutrition and overnutrition[iv] in children?

Dietary factors in malnutrition

Breastfeeding affords significant life course protection against obesity and non-communicable diseases such as type-2 diabetes, cardiovascular disease and certain cancers.[20] For this reason, WHO recommends exclusive breastfeeding (EBF) for the first six months of life, and continued breastfeeding following the introduction of complementary foods until 24 months and beyond. In South Africa, the EBF rate in infants under six months has increased from 8% in 2003[21] to 32% in 2016,[22] but more needs to be done to improve infant feeding practices. Furthermore, the EBF rate decreases significantly with age, with only 23% of infants exclusively breastfed at 4 – 5 months. Complementary feeds are introduced from six months of age, and infants and young children then need a diverse diet rich in energy and micronutrients to ensure optimal growth and development. Yet only 23% of children aged 6 – 23 months are fed a minimum acceptable diet.[23] Instead a high proportion of children under two years consume unhealthy diets containing sugary foods (26%) and drinks (13%), and salty snacks (32%), placing them at risk of obesity.[24]

Numerous biological factors are linked to the development of overweight and obesity, including conditions like diabetes and placental insufficiency which can restrict the growth of the foetus. It is speculated that in order to survive, the foetus permanently adjusts its homeostatic system[25] to utilise nutrients as efficiently as possible and following birth there is rapid weight gain and a greater risk of obesity later in life.

Formula milk has also been associated with the development of overweight or obesity as it has a higher protein content than breastmilk and this contributes to accelerated growth and obesity during infancy.[26]

The dietary transition and the role of the food system

In South Africa, the rising trend of obesity and persistent stunting is a consequence of the global increase in the consumption of ultra-processed foods.[27] These highly refined foods are high in sugar, unhealthy fats and salt; low in fibre and micronutrients; and laced with additives to extend their shelf life and to modify flavour, colour and texture.[28] These include most breakfast cereals, biscuits, sugar-sweetened beverages (SSBs), sweets, snack bars, cheese, as well as key dietary staples such as bread and processed meat like polony. Ultra-processed foods are formulated to be overly tasty and habit-forming, leading to excessive consumption and rapid weight gain.[29] This can predispose children to obesity, diabetes and autoimmune diseases.[30] Moreover, making such foods available to young children who do not have the means or knowledge to make better choices, sets dietary habits and preferences which are very difficult to change at a later age.

Obesity is seen by some as a sign of happiness and wealth[31] and by others as a mark of greed, sloth and dietary apathy. But instead of blaming individuals, it is important to recognise the role of an increasingly globalised food system, dominated by fewer and fewer large transnational corporations.

People's food choices are shaped by a range of structural and environmental forces which operate at different levels.[32] The food system includes all the processes and infrastructure involved in feeding a population including the production, processing, marketing, distribution and consumption of food as illustrated in Figure 46. At a global level, the food system is increasingly dominated by "Big Food" – a small number of transnational corporations who are making ultra-processed food increasingly available and desirable.[33] These changes have been facilitated by the liberalisation of global trade agreements and the consolidation and automation of all levels of the food system – from production, processing and packaging to storage, distribution, marketing and retail. These changes in the global food system have reduced job opportunities in the food sector, contributed to rapid urbanisation[34] and enabled agricultural and food corporations to accumulate super profits.

At the local level, these changes are shaping the food environment in schools, clinics, taxi ranks, train stations, streets and shopping malls. South Africa has experienced a rapid expansion of supermarkets,[35] accompanied by the growth of the informal food retail economy which has helped extend the reach of ultra-processed foods into the informal settlements and former homelands which trap many of South Africa's poor. Local food environments are also shaped by the media where aggressive marketing of processed foods is transforming cultural food preferences[36] and moulding young children's preferences for sweet and ultra-processed food.[37]

iv Overnutrition in children 2 to 18 years is based on age-appropriate BMI cut-offs where overweight corresponds to BMI at 18 years ≥25 but <30kg/m^2 and obesity BMI≥30kg/m^2.

Figure 46: The food system

Adapted from: Kahler E, Perkins K, Sawyer S, Pipino H, Onge J (2013) *Farm to Plate Strategic Plan: A 10-year strategic plan for Vermont's food system. Executive summary.* Vermont: Vermont Sustainable Job's Fund.

How poverty and food insecurity entrench childhood malnutrition

Despite slight improvements, poverty remains widespread in South Africa, with 40% of the population living below the lower-bound poverty line in 2015.[38] The Pietermaritzburg Agency for Community Social Action's (PACSA) food price barometer has recorded consistent and high increases in food prices over the past several years.[39] Yet incomes are not growing in step with food price inflation, and increasing numbers of households are struggling to feed themselves. Nationally, 54% of households experienced hunger or were at risk, with especially high levels in urban informal areas (68%).[40] To cope, households reduce the quality and diversity of diets, by reducing costly fresh, whole foods and prioritising dietary staples like maize meal, oil, sugar and bread.[41] Cheap, ready-to-eat ultra-processed foods are appealing in conditions of income-, fuel- and time-poverty which are common in poor and informal settlements.

A recent study conducted in Khayelitsha found that most households consumed a range of ultra-processed and obesogenic foods such as polony, brown bread, SSBs and sugar. [42] These foods were made available through supermarkets, fast food outlets and informal spaza shops. Although some roadside traders make fresh fruit and vegetables easily accessible, most deal almost exclusively with obesogenic sweets and snacks.

It is also clear that state capacity to regulate Big Food is severely limited and that significant pressure from researchers and civil society is needed for the state to develop the "will to transform"[43] this sector and protect children's constitutional rights to healthy, nutritious food.

What policies and programmes are in place to address the triple burden of malnutrition in children?

A 2008 review identified a range of policies and programmes to improve nutrition in South Africa, as outlined in Table 24[44] Yet the nutritional status of children in South Africa has stagnated,[45] suggesting that these policies and programmes have been poorly implemented, or that inequality and poverty have diminished the impact of improved infant and young child feeding practices.[46] The rise of obesity in young children underlines the role of these structural factors in shaping a food environment that promotes a high energy, low-quality diet.

The Integrated Nutrition Programme (INP) Roadmap has therefore been updated to include a Strategy for the Prevention and Control of Obesity in South Africa 2015 – 2020.[47] The strategy recognises the limited control that individuals have over their food environment,[48] and the limitations of behaviour change interventions and nutrition education in preventing under- and overnutrition in resource poor settings.[49]

Table 24: Policies and programmes that have the potential to improve child nutrition

Current key policies and programmes:
• Support for the nutrition of pregnant women[50]
• Breastfeeding promotion, protection and support (Tshwane Declaration)[51]
• Infant and young child feeding[52]
• Growth monitoring and promotion[53]
• Social protection and food provisioning programmes
• The National School Nutrition Programme[54]
• Vitamin A supplementation[55]
• Fortification of food staples with micronutrients
• Sugar tax to reduce the amount of sugar in sugary beverages[56]
Additional policies and programmes that have potential:
• Front-of-pack labelling regulations to educate consumers about healthy and unhealthy foods
• Subsidising basic nutritious foodstuffs
• Regulating trade on unhealthy foodstuffs

Promotion, protection and support for breastfeeding

The Lancet Series on Breastfeeding provides clear evidence that breastfeeding is the optimum feeding option for infants and children for the first two years of life. Not only does breastmilk provide perfect nutrition for infants, it also has life-long health benefits.[57] Yet breastfeeding is no longer the norm in South Africa. The Lancet series describes how the growth of the multi-billion dollar formula milk industry and its marketing practices undermine breastfeeding, and calls on States to actively promote, support and protect breastfeeding.[58] This includes promoting the early initiation of breastfeeding, providing community-based support to help mothers sustain breastfeeding when they return home, providing paid maternity leave and breastfeeding breaks to enable working women to continue breastfeeding, and regulating the marketing of breastmilk substitutes in order to remove commercial pressures from the infant feeding arena, as outlined in Case 19.

Infant and young child growth and nutrition

There are several government interventions to promote optimal growth and development in children. These centre on growth monitoring and promotion (GMP), mostly carried out by nurses at primary care facilities. This includes the regular weighing and measurement of the infant's height and weight-for-height and mid-upper arm circumference and recording these measurements in the Road to Health Book (RTHB). These growth parameters are used to identify children who are malnourished or faltering in growth and where corrective action can be taken through appropriate counselling of the caregiver.

Case 19: Enforcing Regulation 991 to remove commercial pressures from the infant feeding arena

Chantell Witten and Max Kroon (Department of Neonatology, University of Cape Town and School of Physiology, Nutrition and Consumer Science, North-West University)

In 1981 the World Health Assembly adopted the International Code of Marketing of Breast Milk Substitutes[59] to protect mothers' infant feeding decisions from the "aggressive and inappropriate marketing" of breastmilk substitutes.

Yet the infant formula industry continued to engage in inappropriate marketing of breastmilk substitutes through advertising, distribution of free samples and engagement with health professionals.[60] Efforts to promote breastfeeding were further undermined in 2001 when the Department of Health adopted formula feeding as the default infant feeding choice in the prevention of mother-to-child transmission of HIV (PMTCT) programme and provided free formula milk to HIV-positive mothers, which in turn affected the feeding practices of HIV-negative mothers.[61] Yet growing evidence of the negative impact on HIV-exposed infants, and evidence that antiretroviral treatment helped prevent transmission of HIV, lead to a shift in national policy.

Following the adoption of the Tshwane Declaration in 2011,[62] South Africa introduced several policy shifts to purposefully position itself as a breastfeeding country. Among these are the active promotion of breastfeeding, the adoption of breastfeeding as the preferred feeding choice in the PMTCT programme, and the implementation of the Regulations relating to Foodstuff for Infants and Young Children, R991 to prevent the inappropriate marketing of formula milk.

Since then, the National and Provincial Departments of Health, together with academia and civil society, have engaged in efforts to address, curtail and report violations of R991.[63] Noteworthy was the public outcry and the swift action of the National Department of Health to take down the Nestle breastfeeding pop-up station that was placed at the Baragwanath taxi rank.[64] Even more encouraging and inspiring are the actions of individuals and institutions refusing to participate in or to accept funding opportunities from the infant formula industry, an example being the withdrawal of the formula milk companies from sponsorship of the University of Cape Town's Paediatric Refresher Course in 2019 after being reported for contravening R991. However, these efforts need to be appreciated in the context of limited resources, underdeveloped monitoring structures, and the substantial marketing networks and budgets of the formula industry.[65]

If South Africa is to meet the Global Nutrition Target of 50% exclusive breastfeeding by 2025, breastfeeding promotion must be ramped up urgently, and monitoring and enforcement of R991 must be formalised and adequately resourced with consequences for transgressors. This will send a strong message to the infant formula industry, build confidence in the efforts of the National Department of Health and strengthen collective efforts to prevent inappropriate marketing of breastmilk substitutes and associated conflicts of interest in the South African infant and young child feeding arena.

However, there are implementation challenges, including little or no feedback to caregivers. GMP can be improved by better use of the RTHB at all levels of the health system. For example, all health workers who see the child should routinely use the RTHB to monitor growth and be sufficiently literate in nutritional counselling and motivational interviewing techniques to be able to guide and motivate mothers to adopt optimal child feeding practices. A child who is not growing may also have an underlying disease, e.g. tuberculosis or HIV, which would require further investigation.

Community health workers (CHWs) should also be enrolled in GMP, but a lack of portable weighing scales, the failure to prioritise community-based child health care, and insufficient practical training and support undermine their potential. The Philani Mentor Mother programme is an exemplary CHW project with a strong focus on preventing undernutrition and rehabilitating underweight children through home visits, weighing children under five years and counselling mothers.[66] A randomized controlled intervention trial showed that mentor mothers could successfully assist mothers of malnourished children to solve problems around the nutrition of their child, and children in the intervention group were five times more likely to achieve a healthy weight at three months than those in the control group.[67]

Micronutrient supplementation and fortification programmes

A recent systematic review showed that vitamin A supplementation (VAS) reduced the risk of mortality by 12%, and the incidence of diarrhoea and measles.[68] Based on these findings the authors recommended the continued supplementation of young children in populations at risk of vitamin A deficiency (VAD). In South Africa, coverage of vitamin A supplementation is only 54%,[69] which contributes to the high prevalence of VAD and highlights the need to improve VAS at the primary care level.

The South African Government has also introduced legislation for the mandatory fortification of bread flour and maize meal[70] with vitamin A, zinc, iron, folic acid, thiamine, riboflavin, niacin and pyridoxine.[71] Since the introduction of mandatory fortification in 2003, there has been a 30% decline in the incidence of neural tube defects due to increased folic acid intake.[72] However, studies have shown that high rates of vitamin A, iron, and zinc deficiencies still exist.[73]

While over 95% of households in Gauteng and the Eastern Cape reported consuming maize meal and salt,[74] fortification levels may not always be optimal. This may be due to the quantities of micronutrients being insufficient to meet the needs of consumers who are not able to complement their diets with nutrient rich food. Reports suggest insufficient addition of the premix at the point of maize meal and wheat flour fortification.[75] All wheat flour products will be fortified, and maize meal and wheat flour will need to comply with minimum levels when new regulations come into effect at the end of 2019.[76]

While food fortification is essential, it is also important to put regulations in place to limit consumption of unhealthy foods. For example, in 2016, South Africa implemented a mandatory upper limit for sodium permitted in various processed foods.[77]

Social protection and social provisioning programmes

Early childhood development programmes

Early childhood development (ECD) research and training organisations have played a crucial role in supporting childcare and educational development programmes for poor families and those residing in rural areas. These research and training organisations provide community-based ECD centres with training, guidance and support, while some funding for ECD programmes is provided by national, provincial, and local government. Yet many ECD programmes do not have sufficient resources to meet the developmental needs of young children.

Those ECD centres that are registered or conditionally registered by the Department of Social Development are eligible for a state subsidy.[78] A per capita subsidy (for children attending centres who fall below the income threshold) is intended as a partial contribution towards nutrition, staff and administrative costs. But this is not enough to cover the full costs of running a centre, and additional income needs to be raised through fees. ECD centres in poorer communities therefore struggle to break even, and nutrition is often compromised.

Many ECD centres are unregistered, primarily because they do not meet the infrastructure norms and standards and therefore do not qualify for an ECD subsidy. This is likely to further compromise the nutritional status of children attending centres in informal settlements and rural communities.

In order to address this problem, conditionally registered facilities are now eligible for the ECD subsidy, and the Department of Social Development has made some funding available to improve infrastructure and enable ECD facilities to meet the registration requirements.[79] However, this will be a lengthy process, as many such centres are hidden from the authorities, sometimes in fear of being closed for failing to

Case 20: Challenges in using the Child Support Grant to meet children's nutritional needs
Wanga Zembe-Mkabile (Health Systems Research Unit, Medical Research Council)

In a study conducted between 2014 and 2015, caregivers of CSG recipients from villages in Mt Frere, Eastern Cape, and Langa township in Cape Town, provided detailed information about the challenges they faced in meeting their children's nutritional needs, despite receiving the grant. The caregivers spent the CSG on food. Most primary caregivers described feeding patterns that showed diets that were mostly starchy and sugary, with very little protein, vegetables, fruit and dairy products. Caregivers explained this as being the result of not having enough money.

> *"They [children] eat whatever is in front of them. Porridge, rice, potatoes as well. Milk no, they only get it when I have money, then I'll buy them then… right now they drink Rooibos [tea]."*
>
> *(CSG recipient, Langa)*

Across households in both sites, food shortages were commonplace. Caregivers accessed their networks to borrow money and/or food to feed their children. Sometimes these networks were in far-off areas, requiring travel on foot for kilometres at a time:

> *"What I usually do when there is no food is to wash and leave this [15-month-old] child with the younger children and then I walk to eNcinteni…I go to my sister's in-law…come back with things I can cook for the kids, like potatoes, then I make the fire outside in the three-legged pot and I cook for my children and they go to bed having eaten."*
>
> *(CSG recipient, Mt Frere)*

Extreme levels of food insecurity in some households led caregivers to significantly change their diets, to sacrifice their share of meals and to dilute food in order to make it go further and spread it among more children in the household.

> *"I sometimes try the [Maas] that's sold [in shops], but I myself cannot eat it, even though it's my favourite. I cannot eat it because, even [my youngest] and the others eat it. You realize that if you buy a 2 litre or a 5 litre [Maas], I think: "If I make pap and maas for myself as well, this maas will get finished quickly…. but it's supposed to last a few days [at least]."""*
>
> *(CSG Recipient, Mt Frere)*

Several respondents shared stories of extreme hardship as they negotiated their day to day lives and tried to provide food for their children in contexts of high unemployment or precarious, intermittent work. Caregivers shared stories about how they 'made a plan', in very dire circumstances, to ensure that their children had food and other needs met.

> *"You know when you're a woman, you make a plan. Mm, to be a woman is to make a plan."*
>
> *(CSG recipient, Mt Frere)*

Source: Zembe-Mkabile W, Surender R, Sanders D, Swart R, Ramokolo V, Wright G & Doherty T (2018) 'To be a woman is to make a plan': A qualitative study exploring mothers' experiences of the Child Support Grant in supporting children's diets and nutrition in South Africa. *BMJ Open*, 8: e019376. doi:10.1136/ bmjopen-2017-019376.

meet prescribed standards. Community-based workers have the potential to address this critical issue by helping to locate these informal centres and providing advice and support to such facilities. In addition, the state should consider increasing the value of the subsidy to ensure that registered centres serving children in poor communities are adequately funded and providing a nutrition subsidy for unregistered centres.

While ECD centres provide one potential platform for reaching young children, alternative strategies are needed to support the nutrition of children who are either too young[v] or too poor to attend ECD centres.

Social assistance

While the South African Government offers a Child Support Grant (CSG) to over 12 million children from poor households, it has been ineffective in reducing stunting due to rising food prices,[80] and Case 20 outlines the challenges caregivers face in trying to stretch the grant to meet the nutritional needs of their children. Devereux and Waidler have pointed out that while social grants in South Africa are an important source of income for poor households, the amounts are too low and must be aligned to the cost of a nutritious food basket.[81] They also recommend that social protection provision should be linked to broader non-cash services and inputs such as

v In 2017, 69% of 3 – 5-year-olds and 21% of 0 – 2-year-olds were enrolled in an early learning group programme. While older children will thrive from social interaction with their peers, younger infants learn optimally from interactions with nurturing caregivers – home settings are therefore ideal for infants and toddlers.

health, education, social services and sanitation and the promotion of appropriate nutrition and hygiene practices.[82]

School nutrition

The National School Nutrition Programme (NSNP) provides nutritious meals to learners in poorer primary and secondary schools. The programme is led by the Department of Basic Education (DBE) working in partnership with other government departments. The programme also teaches learners and parents how to lead a healthy lifestyle and promotes the development of school vegetable gardens.

However, there are concerns around food safety and quality following several outbreaks of food poisoning and the absence of a proper monitoring and evaluation system to assess the nutritional value of meals and impact of the programme.[83]

Although the DBE stipulates that meals should account for at least 30 – 45% of the recommended daily allowance and that schools should use locally produced food when possible,[84] anecdotal reports suggest that meals provided in many schools are nutritionally poor and often obesogenic. This calls for an evaluation of the NSNP, including the ability of this expensive programme to generate livelihoods, as is the case in Brazil where legislation provides that 30% of all food supplied to their school nutrition programme must be sourced from small, local producers.[85] In South Africa, some schools employ local women to assist in food preparation. While this realises some of the potential of livelihoods creation, it seems clear that more is possible with detailed planning. Employing women has a well-established positive impact on children's diets and thus their nutrition.

The wider food environment in and around schools is also crucial. Greater marketing and access to unhealthy foods in and around schools have been associated with overweight, obesity and poor diet quality among school children in Guatemala, Mexico and Finland.[86] Schools are trusted places of education and information for children, parents and communities. Policies that are clear, comprehensive and consistent in encouraging healthy eating are therefore essential.

Studies have found that the food environments in and around South African schools do not support healthy eating habits in school children. Healthy options are limited. Instead learners are consuming high sugar, salt and fat foods daily[87] from school tuck shops and/or vendors,[88] often replacing home-prepared breakfast, lunch boxes and the NSNP meals.[89] Pilot school-based interventions have been limited to date to nutrition education and physical education programmes.[90] No reports on the outcome of reducing marketing on school environments in the South African context have been published.

Fiscal policies, including taxation of unhealthy foods

There is consensus that drinking sugary drinks and a general excess sugar intake are two major causes of obesity and associated diseases such as diabetes[91] and this has prompted the introduction of a health levy or sugary drink tax as outlined in Case 21.

VAT exemption

When Value-Added Tax (VAT) was introduced in South Africa in 1991, 19 items were exempted from VAT.[92] The debate on VAT exemption on foodstuffs has resurfaced whenever food prices have increased drastically, as was the case in 1999, 2002 and currently. It is estimated that the 2018 increase in VAT would raise the tax on the poorest 50% of households by R1.8 billion or R216 per household per annum.[93] After a review by a panel of experts, the Minister of Finance added sanitary pads, bread flour and cake flour to the VAT exempted list.

The main food items exempted from VAT include dried beans, samp, maize meal, rice, brown bread, fresh vegetables, fresh fruits, vegetable oil, mealie rice, pilchards in tins, edible legumes and pulses of leguminous plants, eggs, milk, dried mealies, dairy powder blend, cultured milk, milk powder, brown wheaten meal, sanitary pads, bread flour and cake flour.[94]

The three VAT exempted food items that contribute the most to children's energy intakes are maize meal (20%), bread (10%) and milk (9%), while the greatest contributors to the cost of foods consumed by children are maize, vegetables, milk and bread.

Imminent and potential policies to address the triple burden of malnutrition in children

Regulation of marketing to children

Children are targeted for marketing for three reasons: They are consumers in their own right; they have a very strong effect on adult purchases through "pester power",[95] and because brand loyalty[96] created during childhood will pay off when children become adults. Marketing to children takes many forms and includes: product placement at the eye level; endorsement by idolised celebrities or sports stars; toys or free gifts; competitions and reward programmes; and the use of child voices, cartoon characters, play and games.[97]

Younger children are particularly vulnerable to marketing as they are still learning to distinguish fact from fallacy.

Case 21: Levelling the obesogenic playing field: The case for the sugary drink tax

Aviva Tugendhaft and Karen Hofman (South African Medical Research Council/Wits Centre for Health Economics and Decision Science – PRICELESS SA)

South Africa is one of the most obese countries globally with 19 million obese or overweight adults. Women are especially at risk with obesity prevalence growing over the past decade from 27.4% to 39.2%.[98] This crisis affects not only adults but children and adolescents who later in life suffer from multiple non-communicable diseases (NCDs) such as cancers, heart disease and diabetes.[99] Shorter lifespans and disabilities from these diseases place a major financial strain on families and on the already overburdened healthcare system. This has an impact on the workplace too by increasing turnover, absenteeism and worker compensation claims, and decreasing productivity.[100]

Sugary beverages are one key culprit. It is well established that excess sugar consumption, especially in liquid form, increases weight gain and the risk for NCDs.[101] Sugary beverages are excessively high in sugar and contain no nutritional value. The WHO recommends a daily sugar limit of six teaspoons,[102] yet an average 330ml cold drink contains eight teaspoons of sugar. Consuming just one of these drinks a day increases the chances of adults being overweight by almost 30% and children by over 50%.[103]

Over the past decade, consumption of these drinks has increased alongside all types of ultra-processed foods,[104] with nine and 10-year-old South Africans now the highest consumers of sugary beverages globally. In the absence of preventive measures, consumption is projected to grow at 2.4% a year, furthering the impact on ill health.

The South African beverage industries are explicit about their target market being lower income groups and are strategic about how to achieve growth.[105] Their strategy is driven by marketing and advertising to connect brands with aspirations and passions, as well as extensive distribution to ensure products are easily available and accessible to lower income groups. This places an already vulnerable population at even greater risk for obesity-related diseases, and is exacerbated by poor access to quality disease screening and health-care.[106] The impact on children is even worse. Although many of the leading brands have committed to not marketing unhealthy products to children under 12 years of age, research by PRICELESS shows that some billboard advertising for sugary beverages in Soweto are deliberately close to schools, or in school grounds, with nearby vendors providing convenient access.[107]

There is an overwhelming perception that if consumers are educated, they will make good choices, but food and beverage choices are shaped by availability, affordability and ubiquitous marketing. This makes it increasingly difficult to make healthy choices and is why action is needed.

Taxation is considered a cost-effective intervention which targets the entire population and is relatively inexpensive to implement. The sugary beverage tax, renamed the health promotion levy, was introduced in April 2018, and is one step in the right direction. Several countries around the world have introduced similar taxes with positive results. The Mexican tax was implemented in 2013 and consumption fell by 5% in the first year and by 9% in the second year.[108] South African research demonstrates that a 20% tax on sugary beverages could reduce the number of obese people by 220,000.[109] Although pushback from industry weakened the tax rate, it is expected that the current measure will still have an impact.

The health promotion levy is an important first step in addressing this commercially driven health crisis. It ought to be followed by a comprehensive package of policy interventions, including marketing and advertising regulations, front-of-package labelling, and restricting access to unhealthy food and drinks in the public sector, including schools. These policy levers would help to level the playing field and make it easier for consumers to make the healthier choice, and in so doing help stem the tide of obesity and NCDs.

While children aged 12 years or older may have greater discernment, studies from neuroscience and behavioural psychology suggest that teenagers continue to be susceptible to marketing as their brains are biased towards rewards and they have less inhibitory control than adults.[110]

Currently South Africa does not regulate the marketing of foodstuffs to children. Draft regulations on food labelling published in 2014 proposed limiting marketing directed at children on food packaging, but progress has stalled. Similarly, there is work in progress on the marketing of unhealthy food

to children within schools but the only formal action has been the Department of Basic Education's adoption of voluntary guidelines for tuckshops, which are not being enforced.[111]

Simplified nutrition information labels on food

Behavioural economic theories suggest that the availability, price and presentation of food (or 'choice architecture') can be used to override the short-term gratification of sweet and salty foods and promote healthy choices.[112] Strategies to reduce unhealthy food consumption include consumer education, reformulation of foods, taxation and front-of-package labelling (FoPL).[113]

Given that consumers spend less than ten seconds selecting an item, a simplified FoPL system may help discourage unhealthy food choices and increase consumers' understanding of nutritional quality.[114] It may also encourage food manufacturers to provide healthier choices to consumers.[115] The energy content of foods in the United States has declined following the introduction of calorie labelling. Although South African consumers find food labels difficult to understand,[116] they have been found to help consumers with decision-making.[117]

Food labelling is regulated by Act 54 of 1972 through the Department of Food Control in the Department of Health. While the R429 draft regulation on health claims includes aspects of FoPL,[118] it has not yet been finalised. But the department is considering revising FoPL to make the key nutritional attributes of foods – both positive and negative – more transparent to consumers.

Other potential policies that could help improve children's nutrition include:

- subsidising basic, nutritious foodstuffs such as milk, eggs and fruit – possibly using revenue derived from the sugar tax; and
- regulating trade in unhealthy food products, although the implications of this for trade agreements will need to be explored. Stronger regulation of fast food outlets is also needed to improve the nutritional composition of fast foods, including calorie counts (as in New York City where calorie boards are placed in all restaurants and fast food outlets).

What are the key recommendations to address the triple burden of malnutrition in children?

The recommendations have been structured using the framework (Figure 47) for optimum nutrition and development over the life course. It highlights the need for both nutrition-specific and nutrition-sensitive interventions in order to create an enabling environment that addresses the drivers of the triple burden of malnutrition and the increase in NCDs.

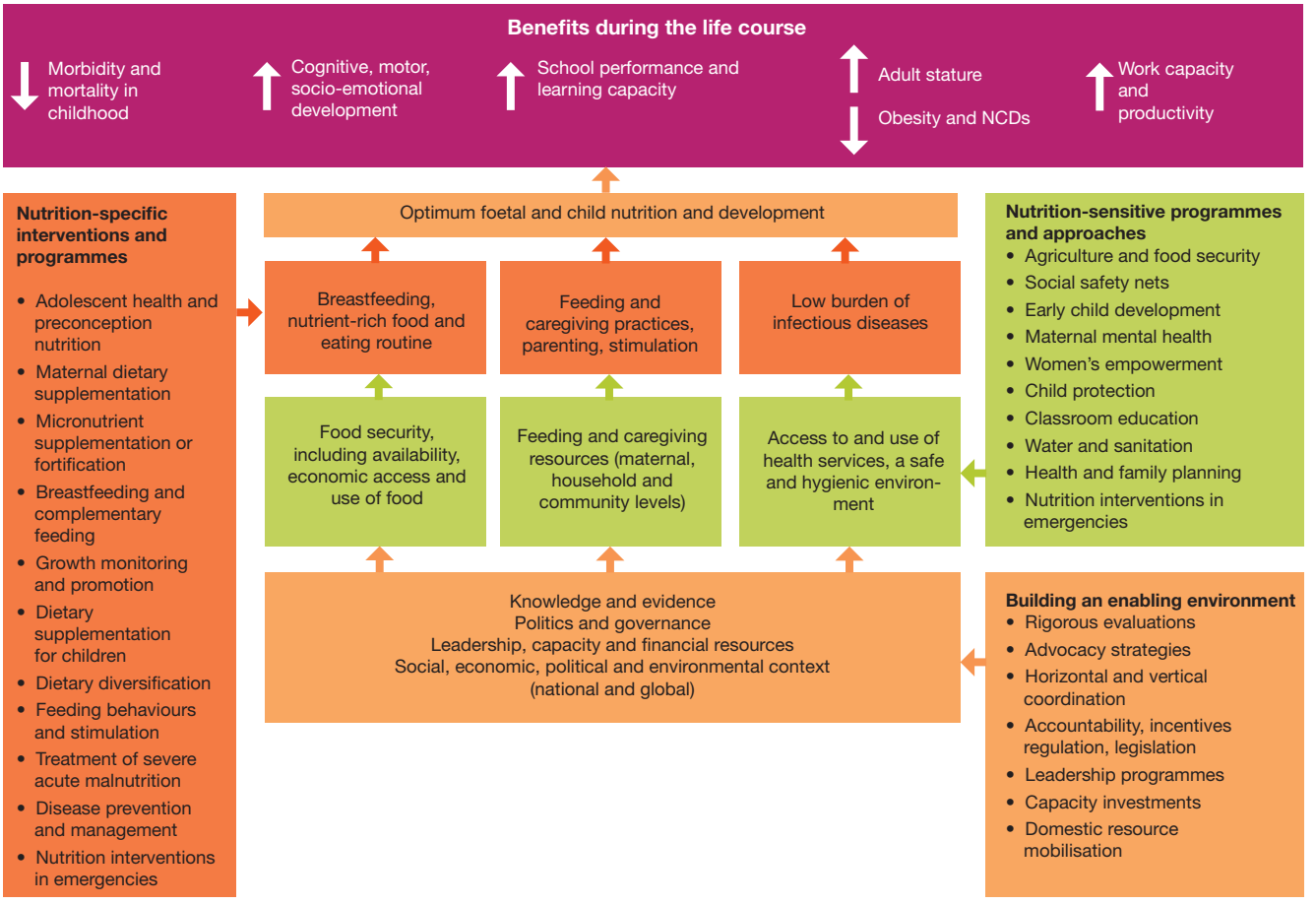
Recommendations to address undernutrition

Recommendations for nutrition-specific interventions

The following evidence-based nutrition-specific interventions, if implemented at scale, could ensure that the WHO nutrition targets are met by 2025.

- Address micronutrient deficiency e.g. anaemia and reducing obesity, especially in adolescent girls, to optimise nutrition later in the life course.[119]
- Screen and treat all pregnant women with anaemia. Provide supplements for those experiencing food insecurity and undernutrition through the Nutrition Therapeutic Programme. Provide iron, folic acid and calcium supplements to all women at basic antenatal care sites and through CHWs as outlined in the national maternity care guidelines.[120] Screen for maternal mental health problems and ensure support and referral.
- Increase coverage of exclusive breastfeeding in the first six months by systematising the mother-baby friendly initiative in all health facilities and communities. Monitor and enforce R991. Extend maternity leave with full benefits for the first six months after birth.[121]
- At every opportunity, and whenever GMP is performed, counsel caregivers about a minimum acceptable diet at six to 23 months to reduce stunting rates. This includes information on breastfeeding, complementary feeding, micronutrient supplementation and early learning stimulation drawing on the RTHB and Side-by-Side campaign, face-to-face interactions, community radio, MomConnect, Facebook, pamphlets, posters, videos and community events.
- Consider food supplementation together with counselling of caregivers to reduce stunting of children under two years old in food insecure settings.[122] In the Western Cape, a manual containing recipes with affordable meals has been developed and implemented at registered ECD centres in low-income communities. This should be extended to unregistered centres in targeting the most vulnerable children.
- Regulate, monitor and strengthen the fortification of maize meal and wheat flour to ensure compliance with fortification standards. Ensure the addition and control of adequate quantities of the premix at the mills so that these fortified foods have satisfactory micronutrient levels.[123]

Figure 47: Interventions for optimum nutrition over the life course



Source: Adapted from: Black R, Victora C, Walker S, Bhutta Z, Christian P, De Onis M, Ezzati M, Grantham-McGregor S, Katz J, Martorell R & Uauy R (2013) Maternal and child undernutrition and overweight in low-income and middle-income countries. *The Lancet, 382*(9890): 427-451.

Recommendations for nutrition-sensitive interventions

- Increase the Child Support Grant so that it covers the cost of a nutritious food basket for families.
- Improve maternal education and ensure universal maternal and child health care.
- Ensure access to adequate water, sanitation and hygiene especially in homes, ECD centres and schools.

Recommendations to build an enabling environment

Implementing maternal and child health nutrition policies should consider all the components of the health system. The recommendations include:

- Implement evidence-based programmes at all service delivery levels including health facilities and community-based platforms; and model good practice (exclusive breastfeeding, GMP, provision of nutritious and affordable meals) in hospitals.
- Build a skilled workforce to plan, implement, and monitor programmes by Government. Consider employing a public health nutritionist at a district level to oversee nutrition interventions in the district. Employ enough CHWs to ensure an optimal ratio per household.
- Allocate enough financial and human resources, especially nurses and CHWs, to ensure effective implementation of programmes.
- Support programme and service delivery with an adequate supply of equipment and infrastructure.
- Document progress and impact of programmes and use this to drive quality improvement.
- Ensure strong leadership and governance to oversee and coordinate implementation of nutrition programmes.

Recommendations to address overnutrition

The NOURISHING framework provides a useful structure for outlining the key recommendations relating to overnutrition as outlined in Table 25.[124] These are structured across three main domains – the food environment, food system and behaviour change communication. Some of these policies already exist while those that still need to be developed are listed in italics.

Table 25: A framework of policies and actions to promote a healthy diet and address overnutrition

		Policy area	Policies and actions needed
Food environment	N	Nutrition label standards and regulations	Labelling and advertising of foodstuffs[125]
	O	Offer heathy foods at public institutions and set standards	Healthy meal provisioning in the workplace[126] *Standards on healthy diets*
	U	Use economic tools to ensure affordability of food and to provide incentives	*Taxes and subsidies to encourage healthy diets* *Discounts on healthy foods for the broader public*
	R	Restrict advertising of unhealthy food	Restriction on the marketing of unhealthy food[127]
	I	Improve quality of food supplied	Elimination of trans fats,[128] restrictions on sodium intake[129] and introduction of the sugar tax *Restrictions on ultra-processed food* *Increase fruit and vegetable consumption*
	S	Set incentives for healthy retail environment	*Incentivise retailers to provide healthy foods*
Food system	H	Harness supply chain and actions across sectors	*Promote a universal healthy reference diet* Link with the global strategies to transform the food system
Behaviour change communication	I	Inform through public awareness	Food-Based Dietary Guidelines
	N	Nutrition counselling and advice	Review existing guidelines e.g. IMCI
	G	Give nutrition education	Integrate healthy eating with existing campaigns

Food environment

- Hold the state accountable for protecting and upholding children's rights to health, adequate food, culture and a healthy environment.
- Develop standards for healthy meals; regulate the sale of food and beverages at tuckshops and by vendors; restrict the marketing of unhealthy foods;[130] provide incentives to vendors to provide healthy meal alternatives;[131] monitor and evaluate the NSNP and consider establishing income generation projects to support the local production and preparation of food.
- Implement health-related taxes and subsidies that encourage healthy diets and consider using revenue generated from the sugar tax for school nutrition programmes, obesity reduction programmes and health promotion initiatives.
- Enforce policies and actions on the marketing of unhealthy food to children and communities.
- Implement policies that promote the production, consumption and marketing of fruit and vegetables.
- Enforce existing policies that limit the intake of trans fat, salt and added sugar.
- Regulate the import and sale of ultra-processed foods and the establishment of fast food outlets near schools and incentivise the sale of healthy foods by retail outlets.

Food system

- Promote consumption of a universal healthy reference diet that is environmentally sustainable as recommended by the EAT Lancet series. This should be plant-based with moderate amounts of poultry and seafood, and minimal amounts of red meat, processed meat, added sugar, refined grains and starchy vegetables.[132]
- South Africa needs to keep pace with the call for global transformation of the food system. This requires Government commitment to ensure the consumption of a healthy diet; to reorient agricultural policies to produce a diversity of good quality crops by supporting small and medium farms; to intensify the production of high quality crops which are environmentally sustainable; to maintain natural ecosystems with minimal expansion of new agricultural land; and to reduce food wastage.[133]

Behaviour change communication

- Integrate the recommendations for an environmentally sustainable healthy reference diet into the existing Food-Based Dietary Guidelines (FBDGs). The revised guidelines should then be promoted through the media, schools, community-based organizations and civil society groups, and through nutrition counselling delivered through health care facilities, the RTHB, MomConnect and the Side-by-Side campaign.

References

1 Battista M, Hivert M, Duval K & Baillargeon J (2011) Intergenerational cycle of obesity and diabetes: How can we reduce the burdens of these conditions on the health of future generations? *Experimental Diabetes Research*. 2011: 596060. doi: 10.1155/2011/596060;
Kimani-Murage E, Kahn K, Pettifor J, et al. (2010) The prevalence of stunting, overweight and obesity, and metabolic disease risk in rural South African children. *BMC Health*, 10: 158. doi: 10.1186/1471-2458-10-158.

2 Black RE, Victora CG, Walker SP, Bhutta ZA, Christian P, De Onis M, Ezzati M, Grantham-McGregor S, Katz J, Martorell R & Uauy R (2013) Maternal and child undernutrition and overweight in low-income and middle-income countries. *The Lancet*, 382(9890): 427-451.

3 Dr Cindy Stephen, Personal Communication, 2019.

4 Tzioumis E & Adair L (2014) Childhood dual burden of under- and overnutrition in low- and middle-income countries: A critical review. *Food Nutrition Bulletin*, 35(2): 230-243;
Tzioumis E, Kay MC, Bentley ME & Adair LS (2016) Prevalence and trends in the childhood dual burden of malnutrition in low- and middle-income countries, 1990-2012. *Public Health Nutrition*, 19(8): 1375-1388.

5 Said-Mohamed R, Micklesfield LK, Pettifor JM & Norris SA (2015) Has the prevalence of stunting in South African children changed in 40 years? A systematic review. *BMC Public Health*, 15:534. doi: 10.1186/s12889-015-1844-1849.

6 Department of Health, Statistics South Africa, South African Medical Research Council & ICF (2019) *South Africa Demographic and Health Survey 2016*. Pretoria and Rockville, Maryland: DoH, Stats SA, SAMRC & ICF.

7 See no. 6 above.

8 See no. 6 above.

9 UNICEF, World Health Organization, World Bank (2018) Levels and Trends in Child Malnutrition. *UNICEF/ WHO/World Bank Group joint child malnutrition estimates: Key findings of the 2018 edition*. In: UNICEF, ie: UNICEF: New York. New York.

10 Mamabolo RL, Alberts M, Steyn NP, Delemarre-van de Waal HA & Levitt NS (2005) Prevalence and determinants of stunting and overweight in 3-year-old black South African children residing in the Central Region of Limpopo Province, South Africa. *Public Health Nutrition*, 8(5): 501-508.

11 Shisana O, Labadarios D, Rehle T, Simbayi L, Zuma K, Dhansay A, Reddy P, Parker W, Hoosain E, Naidoo P & Hongoro C (2013) *South African National Health and Nutrition Examination Survey (SANHANES-1)*. Cape Town: HSRC Press.

12 See no. 11 above.

13 Labadarios D (ed) (2000) *National Food Consumption Survey (NFCS): Children aged 1-9 years, South Africa, 1999*. Pretoria and Stellenbosch: Directorate of Nutrition, Department of Health & University of Stellenbosch.

14 Kruger H, Swart R, Labadarios D, Dannhauser A & Nel J (2007) Anthropometric status. In: Labadarios D (ed) (2007) *National Food Consumption Survey-Fortification Baseline (NFCS-FB): South Africa, 2005*. Pretoria and Stellenbosch: Directorate Nutrition, Department of Health & University of Stellenbosch.

15 See no. 11 above.

16 See no. 6 above.

17 International Council for Science & International Social Science Council (2015) *Review of the Sustainable Development Goals: The science perspective*. Paris: ICSU.

18 World Health Organization (2012) *Proposed Global Targets for Maternal, Infant and Young Child Nutrition*. WHO Discussion Paper (6 February 2012).

19 De Onis M, Dewey KG, Borghi E, Onyango AW, Blössner M, Daelmans B, Piwoz E & Branca F (2013) The World Health Organization's global target for reducing childhood stunting by 2025: Rationale and proposed actions. *Maternal and Child Nutrition*, 9(2): 6-26.

20 Victora CG, Bahl R, Barros AJ, França GV, Horton S, Krasevec J, Murch S, Sankar MJ, Walker N, Rollins NC & Group TLBS (2016). Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. *Lancet* 387: 475–90

21 National Department of Health (2004) *South Africa Demographic and Health Survey 2003: Full report*. Pretoria: NDoH.

22 See no. 6 above.

23 See no. 6 above.

24 See no. 6 above.
Marais N, Christifudes N, Erzse A & Hofman K (2019) Evidence for high sugar content of baby foods in South Africa. *South African Medical Journal*, 109(5): 328-332.

25 Vickers M, Krechowec S & Breier B (2007) Is later obesity programmed in utero? *Curr Drug Targets*, 8(8): 923-934.

26 Oddy W (2012) Infant feeding and obesity risk in the child. *Breastfeed Review*, 20(2): 7-12.

27 Popkin B (2001) The nutrition transition and obesity in the developing world. *The Journal of Nutrition*, 131(3): 871S-873S;
Popkin B & Gordon-Larsen P (2004) The nutrition transition: Worldwide obesity dynamics and their determinants. *International Journal of Obesity and Related Metabolic Disorders*, 28(3): S2-9;
Popkin B, Adair L & Ng S (2012) Global nutrition transition and the pandemic of obesity in developing countries. *Nutrition Reviews*, 70(1): 3-21.

28 Monteiro C, Cannon G, Moubarac J, Levy R, Louzada M & Jaime P (2018) The UN Decade of Nutrition, the NOVA food classification and the trouble with ultra-processing. *Public Health Nutrition*, 21(1): 5-17.

29 See no. 28 above.

30 See no. 27 (Popkin, 2001) above.

31 Puoane T, Tsolekile L & Steyn N (2010) Perceptions about body image and sizes among Black African girls living in Cape Town. *Ethnicity & Disease*, 20(1): 29-34.

32 Turner C, Aggarwal A, Walls H, Herforth A, Drewnowski A, Coates J, Kalamatianou S & Kadiyala S (2018) Concepts and critical perspectives for food environment research: A global framework with implications for action in low- and middle-income countries. *Global Food Security*, 18: 93–101.

33 Igumbor EU, Sanders D, Puoane TR, Tsolekile L, Schwarz C, Purdy C, Swart R, Durão S & Hawkes C(2012) "Big food," the consumer food environment, health, and the policy response in South Africa. *PLoS Medicine*. 9(7):e1001253. doi: 10.1371/journal.pmed.1001253.

34 Greenberg S (2010) Contesting the Food System in South Africa: Issues and Opportunities. Research Report 42. Cape Town: Institute for Poverty, Land and Agrarian Studies;
Greenberg S (2017) Corporate power in the agro-food system and the consumer food environment in South Africa. *Journal of Peasant Studies*, 44(2): 467-496.

35 Battersby J & Peyton S (2014) The geography of supermarkets in Cape Town: Supermarket expansion and food access. *Urban Forum*, 25: 153-164.

36 Dixon J (2003) Authority, power and value in contemporary industrial food systems. *International Journal of Sociology of Agriculture and Food*, 11(1): 31-39.

37 Muzigaba M, Puoane T & Sanders D (2016) The paradox of undernutrition and obesity in South Africa: A contextual overview of food quality, access and availability in the new democracy. In: Caraher M & Coveney J (eds) (2016) *Food Poverty and Insecurity: International food inequalities*. Cham: Springer International Publishing, 31-41.

38 Statistics South Africa (2017) *Poverty Trends in South Africa. An examination of absolute poverty between 2006 and 2015*. Pretoria: Stats SA.

39 Smith J & Abrahams M (2016). *2016 PACSA Food Price Barometer Annual Report, October 2016*. Pietermaritzburg: Pietermaritzburg Agency for Community Social Action (PACSA).

40 See no. 11 above.

41 Kroll F (2016) *Foodways of the Poor in South Africa: How value-chain consolidation, poverty & cultures of consumption feed each other. Working Paper 36*. Cape Town: Institute for Poverty, Land and Agrarian Studies.

42 Kroll F, Swart EC, Annan RA, Thow AM, Neves D, Apprey C, Aduku LNE, Agyapong NAF, Moubarac JC, Toit AD & Aidoo R (2019) Mapping obesogenic food environments in South Africa and Ghana: Correlations and contradictions. *Sustainability*, 11(14): 1-31.

43 Akinwumi A (2013) The will to transform: Nation-building and the strategic state in South Africa. *Space and Polity*, 17(2): 145-163.

44 Swart R, Sanders D & McLachlan M (2008) Nutrition: A primary health care perspective. Chapter 9. In: Baron P & Roma-Reardon J (eds) (2008) *South African Health Review 2008. 13th edition*. Durban: Health Systems Trust.

45 Jonah C, Sambu W & May J (2018) When progressive fiscal policies do not reduce health inequalities: an examination of child malnutrition in South Africa. Paper presented at United Nations Department of Economic and Social Affairs (UNDESA) expert group meeting. New York: 25 to 27 June 2018. https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2018/06/6-1.pdf.

46 See no. 45 above.

47 Department of Health (2016) *Strategy for the Prevention and Control of Obesity in South Africa: 2015-2020*. Pretoria: NDoH.

48 Gortmaker SL, Swinburn BA, Levy D, Carter R, Mabry PL, Finegood DT, Huang T, Marsh T & Moodie ML (2011) Changing the future of obesity: Science, policy, and action. *The Lancet*, 378(9793): 838-847.

49 See no. 42 above.

50 Department of Health (2015) *Guidelines for Maternity Care in South Africa: A manual for clinics, community health centres and district hospitals*. Pretoria: DoH.

51 Department of Health (2011) The Tshwane declaration of support for breastfeeding in South Africa. *South African Journal of Clinical Nutrition*, 24(4): 1.
52 Department of Health (2013) *Infant and Young Child Feeding Guidelines*. Pretoria: DoH.
53 Department of Health (2002) *Integrated Nutrition Programme: Strategic Plan 2002/03 to 2006/07*. Pretoria: DoH.
54 Department of Basic Education (2014) *National School Nutrition Programme (NSNP) Annual Report 2013/2014*. Pretoria: DBE.
55 National Department of Health (2012) *National Vitamin A Supplementation Policy Guidelines for South Africa*. Pretoria: NDoH.
56 Powell L, Chriqui J, Khan T, Wada R & Chaloupka F (2013) Assessing the potential effectiveness of food and beverage taxes and subsidies for improving public health: A systematic review of prices, demand and body weight outcomes. *Obesity Reviews*, 14(2): 110-128;
The Lancet Diabetes Endocrinology (2017) Sweet success: Will sugar taxes improve health? *The Lancet Diabetes & Endocrinology*, 5(4): 235.
57 See no. 20 above.
58 Rollins NC, Bhandari N, Hajeebhoy N, Horton S, Lutter CK, Martines JC, Piwoz EG, Richter LM, Victora CG & Group TLBS (2016). Why invest, and what it will take to improve breastfeeding practices? Lancet 387: 491–504.
59 World Health Organization (1981) *International Code of Marketing of Breast-Milk Substitutes*. Geneva: WHO.
60 Taylor A (1998) Violations of the international code of marketing of breast milk substitutes: Prevalence in four countries. *BMJ*, 316(7138): 1117
61 Doherty T, Sanders D, Goga A & Jackson D (2011) Implications of the new WHO guidelines on HIV and infant feeding for child survival in South Africa. *Bulletin of the World Health Organisation*, 89(1): 62-67.
62 See no. 51 above.
63 Martin-Wiesner P (2018) *A Policy-Friendly Environment for Breastfeeding: A review of South Africa's progress in systematising its international and national responsibilities to protect, promote and support breastfeeding*. Johannesburg: DST-NRF Centre of Excellence in Human Development.
64 Futcher J (2018) World Breastfeeding Week encourages women to end the stigma. *Randfontein Herald*. 1 August 2018. Viewed 10 October 2019: https://randfonteinherald.co.za/280686/world-breastfeeding-week-encourages-women-to-end-the-stigma/
65 Shenker N (2018) The resurgent influence of big formula. *British Medical Journal*, 362: k3577.
66 le Roux, IM, Tomlinson M, Harwood JM, O'Connor MJ, Worthman CM, Mbewu N, Stewart J, Hartley M, Swendeman D, Comulada WS & Weiss RE (2013) Outcomes of home visits for pregnant mothers and their infants: A cluster randomized controlled trial. *AIDS*, 27(9): 1461-1471.
67 le Roux IM, le Roux K, Comulada WS, Greco EM, Desmond KA, Mbewu N & Rotheram-Borus MJ (2010) Home visits by neighborhood Mentor Mothers provide timely recovery from childhood malnutrition in South Africa: results from a randomized controlled trial. *Nutrition Journal*, 9(56) doi:10.1186/1475-2891-9-56.
68 Imdad A, Mayo-Wilson E, Herzer K & Bhutta Z (2017) Vitamin A supplementation for preventing morbidity and mortality in children from six months to five years of age. *Cochrane Database of Systematic Reviews 2017(3)*. Art. No.: CD008524. doi: 10.1002/14651858.CD008524.pub3.
69 Day C, Gray A & Ndlovu N (2018) Indicators. In: Rispel L & Padarath A (eds) (2018) *South African Health Review 2018*. Durban: Health Systems Trust.
70 Department of Health (2003) *Regulations Relating to the Fortification of Certain Foodstuffs, R504, Foodstuffs Cosmetic and Disinfectants Act 1972* (Act No. 54, 1972).
71 Yusufali R, Sunley N, de Hoop M & Panagides D (2012) Flour fortification in South Africa: Post-implementation survey of micronutrient levels at point of retail. *Food and Nutrition Bulletin*, 33(4): S321-S329.
72 Sayed AR, Bourne D, Pattinson R, Nixon J & Henderson B (2008) Decline in the prevalence of neural tube defects following folic fortification and its cost-benefit in South Africa. *Birth Defects Research Part A: Clinical and Molecular Teratology*, 82(4): 211-216.
73 Labadarios D (2007) *The National Food Consumption Survey: Fortification baseline (NFCS-FB)*. Stellenbosch: Department of Health; Steyn K, Fourie J & Temple N (2006) *Chronic Diseases of Lifestyle in South Africa: 1995–2005*. Cape Town: Medical Research Council.
74 Aaron GJ, Friesen VM, Jungjohann S, Garrett GS, Neufeld LM & Myatt M (2017) Coverage of large-scale food fortification of edible oil, wheat flour, and maize flour varies greatly by vehicle and country but is consistently lower among the most vulnerable: Results from coverage surveys in eight countries. *Journal of Nutrition*, 147: 984S-994S.
75 See no. 71 above.
76 National Department of Health (2016) Regulations Relating the Fortification of Certain Foodstuffs, No. 217, *Foodstuffs Cosmetic and Disinfectants Act 1972 (Act No. 54, 1972)*.
77 Peters S, Dunford E, Ware L, Harris T, Walker A, Wicks M, van Zyl T, Swanepoel B, Charlton K, Woodward M & Webster J (2017) The sodium content of processed foods in South Africa during the introduction of mandatory sodium limits. *Nutrients*, 9(4). doi: 10.3390/nu9040404.
78 Republic of South Africa (2015) *National Integrated Early Childhood Development Policy*. Pretoria: Government Printers.
79 Barker J & Misselhorn M (2014) *Informal Settlements: Informal Early Childhood Development Centres*. Durban: The Project Preparation Trust of KZN and The Housing Development Agency.
80 Greenberg S (2010) Contesting the food system in South Africa: Issues and opportunities. (Research Report 42). Institute for Poverty, Land and Agrarian Studies; (Greenberg, 2010, 2017)
Zembe-Mkabile W, Ramokolo V, Sanders D, Jackson D & Doherty T (2015) The dynamic relationship between cash transfers and child health: Can the child support grant in South Africa make a difference to child nutrition? *Public Health Nutrition*, doi:10.1017/S1368980015001147.
81 Devereux S & Waidler J (2017) Why does malnutrition persist in South Africa despite social grants? *Food Security SA Working Paper Series No.001*. Cape Town: DST-NRF Centre of Excellence in Food Security.
82 See no. 79 above.
Zembe-Mkabile W, Surender R, Sanders D, et al (2018) 'To be a woman is to make a plan': A qualitative study exploring mothers' experiences of the Child Support Grant in supporting children's diets and nutrition in South Africa. *BMJ Open*, 8: e019367.
83 Devereux S, Hochfeld T, Karriem A, Mensah C, Morahanye M, Msimango T, Mukubonda A, Naicker S, Nkomo G, Sanders D & Sanousi M (2018) School Feeding in South Africa: What we know, what we don't know, what we need to know, what we need to do. *Food Security Working Paper Series No.004*. Cape Town: DST-NRF Centre of Excellence in Food Security.
84 Department of Basic Education & Department of Planning, Monitoring and Evaluation (2016) *Report on the Implementation Evaluation of the National School Nutrition Programme*. Johannesburg: JET Education Services.
85 Sidaner E, Balaban D & Burlandy L (2013) The Brazilian school feeding programme: An example of an integrated programme in support of food and nutrition security. *Public Health Nutrition*, 16(6): 989-994.
86 Chacona V, Letona P, Villamor E & Barnoya J (2015) Snack food advertising in stores around public schools in Guatemala. *Critical Public Health*, 25(3): 291-298;
Virtanen M, Kivimäki H, Ervasti J, Oksanen T, Pentti J, Kouvonen A, Halonen JI, Kivimäki M & Vahtera J (2016) The toxic food environment around elementary schools and childhood obesity in Mexican cities. *American Journal of Preventative Medicine*, 51(2): 264-270;
Virtanen M, Kivimaki H, Ervasti J et al (2015) Fast-food outlets and grocery stores near school and adolescents' eating habits and overweight in Finland. *European Journal of Public Health*, 25(4): 650-655.
87 Faber M, Laurie S, Maduna M, Magudulela T & Muehlhoff E (2013) Is the school food environment conducive to healthy eating in poorly resourced South African schools? *Public Health Nutrition*, 17(6): 1214-1223.
88 Feeley A, Musenge E, Pettifor J & Norris S (2012) Changes in dietary habits and eating practices in adolescents living in urban South Africa: The birth to twenty cohort. *Nutrition*, 28(7-8): e1-e6.
89 Voorend CG, Norris SA, Griffiths PL, Sedibe MH, Westerman MJ & Doak CMl (2013) 'We eat together; today she buys, tomorrow I will buy the food': Adolescent best friends' food choices and dietary practices in Soweto, South Africa. Public Health Nutrition, 16(3): 559-567.
90 Draper CE, de Villiers A, Lambert EV, Fourie J, Hill J, Dalais L, Abrahams Z & Steyn NP (2010) HealthKick: A nutrition and physical activity intervention for primary schools in low-income settings. *BMC Public Health*, 10: 398.
91 Malik VS, Popkin BM, Bray GA, Després JP, Willett WC & Hu FB (2010) Sugar-sweetened beverages and risk of metabolic syndrome and type 2 Diabetes. *Diabetes Care*, 33: 2477-2483.
92 Kuzwayo P, Bhengu-Baloyi L, De Hoop M et al (1994) *Report on the Nutrition Committee to the Minister of Health: An Integrated Nutrition Strategy for South Africa*. Pretoria.
93 Independent panel of experts for the review of zero rating in South Africa (2018). *Recommendations to the Minister of Finance. Recommendations on Zero Ratings in the Value-Added Tax System*, August 2018.
94 Cronje J (2019) Government to make three items VAT exempt in 2019. *Fin24*. 24 October 2019. Viewed 10 October 2019: https://www.fin24.com/Budget/government-to-make-three-items-vat-exempt-in-2019-20181024-2
95 Huang TT, Cawley JH, Ashe M, Costa SA, Frerichs LM, Zwicker L, Rivera JA, Levy D, Hammond RA, Lambert EV & Kumanyika SK (2016) Mobilisation of public support for policy actions to prevent obesity. *The Lancet*, 385(9985): 2422-2431.
96 Kraak V & Story M (2015) Influence of food companies' brand mascots and entertainment companies' cartoon media characters on children's diet and health: A systematic review and research needs. *Obesity Reviews*, 16: 107-126.
97 See no. 9 above.
98 See no. 11 above.
99 Peer N, Kengne AP, Motala A & Mbanya J (2014) Diabetes in the

Africa region: 2013 update for the IDF diabetes Atlas. *Diabetes Research and Clinical Practice*,103(2): 197-205.
100 Tugendhaft A & Hofman K (2014) Empowering healthy food and beverage choices in the workplace. *Occupational Health Southern Africa*, 20(5): 6-8.
101 Hu F (2013) Resolved: There is sufficient scientific evidence that decreasing sugar-sweetened beverage consumption will reduce the prevalence of obesity and obesity-related diseases. *Obesity Reviews*, 14: 606-619.
102 World Health Organization (2015) *Guideline: Sugar Intake for Adults and Children*. Geneva: WHO Department of Nutrition for Health and Development.
103 Malik V & Hu F (2012) Sweeteners and risk of obesity and type 2 diabetes: The role of sugar-sweetened beverages. *Current Diabetes Reports*, 12: 195-203.
104 See no. 33 above.
105 Adami N, Ustas J, Penhale I & Leibowitz G (2012) *SABMiller plc Quarterly Divisional Seminar Series*, South Africa. London, United Kingdom, delivered on 14 February 2012.
106 Tugendhaft A, Manyema M, Veerman LJ, Chola L, Labadarios D & Hofman KJ (2016) Cost of inaction on sugar sweetened beverage consumption: Implications for obesity in South Africa. *Public Health Nutrition*, 19(13): 2296-2304.
107 Moodley G, Christofides N, Norris S, Achia T & Hofman K (2013) Obesogenic environments: Access to and advertising of sugar-sweetened beverages in Soweto, South Africa. *Preventing Chronic Disease*, 12: E186. doi: 10.5888/pcd12.140559.
108 Colchero M, Molina M & Guerrero-López C (2017) After Mexico implemented a tax, purchases of sugar-sweetened beverages decreased and of water increased: Difference by place of residence, household composition, and income level. *The Journal of Nutrition*, 147(8): 1552-1557.
109 Manyema M, Veerman LJ, Chola L, Tugendhaft A, Sartorius B, Labadarios D & Hofman KJ (2014) The potential impact of a 20% tax on sugar-sweetened beverages on obesity in South African adults: A mathematical model. *PloS One*, 9: e105287;
Stacey N, Summan A, Tugendhaft A, Laxminarayan R & Hofman K (2018) Simulating the impact of excise taxation for disease prevention in low-income and middle-income countries: An application to South Africa. *BMJ Global Health*, 3(1): e000568.
110 Van Meer F, van der Laan L, Adan R et al (2015) What you see is what you eat: An ALE meta-analysis of the neural correlates of food viewing in children and adolescents. *Neuroimage*, 104: 35-43;
Dagher A (2012) Functional brain imaging of appetite. *Trends in Endocrinology & Metabolism*, 23(5): 250-260.
Casey B (2005) Beyond simple models of self-control to circuit-based accounts of adolescent behaviour. *Annual Review of Psychology*, *66*(1): 295-319.
111 Healthy Living Alliance (2018) *School Nutrition Audit Report*, May 2018. Johannesburg: HEALA.
112 Hawkes C, Smith T, Jewell J et al (2015) Smart food policies for obesity prevention. *The Lancet*, 385(9985): 2410-2421.
113 See no. 77 above;
Trieu K, Neal B, Hawkes C, Dunford E, Campbell N, Rodriguez-Fernandez R, Legetic B, McLaren L, Barberio A & Webster J (2015) Salt reduction initiatives around the world: A systematic review of progress towards the global target. *PLoS One*, 10(7): 1-22;
114 Zembe-Mkabile W, Ramokolo V, Sanders D, Jackson D & Doherty T (2016) The dynamic relationship between cash transfers and child health: can the child support grant in South Africa make a difference to child nutrition? *Public Health Nutrition*, 19(2): 356-362;
Graham L, Hochfeld T, Stuart L & Van Gent M (2015) *Evaluation study of the National School Nutrition Programme and the Tiger Brands Foundation In-School Breakfast Feeding Programme in the Lady Frere and Qumbu districts of the Eastern Cape*. Johannesburg: Centre for Social Development in Africa, University of Johannesburg, the Tiger Brands Foundation, the National Department of Basic Education & the Eastern Cape Department of Education;
Cecchini M & Warin L (2016) Impact of food labelling systems on food choices and eating behaviours: A systematic review and meta-analysis of randomized studies. *Obesity Reviews*, 17(3): 201-210.
Chen HJ, Weng SH, Cheng YY et al (2017) The application of traffic-light food labelling in a worksite canteen intervention in Taiwan. *Public Health*, 150: 17-25.
115 Bleich S, Wolfson J & Jarlenski M (2015) Calorie changes in chain restaurant menu items: Implications for obesity and evaluations of menu labelling. *American Journal of Preventative Medicine*, 48(1): 70-75.
116 Jacobs S, De Beer H & Larney M (2010) Adult consumers' understanding and use of information on food labels: A study among consumers living in the Potchefstroom and Klerksdorp regions, South Africa. *Public Health Nutrition*, 14(3): 510-522.
117 Van der Merwe D, Bosman M & Ellis S (2014) Consumers' opinions and use of food labels: Results from an urban-rural hybrid area in South Africa. *Food Research International*, 63: 100-107.
118 Department of Health (2014) Regulations relating to the labelling and advertising of foodstuffs. Notice R 14. *Government Gazette No. 32975*, 1 March 2010. Pretoria: Government Printers.
119 Mason JB, Shrimpton R, Saldanha LS, Ramakrishnan U, Victora CG, Girard AW, McFarland DA & Martorell R (2014) The first 500 days of life: Policies to support maternal nutrition. *Global Health Action*, 7(1), doi: 10.3402/gha.v7.23623.
120 See no. 50 above.
121 See no. 61 above.
122 Bhutta ZA, Das JK, Rizvi A, Gaffey MF, Walker N, Horton S, Webb P, Lartey A, Black RE, Group TLNIR & Maternal and Child Nutrition Study Group (2013) Evidence-based interventions for improvement of maternal and child nutrition: What can be done and at what cost? *The Lancet*, 382: 452–477.
123 See no. 71 above.
124 Hawkes C, Jewell J & Allen K (2013) A food policy package for healthy diets and the prevention of obesity and diet-related non-communicable diseases: The NOURISHING framework. Obesity Reviews, S2: 159-168.
125 See no. 118 above.
126 Department of Health (2016) *National Guide for Healthy Meal Provisioning in the Workplace*. Pretoria: DoH.
127 Department of Health (2012) *Guidance for Industry: The Regulations Relating to Foodstuffs for Infants and Young Children*. R991. Pretoria: DoH.
128 Department of Health (2011) *Regulations Relating to Trans-Fat in Foodstuffs*. R127. Pretoria: DOH.
129 Department of Health (2016) *Regulations Relating to the Reduction of Sodium in Certain Foodstuffs and Related Matters*. R989. Pretoria: DoH.
130 World Cancer Research Fund International (2016) Viewed 10 November 2019: www.wcrf.org/int/policy/nourishing-database.
131 See no. 86 above.
132 Willett W, Rockström J, Loken B, Springmann M, Lang T, Vermeulen S, Garnett T, Tilman D, DeClerck F, Wood A & Jonell M (2019) Food in the anthropocene: The EAT-Lancet Commission on healthy diets from sustainable food systems. *The Lancet*, 393: 447-492.
133 See no. 132 above.

The impact of the environment on South Africa's child and adolescent health: An overlooked health risk

Hanna-Andrea Rother,[a] Sanjay Wijesekera[b] and Fiona Ward[b]

"Our people are bound up with the future of our land. Our national renewal depends upon the way we treat our land, our water, our sources of energy, and the air we breathe. … Let us restore our country in a way that satisfies our descendants as well as ourselves."

Nelson Mandela[1]

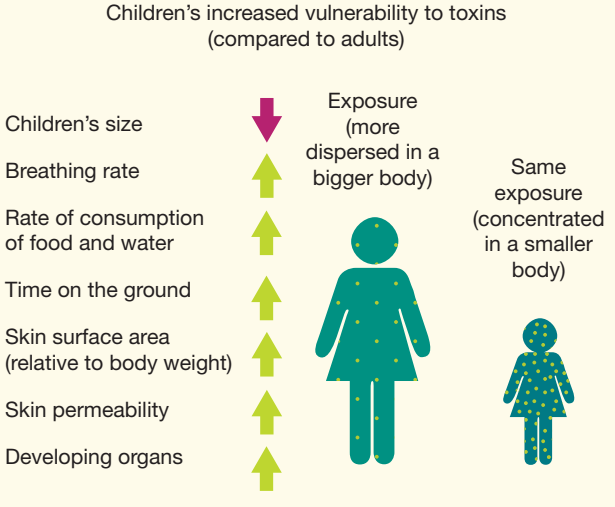
South Africa's children and adolescents live, learn and play in a multitude of environments which may either undermine or promote their growth, health and development. Environmental health studies show how the biological, physical and chemical environment negatively impacts on health, causes disease and influences behaviours. Children and adolescents are particularly vulnerable to a broad spectrum of hazardous environmental exposures (outlined in Figure 13). According to the World Health Organization (WHO), 26% of childhood deaths and 25% of the total disease burden in children under five years could be prevented through the reduction of environmental risks.[2]

Globally, there is also a change in the pattern of childhood illness from communicable to non-communicable diseases (NCDs) – many of which are caused by environmental factors and exposures. This warrants a greater focus, including the establishment of "acceptable levels" of exposure for children, and the development of child-centred policies and regulations.

Box 13: Children are not little adults

Children across all life stages, from embryo to completion of adolescence, are at varying and increased health risks from hazardous environmental exposures compared to adults for four key reasons:

1. *Different exposures*: Children are exposed through the placenta, from breastfeeding, have hand-to-mouth/object-to-mouth behaviours, breathe at a faster rate, have a higher skin surface area, are lower to and spend more time on the ground, are outside and inside over prolonged periods of time, and as adolescents engage in risky behaviours and generally have limited understanding of hazardous risks.
2. *Different physiology*: Since children at all life stages are still developing, they often have higher exposures to pollutants in air, water and food. Their developing systems have "windows of vulnerability" not found in the adult physiology.
3. *Longer life expectancy*: Children generally live longer and therefore have a longer period of exposure, a longer time for a disease with a long latency period to appear and live longer with the exposure impairment.
4. *Politically powerless*: Children have limited political voice (e.g. cannot vote) and rely on adults to make decisions to protect them from hazardous environmental risks and factors.



Source: Pacific Northwest Pollution Prevention Resource Center (2015) *How Can Daycare Facilities Minimize Toxic Exposures?* Viewed 23 October 2019: https://pprc.org/tag/flame-retardants/.

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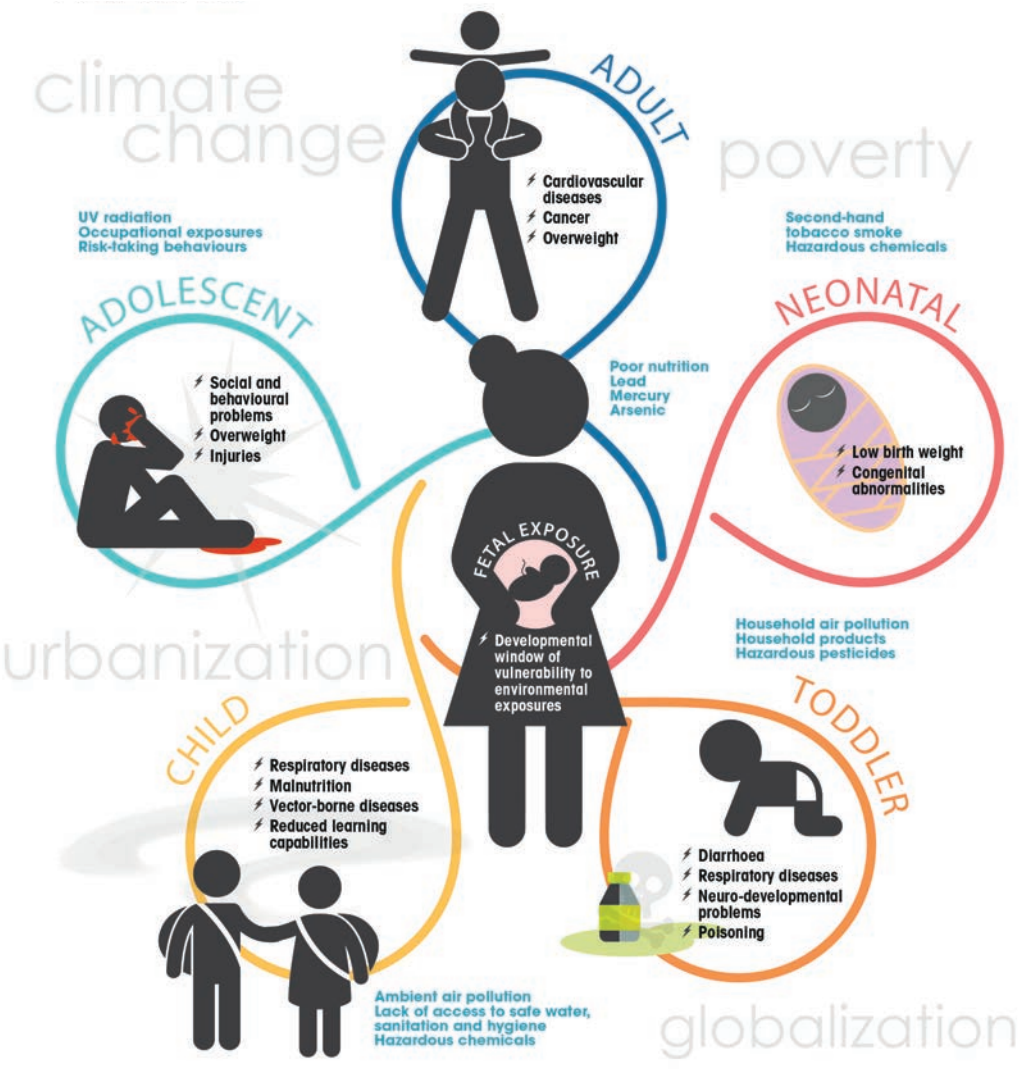
Figure 48: Environmental exposures and risk factors impacting children's health

Source: World Health Organization (2019) *Public Health, Environmental and Social Determinants of Health (PHE). Infographics: Air Pollution.* Viewed 23 October 2019: https://www.who.int/phe/infographics/air-pollution/en/

This chapter focuses on some of the key environmental hazards that impact the health of South Africa's children and how to proactively address these, namely: air pollution, chemicals, water and sanitation, and climate change. Each section briefly highlights the key issues globally and nationally, and the chapter concludes with a discussion of interventions and policies to reduce exposure risks for children. This chapter addresses the following questions:

- What are the key issues for children's environmental health?
- What are the opportunities for reducing child and adolescent exposures to environmental risk factors?
- How should the progress of recommended interventions to promote child and adolescent environmental health be measured?
- What are the key messages from this chapter?

Figure 49: Effects of environmental hazards at different life stages and windows of vulnerability



Source: World Health Organization (2017) *Inheriting a Sustainable World? Atlas on children's health and the environment.* Geneva: WHO. Licence: CC BY-NC-SA 3.0 IGO.

What are the key issues for children's environmental health?

Children are particularly vulnerable to environmental exposures since their bodies and brains are still developing. Environmental exposures start in the womb – for example, no child is born today without a multitude of chemicals in their bodies – and they continue to be exposed throughout childhood and adolescence, as illustrated in Figure 49. These exposures are predominately a result of industrialisation and consumers' demand for convenience, as well as the lack of legislation preventing children's exposure to environmental risks.

WHO has estimated that, in South Africa, 124 out of every 100,000 deaths of children under five are linked to the environment,[3] and congenital environmental disorders (caused by environmental exposures before birth) are increasing.[4] Protecting children from harmful environmental exposures, therefore, starts with protecting pregnant women from exposures at home and work.

The exposure risks of South Africa's children and adolescents need to be understood in terms of different risk factors (e.g. air pollution, chemicals) and their windows of vulnerability – the particular stages of development where these exposures pose a higher risk to children's health.

Research has shown how childhood NCDs such as respiratory diseases, cancers, neurodevelopmental disorders, type 2 diabetes, reproductive diseases, malnutrition, endocrine disruption and obesity are linked to exposure to environmental hazards (Table 26). Childhood NCDs have been associated with high-income country lifestyles in Europe

Table 26: The impact of environmental exposures on children's health, by disease

	Disease Burden	Environmental Risk / Exposure
Infectious and parasitic diseases	Respiratory infections	• Household air pollution; ambient air pollution; second-hand tobacco smoke
	Diarrhoeal diseases	• Contaminated water and lack of access to drinking water • Inadequate sanitation and hygiene
	Malaria	• Inadequate management of stagnant water and poor housing
	Intestinal worms	• Poor sanitation and hygiene
	TB transmission	• Poor housing; indoor smoke from solid fuels; second-hand tobacco smoke
Neonatal conditions and malnutrition	Neonatal conditions	• Mothers' exposures – ambient and indoor air pollution and second-hand smoke; pesticides and hair salon chemicals • Chemicals • Inadequate water, sanitation and hygiene
	Protein-energy malnutrition	• Poor water, sanitation and hygiene • Climate change
Non-communicable diseases	Cancers	• Pesticides • Chemicals (flame retardants, shampoo, nail polish remover)
	Mental, behavioural & neurological disorders	• Lead; flame retardants; plasticisers (toys, baby bottles, dummies); endocrine disrupting chemicals; pesticides • Climate change (post-traumatic stress disorder)
	Asthma	• Air pollution; indoor allergens; mould
	Congenital anomalies	• Pesticides; air pollution; endocrine disrupting chemicals
Injuries	Unintentional injuries	• Poisonings household chemicals and cosmetics • Drownings; road traffic accidents
	Intentional injuries	• Increased violence related to persons with high blood lead levels

Source: World Health Organization (2017) *Inheriting a Sustainable World? Atlas on Children's Health and the Environment*. Geneva: WHO.

or North America. However, research has shown these have spread to low- and middle-income countries including South Africa. Furthermore, many NCDs are climate sensitive and will be amplified by the impacts of climate change (e.g. extreme heat, floods, wildfires, air and chemical pollution). Given the increase in early child exposure to environmental toxins, more children are developing NCDs previously associated with adults (e.g. type 2 diabetes).

Environmental exposures have also been linked to transgenerational *epigenetic* changes (see chapter 2) resulting in an increase of NCDs. For example, maternal smoking, chemicals in plastics, persistent organic pollutants and heavy metals are associated with neurodevelopmental disorders in children.[5] This information needs to guide prevention strategies, policies, legislation and regulations to protect children and adolescents during these windows of vulnerability. It is also important to consider the context within which exposure risks occur. For example, in rural areas children are more likely to be exposed to indoor air pollution from wood and solid fuels while children in urban areas are more exposed to indoor air pollution from liquid fuel (such as paraffin) and outdoor air pollution from vehicles, industry and power generation.

Air pollution: The air that children breathe

South African children are exposed to air pollution inside (household) and outside (ambient) their homes and schools. Disease risks from these exposures are high for children even at extremely low levels of exposure because they are particularly vulnerable at different stages of development. For example, WHO indicated that over 600,000 children globally died from air pollution-induced respiratory infections in 2018, yet there is limited research about South African's children.[6] Globally, 92% of adults and children breathe ambient (outdoor) air that exceeds WHO limits.[7]

Children in Cape Town, particularly those living in low socio-economic communities, are exposed frequently to brown haze pollution. This haze is made up of pollutants from transportation, fuel (paraffin and wood), industrial processing, windblown dust, and the disposal of solid waste. There is also

Figure 50: WHO Global statistics on the impact of air pollution on children

Source: World Health Organization (2019) *Public Health, Environmental and Social Determinants of Health (PHE). Infographics: Air Pollution.* Viewed 23 October 2019: https://www.who.int/phe/infographics/air-pollution/en/

concern that adolescents inhale large quantities of polluted ambient air during outdoor activities – sports, exercise, walking – increasing their health risks for respiratory diseases, cancers and adult heart disease.

The extensive use of solid fuels is a key risk factor for children's exposure to household air pollution. Children living in rural areas of KwaZulu-Natal, Limpopo and Eastern Cape provinces[8] are particularly exposed to toxic fumes due to the widespread use of wood and coal for cooking, which releases hazardous chemicals such as dioxins which may cause respiratory disease. Additional indoor air pollutants include second-hand cigarette smoke; gases released by furniture, carpets, plastics (i.e. giving off a hazardous chemical); lead in paint; chemicals for cleaning; pesticides; and fungal spores.

Asthma, an NCD impacted by environmental triggers, is reaching epidemic proportions. Recent studies revealed

Case 22: The interdependency between children's best interests and right to a healthy environment

Timothy Lloyd and Vuyisile Ncube, Centre for Environmental Rights

A single constitutional value system

Section 24 (a) of the Constitution[9] guarantees everyone's right to an environment that is not harmful to their health or wellbeing, and Section 24 (b) requires the environment to be preserved for the benefit of *present and future generations* through reasonable legislative or other measures (own emphasis).

These provisions need to be read in conjunction with, section 28 (2) of the Constitution which states that the best interests of a child are of *paramount* importance in every matter concerning the child (own emphasis). The 'best interests of the child' is both an independent right, and general principle that should guide the implementation of all other rights afforded to children.[i] In other words, sections 28 (2) and 24 of the Constitution are interdependent. This means that the state, and to an extent, organisations and individuals, don't only have a constitutional obligation to protect children from environments that are harmful to their health and wellbeing. They also have a heightened obligation to do so in the best interests of children, who are particularly vulnerable to environmental hazards such as the impact of air pollution. The state, in particular, is required at all times to respect, protect, promote and fulfil these rights.[10] This includes putting measures in place to regulate the private sector and protect children from harm as outlined in the UN Committee on Children's Rights General Comment 16 on the state's responsibilities regarding the impact of the business sector on children's rights.

Air pollution – a 'public health emergency'[11]

The best interest principle has been used by the Constitutional Court to interpret and strengthen a number of rights enshrined in the Constitution,[12] but has not yet been used in the context of section 24. This fundamental interdependency has come to the fore in the "Deadly Air" case instituted in the Pretoria High Court by two non-governmental organisations, groundWork and Vukani Environmental Justice Movement in Action. The application against government concerns the dangerous levels of outdoor air pollution in the Mpumalanga Highveld Priority Area which is harmful to people's health and well-being.[13] As children are developing, they inhale more air than adults,[ii] absorbing more pollutants as a result.[14] In some cases the effects of air pollution can cause premature death as illustrated in Figure 3. A 2019 expert study shows that the dangerous levels of air pollution in the Mpumalanga Highveld Priority Area are primarily caused by emissions from facilities operated by Eskom and Sasol, South Africa's biggest polluters.[15]

The "Deadly Air" court application introduces evidence of the link between section 24 and section 28(2) in two ways. This evidence provides the foundation for further legal argument as the case progresses:[16]

- it draws on scientific evidence to describe the health impacts of air pollution, especially on children at sensitive locations, such as primary schools; and
- it presents supporting testimonies from affected individuals who describe how the toxic air pollution affects their daily lives – these include a mother of two young children who are dependent on oxygen in order to sleep at night due to their chronic asthma.

Consequently, the "Deadly Air" case highlights the aggravated impact of air pollution on the developmental needs of children, including sleep and their educational environment, among others. To reduce these daily impacts, the case simply calls on the South African government to take available steps to implement and enforce the air pollution laws and the air quality management plan, which are already in place. For the sake of the children, and the general public, residing in the Mpumalanga Highveld Priority Area, it is high time that their basic rights are protected, as guaranteed by the Constitution.

i Article 3 of the United Nations Convention on the Rights of the Child is also clear that the best interests of the child shall be the primary consideration in all actions concerning the child. This includes actions by all public and private institutions whose work and decisions impact on children and the realization of their rights from social welfare institutions to courts of law, administrative authorities and legislative bodies.

ii Children take in more air per unit of the bodyweight than adults *see* UNICEF (December, 2017) *'Danger in the Air: How air pollution can affect brain development in young children'* at p 4. Available at https://www.unicef.org/sites/default/files/press-releases/glo-media-Danger_in_the_Air.pdf

Table 27: Multiple pesticide exposure risks for South Africa's children

Agriculture • Crops; horticulture, weed control, chicken feed fly control	**Public health** • Malaria; community pest control
Borders • Mosquito control on airplanes, phytosanitary (health of plants for international trade) and foot/mouth disease control	**Public spaces** • Schools, hospitals, office buildings, public buildings (supermarkets, restaurants), landfills, weed control on pavements
Domestic • Home and garden use, lice shampoo, paints, hand wash	**Transport** • Land and sea movement of pesticides; treated boat hulls
Forestry • Treated timber, alien invasive vegetation removal	**Veterinary purposes** • Livestock, domestic pets, foot and mouth disease
Leisure areas • Hotels, golf courses	**Unregistered uses** • Street pesticides, self-harm, problem animals, homicides, warfarin (a heart medication which is a pesticide) in street drugs
Laboratories • Research, export residue testing	**Migratory pest control** • Quelea birds, locusts

Source: Rother H-A (2012) Improving poisoning diagnosis and surveillance of street pesticides. *South African Medical Journal, 102(6)*: 485-488.

that nearly half of South Africa's children living in urban communities experience serious symptoms of asthma[17] and 92% of child asthma cases globally are linked to nitrogen dioxide exposures related to air pollution, often from motorized transport.[18]

A study of school children in Durban, one of the most polluted industrial cities in southern Africa, found that children from industrial communities were more likely to experience respiratory problems such as asthma.[19] Air pollution in South Africa also increases health-care costs, especially for children who may develop chronic respiratory effects or have to be hospitalised with acute asthma attacks. Case 22 illustrates how the hazardous exposures associated with outdoor air pollution violate children's rights.

At the conclusion of the WHO Global Conference on Air Pollution and Health in 2018, it was emphasised that ambient and indoor air pollution are responsible for seven million deaths each year (with 93% of children globally breathing in highly polluted and hazardous air) and that most of these deaths are preventable.[20] South Africa needs to heed this call with urgency and take action to protect children's health as air pollution exposures and their impact on health are being amplified by climate change. This raises questions about the conservative approach adopted by the new Carbon Tax Act which may fall short and take too long to produce a meaningful improvement in air quality.

Chemicals: Where does exposure begin and end?

The 2017 Lancet Commission on Pollution and Health identified chemical pollution as an emerging global health risk for children.[21] South African babies born today have chemicals in their systems – from dichlorodiphenyltrichloroethane (DDT) which is used for malaria control in four provinces to phthalates found in plastic packaging, pipes, medical tubing and toys. While South Africa's fragmented legislation regulates some chemicals, children and adolescents are not adequately protected from hazardous exposures during key developmental windows of vulnerability.

The list of chemical exposures for South Africa's children is extensive as outlined in Table 26. Lead, a neurotoxin, was removed from local petrol but it has been more difficult to ensure that it has been removed from paint due to lack of enforcement of current legislation, and it continues to be used in, for example, bullets and fishing sinkers.[22]

These chemicals have been linked to a global increase in childhood brain cancers, asthma, leukemia, early onset of puberty, attention deficit hyperactivity disorder (ADHD), genital disorders in boys, and life-threatening birth defects. This includes exposure to endocrine-disrupting chemicals which is an emerging area of concern (Box 14).

Yet, less than 20% of chemicals globally have been assessed for impacts on child development. Furthermore, research in South Africa is limited by a lack of funding and a failure to recognise the urgency and extent of the problem.

In South Africa there is a "culture of chemical use" where there is widespread use of chemicals to keep homes and businesses germ-free, with limited understanding of the potential dangers to human health and the environment. There is also a blind assumption that government regulates all chemicals in products used in South Africa. Yet, this is not the case (and discussed later in this chapter).

Pesticide use in South Africa is extensive across multiple sectors increasing the risk of child exposure (Table 27). Neither the main South African pesticide legislation[25] nor

Box 14: Endocrine-disrupting chemicals (EDCs) exposure in South Africa: An emerging issue of concern

Global research has highlighted that many of the chemicals that South Africa's children and adolescents are exposed to are EDCs – which interfere with normal hormonal process (e.g. sex hormone, thyroid) and have health effects across the life course of the child.[23] In 2011, South Africa became the first African country to prohibit the production, import, export, and sale of baby-feeding bottles which contain bisphenol A (BPA) because of its effects on behavioural disorders and diabetes.[24] More action is needed to prevent other EDC exposures, for example, from pesticides such as DDT (found in Limpopo in breastmilk and chicken eggs); brominated flame retardants (BFR) in mattresses, car seats, car interiors, baby strollers, pads used on baby changing tables and furniture; BPA in food and beverage packaging, linings of metal food cans and bottle tops; phthalates in plastic food wrap and toys, lead in paint and fragranced products such as shampoo, cosmetics and air fresheners.

Source: Bornman MS, Aneck-Hahn NH, De Jager C, Wagenaar GM, Bouwman H, Barnhoorn IEJ, Patrick SM, Vandenberg LN, Kortenkamp A, Blumberg B, Kimmins S, Jegou B, Auger J, DiGangi J & Heindel JJ (2017) Endocrine disruptors and health effects in Africa: a call to action. *Environmental Health Perspectives*, 25(8): 085005-1-085005-10. https://doi.org/10.1289/EHP1774

the 2010 Pesticide Management Policy provide clear limits to protect children from risky exposure. Several high-income countries, however, include additional safety measures to protect children or ban certain types of pesticides known to be highly hazardous for children. Yet the South African legislative framework is fragmented with 14 pieces of legislation under seven government departments regulating some aspect of pesticide use.

Commercially sold pesticides and some household chemicals have warning labels that include the chemical names, hazards, risks, warnings and precautions. However, South Africa does not have a culture of reading labels and, even if an end-user reads the label, comprehension of the information is low and not promoted (Box 15).

The case of street pesticides

Agricultural pesticides are illegally decanted and sold in the informal sector for household pest control.[26] The sale of these *street pesticide*s is prolific and results in child poisonings, self-harm and homicide in all South Africa's urban centres.[27] The poisonings and death of children are concentrated in poor communities where poor-quality housing, limited refuse collection, and insufficient sanitation and water facilities aid the proliferation of urban pests such as rats, cockroaches, bed bugs and flies. These living conditions create a massive demand for highly hazardous pesticides that are too toxic for domestic use and violate children's rights to a safe and healthy environment. This highlights the need for multisectoral collaboration to address the epidemic of child deaths and prevent the long-term health from acute poisonings.

Water pollution, sanitation and hygiene: Undermining child survival

Ensuring consistent access to safe water, sanitation and hygiene facilities at home, in schools and in health-care facilities is a pre-requisite for children's survival and sustained growth. Regular bouts of diarrhoea amongst young children reduce their ability to absorb critical nutrients and irreversibly impede their physical and mental development. Consuming unsafe water and walking long distances to use a poorly constructed toilet, where one exists, put the lives of children in South Africa at risk every day. When South Africa enshrined the rights to a healthy environment and basic water and

Box 15: The right-to-comprehend chemical information

All legally registered pesticides in South Africa must contain a label with a registration number, product and company information, as well as health and safety advice and warnings. This forms part of the right-to-know principle. That is, the user has the right to have access to information about the hazard and risks associated with a pesticide product.

In South Africa, with 11 official languages and varying literacy levels, access to hazard and risk information is not enough to prevent short- or long-term exposure risks. Thus, there is a need to promote consumers' right-to-comprehend, for example by ensuring that the comprehension of warning labels is incorporated into primary and secondary school curricula. Another mechanism could be to require industry to translate the label information into different languages as an insert or as posters where the product is sold. If consumers do not have the means to understand information about hazardous chemicals, then the label is simply protecting industry from liability and failing to protect children and their caregivers from hazardous exposures.

Source: Rother H-A (2018) Pesticide labels: Protecting liability or health? – Unpacking "misuse" of pesticides. *Environmental Science and Health*, 4: 10-15.

sanitation, this put the country on a strong trajectory towards ensuring equitable access to water, sanitation and hygiene, for all. Much progress has been made in increasing access to water and sanitation services, yet significant differences remain within and between rural and urban areas and provinces, and between rich and poor households.

From 2000 to 2017, the proportion of people with access to an improved water source in South Africa increased from 87% to 96%. However, the standards for this access have not been maintained at the same rate. While access to an improved water source within 30 minutes (defined as a basic water service) increased in both rural and urban areas, the percentage of households with access to a water service which was "available when needed" declined over the same

Case 23: Using audits to improve access to sanitation in Gauteng's public schools

Hopolang Selebalo, Angela Bukenya, Roné McFarlane and Sibabalwe Gcilitshana (Equal Education)

South Africa had to reckon with the desperate state of sanitation in its rural public schools after two young learners drowned in pit latrines in recent years.[28] While rural provinces such as Limpopo, KwaZulu-Natal and the Eastern Cape are battling to eradicate thousands of dangerous pit latrines, Gauteng has already eradicated such backlogs.[i] Yet, the non-governmental organisation Equal Education's (EE) 2018 report on school sanitation in Gauteng[29] describes how poorly constructed toilets, high learner-to-toilet ratios and limited maintenance and upkeep of facilities[30] continue to undermine the health, safety and dignity of learners – particularly those from poor and working-class households. As one learner expressed: "my dignity is not there anymore, because of the dirty toilet I have to go to every day." Female learners were concerned about the lack of doors – or functioning locks – on their toilets.

The World Health Organization highlights that adequate access to these services combats disease, safeguards learners' ability to learn and ensures that learners of different genders and abilities are not discouraged from attending school.[31]

Gauteng sanitation campaign

Following EE's School Sanitation Campaign and the promulgation of the National Norms and Standards for School Infrastructure in 2013,[32] the Gauteng Department of Education prioritised the upgrading of school sanitation facilities.

In 2015, the Minister for Education in Gauteng promised to upgrade sanitation conditions in 50 of the worst-affected schools in the province. This came after EE and other civil society organisations conducted a social audit of sanitation facilities at over 200 schools in Gauteng.[ii] Three years later, EE visited 38 of the upgraded schools and found persistent challenges.[33]

Only 19 schools complied with the norms and standards and had learner-to-toilet ratios of less than 37:1 for primary schools and 34:1 for secondary schools[iii].[34] Many toilets were broken, leading to ratios in excess of 51 learners per working toilet at 20 schools. Seven out of 10 toilets did not have locking doors, nine schools had no bathrooms for learners with physical disabilities, and at 15 schools more than one third of the taps were broken.

EE's school audits highlighted the need to move beyond the mere provision of sanitation facilities, and the role of civil society in holding government to account; and focusing on more systemic issues that contribute to the deterioration of the infrastructure provided. This includes poor quality of work carried out by contractors hired by the Gauteng government, and poor maintenance of sanitation facilities. Without such a focus, schools and provincial education departments will remain caught in an unending cycle of sanitation upgrades.

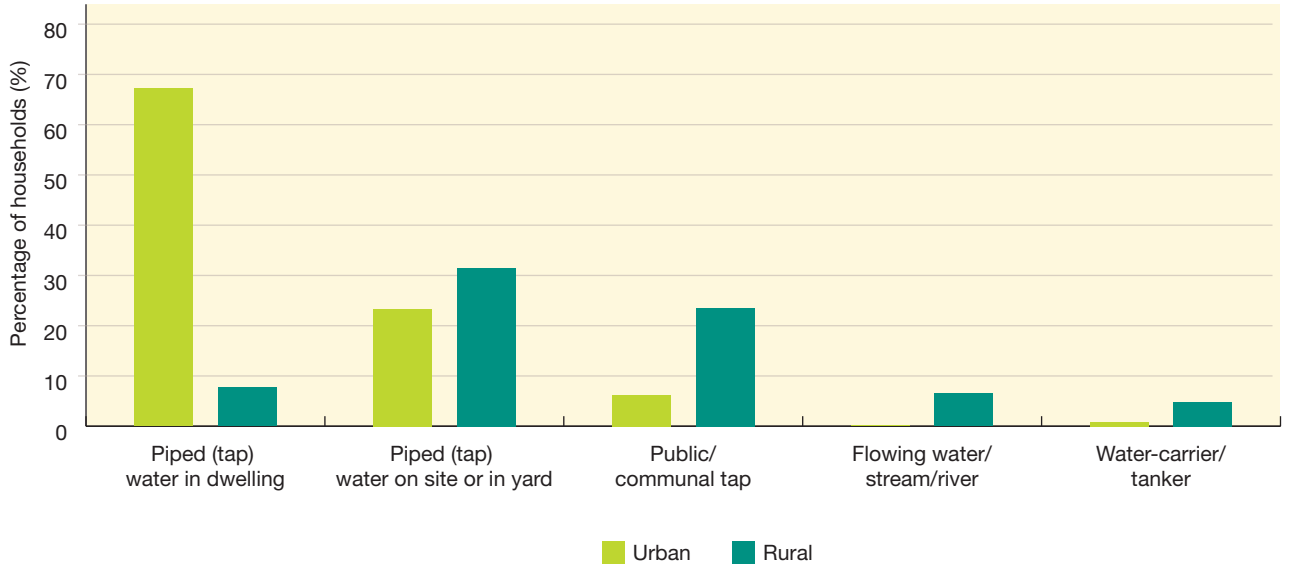
The school audits also identified that a lack of sanitary pads hindered girls' ability to attend school with girls constantly having to catch up on their schoolwork. As a result, EE called for the provision of menstrual hygiene products in poor schools and the zero-rating of sanitary pads. In the 2018 Medium Term Budget Policy Statement, Finance Minister Tito Mboweni announced that sanitary pads would no longer be taxed, and that the provision of sanitary pads in schools would be funded through increases to provincial funding. However unless this funding is ring-fenced, there is no guarantee that the funds will be used to provide sanitary towels in schools.

i According to the 2018 National Education Infrastructure Management System report, no schools in the Gauteng Department of Education are currently in violation of the norms and standards for sanitation.

ii The social audit assessed the sanitation conditions of 200 schools across Gauteng. It was conducted by the Gauteng Education Crisis Committee – a coalition which consisted of organisations such as Alexandra Civic Organisation, BuaFunda and the Gauteng Civic Association, amongst others. The coalition was led by Equal Education.

iii These ratios refer to schools with the largest enrolment range.

Figure 51: Main sources of drinking water in rural and urban areas, 2017



Source: Statistics South Africa (2018) *General Household Survey 2017*. Pretoria: Stats SA.

period – from 64% to 50% in rural areas; and from 94% to 82% in urban settings. As a result, the share of households in urban areas with access to a safely managed water service has declined from 90% to 82% between 2006 and 2017, despite this being an indicator of the Sustainable Development Goals (SDGs). The increase in time to collect water, and the unpredictability of the service have a negative impact on the amount of water available for consumption and hygiene.

Over the same period, there have been tremendous improvements in access to basic sanitation facilities in both rural and urban areas. However, 7% of people in informal dwellings still practice open defecation primarily due to a lack of convenient access to hygienic sanitation facilities. Where open defecation, poor drainage and high population densities occur simultaneously, it increases the risk of gastrointestinal infections, worms and cholera, particularly for children. Safety and hygiene are a continued concern for women and young girls using shared toilets, and the situation of children with special needs in informal settlements is particularly stark.[35]

Significant disparities persist between provinces, income quintiles and settlement types. For example, access to water in the home is particularly limited in rural areas (as illustrated in Figure 51) with significant implications for water consumption and the time required to collect water.

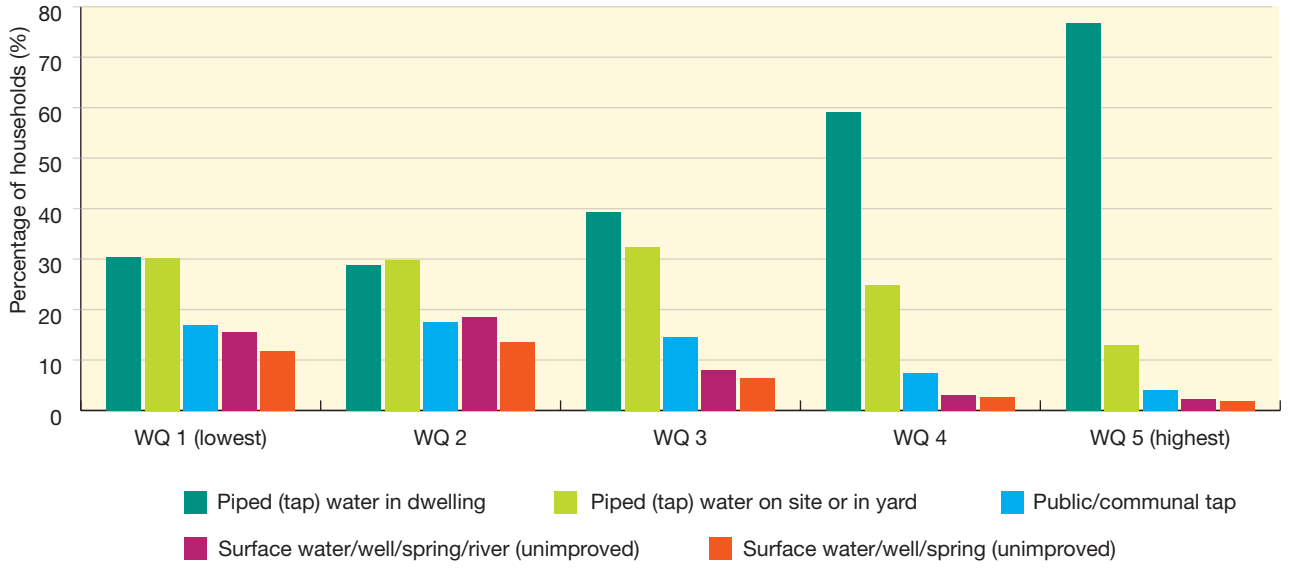
Figure 52 highlights significant differences in standards of water services across different wealth quintiles. It shows that poor households are more likely to use shared sources (communal taps) and surface water (with associated water quality concerns), while wealthy households are most likely to have access to water in their homes. Improving the most vulnerable households' access to a basic water service, and progressing to safely managed water services, is critical for the health and optimal development of children.

The tragic deaths of two young learners in school pit latrines highlight ongoing concerns around school sanitation. Schools without adequate water, sanitation and handwashing facilities impact on learners' health, safety, attendance and productivity. While over 99% of South African schools have access to water and sanitation facilities, only 78% have a basic water service (improved and available water facilities). In rural areas, 9% of schools are reported to have no sanitation facility. Furthermore, there are no data on the proportion of schools with basic sanitation facilities (improved, usable, single-sex toilets) or menstrual hygiene facilities. School water and sanitation audits therefore have an important role to play in identifying gaps and advocating for quality improvement as illustrated by the work of Equal Education in Gauteng (Case 23).

Health-care facilities that lack safe water, toilets and hygiene materials can detrimentally impact the health of mothers, babies and young children. While data is extremely limited, the Joint Monitoring Programme found that only 42% of non-hospital facilities had handwashing materials beside the toilets. There were no data on handwashing materials at the point of care, and only 78% of waste from non-hospitals was being treated or disposed of safely.[36]

Whilst much progress has been made in achieving basic

Figure 52: Main sources of drinking water across the wealth quintiles, 2017



Source: Statistics South Africa (2018) *General Household Survey 2017*. Pretoria: Stats SA.

levels of service, significant efforts are required to ensure that all South African children can benefit from their *right to water and sanitation* at home, in school and in health care facilities. Considerable and sustained investment is needed to improve the quality, reliability and accessibility of services in line with the SDG benchmarks for safely managed drinking water and sanitation, and to address outstanding challenges by prioritising services for the poorest and most vulnerable children.

Climate change: The greatest health challenge in the life course of children and adolescents

Even though South Africa has made considerable progress in increasing access to water and sanitation, the impact of climate change poses a significant risk to these achievements. Changes in climate may detrimentally affect children's development and growth in South Africa. These changes are most likely to affect children from the poorest quintiles, those living in rural areas and informal settlements, and those with special needs.

In South Africa, the impacts of climate change have been referred to as "predominately a health issue".[37] Droughts and extreme weather events (EWE) will increase in frequency and intensity and will detrimentally affect food security and the nutritional status of the most vulnerable children. Furthermore, climate change will increase the incidence and distribution patterns of vector-borne diseases such as malaria, schistosomiasis and dengue fever.[38] Other inherent physical risks include dehydration, drowning, physical injury, exposure to polluted water, and increased violence.[39]

EWE (e.g. floods, storms, wildfires) may impede access to, or destroy, health-care facilities and negatively affect the provision of health-care support to children, including those affected by HIV. Table 28 provides a brief overview of the wide-ranging impact that climate change and climate variability are having on the health of children and adolescents in South Africa.

Water scarcity will further undermine water quality and increase costs, as well as the time needed to collect water, and may force vulnerable households to make difficult choices about the education and future of their children, particularly girls. The recent Day Zero water crisis in Cape Town served as a global wake-up call to the impact of climate change on available water resources and the ever-increasing challenge of rapidly expanding urban growth due to migration. The situation also highlighted the need – and potential – to conserve water, reduce leakages, use water more efficiently, reuse water and tap into alternative water sources, as well as for the need for water resilience planning (Box 16).

Despite the multitude of health risks for South Africa's children and adolescents associated with climate change, the Department of Environmental Affairs' draft National Climate Change Adaptation Strategy[40] does not mention children once. Although the national Department of Health's draft National Climate Change and Health Adaptation Plan (2020 – 2024)[41] mentions children, there is no recognition that children's windows of vulnerability and exposure risk factors need targeted interventions and strategies. The 2018 draft Climate Change Bill[42] makes limited reference to future generations but no specific reference to protecting children's

Table 28: Examples of South African children's exposure and vulnerability to climate change impacts

Climate-induced Health Risk	Examples of health impact
Direct health impacts	
Extreme heat stress	Sports, playing outside, heat in schools and outdoor child labour can increase dehydration, overheating and heat stroke; and sun stroke and ultraviolet radiation exposure. Domestic and gang violence increase with increased heat.
Insect-related diseases	Higher temperatures lead to increasing population of insects as well as their expansion into places where children play and live. For example, there have been studies on increases in the prevalence of dengue fever, cholera and malaria, and in new geographical areas.
Malnutrition	Increased pollution and heat stress lead to reduced physical activity and obesity. Extreme weather events (EWE) reduce food production and affordability of nutritious food (undernutrition). The increased cost of water (due to water scarcity) reduces household expenditure on other items such as food and may force families to make difficult decisions about school attendance or child labour.
Diseases linked to air pollution	Increased exposures to ground-level ozone, poor air quality, longer pollen seasons, expansion of allergenic vegetation, mould leading to asthma, rhinosinusitis, allergic diseases and cancers.
Diseases linked to chemicals	Increased exposure to chemicals, due to flooding, increased vaporisation and volatilisation of chemicals exposed to heat, and increased use of endocrine-disrupting chemicals to combat a rise in pests.
Exposure to allergens	Playing, walking, and sports/activities outside increase dust exposure from drought and storms, mould growth from floods, and longer and severe pollen seasons.
Mental health strain	Post-traumatic stress disorder and depression linked to EWEs (e.g., floods, drought, storms).
Violence	Increased domestic and gang violence linked to temperature increases.
Injury	Increased violence, crime and traffic injuries linked to heat increases and EWE, as well as physical harm (e.g. drowning).
Snake bites	Increased bites occurring in urban areas, as migratory patterns change. WHO launched a prevention strategy in 2019 to highlight this neglected NCD.[43]
Indirect health associations	
Increased water scarcity	Reduced volumes of water available for consumption, deteriorating water quality associated with scarcity, and further distances to walk, with associated protection risks for children.
Rising sea levels	Increased salinity of water in coastal areas due to rising sea levels can detrimentally affect the health of children, mothers and unborn children.
Water-related diseases	Increased water pollution where children bathe, drink and play; storms and floods contaminate drinking water.
Reduced access to water and sanitation services	Increased flooding and EWE can damage water facilities, causing disruption of services as well as possible damage to sanitation facilities, further increasing the risk of contamination of water sources.
Reduced access to schools and health-care facilities	EWE and flooding can damage and lead to the closure of schools and health care facilities; or schools become response centres and the school term is interrupted or suspended for significant periods of time. Also resulting from children migrating to other locations because of climate impacts.
Child poverty and inequality	Flooding in urban settlements, and increased overcrowding from rural to urban migration as agricultural production is impacted by drought.

health. Yet children are particularly susceptible to shock and stress and have the highest health risks given the length of their life course; so it is not sufficient to just refer to them as "vulnerable populations" in policies. Children are the "canary in the mineshaft of climate-linked disease outcomes" and their specific needs should be explicitly addressed in all relevant policies.[44] Youth climate activists can be influential in protecting the current and future generations' health from the impacts of climate change (Case 24). It is therefore encouraging that young people are finding their voice and protesting against the threats to their environment.

Box 16: UNICEF recommendations for climate resilient water for South Africa

UNICEF has extensive experience in designing and implementing climate resilient programmes globally, and is advocating for the following interventions to minimize the risk of climate change for the most vulnerable children in South Africa:

- ✓ Undertake a **climate risk assessment** to identify the most vulnerable children and the most vulnerable areas – this could be done using the Strategic Framework for WASH Climate Resilient Development which UNICEF developed in collaboration with Global Water Partnership.
- ✓ Revise the **National Adaptation Strategy** to highlight the needs of the most vulnerable children.
- ✓ **Scale up solar powered water systems** to reduce walking times, and increase energy efficiency and functionality.
- ✓ **Increase water service levels** to reduce the walking distance and waiting times for informal settlements, and the most vulnerable families, ensuring that interventions are climate resilient.
- ✓ **Integrate water safety planning into climate resilient programmes.**
- ✓ Develop an **investment case for climate resilience**, with evidence on the cost of inaction and the impact on the economic future of South Africa.
- ✓ Undertake **mobilisation campaigns to deter excessive water consumption** and to reduce the gap between the richest and poorest households.
- ✓ Introduce **water accounting** to ensure that domestic water supply is prioritised over other needs.
- ✓ **Document the impact of inadequate access to safe and sustainable WASH facilities** in schools and health-care facilities.
- ✓ **Develop a road map** on how to scale up and improve WASH facilities to meet national and global standards while being climate resilient.

Source: UNICEF & Global Water Partnership (2014) *WASH Climate Resilient Development Strategic Framework.* New York: UNICEF/GWP.

What are the opportunities for reducing child and adolescent exposure to environmental hazards?

It is essential to mitigate against – and adapt to – climate change in order to reduce the impact on health. From a public health perspective, mitigation corresponds to primary prevention and includes efforts to reduce greenhouse gases, invest in green energy (e.g., solar and wind power), reduce the carbon impact of farming, and develop sustainable chemistry. Adaptation strategies include both secondary prevention (e.g. early warning systems) and tertiary prevention (focused on reducing diseases).[45] This section focuses on adaptation strategies to reduce risks for children and adolescents.

Prevention must occur simultaneously at the international and national policy level as well as the community and individual level – and it extends from global and national policies to the provision of safe alternatives and information to children and caregivers. It is essential to promote collaboration with other sectors and give more prominence to environmental health within the health sector to address the environmental determinants of child and adolescent health, and to build a more resilient, responsive and child-centred health care system. Furthermore, the impact of industry on children's health must be critically evaluated as self-regulation does not replace the need for strong legislation to control environmental exposures. Civil society campaigns that directly or indirectly protect children's health play a key role in mobilising communities at the grassroots. Given that new research regularly highlights new environmental health risks, prevention is paramount in protecting children from environmental exposures (Figure 53).

Integrate children and environmental health in all policies (CEHiAP)

Child and adolescent exposure risks need to be explicitly addressed by a wide range of policies and legislation that cut across different sectors (e.g. health, environment, agriculture, water, education, social welfare) as children's environmental health cannot be addressed by the health sector alone. These policies should adopt a precautionary approach and should draw on international evidence to protect children from all potential environmental hazards. It is essential to set the limits for exposure at levels that protect developing children from harm, and these child-sensitive measures will in turn provide adults and other vulnerable populations with protective legislation and regulations. Less hazardous alternatives should also be a goal of these policies to prevent exposures.

Currently, the policies and legislation in place are not sufficient to protect children and adolescents from chemicals, air pollution, poor water and sanitation, and climate change.

Case 24: Children's climate power – "We are fighting for our lives"

> *"You have failed us in the past. If you continue failing us in the future, we, the young people, will make change happen by ourselves. The youth of this world has started to move and we will not rest again."*[46]

Climate activism in 2019 has been taken to a new level with children and adolescents hitting the streets to lead the demand for greater reduction in carbon emissions, highlighting how the failure to take climate action is violating children's rights, and calling on the United Nations Committee on the Rights of the Child to hold governments accountable.

"Thirty years ago, world leaders made a historic commitment to the world's children by adopting the Convention on the Rights of the Child. Today, the world's children are holding the world accountable to that commitment," said UNICEF Deputy Executive Director Charlotte Petri Gornitzka. "We fully support children exercising their rights and taking a stand. Climate change will impact every single one of them. It's no wonder they are uniting to fight back."[47]

These children are voicing their anger at how adults are handling the climate crisis in a manner that will negatively impact on their future.

> *"It is still not too late to act. It will take a far-reaching vision, it will take courage, it will take fierce, fierce determination to act now, to lay the foundations where we may not know all the details about how to shape the ceiling. In other words, it will take cathedral thinking. I ask you to please wake up and make [the] changes required possible." (Thunberg addressing European Parliament's Committee on the Environment, Public Health and Food Safety in April 2019).*

In 2018, Greta Thunberg, a Swedish teenager, started sitting outside the Swedish parliament every Friday to call for immediate action to address climate change. Her call to action drew media attention and catalysed a global movement led by children and youth – with an estimated 1.4 million students in 112 countries joining the school strike for climate change. Greta highlights that although children cannot vote, they can use their voice and activism in other ways to hold adults, particularly government officials, accountable for their actions that impact on the lives of children and future generations. What her activism has also achieved is that the global conversation on climate change has significantly increased amongst the general population (even including climate denialists), which published climate science research has not.

In South Africa, since March 2019, children have been taking to the streets to demand government urgently address the issues of waste, pollution and the country's dependency on non-renewable energy. Children may lack political voice, but they have used collective global action to advocate for *intergenerational justice*. They are demanding a child-rights approach to climate change as they will be most impacted by the decisions adults are making today.

In her 2019 budget speech, Minister of Environment, Forestry and Fisheries, Barbara Creecy, stated: "Our debate takes place today, in a context which in recent times has seen school children across the world, including in our own country, organising strikes to demonstrate against adult inaction to address the risks irreversible and dangerous climate change pose to their futures. These young people insist that we talk about a climate emergency and not about climate change."

Now it is time to see what arises from youth climate activists and government's response to this activism.

In theory, the 2013 National Environmental Health Policy should serve as an overarching policy for children's environmental health rights and climate change. In practice, the current policy seems to have little impact. Although many relevant issues are discussed, other policies and legislation (as captured in Table 29) do not reference the environmental health policy.

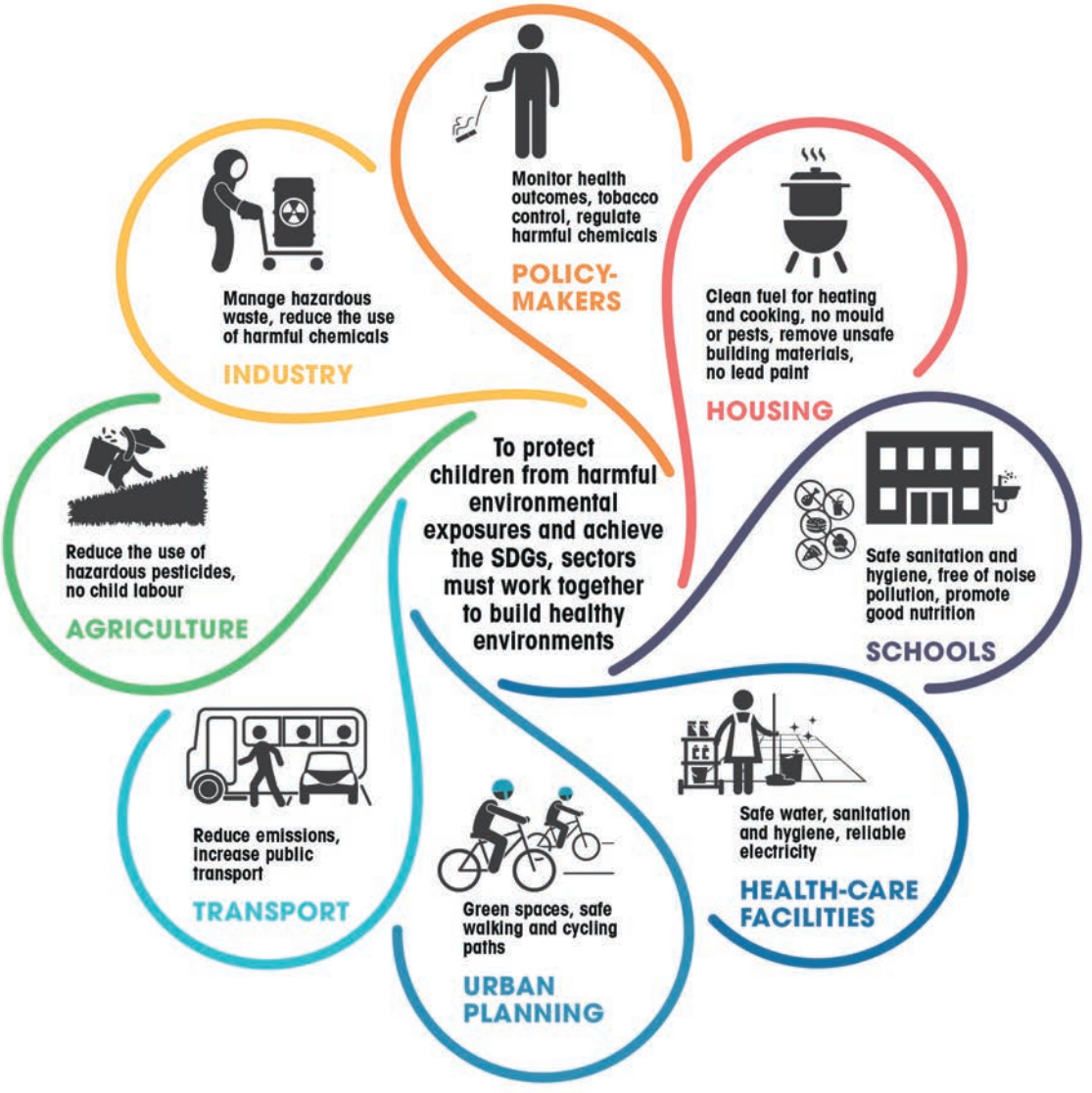
Achieving many of the SDGs and targets, as well as implementing the corresponding indicators set out by the global community, will depend on the South African health sector and other sectors increasing their focus on children's environmental health risk factors and exposures, as well as promoting social solidarity (Table 30 and Figure 54). Multi-sector collaboration will be needed to have effective interventions for achieving the SDGs.

Figure 53: Interventions to reduce children's environmental health exposures and risks

Table 29: Sustainable Development Goals promoting children's environmental health

Goal	Sector/environmental Impact
SDG 1 – No poverty	equity and nutrition
SDG 2 – Zero hunger	equity and nutrition
SDG 6 – Clean water and sanitation	water, sanitation and hygiene (WASH) and chemical exposures
SDG 7 – Affordable and clean energy	energy, air pollution and climate change
SDG 8 – Decent work and economic growth	infrastructure and settings
SDG 9 – Industry, innovation and infrastructure	infrastructure and settings
SDG 10 – Reduced inequalities	equity and nutrition
SDG 11 – Sustainable cities and communities	infrastructure and settings
SDG 12 – Responsible consumption and production	chemical exposures
SDG 13 – Climate action	energy, air pollution and climate change

Figure 54: Reducing harmful environmental exposures by achieving the SDGs



Source: World Health Organization (2017) *Inheriting a Sustainable World? Atlas on children's health and the environment.* Geneva: WHO.
Licence: CC BY-NC-SA 3.0 IGO.

Expand and improve health systems and infrastructure linked to environmental health

In South Africa, the scope of environmental health and associated legislation is linked to the services of environmental health practitioners (EHPs) working at the municipal level. While these services are invaluable, their scope needs to be expanded to support the extensive workload of EHPs as well as to bring in other role-players at national level and beyond the health sector.

Many conditions linked to environmental exposures are notifiable medical conditions in South Africa (e.g. pesticide poisoning, lead poisoning, food poisoning, plague, cholera) which EHPs are tasked with following up for prevention. However, EHPs need regular training of EHPs on emerging issues such as street pesticides, EDCs and climate change are missing. Furthermore, the surveillance data collected by EHPs are not reaching policymakers in health, agriculture and the environmental sector. EHPs are also a crucial link in climate change surveillance data (e.g. the increase of scabies cases linked to the drought in Cape Town), but no system is currently in place to collect this valuable information.

The health system in South Africa needs to strengthen capacity and infrastructure for managing the increase of NCDs and EWE impacting on health. National Health Insurance (NHI) could play a key role in achieving these

Table 30: Summary of key legislation and policies linked to the four key environmental hazards

	Key policy and legislative measures to protect children from environmental exposures
Air pollution	**Environmental Management Air Quality Act**[48] • Focuses on outdoor/ambient air pollution, yet no specific mention is made of children. • No criteria for "acceptable exposure risks" for children. • Does not cover indoor air quality despite indoor pollution in South African households exceeding WHO guidelines. • Further legislation is needed to protect specifically children under five who are vulnerable to respiratory infections linked to indoor air pollution.
	National Framework for Air Quality Management[49] • Provides some child-specific text (e.g., health messages to be communicated). • Implementation of the framework for children is an issue.
	Strategy to Address Air Pollution in Dense Low-Income Settlements[50] • Acknowledges exposure risks for children. • Focuses on awareness raising and changing the mindset of youth and school-going children. • Not clear that the recommended strategies will protect and reduce child exposure or whether this strategy will be implemented.
Chemicals	**Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act**[51] • The Act is outdated and should be amended to include safety factors or specific risk assessment data to protect children in all life stages.
	Pesticide Management Policy (2010)[52] • Highlights the need to repeal or revise the Act and introduce special protection for vulnerable populations such as children. To date, this has not occurred. • The policy includes no other provisions for children.
	Chemicals Management Bill • There is no legislation for chemicals in products because the Bill was withdrawn due to industry pressure. • There is a need for a 'Child Safe Products Act' which specifically controls, monitors and requires testing and labelling of chemicals in products used by and for children.
	Hazardous Substance Act[53] • Lists lead in paint as a hazardous substance but lacks the monitoring of results in continued sales and children's exposure. • Environmental health practitioners could play a stronger role in enforcing legislation. • 2019 draft regulations propose a total lead limit of 90ppm for children's products (intended for children < 12 years old).
Water pollution, sanitation and hygiene	**The Water Services Act**[54] **and the Strategic Framework for Water Services**[55] • Both deal with the provision of potable water and sanitation services. • The Act stipulates that everyone has a right of access to basic water and sanitation; but do not necessarily single out children, except a mention of vulnerable groups such as households headed by women or children or affected by HIV/AIDS. No further details are provided. • The strategic framework allocates responsibility to the Department of Basic Education for the provision of WASH facilities in schools, and the Department of Health for the provision of WASH facilities in health-care facilities. **The National Sanitation Policy**[56] • Endorses the national sanitation targets and the 2015 SDGs for achieving universal access to adequate and equitable sanitation and hygiene by 2030. • Includes sections on gender, youth and those with disabilities; and crèches, day-care centres, schools and clinics are included under institutional sanitation services; but there is little that specifically addresses the needs of children, particularly the most vulnerable. • Recognises the need to provide appropriate technology for children, and ensure the safety of women and girls, but neither recognises their particular vulnerability nor prioritises their needs in disaster settings or the provision of free basic sanitation. • Action is required to translate the policy into practice, to address the critical sanitation needs, and address the gaps in the policy focus. **Minimum Norms and Standards for School Infrastructure**[57] • Provide the first legally binding framework for the provision of school infrastructure including specifications for water, toilets, electricity and classroom size – and clear deadlines for implementation.

	Key policy and legislative measures to protect children from environmental exposures
Climate Change	**Climate Change Bill**[58] Second draft currently under review. No specific reference to the health of children or children in general. Fails to speak specifically to the health impacts of future generations or to children in relation to climate-sensitive NCDs.
	Draft National Climate Change Adaptation Strategy[59] • Currently under review. • No specific reference to the health of children or children in general. • Mentions the vulnerability of the poor to EWE; but does not refer to children specifically and particularly in relation to the mental health impacts from EWE. • It is therefore recommended that the following text is added to the draft for children's best interests in relation to sections 24 and 28 of the Constitution: • *The NCCAS recognises that children are particularly vulnerable to climate shocks and stresses, since they are still developing, and will ensure that all policies and implementation strategies prioritise the protection of children from exposure to risk/harm. Ensure climate change and prevention strategies and "citizen science" are included in primary and secondary school curricula.*
	National Climate Change and Health Adaptation Plan 2020 – 2024[60] • First draft has been circulated by the national Department of Health. • "Young children" are listed under vulnerable groups, but no mention of unborn children or adolescents. Child-centred measures and indicators are missing.
	National Development Plan 2030[61] • Refers to children as vulnerable to the effects of climate change but no specific details other than this statement. • Mentions urban development plans should address "concerns of children and youth and reflect their voice". • Limited reference to mental health but not in relation to extreme weather events.

goals. Increasing health professionals' knowledge base to diagnose, treat and prevent diseases and injuries linked to environmental factors is a crucial first step.

Secondly, health institutions need to be climate resilient to withstand the impact of EWE. A child-centred, resilient environmental health system that is adept at responding to children's specific exposures and windows of vulnerability across the life course, from conception to adolescence, needs to be established. The NHI is also fundamental in building social solidarity which will make South Africa more resilient to the impacts of climate change. Finally, policies promoting prevention – including safe alternatives – must be mainstreamed in the health system.

Strengthen the science-policy interface

The impact of environmental factors on child and adolescent health in South Africa has been overlooked by policymakers, health professionals and government officials who are not aware of the risks and challenges. Therefore, there is an urgent need to:

- Improve research translation and policymakers' access to environmental health research:[vi]
- Draw on data and legislation from other countries to protect children from environmental health risks, for example, by adopting a precautionary approach to legislation and banning harmful chemicals, products or production practices.
- Increase funding for local scholarly research on health impacts and prevention measures.
- Institute mechanisms to capture EHP data for surveillance.
- Set up systems for "citizen science" to inform policymaking (Box 18).

Mandate the inclusion of environmental health in training of health professional

Currently, students in medical and health professions in South Africa are not trained to identify, treat and prevent diseases linked to environmental exposures. Climate change will further increase children's exposures to mould and spores, causing respiratory problems. It is therefore vital that health professionals are taught how to conduct an environmental exposure history in order to identify and prevent further exposure. Health professionals are respected by a broad spectrum of the community and therefore serve as a vital link in health promotion and exposure prevention.

Empower children and adolescents to protect their health

It is important to include environmental health in primary and secondary school curricula to empower youth to protect themselves from environmental exposures. The curricula can include topics such as: how to read and comprehend labels; how to identify their environmental exposure risks; how to prevent or limit exposure; how to conduct citizen science; and how to advocate for environmental health and

i Academic and research institutions should include this as a requirement for ethics approval.

Box 17: The role of environmental health practitioners in South Africa

Environmental health practitioners (EHPs) are local government service providers employed by the Department of Health to work in all 228 municipalities.[62] There are an estimated 0.4 to 2.3 EHPs per 100,000 of the population.[63] EHP training is predominately conducted by universities of technology throughout South Africa and a large focus is on their inspectorate role. Once working for government and registered with the Health Professions Council of South Africa, EHPs enforce municipal by-laws to address a broad range of environmental health issues.

The National Health Insurance (NHI) Bill is silent on the role of some service providers such as EHPs. Given that this is a local government function delivered through municipalities, it is hoped that this service will receive NHI funding to continue the work by EHPs.

climate change rights. Children may not be able to vote, but through building their agency, they can have an impact on their health and environmental health especially in relation to third generation rights (i.e. unity rights as a universal citizen which include rights to self-determination, a healthy environment, sustainable development and the rights of future generations).[64]

All the interventions listed in Figure 53 should facilitate access to information and support the public, policymakers, health professionals and children's right to know, and right to comprehend, both the risks and prevention strategies.

How should progress of recommended interventions to promote child and adolescent environmental health be measured?

There are some efforts to address the health risks for children exposed to environmental factors in South Africa, but without monitoring and measuring progress we will continue to have gaps and limited action. To monitor the interventions in Figure 54 effectively, the following actions are needed:

- **Assess and prioritise** the environmental health risk factors in an area.
- **Sensitise** policymakers to environmental health issues and the implications for children's health.
- **Target** resources for research, surveillance and prevention with clear milestones and timeframes.
- **Encourage** action to improve the management of the environmental risk factors affecting children's health.
- **Highlight** the gaps in information and increase the knowledge base. It is ineffective to monitor and to measure progress, especially of indicators (Table 31), without sound and relevant data.

What are the key messages from this chapter?

The following are some key highlights and lessons from this chapter relevant for government, the private sector, and civil society.

Policy

The state needs to ensure that children's environmental health has a more prominent focus in policies and legislation across sectors. Child-centred indicators should be included in these policies to promote data collection, action and monitoring of outcomes which civil society should hold government accountable for. Monitoring of compliance with polices and legislation, as well as achieving targets is both the role of the state and civil society (e.g. NGOs, academia, child and adolescent activists).

Box 18: Citizen Science – A global movement for public participation

Citizen science is a means for members of the public, with no science background or even no formal education, to participate more actively in collecting information (knowledge production), knowledge assessment and policymaking. An example is the Equal Education sanitation audit where school children collected data on the state of WASH facilities in their schools. Through this citizen science, attention was raised to the problems and the government could be held accountable.

Technology is also aiding this movement by allowing the public to provide missing data, especially in relation to environmental health, through simple phone apps. People, including children, have access to rich data where they live, learn, work and play. By actively setting up this opportunity for children's environmental health in South Africa, researchers and policymakers would have a much better understanding of problem areas and where they are located to prioritise exposure prevention measures.

Source: Hecker S, Hakly M, Bowser A, Majuch Z, Vogel J, Bonn A (2018) Citizen Science – Innovation in Open Science, Society and Policy. London: University College London Press. Available to download free: www.ucl.ac.uk/ucl-press

Table 31: Sample indicators for monitoring risk-reduction interventions

Intervention	Example indicators for South Africa
Integrate children's environmental health in all policies (CEHiAP)	• Cross referencing of relevant health policies in non-health policies and legislation highlighting children.
Promote research evidence-based policies and programmes	• Standardised air pollution monitoring takes place daily in all provinces. • Air pollution data are distributed to regulators monthly to ensure compliance with regulations.
Strengthen health systems	• Morbidity rate due to specific environmental factors in children aged 0 – 4 years. • Number of EHPs trained in climate-sensitive NCD surveillance.
Ensure access to safe, sustainable and climate-resilient water and sanitation services	• Proportion of children with access to safely managed water services. • Proportion of water services which have been confirmed as being climate resilient. • Proportion of children with access to a basic sanitation service. • Proportion of schools which meet all three WHO/UNICEF Joint Monitoring Programme (JMP) standards for basic water, sanitation and hygiene facilities. • Proportion of health-care facilities which meet three of the five JMP basic standards (for water, sanitation, hygiene)
Improve education and training	• Number of doctors trained on diagnosis, treatment and prevention of environmental diseases and climate-sensitive diseases for children aged 0 – 15.
Promote children and caregivers' right-to-know and right-to-comprehend	• Chemical products labelled with standardised warnings. • Inclusion of standardised warnings and labelling in primary and secondary school curricula.

Industry

Underlying the environmental hazards and exposure risks for children is the extensive role of industry which has at times has lobbied government to remove bills and policies that could have reduced exposure, or resulted in watered-down and toothless policies. The state therefore has a responsibility to protect children's health by regulating toxic, polluting and otherwise harmful industries by implementing stringent regulations in line with international standards, as well as using the precautionary principle where health effects have limited attribution to the exposure. Civil society has a responsibility to highlight to the state through research, reports and activism the negative impacts industry is having on the environment and children's health. The industry has a responsibility to implement policies such as the "polluter pays" to clean up chemical, air and other pollution contamination impacting on children, as well as promote environmental and climate justice.

Communication

To reduce the current risks and health impacts from environmental factors on children and adolescent health, communication needs to be improved in multiple directions. For example, from researchers to policymakers and the public; from the public to EHPs for surveillance data. Mechanisms for ensuring this communication, as well as the right-to-know and right-to-comprehend are both the role of the state and civil society.

It is time that children's environmental health and linked burden of disease moved to the top of policy and research agendas so that environmental health is no longer an overlooked health risk. Strong leadership is needed to prioritise the strategies highlighted in this chapter to safeguard the health and well-being of children and adolescents. We need a healthy generation to lead and contribute to the future of South Africa.

References

1 Mandela NR (1995) Foreword. In: Whyte AV (ed) *Building a New South Africa. Volume 4: Environment, Reconstruction, and Development. Ottawa, ON: International Development* Research Centre.
2 World Health Organization (2017) *Inheriting a Sustainable World? Atlas on Children's Health and the Environment.* Geneva: WHO.
3 See no. 2 above. [World Health Organization (2017)]
4 Woods D, Aldous C, Christianson A & Malherbe HL (2016) The contribution of congenital disorders to child mortality in South Africa. *South African Health Review*, 2016(1): 137-152.
5 Tran NQV & Miyake K (2017) Neurodevelopmental disorders and environmental toxicants: Epigenetics as an underlying mechanism. *International Journal of Genomics*, 2017, article ID 7526592. https://doi.org/10.1155/2017/7526592;
Hobbs A & Ramsay M (2015) Epigenetics and the burden on noncommunicable disease: A paucity of research in Africa. *Epigenomics*, 7(4): 627-639.
6 Shezi B & Wright CY (2018) Household air pollution exposure and respiratory health outcomes: a narrative review update of the South African epidemiological evidence. *Clean Air Journal*, 28(1): 43-56.
7 World Health Organization (2017) *Don't Pollute my Future! The Impact of the environment on children's health.* No. WHO/FWC/IHE/17.01. Geneva: WHO.
8 Mathee A, Barnes B, Naidoo S, Swart A & Rother H-A (2018) Development for children's environmental health in South Africa: Past gains and future opportunities. *Development Southern Africa*, 35: 2: 283-293.
9 The Constitution of the Republic of South Africa, Act 108 of 1996.

10 See no. 9 above. Section 7 (2).
11 As declared by the World Health Organisation - https://www.who.int/airpollution/en/
12 Barratt A & Burman S (2001) Deciding the Best Interests of the Child: An International perspective on custody-decision making. *South African Law Journal*, 118: 556-573;
Skelton A (2013) The role of the courts in ensuring the right to a basic education in a democratic South Africa: A critical evaluation of recent education case law. *De Jure*, 1- 23;
Couzens M (2013) The Constitutional Court consolidates its child-focused jurisprudence: The case of C v Department of Health and Social Development, Gauteng. *South African Law Journal*, 130: 672-688.
13 *The Trustees for the Time Being of groundWork Trust and Others v The Minister of Environmental Affairs and Others.* The founding papers are available at: https://cer.org.za/wp-content/uploads/2019/06/DA-Court-Papers-final-version_unsigned.pdf.
14 See https://www.who.int/news-room/detail/29-10-2018-more-than-90-of-the-world%E2%80%99s-children-breathe-toxic-air-every-day; accessed 29 August 2019.
15 Gray HA (2019) *Air Quality Impacts and Health Effects due to Large Stationary Source Emissions in and around South Africa's Mpumalanga Highveld Priority Area (HPA).* Viewed 10 October 2019: https://cer.org.za/wp-content/uploads/2019/06/Andy-Gray-Report.pdf.
16 Bornman MS, Aneck-Hahn NH, De Jager C, Wagenaar GM, Bouwman H, Barnhoorn IEJ, Patrick SM, Vandenberg LN, Kortenkamp A, Blumberg B, Kimmins S, Jegou B, Auger J, DiGangi J & Heindel JJ (2017) Endocrine disruptors and health effects in Africa: a call to action. *Environmental Health Perspectives*, 25(8): 085005-1-085005-10. https://doi.org/10.1289/EHP1774
17 Masekela R, Green RJ, Manjra AI, Kritzinger FE, Levin M & Zar H (2018) The increasing burden of asthma in South African children: a call to action. *South African Medical Journal*, 108(7): 537-539.
18 Asher I & Pearce N (2014) Global burden of asthma among children. *International Journal of Tuberculosis and Lung Disease,* 18: 1269-1278.
19 Naidoo RN, Robins TG, Batterman S, Mentz G & Jack C (2013) Ambient pollution and respiratory outcomes among schoolchildren in Durban, South Africa. *South African Journal of Child Health*, 7(4): 127-134.
20 World Health Organization (2018) *Air Pollution and Child Health: Prescribing Clean Air.* WHO.
21 Landrigan PJ, Fuller R, Fisher S, Suk WA, Sly P, Chiles TC & Bose-O'Reilly S (2019) Pollution and children's health. *Science of the Total Environment*, 650: 2389-2394.
22 Naicker N, Mathee A & Barnes B (2013) Environmental lead: a public health challenge in South Africa. *Epidemiology,* 24(4): 621-622;
Mathee A, Singh E, Mogotsi M, Timothy G, Maduka B, Olivier J & Ing D (2009) Lead-based paint on playground equipment in public children's parks in Johannesburg, Tshwane and Ekurhuleni. *South African Medical Journal*, 99(11): 819- 821.
23 The court application and relevant information and material can be accessed at https://lifeaftercoal.org.za/about/deadly-air. See: Orris P (2019) Review of Dr. Andrew Gray's '*Air Quality Impacts and Health Effects due to Large Stationary Source Emissions in and around South Africa's Mpumalanga Highveld Priority Area (HPA)*'; and Annexure "SP34"- "SP36".
24 Landrigan PL & Landrigan MM (2018) *Children & Environmental Toxins – What everyone needs to know.* New York: Oxford University Press.
25 Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act 36 of 1947.
26 Rother H-A (2016) Pesticide vendors in the informal sector: Trading health for income. *New Solutions: A Journal of Environmental and Occupational Health Policy,* 26(2): 241-252.
27 Rother H-A (2010) Falling through the regulatory cracks: Street selling of pesticides and poisoning among urban youth in South Africa. *International Journal of Occupational and Environmental Health*, 16(2):202-213.
28 Hazvinyeni L (2019) Have 'hundreds' of kids drowned in school pit latrines in South Africa? *Africa Check*, 25 January 2019. Viewed 23 October 2019: https://africacheck.org/reports/have-hundreds-of-kids-drowned-in-school-pit-latrines-in-south-africa/.
29 McFarlane R, Ford A & Bukenya A (2018) *Breaking the Cycle: Uncovering persistent sanitation challenges in Gauteng schools.* Johannesburg: Equal Education.
30 Department of Basic Education (2013) South African Schools Act, 1996 (Act No 84 of 1994): Regulations Relating to Minimum Uniform Norms and Standards for Public School Infrastructure. Notice R. 920, *Government Gazette* No 7081, 29 November 2013.
31 Adams J, Bartram J, Chartier Y & Sims J (2009) *Water, Sanitation and Hygiene Standards for Schools in Low-cost Settings.* Geneva: World Health Organisation.
32 See no. 30 above.
33 See no. 29 above.
34 See no. 30 above.
35 United Nations Committee on the Rights of Persons with Disabilities (2015) *Consideration of reports submitted by States parties under article 35 of the Convention. South Africa. CRPD/C/ZAF/1.* Geneva: UNCRPD.
36 Joint Monitoring Programme (2019) Estimates on water, sanitation, hygiene, health care waste services and environmental cleaning in health care facilities in South Africa. WHO/UNICEF. Viewed 12 October 2019: https://washdata.org/monitoring/schools/country-files-2018
37 Chersich MF, Wright CY, Venter F, Rees H, Scorgie F & Erasmus B (2018) Impacts of Climate Change on Health and Wellbeing in South Africa. *International Journal of Environmental Research and Public Health*, 15(9): 1884.
38 Wright CY, Norval M & Albers PN (2015) Climate change, public health and COP21 – a South African perspective. *South African Medical Journal*, 105(12): 997-998.
39 Mares D (2011) Climate change and levels of violence in socially isadvantaged neighbourhood groups. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, 90(4): 768-783.
40 Department of Environmental Affairs (2019) Draft National Climate Change Adaptation Strategy. Notice 644, *Government Gazette* No. 42446, 6 May 2019.
41 Department of Health (2019) *National Climate Change and Health Adaptation Plan 2020-2024.* First review version. Pretoria: DoH.
42 Department of Environmental Affairs (2018) Climate Change Bill. Notice 580, *Government Gazette* No. 41689, 8 June 2018.
43 World Health Organization (2019) *Snakebite Envenoming – A Strategy for Prevention and Control.* Geneva: WHO.
44 Garland RM & Rother H-A (2017) Vulnerability of human health sector to climate change. In: Davis-Reddy CL & Vincent K (eds). *Climate Risk and Vulnerability: A handbook for Southern Africa.* 2nd edition. Pretoria: Council for Scientific and Industrial Research.
45 Frumkin H, Hess J, Luber G, Malilay J & McGeehin M (2008) Climate change: The public health response. *American Journal of Public Health,* 98: 435-445.
46 The Global Coordination Group of the Youth-led Climate Strike (2019) Climate crisis and a betrayed generation. *The Guardian*, 1 March 2019: https://www.theguardian.com/environment/2019/mar/01/youth-climate-change-strikers-open-letter-to-world-leaders.
47 UNICEF (2019) *16 children, including Greta Thunberg, file landmark complaint to the United Nations Committee on the Rights of the Child. Child petitioners protest lack of government action on climate crisis. Press release. 23 September 2019. Viewed 12 October 2019: https://www.unicef.org/turkey/en/press-releases/16-children-including-greta-thunberg-file-landmark-complaint-united-nations*
48 Department of Environmental Affairs (2005) National Environmental Managament: Air Quality Act 39 of 2004. Notice 163, *Government Gazette* No. 27318, 24 February 2005.
49 Department of Environmental Affairs (2018) National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004). The 2017 National Framework for Air Quality Management in the Republic of South Africa. Notice 1144, *Government Gazette* No. 41996, 26 October 2018.
50 Department of Environmental Affairs (2019) National Environmental Management: Air Quality Act (Act No. 39 of 2004). Strategy to ddress Air Pollution in Dense Low-income Settlements. Notice 666, *Government Gazette* No. 42464, 17 May 2019.
51 See no. 25 above.
52 Department of Agriculture, Forestry and Fisheries (2010) Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act No. 36 of 1947). Adoption of Pesticide Management Policy for South Africa. Notice 1120, *Governemnt Gazette* No. 33899, 24 December 2019.
53 Department of the Prime Minister (1973) Hazardous Substances Act 15 of 1973. Notice 550, *Government Gazette* No. 3834, 4 April 1973.
54 Water Services Act 108 of 1997.
55 Department of Water Affairs and Forestry (2003) *Strategic Framework for Water Services (September 2003).* Pretoria: DWAF.
56 Department of Water and Sanitation (2016) *National Sanitation Policy.* Pretoria: DWS.
57 See no. 30 above.
58 See no. 42 above.
59 See no. 40 above.
60 See no. 41 above.
61 National Planning Commission (2012) *National Development Plan.* Vision 2030. Pretoria: NPC.
62 Shezi M, Mathee A, Siziba W, Street RA, Naicker N, Kunene Z & Wright CY (2019) Environmental health practitioners potentially play a key role in helping communities adapt to climate change. *BMC Public Health*, 19: 54.
63 Gray A & Vawda Y (2017) Health policy and legislation. In: Padarath A & Barron P (eds) *South African Health Review 2017.* Durban: Health Systems Trust.
64 Chersich MF, Scorgie F, Wright CY, Mullick S, Matthee A, Hess J, Richter M & Rees H (2019) Climate change and adolescents in South Africa: The role of youth activism and the health sector in safeguarding adolescents' health and education. *South African Medical Journal*, 109(9): 615-619.

Putting children and adolescents at the heart of the health system

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South Africa has 19.6 million children (ages 0 – 18) who make up nearly 35% of the population. We have a rights-based obligation to provide children with the "highest attainable standard of health"[1] and in all their health matters, to consider their best interest[2]. Children have a Constitutional "right to basic health care services", as outlined in Section 28 (c) of the Bill of Rights, and this right has priority over that afforded to adults, as it is not subject to progressive realisation (see Chapter 1).

The fulfilment of children's and adolescent's health rights is dependent on a health system that recognises and is purposively structured to foreground and address their needs. For example, in the recent formulation of the first National Palliative Care Policy, child palliative care professionals were only included late in the process, and only after significant lobbying on their part.[3] Whereas in a child-centred system, every health policy, whether for clinical or support services, will consider the needs of – and impact on – children.

Achieving the "highest attainable standards of health" is also dependent on actions in other social, economic and political spheres of society, commonly referred to as the social determinants of health. Multiple social, political, economic and environmental systems must therefore work together with the formal health care system to foreground child health.

Recent country experiences show that as economic and social conditions in countries improve for everyone, children's health with respect to preventable conditions improves considerably. A global analysis of the success factors underpinning improvements in maternal and child health across 144 low- and middle-income countries[4] indicated that health sector investments accounted for only half of the reduction in under-five mortalities between 1990 and 2010. The remaining gains were driven by health enhancing investments in other sectors such as improved education, access to clean water and reductions in poverty and income inequality. It is therefore the obligation of the 'whole-of-society' to meet children's health needs, and not that of the health sector alone.

Policies in other sectors can also undermine child health in numerous ways. For example, trade and industry policies that allow the 'Big Food' industry free license to market and promote unhealthy food and drinks to children are fuelling the rise in childhood obesity. It should be a requirement that every policymaking team, regardless of sector, should do a child health impact assessment and fashion their policy goals to positively favour children.

Continuous and consistent gains in child health also require sustained political will, that endures across changes in political and health ministry leadership. Thailand, an upper-middle income country similar to South Africa, is a good example of such sustained commitment towards improved health care over decades. Their journey towards universal health coverage (UHC) was characterised by successive governments and ministers of health keeping the vision and working towards it in an incremental, sustained manner.[5] Although the official UHC policy was implemented in 2002, the groundwork towards UHC began long before this. Despite political and economic challenges faced in the country, a "continuing decline in infant deaths has been recorded from more than 100 per 1,000 live births before 1970 to 9.5 per 1,000 live births in 2017"[6]. A similar dramatic drop in maternal mortality occurred over the same period.

We have also made progress in child health in South Africa. For this we recognise the thousands of frontline health workers and managers who contributed to achievements such as the reduction in child mortality and mother-to-child transmission of HIV. As in Thailand, where sustained progress has been made, we too need to press forward these advances by maintaining what works well and responding to persistent and new challenges.

This means that child health policies and practices must incrementally become stronger and not regress. For

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example, the 1997 White Paper for the Transformation of the Healthcare System that laid the foundation for early policy reform, had no fewer than 119 references to children, with a number of substantive child health policy proposals.[7] The current National Health Insurance (NHI) Bill[8] has only 16 references to children, mainly definitions and prescripts that relate to registration, with no substantive proposals for child health, other than in principle guaranteeing all children's (including foreign children's) entitlement to basic health care services.

Some persistent challenges that require an urgent response include:

- the largely preventable nature of child and adolescent illnesses, injuries and deaths;
- the continued focus within health services on children under five and relative neglect of the health needs of older children;
- children's significantly inequitable access to health care and other services, which causes persistent inequities in their health outcomes and their experiences in the health system;
- a health system which addresses child and adolescent health in a fragmented way, through individual condition-linked and programmatic interventions;
- care being provided across the system in an idiosyncratic way, and individual health facilities, different levels of care and programmes competing for resources and not aligned towards a set of common goals for child health; and
- the absence of a 'whole-of-society' approach to child health and well-being which results in policies and practices in other sectors which potentially undermine health gains made for children. For example, if in the education sector families who live in poverty are required to make significant contributions to uniforms, stationary and transportation costs, it cancels out the benefits of the Child Support Grant which intended to provide much needed nutrition and other basic needs, which in turn impacts on child health.

Addressing these challenges in an enduring, coordinated manner requires a 'whole-of-society' and a 'whole-of-health system' approach, whereby practitioners, managers, policymakers and politicians are aligned towards a common vision for child-centred health care and "work together to create an integrated system and consolidate and improve existing services for children".[9]

Notwithstanding the critical role of other sectors, this chapter focuses attention on the formal health care system as the primary custodian of child health. We posit that it requires the whole health system, and not just child-specific programmes and services to address child health. This is crucial as the manner in which the health system is structured, can either promote or thwart the delivery of child and adolescent health services and the attainment of children's health rights.

In contemplating these challenges and the required response, this chapter considers the following questions:

- Why is there a need for a child-centred health system?
- What is a child-centred health system?
- Why is it important to develop a health systems approach to child health?
- What does child-centredness look like in practice?
- What needs to be put in place to ensure a coordinated approach to child health?
- What might a child-centred district health system look like?

Why is there a need for a child-centred health system?

Children are the demographic foundation of our society and our first obligation is to meet their needs. The life course approach posits that good health in childhood lays the foundation for good health in adolescence and adulthood. Healthier adults are more productive, engaged citizens and are better able to nurture and care for children.[10] Two critical time periods where special attention is warranted are the first 1,000 days of life, where children's developing bodies and brains are most sensitive and adolescence, where a second, crucially important window of opportunity exists to influence the development of children's brains and their futures. Investments in these two periods of childhood have the greatest influence on the development of lifelong health and disease.

However, prioritising children is not just because they have future, 'longer-term' value. They live in the present and have rights, entitlements and significant and pressing health needs. Furthermore, the window of opportunity to intervene when children become seriously ill or injured is significantly narrower than it is for adults, and time delays in treating children have adverse consequences.

What is a child-centred health system?

The orientation and response of a child-centred health system is fundamentally shaped and structured with the child in mind, and from the child's point of view, and in so doing is directly responsive to the specific needs and circumstances of children.

A child-centred (meaning child and adolescent) health system is strongly advocated for by international child health bodies such as UNICEF and WHO. It is commonly referred to as a child- and family-friendly health system. However, a child-centred health system needs to extend beyond 'friendliness' in the type and manner of care it provides to children. It requires that the whole health system proactively, purposively and in a structured way, prioritises and addresses the needs of children.

One of the most comprehensive expansions on what a child-centred health system means, is that of the Council of Europe in its guidelines for child-friendly health care.[11] These guidelines define a child-friendly health system as: "*health care policy and practice that are centred on children's rights, needs, characteristics, assets and evolving capacities, taking into account their own opinion*".

It is a health system that creates the potential for a child to 'survive' to his or her fifth birthday, and 'thrive' into adolescence and young adulthood by helping them access the resources needed to reach their full capabilities. It therefore requires health systems to 'transform' and become proactive and responsive in addressing child health.

South Africa already has some measures in place for the purposive creation of child- and adolescent-friendly health environments. These include the Mother and Baby-Friendly Hospital Initiative and Adolescent and Youth Friendly Services. The most recent initiative from the Department of Home Affairs aims to enable all public health facilities with obstetric services to provide babies with birth certificates within 24 – 48 hours of their birth, which will allow them to access various social services.

A health system that fully invests in child and adolescent health will:

- enhance the capabilities of children and optimise their well-being and in so doing be true to the Constitutional commitments to children; and
- reduce future workloads and future costs.

For example, the elimination of childhood malnutrition (stunting and obesity) will reduce the burden of preventable non-communicable diseases (NCDs) in adulthood and reduce the need for lifelong, expensive health care. Similarly, adequate and sustained HIV prevention and treatment in childhood and adolescence has ongoing health benefits in adulthood and significant resource savings.

Building a child-centred health system requires the commitment of many role-players, including:

- families and communities who are key in the generation of health and well-being of children
- frontline workers responsible for the delivery and management of child health services,
- managers accountable for child and adolescent health (district, provincial and national health managers),
- role-players in other sectors that have significant influence on child health (such as the Departments of Finance, Labour, Transport, Safety and Security, Social Development, Education, amongst others), and
- those with political accountability for children's health and well-being (national and provincial Ministers of Health, party politicians for whom families of children vote and the President, as the ultimate custodian of child citizens).

It also requires an active citizenry: older children and adolescents who are able to advocate for themselves; adults who advocate on behalf of younger children; human rights watchdogs that actively take up causes on behalf of children and force accountability at the highest level of decision-making; a network of civil society organisations to advocate for and with children, such as the South African Civil Society Coalition for Women's Adolescent and Child Health; Section 27, People's Health Movement and similar civil society organisations working in other sectors; as well as those in research and academic environments who can amass evidence to support actions to promote equitable child health.

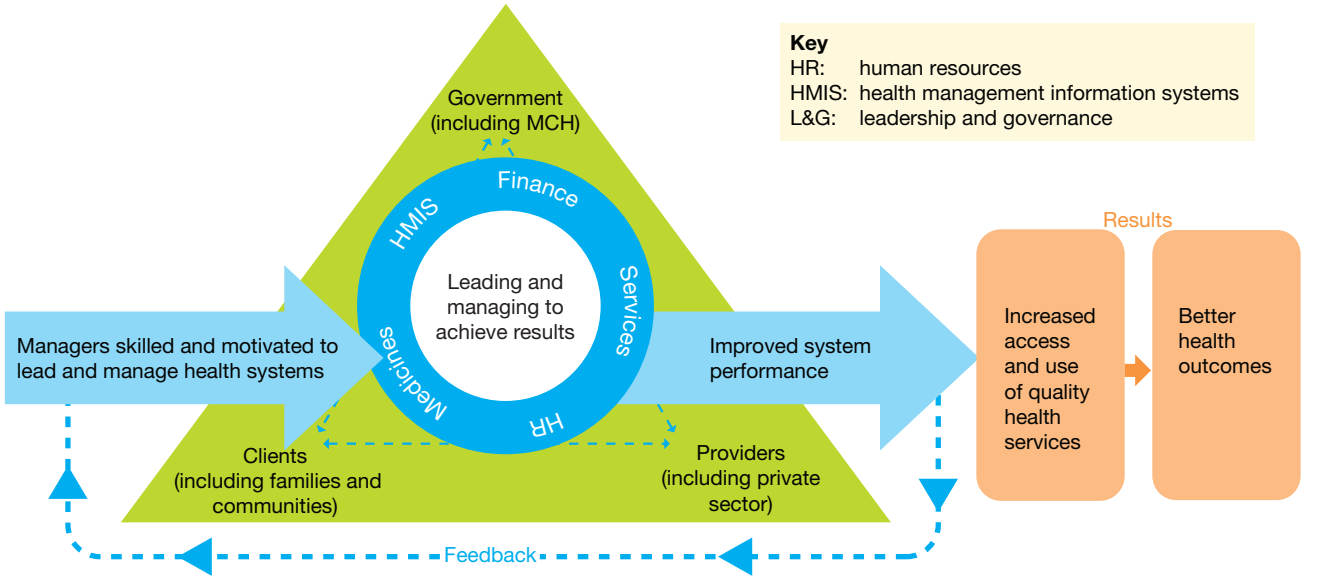
Put together, it is possible to build a powerful movement for child health by harnessing the commitment and passion of the many people in the health system and society who are committed to caring for children. It requires a clear common purpose and clear priorities – with a focus on addressing the essential, basic health needs of children.

Fostering a health system that is child-and family-centred cannot be achieved in a piecemeal manner. It is not only the responsibility of child-specific health personnel who work in child-specific programmes and services, but that of the whole of the health system.

Why is it important to adopt a health systems approach to child health?

A health system is commonly described as a complex entity, made up of many varied and integrally related components, as illustrated in Figure 55. In this diagram, the familiar World Health Organization (WHO) building blocks are depicted in the dark green circle. It means that finance, human resources, health information, services, leadership and governance arrangements must be aligned to support good quality, appropriate and effective child and adolescent health services.

Figure 55: Framework for people-centred health systems strengthening



Source: Management Sciences for Health (2010) *Health Systems in Action. An e-handbook for leaders and managers.* Cambridge: Management Sciences for Health.

An important characteristic of responsive health systems is that they are "people-centred", referring both to the people who work in the health system, as well as users and patients who benefit from the services provided.

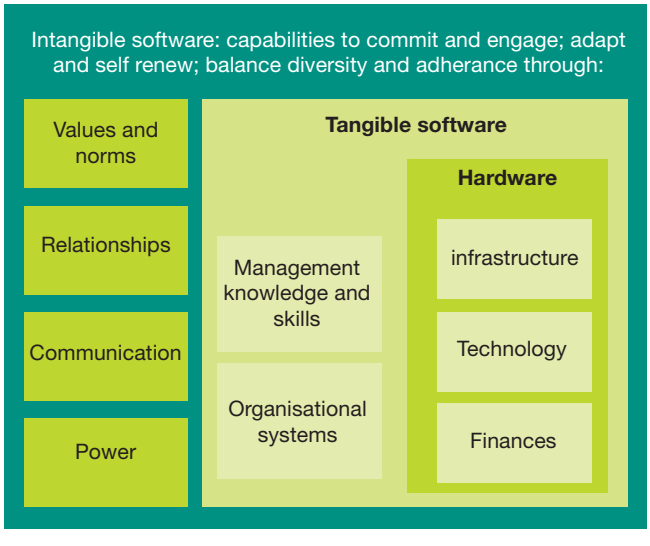
A health systems approach to child health means that all parts of the health system must work together to achieve the desired results: increased access and use of services and, ultimately, better health outcomes.[12] Aragon introduced the notion of system software – including communications, processes and organograms – and indicates this to be as important as the hardware (such as medicines and supplies).[13] Elloker draws attention to the intangible software that exists within people such as values, interests, beliefs, motivation and trust that shape the culture and the ethos of the health care system as outlined in Figure 56.[14]

In order to address child health goals and build a health system that foregrounds children and adolescents, all the components of the system must be aligned and work together towards a common vision for child health. Strong leadership and governance structures are therefore crucial to ensure child health is prioritised to achieve the desired outcomes. Such a systems approach to improve of child health requires:

- a renewed and stronger focus on child development and well-being, and not just the absence of disease,
- building on successes and strengths incrementally and continually, despite changes in executive and political leadership,
- collaborating with other key sectors that profoundly influence child health,
- aligning all parts of the health system and follow through on child health policy commitments,
- prioritising children in budgetary commitments, and
- capacitating the health workforce (frontline service providers and managers) to address child health issues.

Given the centrality of people in the health system, the building of relationships and teams is fundamental to achieving child health goals. Furthermore, the multi-faceted determinants of child health require that individuals and teams work across the boundaries of the traditional health care system, and

Figure 56: The intangible software



Source: Elloker S, Olckers P, Gilson L & Lehmann U (2013) Crises, routines and innovations: The complexities and possibilities of sub-district management. *South African Health Review* 2012 (2012/2013): 161-173.

network and engage with community-based systems and other sectors to support children and families.[15] It requires leadership at multiple levels of the system, in clinical and support service structures and active engagement of clinical and managerial governance structures at facility, district, provincial and national levels.

In order to ensure that child health services are provided in a consistent manner in all 52 districts and all nine provinces, synergy and co-ordination are required across all components of the health system. As expressed in the European Council's ideal for a child-friendly health system, "*the right things happen, to the right children, at the right time, in the right place and using the right staff, who are supported in the right way, to achieve the right outcomes, all at the right cost*". Whilst this is a tough ideal to achieve, in its simplest form it requires that children's best interests are served and considered at all times.

The World Health Organization adopts a systems approach to providing quality health care to children and adolescents, which recognises that the provision of quality care depends not only on evidence-based medicine, but needs to be accompanied by effective communication, respect and emotional support to enhance the patient experience of care. This in turn requires investment in building the capacity of a child health workforce and creating a child- and adolescent-friendly environment as illustrated in Figure 57. Services should be supported by the necessary resources, together with a clear commitment to enhance children and adolescents' experience of care.

Figure 57: Standards for improving quality of care for children and young adolescents in health facilities

Source: World Health Organization (2018) *Standards for Improving Quality of Care for Children and Young Adolescents in Health Facilities*. Geneva: WHO.

The South African health system therefore requires:

- a set of principles to guide the behaviour of the system and the people who work in it, to ensure that children, adolescents and their families are aptly foregrounded and prioritised: the first principle being that of children participating and exercising their agency in matters concerning their health,
- a clear vision for child health and a plan to direct all activities towards such a vision,
- accountable and responsive leadership at all levels of the health care system (see Figure 56), to ensure that child health goals are followed through year-on-year and are aligned with constitutional requirements,
- a commitment to consolidating the "essentials of child health care" in an evidence-informed manner and making no child is left behind, and
- a focus on strengthening the district health system as the first level of care for children.

What does child-centredness look like in practice?

The following two examples highlight the importance of creating a child-friendly environment and promoting children's participation in their own health care.

Promoting child participation

Promoting children's agency and participation is a central aspect of child-centred health systems and a principle and practice that is critical when providing services to children. There are three broad reasons why children and young people should participate in issues that affect them:[16]

- **Practical benefits to services**. The effectiveness of services depends on listening and responding to customers. Giving children and young people an active say in how policies and services are developed, provided, evaluated and improved and should ensure that policies and services better meet their needs.
- **Promoting citizenship and social inclusion**. Promoting early engagement in public and community life is crucial to sustaining and building a healthy society. Listening to children and young people is a powerful means of persuading children and young people that they are valued and are able to make a meaningful contribution.
- **Personal and social education and development**. Active participation is also seen as contributing to children's and young people's wider personal development, increased self-worth and confidence and practical skills and knowledge.

An example of how to facilitate this in the health system is the innovative child-led radio station, RX Radio (Case 25).

Case 25: RX Radio child/young reporters experience in contributing to the improvement of health care delivery at the Red Cross War Memorial Children's Hospital

Gabriel Urgoiti in collaboration with the RX Radio team and Jennifer Ruthe

RX Radio, run by and for children, has the potential to affect change on many levels. Firstly, it gives young people the chance to build the life skills and confidence needed to voice their opinions, take on new roles and become actively involved in community life. Guided through a series of radio diaries, interviews, podcasts and live shows, this catalytic move opens conversation between peers, family members and professionals alike - forging reciprocal connections and building shared understanding. Whether it's the patient-listener taking comfort in the knowledge that they are not alone, the young reporters forming new friendships and allies, the parents opening up about their experience, or the health care professionals taking extra time to listen to and allay their patient's fears, each and every link forms a life-changing support system – a marker on the road to physical and emotional recovery.

Holding the mic gives children the power to engage with adults, ask questions and share their opinions. In the process, children's voices are helping to influence the way that health professionals communicate with children. Within the hospital environment, adults are starting to question the common assumptions that are made about how child patients feel, what they know and understand, what they need and what they want.

As a result of listening to children's and families' voices on the radio, health professionals are reviewing and changing policies and protocols. For example, in a podcast entitled "Make pain easier"[17] children and parents speak about their experiences and advise health professionals on how to minimize procedural pain. These insights have informed the development of a new pain protocol at Red Cross War Memorial Children's Hospital, which encourages health providers to provide pain medication, be truthful about pain, and ensure children have a parent and caregiver present to support them through painful procedures.

Whilst the radio station employs a unique medium for fostering participation, there are many other ways in which children's voices and agency can be recognised and fostered.[18] In KwaZulu-Natal a children's health charter has been developed to guide health workers and facilities in recognising children as equal participants in their own health matters. In a paediatric palliative care non-governmental organisation, Paedspal, children engage in creative art and song and thus express their feelings and desires for their health care.

Building health facilities with children in mind

Support service policies do not always consider the need to prioritise children and adolescents, but in a child-centred system, this should be an integral consideration in policy and planning activities of finance, human resources or infrastructure development. Case 26 describes how children were purposively considered in the building of a district hospital, that would have required the finance, infrastructure development and engineering components to collaborate with clinical service providers in the design and construction of the children's ward.

Children's and adolescent's particular needs should be considered in how facilities are designed and built. For example, general hospital emergency departments and community health centres must have separate sections for children, so that children do not have to compete with more vocal and demanding adults or be exposed to significant trauma when faced by severe injuries and bleeding. The necessity for separate child waiting rooms was illuminated in research done more than 20 years ago.[19],These child-centred considerations have informed the development of the Infrastructure Unit Support Systems (IUSS) Guidelines for Neonatal and Paediatric Facilities.[20] The Guidelines outline a clear set of principles, norms and standards to inform the design of neonatal and paediatric wards and highlight the importance of consulting children and families. As stated in the guidelines:

Entering a hospital complex or any unknown environment can be daunting for adults, let alone children and young people. Every effort needs to be made to make healthcare environments friendly, welcoming and, where appropriate, focused on the healthcare needs of children.[21]

Case 26 provides an example of how children's needs were considered in the design of a district hospital.

Whilst these examples speak to specific elements of a child-centred health care system, the take-away message is that the needs of children and adolescents must be considered in the planning and delivery of all elements of the health system including both clinical and support services. This requires a systems-wide awareness of the needs of children and adolescents and an awarness of how to cater for their needs.

What might a child-centred district health system encompass?

The district health system is the primary interface between children, their families and the health care system and provides a range of services to promote maternal, child and adolescent health, while more complex or severe cases are referred to higher levels of care. For this reason, we have chosen to focus on the practicalities and possibilities for developing a stronger child-centred district health system.

The current structure

Formal state provision of child health services occurs at different levels. At a primary level, approximately 4,000 nurse-led clinics form the backbone of child health care and are the first point of contact for most children dependent on the public sector, whether for prevention or curative visits. Clinics deliver the lion's share of preventative child health interventions, such as immunisation, and curative care for uncomplicated acute illnesses. Getting child health services 'right' in clinics is therefore essential. Clinics in turn refer more acute and complex conditions to larger community

Case 26: Child-centred infrastructure: Dr Malizo Mpehle Memorial District Hospital, OR Tambo district, Eastern Cape

Malizo Mpehle Memorial District Hospital in the OR Tambo district of the Eastern Cape provides a good example of how to consider children's needs in infrastructural development. It has a beautifully designed child health ward, bright and airy, with a central play area inside which flows to a protected play area on the outside. The nurses' station is centrally placed, and smaller cubicles are arranged in a semi-circle in front of it to allow nurses to see into every cubicle. There is a reclining chair next to every bed/cot that allows caregivers to stay with their child and sleep comfortably. It means that the architects, engineers, financiers, hospital management, nurses and parents have all worked together to create a space that is responsive to the needs of both caregivers and children.

health centres, where nurses and medical officers offer more advanced curative, antenatal and obstetric services. Clinics and community health centres have also been earmarked as the preferred sites for the provision of adolescent- and youth-friendly services, although these have limited reach.

District hospitals provide out-and in-patient services for children who require more advanced care. These hospitals in turn refer to regional and specialist hospitals for secondary and tertiary level care.

A variety of community-based providers and support structures for child health exist, including the ward-based outreach teams (consisting of community health workers) who are intended to provide home-based care and services to children and families, and provide a link between households and facility-based services (as outlined in Chapter 11). Yet these teams have only recently been recognised in policy and their roles are still evolving and not fully established. Similar community-based services offered by non-governmental or faith-based organisations are not always known to the formal state service providers, nor are they adequately integrated with formal state health care to ensure synergy and continuity of care.

Current system challenges

Chapter 1 highlights significant inequalities in access and quality of care both between and within provinces and districts. This is further compounded by the idiosyncratic provision of child services at both clinic and district hospital level.[22] This means that no two clinics (or hospitals) in the same district offer services in a standardised way. What service is offered, where in the clinic it is delivered, by whom, and how it is offered is left to the discretion of the individual unit, as is the case with the idiosyncratic delivery of the Integrated Management of Childhood Illness (IMCI) strategy illustrated in Case 3.

Similarly, what exactly has to happen during a well-child visit remains open, for instance, developmental screening remains a "nice-to-have" rather than a prescribed activity.[23] This is especially concerning, given the compelling arguments for how one life phase impacts on the next.

Addressing current challenges in child health service provisioning has been done in a piecemeal, uncoordinated way, with a tendency to focus efforts on a particular issue or programme, rather than systemically addressing child health priorities.

For example, providing an integrated Maternal, Child and Woman's health (MCWH) and HIV service during well-child visits has been promoted by some as an opportunity to improve outcomes for mothers and children by reducing the number of clinic visits and ensuring they receive a comprehensive package of follow-up care. Yet it is complex and difficult to integrate the full range of mother, child and prevention of mother-to-child transmission of HIV services in

Case 27: Idiosyncrasies in the delivery of the integrated management of childhood illness

The IMCI strategy is regarded as a cornerstone of preventive, promotive and curative care for children at the primary level. It has three components: health worker training, health systems strengthening and improving family and community practices. In South Africa, health worker training has received the most attention and nurses have been trained in the delivery of IMCI.

Although the IMCI strategy has been offered at South African primary health care centres since 1998, it is not yet clear if this constitutes a prescribed, preferred or optional strategy for managing sick children. Thus, a sick child may or may not be offered the IMCI approach, by a professional or ancillary nurse who may or may not have any child health training. This may be done in a separate sick children's room, or one with sick adults, or another with well children. The encounter may be recorded on a structured form, clinic card, piece of paper or in the Road to Health Book. The decision about why the service is offered in a particular way may be the result of a decades-old historical decision or one established a month ago.

The current application of IMCI within facilities is largely interpreted as one clinician administering all components of IMCI (including triage, sick-child management, preventive care and health promotion) during a single consultation. While this is ideal, it has been cited as a barrier to the scorrect application of IMCI, mainly because it is time-consuming.

A proposed alternative is task-shifting, whereby auxiliary nurses or even trained lay health promotion providers deliver the prevention and promotion components of IMCI. While this threatens the holistic single provider delivery model, it could optimise the use of resources by allowing trained practitioners to focus on diagnostic and management tasks, while auxiliaries complete less skill-intensive components, with the potential for improved efficiency.

Case 28: Uganda's national plan for improving child well-being

Uganda is one of the youngest countries in the world with 49% of the population under 15 years of age. The National Action Plan for Child Well-being aligns five goals with the Sustainable Development Goals; namely, survival, development, protection, participation and implementation. It has three main objectives: 1) better health 2) better nutrition and 3) better care for children.

Measurable actions and national targets are tied to each objective and roles and responsibilities are listed for each level of society from national government through to the family to ensure that all spheres of influence are contributing to child well-being.[24]

The national action plan receives financial and technical support from major development partners including UNICEF, the World Bank and USAID ensuring that all partners contribute to one coherent framework. Focus areas under the **survival goal** include strengthening community support for breastfeeding and facilitating uptake of birth certificates for newborns.

The development goal focuses on strengthening parenting practices and increasing access to early child development services. The parliament has also set, and enforces, a compulsory primary school starting age. Under **the protection goal** the government has committed to conducting annual assessments of childcare institutions and closing those that are seriously sub-standard. **The participation goal** aims to promote meaningful participation by children, including adolescents, in decision-making processes through facilitating parliamentary sessions with and for children. **The implementation goal** aims to facilitate district, regional and national, exchanges to support cross-country learning and sharing of best practices on child well-being. At the national level an inter-agency, inter-ministerial Coordination Council has been established together with active implementation and review committees in all regions.

the South African setting as several health workers need to collaborate to provide services and skilled health workers are scarce, so human resources have to be used with maximum efficiency. Integration involves developing models suitable for this context, which may even vary from clinic to clinic according to space and staffing to provide, as far as possible, a seamless, user-friendly service.

The co-existence of integrated and vertical approaches has been a source of ongoing international debate with few tangible solutions. Policymakers need to consider mechanisms at both strategic and operational (service delivery) levels to improve the links. There is increasing recognition that a diagonal approach – which allows both vertical programmes (such as the Expanded Programme of Immunisation) and horizontal programmes (such as IMCI) to operate – may improve health system functioning.

While there are a number of vertical and horizontal programmes in place, there is no clear consensus of what constitutes ideal child care at a clinic or hospital. National initiatives such the Ideal Clinic model, while offering detailed guidelines on standards for a primary health care (PHC) service, have left this critical issue untouched.

The issue of what a child-oriented service looks like and how it might best be delivered, requires much more attention and demands national consensus before allowing districts and individual clinics the right to mould their service in response to local challenges, while remaining true to the underlying principles.

What needs to be put in place to ensure a coordinated approach to child health?

Developing a national plan for child health

The first step towards a child- and adolescent-centred system is to have a clear national plan and vision. Whilst South Africa has a fairly comprehensive body of policies, programmes and protocols to guide the structure, functioning and delivery of most aspects of child and adolescent health services, there is no overarching national policy with a clear implementation and advocacy plan on how to achieve child health goals. Having such a plan in place is particularly important, as current policy reforms towards National Health Insurance (NHI) and universal health coverage pay limited attention to child health.

There are very few examples of countries (almost all high income) with overarching national policies dedicated to child health and well-being. In Africa, Uganda sets an example of a low-income country with a national action plan for child well-being (Case 28).

South Africa with its upper-middle income status and available resources could lead the way in this regard, if a coherent movement for child health is put in place, with a

strong coordinating mechanism to ensure that all government departments are actively involved in the development of a National Plan of Action for Children.

Getting a basic package of services defined and in place

Part of having a national plan is to have a clearly defined package of basic health care services, as stipulated in the Constitution. Such an essential package of health care services is currently being developed by the Ministerial Committee on Morbidity and Mortality in Children under five (COMMIC). Ultimately the package must describe the essential services for children at each level of care, who should provide it and what must be in place for it to be delivered successfully.

As we move towards the implementation of NHI it is both urgent and essential to clearly define the "basket of care" that will be provided. The essential package of care for children could lead the way in this regard and must receive urgent attention by the National Department of Health. This package will allow children, adolescents and their families to know what their heath entitlements are and will enable evidence-based advocacy for child and adolescent health.

The plan must be costed and accompanied by clear norms and standards for staffing, infrastructure and equipment, and outline the necessary resource requirements. Whilst in the Ugandan example the resources are derived from non-state sources, it is essential that the plan has dedicated budget allocation. As an upper middle-income country that spends 8.5% of its gross domestic product on health, there are sufficient monetary resources to fully fund a basic health care service package for children, provided these are managed and directed appropriately.

Furthermore, if districts include the essential package of child and adolescent health care into their annual performance plans and budgets, it will allow for better tracking of budgets, unlike the current situation where it is impossible to adequately identify and monitor budget allocation to child health.[25]

Strengthening community-based systems for child health

There are other countries in Africa that have instituted health system reforms at the community level that have had significant child health benefits.

Community-based interventions remain a central component of preventive, promotive and curative health care. There is increasing evidence of the critical role of community providers in maternal, newborn and child health. An analysis of the impact of interventions delivered within community, PHC and hospital settings, found that interventions delivered within communities could avert 2.4 million maternal, newborn and child deaths compared with 0.8 and 0.9 million at primary health care and hospital levels.[29] The strengthening of community-based delivery platforms, by incorporating community cadres as integral members of district health teams, requires high level policy and budgetary commitments.

Examples of African countries that have prioritised community-based delivery of child health services include Malawi (Health Surveillance Assistants), Niger (Agents de Sante Communautaire) and Ethiopia (Health Extension Workers - see Case 29).[30]

In South Africa, good progress has been made to increase this cadre of health worker through the ward-based outreach teams (WBOTs),[31] yet many districts are still struggling to incorporate the WBOTs as part of the formal health workforce. WBOTs are meant to be located and supervised in the community-based arm of primary level care, in coordination with the facility-based services. An evaluation of the NHI pilot sites found that poor integration of WBOTs with PHC facilities led to a lack of clarity around their roles and compromised their training and supervision, while stakeholders at provincial and district levels describe how the unclear line of reporting for WBOTs adversely affected their success.[32] It is imperative for these challenges to be resolved, as CHWs form an essential part of the health workforce and if they are supported adequately, would make significant

Case 29: The Health Extension Programme of Ethiopia

In Ethiopia, an ambitious Health Extension Programme (HEP) was launched in 2003 which aimed to provide universal access to mainly preventive primary health care, through the recruitment of more than 34,000, government-salaried, mostly female health extension workers (HEWs), who receive one year of training. Over 16,000 health posts were built and two HEWs operate from each health post to serve a kebele, the smallest administrative unit of about 5,000 people. HEWs split their time between outreach activities and their health post.[26]

Since the launch of the HEP, the under-five mortality rate declined from 124 per 1,000 live births in 2003 to 58 in 2017.[27] An analysis of factors contributing to these declines noted reductions in stunting and improvements in the coverage of oral rehydration solution (ORS) and care-seeking for suspected pneumonia.[28]

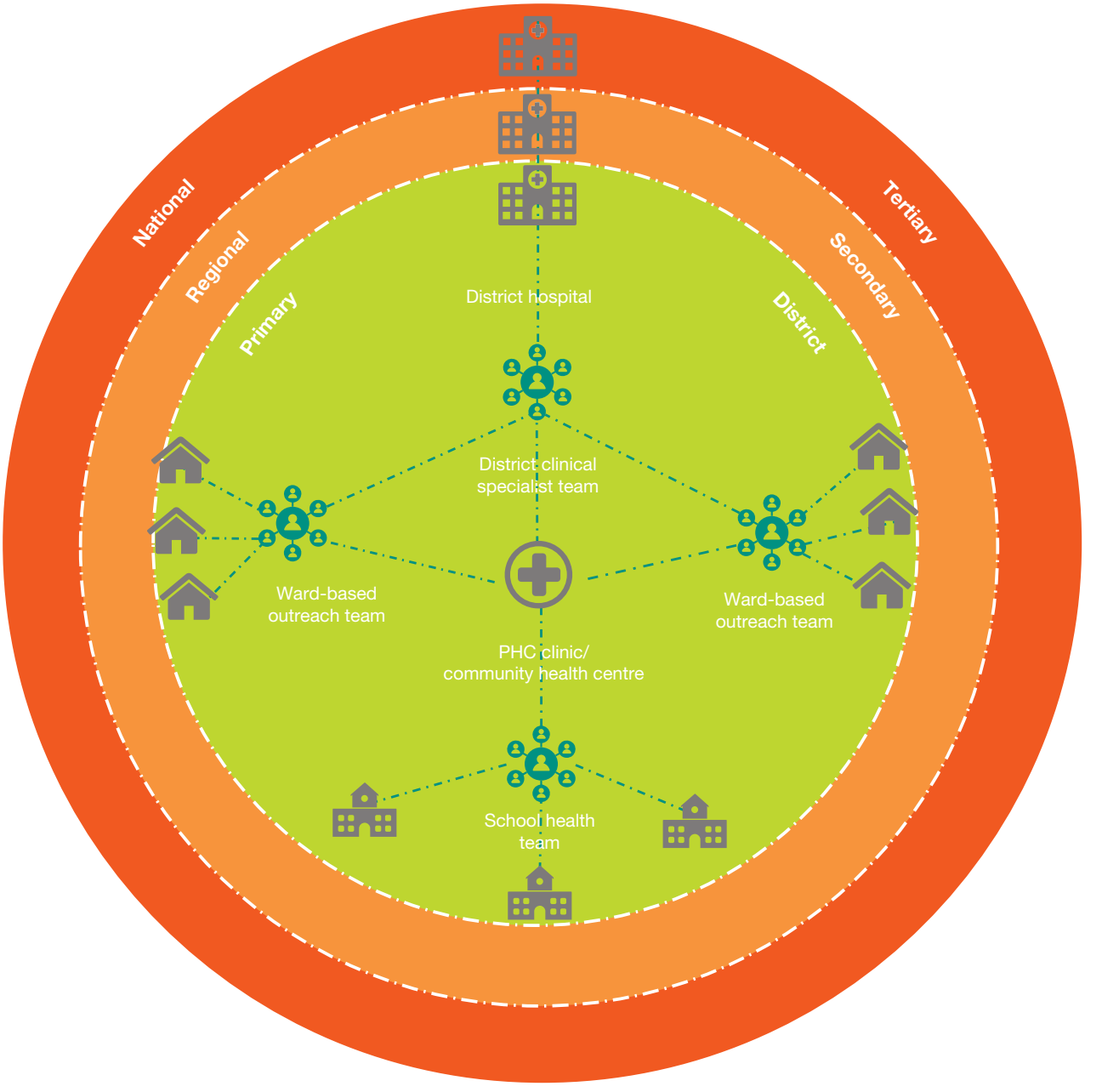
contributions to strengthening child and adolescent, and family health care.

What might a child-centred district health system encompass?

In South Africa the re-engineering of primary health care has introduced teams that have the potential to improve child and adolescent health if they work together in a planned and co-ordinated way. This includes the district clinical specialist teams (DCSTs) who provide clinical governance for maternal and child health, together with the WBOTs and school health teams. All of these teams provide essential outreach services in partnership with facility-based clinic and hospital teams (see Figure 58).

Box 19 outlines some of the important ingredients that need to be in place in order to build a child-centred district health system.

Figure 58: Teams and networks of care and support for child health at district level



Box 19: The systems ingredients for a child-centred district health system

At the provincial level

- A clear plan for child health, linked to a resource strategy and clear mechanisms for engagement with the necessary sectors and community-based systems. This is the responsibility of the district management team, in partnership with DCSTs, who oversee clinical governance.
- Strong leadership for child health, including clinical governance leadership such as should be provided by the DCSTs.

At the level of a district management team

- A designated person in the district management team to be the focal person for child and adolescent health in district planning and budgeting processes and developing district-level relationships with their counterparts in other sectors, as well as between levels of care.
- Explicit provision for child and adolescent health in district budgets

At a clinical governance level

- Every clinic, community health centre and district hospital manager must know what the requirements are for their facility to deliver good quality child health and be able to advocate for the necessary requirements
- Have clear coordination mechanism(s) for the delivery of a continuum of services, from household to district hospital.
- Facilitate the development of clear and functioning referral pathways and these must be explicit to all facilities.

At facility level

- Staff adequately trained, competent and confident in addressing the most common child health conditions to a high quality and efficiency level.
- Equipment and supplies to prioritise the continuous availability of essential paediatric medicines, paediatric-sized equipment (scales and height meters, paediatric-sized blood pressure cuffs, paediatric and neonatal-sized needles and laryngo-tracheal tubes amongst others).

Building teams, relationships and networks

- Teams for child health, as depicted in Figure 58, have the potential to form integral linkages as follows:
- The WBOTs span the boundaries between the home, community and clinics as the first line of contact with community-based support structures.
- The facility-based teams provide a clear link between clinics, community health centres and district hospitals.
- School health teams formally connect with schools and other sectors and non-profit organisation working in the school setting.
- The DCSTs are well-positioned to span the boundaries across sectors at district level and ensure that referral pathways work optimally drawing on their clinical expertise, and extensive networking.
- Designated boundary spanners to build networks and relationships across teams, and sustain these, across levels of care and across sectors.
- Specific forums for engagement with colleagues from other sectors and community-based health structures and build the capacity for every sector to understand their contribution to child health and motivate every sector to develop a 'child health in all' approach to their policies, planning and budgeting.

At a support service level

- Human resources: A critical mass of community health workers trained in neonatal, child and adolescent health care; child health-trained nurses in all clinics, community-health centres and district hospitals; and rehabilitation workers to provide for children's developmental and rehabilitative needs.
- Planning and budgeting: Child and adolescent health service package must be integrated and made visible in district annual budgets and performance plans.
- An essential drug list for child health, that is prioritised within district drug supply chains.
- A supply chain that procures the necessary child-sized and child-appropriate drugs, equipment and consumables.
- Information system: Have defined district level targets and key indicators of success for a child-centred system (not just individual child health outcomes), with associated monitoring and evaluation. For example, the proportion of facilities that are deemed child-and adolescent-friendly or coverage and distribution of staff trained in IMCI.
- Infrastructure development: Any new facility must be designed in a way that specifically caters for the needs of children, families and adolescents as outlined in the IUSS guides.

Table 32: Roles, responsibilities and actions required to provide child-centred care at district level

Roles and responsibilities	Examples of actions required
District management	
Ensure that all pillars of clinical governance are managed.	• Coordinate district teams to provide integrated child care – single programme coordinator for EPI, TB, HIV and IMCI. • Meet staffing needs.
Monitor and evaluate district child health indicators and respond appropriately.	• Track under-five and neonatal mortality rate, severe, acute malnutrition in-patient mortality rate and immunisation coverage.
Include paediatric activities and budgeted items in annual district performance plan.	• Specify budget allocations for child health in every annual district performance plan
Clinic manager	
Organise paediatric care to optimise child health outcomes.	• Conduct monthly performance evaluations through dashboard indicators.
Arrange staff duties and rotations to maximise patient outcomes.	• Retain IMCI trained staff for at least two years after training. • Support outreach – identify WBOT leader at the clinic.
Ensure equipment, essential medication, etc. meet norms and standards and are available.	• Apply monitoring systems within the clinic that allow this.
Clinic staff	
Optimise child care delivery.	• Offer IMCI as the preferred method of sick care. • Extend well-child care delivery beyond immunization. • Booking system for well-child care.
Strive for quality.	• Use outcome data to gauge quality of care.
District clinical specialist team (paediatric dyad)	
Improve clinical effectiveness.	• Mentoring support to staff, review mechanisms and development of facility specific action plans, including implementation of protocols.
Manage clinical risk.	• Analyse and learn from adverse events and deaths (mortality and morbidity audits).
Assist professional development and management.	• Staff training, supervision, monitoring and mentoring.
Create demand.	• Behaviour change of patients promoted through improved quality of services.
Establish accountability.	• Collect, interpret and respond to data. • Demand responsibility from administration and staff for clinical outcomes.
Ward-based outreach team	
Deliver individual maternal, neonatal and child care.	• Support breastfeeding, promote growth, prevent and rehabilitate severe acute malnutrition.
Support community health activities outside the household.	• Support groups (breastfeeding, HIV adherence), school health.
Integrate own function with that of other departments.	• Ensure access to water and sanitation (local government), social grants (social development), ID documents and birth certificates (home affairs), maintenance (justice); initiate community food gardens (agriculture); report domestic violence and abuse (social development and police).

Case 30: Limpopo Maternal Care: Addressing neonatal mortality through respectful maternal care
LimMCARE project team, University of Limpopo Trust

Limpopo had made significant strides in reducing neonatal mortality through the Limpopo Initiative for Newborn Care (LINC). However, progress has slowed and the deaths of babies (> 2.5kg) due to birth asphyxia are a particular cause for concern. An innovative and "out-of-the-box" solution was needed.

The Limpopo team embarked on an extensive evidence-informed process, which included a literature review, a causal tree analysis and learning from practices elsewhere in South Africa, in order to inform their response to problems in maternal and neonatal care. This extensive exercise identified 'negative staff attitudes' as one of the key drivers for poor maternal and newborn outcomes. This was in keeping with the WHO's identification of Respectful Maternity Care (RMC) as essential in improving intrapartum care. This led to the creation of the Limpopo Maternal CARE (LimMCARE) project, which provides support across the full continuum of care, from sexual and reproductive health and rights to antenatal care, labour and child birth.

The programme aims to ensure that all women have a positive pregnancy and birth experience, including giving birth to a healthy baby in a clinically and psychologically safe environment with practical and emotional support from a birth companion and kind, technically competent clinical staff. The programme is being piloted in the Greater-Letaba sub-district which consists of a district hospital, one community health centre and 20 clinics. RMC champions in each facility and RMC advocates in sub-district and district management were identified.

An intensive mentorship approach focused on improving communication with clients, supporting women to deliver in their position of choice, promoting the use of birth companions and pharmacological and non-pharmacological pain relief.

Antenatal classes were also started to empower pregnant women to become active participants in their pregnancy, labour and birth. The classes cover safe and planned conception, the three trimesters of pregnancy, labour, birth, postnatal care, kangaroo mother care and breastfeeding. Further support is provided through a facilitator guide, teaching aids and a toolkit of pain relief tools such as birthing balls, massages, heat and cold packs, aqueous cream and Vaseline. As well as a booklet to guide and support pregnant women throughout their pregnancy journey.

Health care providers were initially sceptical about birth companions being in the labour ward. Yet, health care providers now claim that the presence of birth companions has created a calm atmosphere in the labour ward and this enables them to provide better quality care.

The programme recognized that every single person who interacts with a pregnant woman within the health system needs to adhere to the principles of respectful care and has therefore extended the programme to sensitise and acknowledge the role of emergency medical services, cleaners, clerks and security staff.

Caring for the carer is an integral part of RMC. Health care providers who feel respected and valued in the workplace are more inclined to respect and value their clients. A merit system has been introduced to acknowledge and motivate individuals and facilities.

Imparting knowledge and skills is critical and fairly straight forward. Changing attitudes, which is a prerequisite for translating knowledge into practice, is far more difficult and requires constant and long-term mentorship. Health care providers need to internalize respectful care in order to change their behaviour towards patients. It is not about ticking boxes. It is about providing care from the heart.

Maternal deaths at Kgapane Hospital have declined from 18 deaths in 2015/16 to seven deaths in 2017/18, and at the time of going to press there had been no maternal deaths since November 2018. While there has not yet been a noticeable impact on the overall neonatal mortality rate, it has reduced asphyxia, which was the cause of 26% of neonatal deaths in 2016/2017, to only 10% of deaths in 2018/19.

Whilst these elements require further elaboration, discussion and debate Table 32 offers some tangible suggestions on how child health in a district could be improved by district management, the DCSTs and WBOTs.

It is also important to consider the central role of clinics as these facilities are the first stop in the formal health system for children and families and form the 'backbone' of child health services at the district level. While the current drive to establish Ideal Clinics is one potential channel for quality improvement, it has only recently integrated a set of adolescent-friendly standards and does not yet consider the specific needs of younger children. An "Ideal Clinic" from a child-centred perspective should be one in which:

- every nurse practitioner has knowledge of the basic child health conditions and is equipped to manage these;
- nurses are supported with the correct child-specific equipment and essential drugs;
- spaces are configured to prioritise children in queues and preferably have separate waiting rooms;
- functional referral pathways link children and families to community health centres and districts hospitals;
- each facility has a directory of the available support services in the surrounding community and contact details of their peers in other sectors such as social development, safety and security. For example, schools in the Free State have employed an 'adopt a school' concept with SAPS, social development and clinics in their area. A similar approach of inviting other sectors to 'adopt a clinic' may be helpful in building intersectoral networks of support; and
- facility managers and health care workers are actively encouraged to work across boundaries and strengthen linkages between clinics, homes, communities and other sectors in order to strengthen support for children and families.

Finally, there are a number of crucial service providers who impact on child health but are not currently part of the formal health system. These include:

- environmental health officers who are crucial in overseeing safe and health-promoting environments where children live, learn and play,
- rehabilitation workers who support children with disabilities and long term health conditions, and
- palliative care service providers who are primarily employed within non-governmental organisations and who provide multi-disciplinary support, care and treatment to children and families.

How are some of these approaches being applied in practice to address common childhood conditions?

The following three cases illustrate how it is possible to deliver child- and family-centred care at the district level. It requires innovative thinking, and a willingness to extend services beyond the usual boundaries, and it needs a champion to lead the way.

Case 31: Linking children with severe acute malnutrition to community health workers: The Stanger experience

Vanessa Comley, General Justice Gizenga Mpanza Hospital (Formerly Stanger Hospital), KwaZulu-Natal Department of Health

Severe acute malnutrition (SAM) is a major contributor to morbidity and mortality in children under five years in the Ilembe district of KwaZulu-Natal. While mortality from SAM has been reduced through the World Health Organization's in-patient guideline, reducing the incidence requires the involvement of community health workers (CHWs).

The KwaZulu-Natal Integrated Management of Acute Malnutrition (IMAM) programme includes referral of all children with SAM to CHWs by the health facilities. The aim is to provide education, screen households, identify and refer at-risk children and support patients following discharge.

Stanger Hospital developed a standard operating procedure to improve communication with CHWs. Following admission of a child with SAM, the CHW is contacted and informed. A home visit is done to screen other children in the household, assess the context and identify risk factors. This information is conveyed to the hospital's multi-disciplinary team (MDT) to resolve any problems that impact on maternal and child health. Monthly meetings are held between the MDT and CHW supervisors to address difficult cases, problems and discuss educational topics.

This collaboration and linkage increased from 20% in 2015 to 100% in 2018. Previously, all children hospitalized with SAM were included in an MDT programme involving weekly ward rounds, daily management, admission of mothers to aid nutritional rehabilitation, education and toy-making. Moving forward, we need to strengthen CHWs to facilitate home management of uncomplicated SAM cases.

Strengthening the link between the health facilities and CHWs led to a reduction in SAM admissions from 432 to 99 between 2013 and 2018. SAM deaths declined from 61 to 4 and the case fatality rate from 14.4% to 4%. This is probably related to increased awareness and education of CHWs and improved screening and early intervention in children with moderate acute malnutrition.

Further reductions call for stronger intersectoral collaboration between the Departments of Health, Home Affairs, Social Security, Social Development, Education and Agriculture to prevent acute malnutrition.

Case 32: A rights-based, intersectoral intervention to support pregnant learners and teen mothers

Estelle Lawrence (Western Cape Department of Health) and Catherine Matthews (Health Systems Research Unit, South African Medical Research Council)

Pregnancy during adolescence can have a devastating impact on the health and well-being of adolescent mothers, which lasts into adulthood, and which also undermines the health and well-being of her child. Adolescent pregnancy is a major contributor to maternal and child mortality, and it leads to school dropout, lower educational attainment, and other negative social and economic effects, and to intergenerational cycles of ill-health and poverty.[33]

Therefore, pregnant and parenting adolescents need support to meet their own health needs and those of their neonate/infant. They also need support to meet their educational and social protection needs.

There is strong evidence that schools that create linkages with health services or offer school health services are more effective at supporting pregnant and parenting adolescents than schools without such linkages.[34] An innovative model of providing support to pregnant and parenting learners is being implemented in Cape Town by the Department of Health and their funded community organisation.

They have established two school-based support groups for pregnant and parenting learners. The groups are run by health promotion officers (HPOs) who are based in the health facility in the area of the school and supported by the school health team. The groups take place in the school's weekly, 45-minute "admin" period, and the programme is focused on the needs of the young mother and her neonate/infant, covering among other things contraception, HIV testing, the Road to Health book and immunization, parenting, and the rights of pregnant and parenting learners.

The programme strengthens links between the learners and the PHC services in their area. For example, the school nurse is invited to sessions and has given her cell number to the adolescents so that they can contact her for fast-tracking their contraceptive and immunization appointments at the clinic without missing school. Intersectoral links are forged through the programme – the HPOs refer concerns to CHWs who are available to visit adolescent mothers who struggle to return to school after their child is born.

The CHWs can link the adolescent mothers to the appropriate social protection services for grants and other services. The Department of Education social worker, who did not previously know about learner pregnancies, has been involved in the programme and now provides parenting sessions. The adolescents support each other through the stages of pregnancy and motherhood by, for example, accompanying one another to clinic appointments.

This innovative programme fosters a safe and supportive learning environment in the school for pregnant and parenting adolescents by reducing stigma and discrimination against them. It also promotes their health and the health of their children and allows them to fulfil their right to education. It is a model programme which could achieve key policy goals set down in the Department of Basic Education's Draft Policy on the Prevention and Management of Learner Pregnancy.[35]

- Case 30 describes how efforts to improve neonatal outcomes need to look upstream and enhance women's experiences of labour and antenatal care.
- Case 31 highlights the importance of building strong referral systems and strengthening the links between hospitals, families and community-based services in order to reduce deaths and admissions of children with severe acute malnutrition (SAM).
- Case 32 highlights the potential role of schools in extending the reach of services beyond clinics to support pregnant learners and teen mothers.

These cases provide some examples of what it takes to create a holistic, systems approach to common child health issues:

- champions to take initiative and drive the issue until it becomes part of routine practice;
- reaching across sectoral boundaries to work with sectors that integrally influence child and adolescent health. An intersectoral approach is potentially where the greatest traction lies. It requires some effort beyond the usual job description, but once established, does not require large amounts of time; and
- drawing on existing teams within the health system – and beyond – to drive the process, which enhances legitimacy and sustainability.

Conclusion

A child-centred health system is not only feasible, as demonstrated by a number of practical examples in this chapter, but essential to enable a co-ordinated and sustainable approach to improving the well-being of children and adolescents. It requires individuals and teams within the health system to recognise the importance of working with one another, as well as working with a variety of teams in community-based structures and other sectors to address the key determinants of child health and promote well-being.

Key to these teams are community health workers and other boundary spanning teams, that form important links between families, communities, the formal health service and other sectors that influence child health.

At the heart of it all, is the need to be accountable for our constitutional obligation towards children and the need to recognise children, regardless of their age, as equal partners in making decisions about their own health.

This requires a shift in both thinking and practice, and the re-orientation and training of a wide range of actors in the broader health system to better understand our obligations to uphold children's rights and prioritise their health care needs.

It also requires a strong civil society through which we can hold our political leadership accountable, as they are the ultimate accounting officers for addressing the health and well-being of all children and adolescents in South Africa.

References

1 Office of the High Commissioner of Human Rights (1989) *Convention on the Rights of the Child, UN General Assembly Resolution 44/25*. Geneva: United Nations. Article 24.
2 See no. 1 above. Article 3.
3 Personal communication, Dr Michelle Meiring, 10 October 2019.
4 Kuruvilla S, Schweitzer J, Bishai D, Chowdhury S, Caramani D, Frost L, Cortez R, Daelmans B, Francisco AD, Adam T & Cohen R (2014) Success factors for reducing maternal and child mortality. *Bulletin of the World Health Organization*, 92. PP. 533-544.
5 Patcharanarumol W, Tangcharoensathien V, Limwattananon S, Panichkriangkrai W, Pachanee K, Poungkantha W, Gilson L & Mills A (2011) Why and how did Thailand achieve good health at low cost? In: Balabanova D, McKee M & Mills A (eds) '*Good health at low cost' 25 years on: What makes a successful health system?* London: Charlesworth Press.
6 Sumriddetchkajorn K, Shimazaki K, Ono T, Kusaba T, Sato K & Kobayashi N (2019) Universal health coverage and primary care, Thailand. *Bulletin of the World Health Organization* 2019, 97: 415-422. DOI: http://dx.doi.org/10.2471/BLT.18.223693
7 Department of Health (1997) *White Paper for the Transformation of the Health System in South Africa*. Pretoria: DoH.
8 National Health Insurance Bill, B11 – 2019.
9 Lenton S, Lie SO, Expert Committee (2014) Council of Europe guidelines for child friendly health care. *Pädiatrie & Pädologie*, 49(1): 9-18.
10 Lenton S & Ehrich J (2015) Approach to child-friendly health care—The Council of Europe. *The Journal of pediatrics*, 167(1): 216-218.
11 See no. 11 above. (Lenton S & Ehrich J, 2015)
12 Vriesendorp S, De la Peza L, Perry CP, Seltzer JB & O'Neil M (2010) *Health Systems in Action. An E-handbook for leaders and managers*. Cambridge: Management Sciences for Health.
13 Aragón AO (2010) A case for surfacing theories of change for purposeful organisational capacity development. *IDS Bulletin*, 41(3): 36-46.
14 Elloker S, Olckers P, Gilson L & Lehmann U (2012) Crises, routines and innovations: The complexities and possibilities of sub-district management: leadership and government. *South African Health Review 2012/2013*. PP. 161-173.
15 Berry L (2017) Caring for children: Relationships matter. In: Jamieson L, Berry L & Lake L (eds) *South African Child Gauge 2017*. Cape Town: Children's Institute, UCT.
16 Kirby P, Lanyon C, Cronin K & Sinclair R (2003) Building a Culture of Participation: Involving children and young people in policy, service planning, delivery and evaluation. *Service Planning, Delivery and Evaluation, Department for Education and Skills Publications*, Nottingham;
Bray R (2011) Effective children's participation in social dialogue. In: Jamieson L, Bray R, Viviers A, Pendlebury S, Lake L & Smith C (eds) *South African Child Gauge 2010/11*. Cape Town: Children's Institute, UCT.
17 RX Radio (2019) Procedural pain: Children and Parent's voices 2018. Viewed 18 November 2019: https://rxradio.co.za/mhj-audio-visuals/
18 Kruger J & Coetzee M (2011) Children's relationships with professionals. In: Jamieson L, Bray R, Viviers A, Pendlebury S, Lake L & Smith C (eds) *South African Child Gauge 2010/11*. Cape Town: Children's Institute, UCT.
19 Mathambo V & Shung-King M (2001) Primary level after-hours health services for children: A look at the Western Cape Metropolitan region. *South African Medical Journal*, 91(6): 486-488;
See no. 19 above. (Mathambo V & Shung-King M, 2001)
20 Infrastructure Utility Support Systems Project (2014) IUSS Health Facility Guide: *Neonatal and Paediatric Units*. Gazetted 30 June 2014. Pretoria: DoH.
21 National Health Service Estates (2004) Improving the patient experience: Friendly healthcare environments for children and young people. In: National Department of Health (2014). *IUSS Guidelines: Neonatal and Paediatric Facilities*.
22 Thandrayan K & Saloojee H (2010) Quality of care offered to children attending primary health care clinics in Johannesburg. *South African Journal of Child Health*, 4(3): 73-77.
23 Naborn B (2016) The use of the road-to-health booklet developmental screening in the detection and referral of early developmental delay in the Pelonomi hospital drainage area. Unpublished thesis. Faculty of Health Sciences, University of the Witwatersrand.
24 Government of Uganda (2015) *National Action Plan for Child WellBeing*, 2016 - 2021. Kampala: Government of Uganda.
25 Shung-King M, Kaime T, Michelson L, Proudlock P & Poanne A (2004) Children's rights to health. In: Streak J & Coetzee E (eds) *Monitoring Child Socio-Economic Rights in South Africa: Achievements and challenges*. Cape Town: Institute for Democracy in South Africa;
UNICEF South Africa (2017) *Health Budget South Africa 2017/18*. Pretoria: UNICEF.
26 Black RE, Laxminarayan R, Temmerman M & Walker N (2016) *Reproductive, Maternal, Newborn and Child Health: Disease control priorities*. 3rd edition. Washington: World Bank.
27 Leon N, Sanders D, Van Damme W, Besada D, Daviaud E, Oliphant NP, Berzal R, Mason J & Doherty T (2015) The role of 'hidden' community volunteers in community-based health service delivery platforms: examples from sub-Saharan Africa. *Global Health Action*; 8(1): 27214.
28 Addis Ashenafi AMK, Ameha A, Erbo A, Getachew N & Betemariam W (2014) Effect of the health extension program and other accessibility factors on care-seeking behaviors for common childhood illnesses in rural Ethiopia. *Integrated Community Case Management (iCCM) at Scale in Ethiopia: Evidence and Experience*, 52: 57.
29 UN Inter-agency Group for Child Mortality Estimation (IGME) (2019) *Child Mortality Estimates*. Viewed November 2019: http://www.childmortality.org/
30 Doherty T, Rohde S, Besada D, Kerber K, Manda S, Loveday M, Nsibande D, Daviaud E, Kinney M, Zembe W & Leon N (2016) Reduction in child mortality in Ethiopia: analysis of data from demographic and health surveys. *Journal of Global Health* 2016; 6(2).
31 Genesis Analytics (2019) Evaluation of Phase 1 implementation of interventions in the National Health Insurance (NHI) pilot districts in South Africa. Johannesburg: Genesis Analytics.
32 Department of Health (2011) *Provincial Guidelines for the Implemention of the Three Streams of PHC Re-engineering*. Pretoria: DoH.
33 World Health Organization (2018) *Adolescent Pregnancy*. Geneva: WHO. Viewed 19 November 2019: www.who.int/news-room/fact-sheets/detail/adolescent-pregnancy;
Gigante DP, de França GV, De Lucia Rolfe E, Lima NP, dos Santos Motta JV, Gonçalves H, Horta BL, Barros FC & Ong KK. (2019) Adolescent

parenthood associated with adverse socio-economic outcomes at age 30 years in women and men of the Pelotas, Brazil: 1982 Birth Cohort Study. *BJOG*, 126(3): 360-367;
Bahamondes L (2019) Long term social consequences of adolescent pregnancy. *BJOG*, 126(3): 368.

34 United Nations Educational, Scientific and Cultural Organization (2017) *Early and Unintended Pregnancy and the Education Sector: Evidence review and recommendations*. Paris: UNESCO. Viewed 15 November 2019: unesdoc.unesco.org/ark:/48223/pf0000251509.

35 Department of Basic Education (2018) *Department of Basic Education Draft National Policy on the Prevention and Management of Learner Pregnancy in Schools*. Pretoria: DBE.

Building a workforce for a child- and family-centred health service

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Over the past two decades the demographic profile of children and the epidemiology of child health have changed, and the Sustainable Development Goals[1] (SDGs) have succeeded the Millennium Development Goals (MDGs).[2] These changes have created a new focus for child health through a life course approach that addresses three broad concepts of "Survive", "Thrive" and "Transform".[3] This focus, together with the renewed commitment to universal health coverage and primary health care (PHC), requires a new approach to child health.

The new focus needs to consider children throughout the first two decades of life, explore both neonatal and adolescent mortality, include child and adolescent development and well-being, and consider the quality and effectiveness of care. Whilst this life course approach does not require a new service delivery platform, it does require a workforce with a wider range of skills than those previously required to simply ensure the survival of the child.

Although South Africa did not achieve its MDG target of an under-five mortality rate below 20 deaths per 1,000 live births, the country has made great improvements in child survival and is on track to achieve the SDG target. As mortality rates decline, the country will need to place increasing emphasis on ensuring that every child not only survives but thrives as well.

Whilst support for thriving must maintain existing prevention and promotion activities, it also needs to promote the optimal growth and development of infants, young children and adolescents as well as support the functioning and integration of children and adolescents with disabilities and long-term health conditions into normal household and community life. To achieve these, a significant shift in services is needed to ensure easy access to quality, comprehensive and holistic care as close to home as possible.

Despite the adoption of a primary health-care model and the re-engineering of primary health care in South Africa, many health services remain specialised, hospital-centred, unequal and inaccessible to children across the country, particularly those living in more rural provinces. To correct this will require reform at all levels of the health service. This includes improved governance and leadership at the provincial level; coordination, support and multi-disciplinary teams across each district; and a committed primary health-care workforce with appropriate clinical skills and an understanding of health systems and clinical governance issues.

A child-friendly health workforce at district level should comprise community health workers; registered nurses; allied health professionals; specialist children's nurses; and generalist doctors able to deliver comprehensive, holistic and relevant care. Such a workforce needs to be trained in settings that are similar to the ones in which they will work, by clinically competent teachers who use a curriculum that includes a rich understanding of the local context and details of current child health programmes, delivers graduates with identified exit competencies, and expose them to multi-disciplinary care and teamwork within health and greater collaboration with other sectors.

At a policy level, the 2019 appointment of a Ministerial Task Team on Human Resources for Health (HRH) presents an opportunity to develop a 2030 strategy that responds to South Africa's disease burden in general, and to the needs of children and their families in particular. The HRH strategy should be rooted in South Africa's National Development Plan and committed to providing quality universal health coverage.

Community health workers

Ward-based primary health-care outreach teams (WBOTs) are considered an essential component of the delivery of PHC services in South Africa. In 2011, the National Health Council mandated the establishment of WBOTs as part of the primary health care re-engineering strategy.[4] South Africa has a long history of community health worker (CHW)

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Case 33: Operation Sukuma Sakhe

Operation Sukuma Sakhe (OSS), which means "stand up and build" in isiZulu, is an initiative of the premier of KwaZulu-Natal to bring together government, municipalities, NGOs and communities to fight poverty. Building on the military metaphor, OSS acts as a united front that battles poverty from "war rooms" in municipal wards. These are bases for community development workers, community health workers, youth ambassadors and other field workers who can be called on to work towards the ideals of poverty alleviation and meet people's most basic needs. The approach rests on the three pillars of political management, coordination, and oversight with a target to provide services to the most vulnerable groups at the household and community level.

OSS seeks to ensure accountability for service delivery that starts at the highest level with the premier and moves down the executive chain to the district OSS champion and then the local ward management. At ward level the coordinating body, the ward committee or the "war room", is tasked to deliver a basket of services in five critical areas: community partnerships, behaviour change, integration of government services, economic activities, and environmental care. They coordinate the delivery of services and communication between communities and the various levels of local government.

The CHWs are employed and managed by the province and form part of a team of community providers. They are allocated a set number of households in their ward and undertake a profile of each household to identify needs.

The primary beneficiaries of OSS are the most vulnerable in poor households including women, children, youth, unemployed adults, unskilled and illiterate adults, the chronically ill, people with disabilities, and the elderly. The CHWs present the findings of their household profiles at the weekly "war room meetings" and cases are referred to the most suitable government department or community partner for action (e.g. education, social development, local policing, etc.) The data collected from these outreach activities at household level are linked to the provincial information system.[5]

Innovative solutions to social challenges are developed through community partnerships. Examples include the creation of senior citizen's feeding schemes, sewing groups, and farming co-ops. In addition to bringing care and access to social services closer to households, OSS has also assisted with job creation and poverty reduction through the employment of youth ambassadors and CHWs who can become change agents for their households and communities

engagement in the health and social sectors, particularly in the 1970s and '80s, when non-governmental organisation (NGO) initiatives towards community-oriented primary health care were initiated. Consequently, many of the CHWs joining the new teams have a history of undertaking community development work.

The composition and scope of the teams are guided by the Policy Framework and Strategy for Ward Based Primary Healthcare Outreach Teams 2018/19 – 2023/24.[6] The teams comprise six to ten CHWs, one outreach team leader and one data capturer who are responsible for the provision of preventative, promotive, curative, rehabilitative and palliative services to families/households.[7] Ideally the teams should be led by a registered professional nurse but a shortage of this cadre has hampered the establishment and functioning of WBOTs in several provinces. In response, some provinces have started employing enrolled nurses[i] who should have received some additional training in community health nursing.[ii]

Scope of practice

While maternal, child and women's health and nutrition are a focus for CHWs, these areas are only one aspect of their scope of practice which also includes HIV and TB, non-communicable diseases (NCDs) and household social support. Furthermore, CHWs' role in maternal, newborn and child health is restricted to preventive and promotive activities with no curative functions. There is strong evidence that CHWs can effectively assess, classify and initiate treatment for suspected pneumonia and diarrhoea at household level[8] and, given that these are two of the leading causes of under-five mortality in South Africa,[9] consideration should be given

i The 2019 National Policy on Nurse Education and Training excludes this two-year certificate trained category of nurses and replaces this training with a three-year diploma. The new category of nurse will be referred to as a "registered general nurse".

ii In response to the increasing demand for PHC-oriented training, a new undergraduate curriculum has been piloted and the first graduates of the three-year programme will qualify as registered nurses, replacing the category of enrolled nurses. While the training orientation will be different, it's not clear to what extent these new competencies relate to children and child health.

to expanding their scope of practice so that they are able to initiate treatment for suspected pneumonia – especially in districts where access to health services is poor.[10] This would require a change to the Medicines and Related Substances Act. A formal regulatory framework to govern CHWs' scope of practice and provide protection for this cadre of health worker is also required.

Numbers and ratios

At the end of 2017/18, there were a total of 3,323 WBOTs providing basic health services to children and adults in approximately 12.8 million households,[11] a ratio of roughly one team per 3,856 households. Given the quadruple burden of disease in South Africa, this ratio of CHWs to the population is unlikely to achieve the desired health improvements and compares unfavourably with Brazil (1 CHW to 800 people) and Rwanda (1 CHW to 255 people). A higher CHW-to-population ratio would increase the frequency of contact with community members and thus increase the potential impact on behaviour change and coverage of health interventions.

Implementation

Provinces have scaled up the ward-based teams differently, with some (North West and KwaZulu-Natal) allowing districts to directly employ CHWs and others (Western Cape) contracting NGOs to employ CHWs. Some provinces (Gauteng) have built structures (health posts) which can be used by teams to store paperwork and equipment and as a base from which to conduct home visits. In other provinces the teams are attached directly to health facilities overseeing their catchment areas.

However, many teams are poorly integrated into these facilities. Research on the early implementation of the programme in the North West has indicated that clinic managers were poorly briefed about the teams and therefore did not fully own the strategy. This has the potential to limit the effectiveness of referrals between CHWs and clinics.[12] Oversight and supervision of the teams are the primary responsibility of the team leader. However, the recent evaluation of the National Health Insurance (NHI) pilot sites found that many teams did not have a team leader, which led to poor supervision and unclear lines of reporting.[13]

Provinces are experiencing varying levels of success with the implementation of the ward-based teams. One implementation strategy which holds lessons for other provinces is the Operation Sukuma Sakhe programme in KwaZulu-Natal (see Case 33).

The ward-based teams have the potential to greatly improve the coverage of PHC services and to strengthen the links between families and health facilities, particularly in rural and hard-to-reach areas; but only if they are implemented with optimal CHW-to-population ratios, and with a broader scope of practice and within a supportive infrastructure. Recent research in Gauteng found that 85% of CHW home visits were for TB, HIV or chronic NCDs, whilst less than 10% of visits were for maternal and child health or nutrition.[14] With the quadruple disease burden and the urgency of ensuring a regular supply of chronic medication, far more CHWs are needed to ensure that the needs of mothers and children are not neglected.

Potential benefits

A recent investment case[15] found that increasing the number of community health workers to 96,000 (from the current 60,000) and paying them a stipend of R3,500/month, including costs for training, equipment and supervision, would over 10 years avert deaths and save costs. The modelling assumed, conservatively, that a well-functioning CHW platform would increase the coverage of a selection of interventions by 10%. This would translate into 34,800 additional lives saved over 10 years and over one million disability-adjusted life years would be averted. Improvements to feeding practices would have the biggest impact.

The case detection and referral that CHWs could provide for pneumonia and diarrhoea would account for 28% of the deaths prevented. Preventive care (support for improved hygiene and sanitation practices) accounts for 14% of lives saved. Employing 96,000 mainly poor women would boost expenditure in the economy with broader positive impacts within households because the stipends paid will reduce poverty and are likely to be spent on the health, education and nutrition of children. Such employment of women would add an additional R13 billion to South Africa's gross domestic product over a period of three years.

The district level nursing workforce

While community-based health care in South Africa has been significantly strengthened by CHWs and lay-councillors, nurses remain at the core of health-care service delivery to children. Indeed, nurses are frequently the main – and sometimes the only – cadre of health professional at the frontline of child health-care provision in clinics and at district hospitals, where medical cover from doctors is often limited to daily ward rounds.

The National Policy on Nursing Education and Training[16] aims to ensure that the nursing workforce is better aligned

to the needs of the health-care system and able to support the re-engineering of PHC at district level. The Nursing Act[17] established three categories of nursing – professional nurses, general nurses (staff nurses), and auxiliary nurses – whose roles are regulated by the South African Nursing Council (SANC).

All three categories of nurses have had to date a broad-based training with no learning outcomes or competencies specifically focused on child health. But new scopes of practice for registered general and professional nurses have been developed by the SANC and will start being implemented in 2020. In 2013, the SANC recognised two further categories of specialist nurses:[18]

- **Nurse specialist:** These nurses have a postgraduate diploma, and in-depth knowledge and expertise in a specific practice area such as paediatric nursing.
- **Advanced nurse specialist:** These nurses have the equivalent of a master's degree that combines in-depth clinical specialisation with strategic leadership, health service management, research and policy-making.

These two levels of training and practice have the same foundation but differ in extent and scope of their roles and responsibilities. For example, a specialist paediatric nurse may be responsible for a clinic or ward, while advanced specialists work across levels of care with defined patient groups. The SANC describes the paediatric nurse specialist as "a change agent with advanced knowledge and skills to put into practice, as well as a researcher for evidence-based practice, and a nurse consultant for students, staff and the multidisciplinary team".[19] This definition highlights how the work of paediatric specialist nurses should not be directed primarily at illness and injury, but rather at supporting health and health care. For example, by managing stress; ensuring comfort; and maintaining adequate nutrition and hydration, skin integrity, hygiene and mobility.[20] Paediatric specialist nurses also work intentionally with children's parents, families and other nurses, equipping them with the knowledge and skills to provide care and support to children timeously.[21]

They also address – and coordinate – the complex care needs of children, drawing on their clinical expertise and complex decision-making skills with the aim of keeping time in hospital to a minimum in line with a PHC approach. The advanced role is well established in both North and South America and in European health-care settings, particularly in practice roles that span systems and provide care coordination for specific patient populations with often long-term care needs. The new SANC framework provides an opportunity to formalise these roles in South Africa.

However, despite the potential contribution of children's nurses, it is unclear to what extent the development of a specialised registered children's nursing workforce is being pursued as a deliberate policy objective in South Africa. Although the potential contribution of children's nurses is signalled in the SANC's competency frameworks and position statements, in reality their roles in clinical service provision remain unclear and most children's nurses are deployed in hospitals, particularly at higher tiers of service delivery and acuity.

The children's nursing workforce

The number of children's nurses currently in practice is extremely small in relation to South Africa's extensive child population. A recent survey suggests that there are approximately 3,115 specialist children's nurses registered nationwide – not all of whom are in practice.[22] This represents a ratio of one child nurse to 5,136 children aged 0 – 15 years. Training output of children's nurses has grown steadily since 2006,[23] with seven training institutions offering 11 different programmes and producing approximately 180 children's nurses per year. The phasing out of "legacy qualifications" is likely to reduce the number of training providers as these programmes are realigned to the national qualification framework and offered as postgraduate diplomas by higher education institutions.

Ideally, there should be a sufficient number of children's nurses to respond to the demand for care in children's wards at district hospitals and other health facilities, but there are currently no accurate data available on which to base decision-making, and this undermines the potential contribution of these nurses within the nation's health system.

Specialist children's nurses in the PHC clinic

Specialist paediatric nurses are an essential resource for teams of nurses and CHWs in PHC clinics who have only broad training and limited input regarding child health. In this context the specialist paediatric nurse can coordinate clinical care and direct clinical nursing care (promotion, prevention, acute and chronic care) for individual children seen at clinics. Two additional roles in this setting include clinical governance and facilitating flow of children through the clinic.

Supporting referrals to higher levels of care and ensuring children's safe return home require a working knowledge of how the local health services work – both formal and community-based services. At clinic level, it requires activating referral networks to access resources and ensuring that children get the services they need as quickly as possible

and close to home. While clinical governance includes using safety and quality systems to manage and improve the quality of care provided to children and their families.

Specialist children's nurses in the district hospital

In district hospital settings, the non-rotating nursing staff form the backbone of clinical care and clinical governance in both the nursery and children's ward. In these settings, shifts of nurses are present 24 hours a day while medical officers are only present in the children's ward for 24% of the week. Clinical specialist nurses, therefore, have to provide clear clinical leadership roles in the coordination of care, ensuring that sick children receive care and prescribed treatment timeously, while coordinating interventions with care routines and essential activities like sleep and feeding in both the nursery and children's wards. As the severity of illness and need for care increase, so does the need for astute clinical competence to recognise deterioration in a child's condition and to respond and act quickly and appropriately.[24]

In addition to clinical care, specialist children's nurses are also required to provide leadership based on a clear understanding of how local systems work, including the upstream and downstream factors that drive admissions and facilitate early discharge. While tools and measures may shift, clinical governance remains important to ensure quality and safety. Specialist children's nurses also play an essential role in ensuring a functional system paying attention to people, equipment, infection prevention and control, and work flow. And within district hospital settings, the specialist children's nurse is best placed to coordinate the care of sick children.

The district medical workforce

At the district level, the medical workforce is based primarily in the district hospital and community health centres where they serve a similar function.

Although some larger district hospitals have a dedicated paediatric staff, most have a single group of doctors who share responsibility for all clinical services including the newborn nursery, children's ward, outpatient department and primary health-care clinics. Staffing levels vary across district hospitals and in many instances one doctor is responsible for more than one ward or clinical component and most doctors need to cover both in- and outpatient services during normal hours as well as all services after hours. Responsibility for the medical care of children in hospital lies with the doctor allocated to the newborn nursery and/or children's ward during normal working hours and with the doctor on call after hours.

As the normal 40-hour work week only comprises 24% of the full week (which includes weekends and nights) this means that during the remaining 76% of the week children receive care from a doctor whose primary allocation is to an adult service within the hospital. The significance of this is that all doctors in district hospitals, not just those allocated to the newborn nursery or children's ward, need to be competent in the care of newborn babies and children. Such competence is derived from knowledge, exposure and appropriate mentoring which can best be achieved through spending time in the nursery and children's ward. This creates a tension between the need for doctors to rotate to gain experience and receive mentoring, and the benefits of non-rotation for clinical care,[25] health systems, governance and the development of institutional memory.

In light of the above it is reasonable to expect that doctors rotate through the newborn nursery and children's ward for a fixed period of about six months during which they are the dedicated doctor allocated to either or both of these two units. This will expose most doctors in the hospital to children and allow them the opportunity to gain experience with the support of an outreach paediatrician.

Most medical graduates have minimal exposure to district level services or the programmes and practices commonly encountered at this level.[26] It is therefore critical that all doctors receive ongoing in-service training on these programmes and orientation to clinical governance systems. These include health information systems; mortality audit tools; and priority programmes such as the World Health Organization's 10 steps for the management of acute severe malnutrition in infants and children; paediatric emergency triage, assessment and treatment (ETAT); helping babies breathe (HBB); and the management of small and sick newborns (MSSN). The undergraduate curriculum and training platform also need to be revised to include exposure to priority programmes, clinical governance principles and the health system – time in primary care facilities in particular.

Allied services workforce

Universal health coverage for children with temporary or permanent impairments and disabilities needs to extend beyond preventive, promotive and curative care and include access to rehabilitative care. To do this the child health team needs to extend beyond CHWs, nurses and medical officers to include a broader multi-disciplinary team.

Yet, it is uncommon for a standard district hospital to have a full cohort of allied health professionals including physiotherapists, occupational therapists, speech language

pathologists, audiologists, mid-level rehabilitation workers, dieticians, dentists and dental therapists, social workers and optometrists – and a psychologist is a near impossibility.[27] Yet this team is essential for the provision of unique preventative, promotive, psychosocial, adaptive and rehabilitative services.

Decentralisation of all health services is critical to ensure access to – and uptake of – services by children and their families; yet few districts have permanent allied health professionals or mid-level rehabilitation workers allocated to PHC clinics. Therefore, multi-disciplinary teams based at district hospitals also provide outreach services to PHC clinics, schools, and, where resources allow, to the home and community. Given that the team members are "scarce resources" and that hospitals rarely have the full team, it is understandable that chief executive officers at district hospitals may be reluctant to extend their services to include outreach services. For children's services to be comprehensive, the following have to be reviewed and an appropriate plan of action developed to establish:

- Consistent multi-disciplinary teams that can operate at a district, district hospital, PHC and community level.
- Early identification systems for children at risk or with NCDs and/or disability.
- Effective and efficient use of multi-disciplinary resources, including peer supporters and mid-level disability and rehabilitation workers.
- Appropriate training of multi-disciplinary health professionals for district hospital and PHC level services.

Consistent multi-disciplinary teams

This requires the establishment of multi-disciplinary team organograms. Staffing norms and establishments for multi-disciplinary teams have never been adopted in South Africa and there are internationally cited challenges in developing methodologies to address the multi-disciplinary workforce needs.[28] Monitoring the levels and distribution of these cadre of health workers is impossible as there are no official organograms, district health information system data on staffing levels are not routinely collected across provinces, and data that are collected are not readily available.

Community service is one way to boost the multi-disciplinary team, particularly in rural areas. Whilst rural hospitals have benefitted from this system, there is still an uneven distribution of community service posts between urban and rural hospitals. Progressive austerity measures in the past decade have severely curtailed the availability of experienced – and often any – members of the multi-disciplinary team at district and PHC levels. The freezing of posts has impacted on the recruitment and retention of community service officers, as well as the retention of experienced staff members which, together with the annual turnover of community service therapists, impacts significantly on the availability, accessibility, acceptability, quality and sustainability of early childhood development and intervention services. These retrogressive measures undermine the constitutional right to basic health-care services for children with disabilities and greater advocacy is needed to uphold their right to such services.

Early identification systems

Systems should be developed at the district hospital level to ensure that high-risk babies and children with malnutrition, NCDs or long hospital stays are referred to the multi-disciplinary team in addition to children with disabilities as these are the children who are "at risk of developing disabilities" and they need to be included in a disability prevention health promotion programme. Strong and sustained ties with the local Departments of Social Development and Basic Education, municipal and traditional authorities, amongst others, are also required.

CHWs provide a critical interface between health services and the community and form an integral part of early identification and referral services. However, there is little training or sensitisation to disability in the CHW curriculum and the referral letters that they issue do not include the identification of disability and referral to disability services. This could easily be solved within the CHW training programme. Presently the onus lies on allied health professionals to formalise and capacitate CHWs in disability awareness and referral systems.

Effective and efficient use of multi-disciplinary resources

A trans-disciplinary approach is preferred by families of children with additional needs.[29] This requires health professionals with skills in leadership (e.g. for hospital management), sufficient practical undergraduate exposure to multi-disciplinary practice and postgraduate experience.[30] In low-resource settings, cases are more complex; access to additional support is limited; and health professionals are often younger and with different socio-economic and cultural backgrounds to their patients. If the child is to thrive, collaborative goal setting and support to the primary caregiver are critical. Addressing their immediate environment through equipping them with adaptive parenting skills, empowering them to "take control" of the management of their child, and strengthening their support network further support the

Case 34: Malamulele Onward Carer-2-Carer Training Programme

The Malamulele Onward Carer-2-Carer Training Programme is a low-cost community-based initiative designed to support parents and families of children with cerebral palsy (CP) who are living in the deep rural areas of South Africa and Lesotho. With limited access to therapeutic services in these settings, we recognise that parents themselves are potential game changers in their own communities. Training parents as peer supporters therefore offers a meaningful and sustainable alternative that can help address parents' feelings of isolation and hopelessness about the future.

The programme aims to provide parents with accurate information about CP, and to develop the basic skills needed to care for their child as part of their everyday routine. This information is provided by other parents who draw on their own experiences of caring for a child with cerebral palsy.

Although there are a number of CP training packages available, they assume a high level of literacy and are typically designed for therapists working with parents. So, over a two-year period, members of Malumulele Onward worked with 20 parents and caregivers to develop a set of training materials. During this process, it was found that concepts and principles had to be simplified continually and the parents themselves helped to identify the right words, examples and illustrations for the training materials.

The result is the Carer-2-Carer Training Programme. Over a three-week period, parents are trained as parent facilitators who are equipped to independently run workshops for other parents in their communities.

To date, 47 parent facilitators have reached over 1,000 families across 26 rural sites. Qualitative analysis of focus group discussions at five sites reveals that the programme is achieving far more than anticipated. It has gone beyond simply helping parents to understand their child's condition to helping them to accept their child's condition and to stop blaming themselves. Parents now feel empowered. Not only are they proud of their children, but they are finding their voices and can stand up and explain CP to family members and neighbours. They feel equipped with basic skills (including good positioning, healthy diet and how to handle their children, etc.) and now have a sense of control. This is liberating for parents in rural settings where ignorance and negative attitudes towards disability abound. Parents see their children with new eyes – as children with the potential to do things, no matter how severe their disability.

child. Without these, the child is not only unlikely to thrive, but uptake and compliance with services and interventions (including assistive devices) are unlikely to happen. Early childhood intervention, development and disability services must therefore be integrated into existing health services, programmes and systems.

Allied health professionals have also developed mid-level workers to increase access to rehabilitation and psychology services. These range from therapy technicians and counsellors to organisations working for people with disabilities and include:

- Profession specific mid-level rehabilitation workers: physiotherapy and occupational therapy technicians, orientation and mobility officers, and counsellors to augment psychology services;
- Peer supporters for specific conditions/disabilities, e.g. spinal cord injuries;
- Parent facilitators that work with families with children with disabilities;
- Advocacy NGOs; and
- Community developers working for organisations for people with disabilities.

All these workers strengthen the community support network for children with disabilities and their families.

Mid-level rehabilitation workers – especially generic, community-based rehabilitation workers – have the potential to greatly increase access to rehabilitation services, enhance upwards referral, and strengthen support to families in addressing the social determinants of health and disability. Unfortunately, there are very few mid-level rehabilitation workers in the country (just 46 physiotherapy technicians) and they are an ageing workforce. Peer supporters, parent facilitators and community developers in the NGO sector provide critical psychosocial support to others in similar situations through "lived experience", as illustrated by the Malamulele Onward Carer-2-Carer Training Programme (Case 34). This kind of support, which cannot be offered by professional and mid-level worker categories, shows extremely promising functional and health outcomes.[31]

Appropriate training of multi-disciplinary health professionals

Due to limited funds and leadership, multi-disciplinary training across all disciplines at undergraduate level is largely limited to theoretical exercises or a few isolated clinical exercises.[32] Meaningful exposure to disability is lacking in all undergraduate curricula, and training platforms for undergraduate therapists do not equip them to manage complex disabilities in a low-resource setting or to work with caregivers and mid-level workers effectively. With training platforms and curricula largely centred around the tertiary model of care, emphasis is placed on the acute management of conditions within an institutional setting, and with the onus on the client accessing further follow-up. The training silos and the lack of emphasis on health systems strengthening, especially with regards to the holistic management of long-term disabilities and retention in care, mean that existing services do not always operate effectively. This situation is made worse by a high turn-over of therapists which effects the quality of in-service training.

Training of generic mid-level disability and rehabilitation workers is limited to one initiative at UCT, and training of peer supporters to NGOs. Neither of these categories are currently registered with any regulating body and are employed solely by NGOs. The training of profession-specific technicians has completely stalled, although they are currently able to register with the HPCSA. There has been slow to no movement from the National Department of Health to address these issues.

Oversight, coordination and support

Although an individual child will receive health care at a single point, this care is delivered within a system that spans a range of service sites from the home, community-based services and clinics to the hospital and back home. Children and families need access to a continuum of services including prevention and promotion activities; the management of acute and long-term health conditions; and rehabilitation and palliative care. Furthermore, children with disabilities or long term health conditions need care that is integrated into their homes and communities.

Oversight and coordination structures are therefore required to limit unnecessary duplication, promote a uniform standard of care and ensure the optimal use of and equitable access to available services within a district. This need was recognised in the first triennial reports of the two ministerial mortality committees (the National Perinatal Morbidity and Mortality Committee[33] and Committee on Morbidity and Mortality Committee in Children Under 5 Years[34]) which both recommended the creation of regional specialists to establish, coordinate, support and monitor neonatal and child health services in each province. These recommendations formed the basis for the development of the District Clinical Specialist Teams (DCST) and the recommendation by a ministerial task team[35] that these teams should be accountable to a provincial specialist.

The following structures are suggested to ensure effective oversight, coordination, integration, support and monitoring of child health services within and between districts (Figure 59):

1. A **provincial specialist** responsible for the leadership and management of child health services throughout each province. This role includes:
   - Oversight of child health services throughout the province to ensure:
     - An appropriate continuum of care throughout the health service from the home to the central hospital;
     - Equity in the distribution of services and resources;
     - Integration of primary health care and hospital services;
     - Effective and appropriate access for each child to the required level of care;
     - Uniform systems, norms and standards at all levels and facilities in the province.
   - Mentorship and support of DCST members and the heads of hospital-based paediatric services.
   - Surveillance, monitoring and evaluation of paediatric and child health programmes and services in all facilities and districts in the province.

At the moment only two provinces, Free State and KwaZulu-Natal, have provincial paediatricians whilst the Western Cape has a lead paediatrician.

2. A **regional hospital paediatric outreach programme** to support services throughout the catchment area of the hospital and not merely to cater for those children able to access a regional hospital.[36] The purpose of this programme is to strengthen the quality of clinical care, support staff development, foster linkages between different components of the service, and promote access to the appropriate modality and level of care for each individual child. The purpose and components of the KwaZulu-Natal paediatric outreach programme are described in Case 35.
3. **District clinical specialist teams (DCSTs)** were established in 2012 to strengthen the district health system, in order to improve the quality of health care for mothers, newborns and children; reduce morbidity and mortality; and improve

health outcomes. Each team consists of three doctor–nurse dyads (an obstetrician and advanced midwife, a paediatrician and advanced paediatric nurse, and a family physician and primary health-care nurse) together with an anaesthetist. DCST members are tasked with the facilitation, integration and coordination of staff, services, programmes and packages of care as well as the surveillance and monitoring and evaluation of services across their health district – while implementation remains the responsibility of management, staff or structures within each health facility. In other words, the DCSTs provide supportive supervision and clinical governance rather than the direct delivery of clinical care. There have been major challenges with recruitment to fill these teams. There are no functioning paediatric dyads in the Western Cape or Limpopo; most districts in Gauteng and the North West have a complete paediatric dyad; and the paediatric nurse is the mainstay of the DCST paediatric dyads in the remaining provinces. Limpopo province has disbanded all DCSTs due to an inability to fill specialist posts in regional hospitals and has transferred these specialists to regional hospitals with the expectation that they will also fulfil the responsibilities of the DCST paediatrician.

Case 35: KwaZulu-Natal paediatric outreach programme

A structured paediatric outreach programme was established in the western part of KwaZulu-Natal (KZN) in 2001 and was expanded to all districts in the province in 2014.

The aim of the programme is to link every district hospital to a general paediatrician to improve the quality of care that children receive, and to ensure that they have equitable access to the appropriate level of care that they may need. To achieve these goals, the outreach programme is a multifaceted model encompassing staff development, supervision and support; clinical care; monitoring and evaluation; and health systems strengthening. The clinical focus compliments the governance focus of the DSCTs and, in reviewing patient care, any weaknesses or failures in the service delivery platform can be identified and referred to the hospital management team or DCSTs for correction.

The objectives of the outreach programme are:

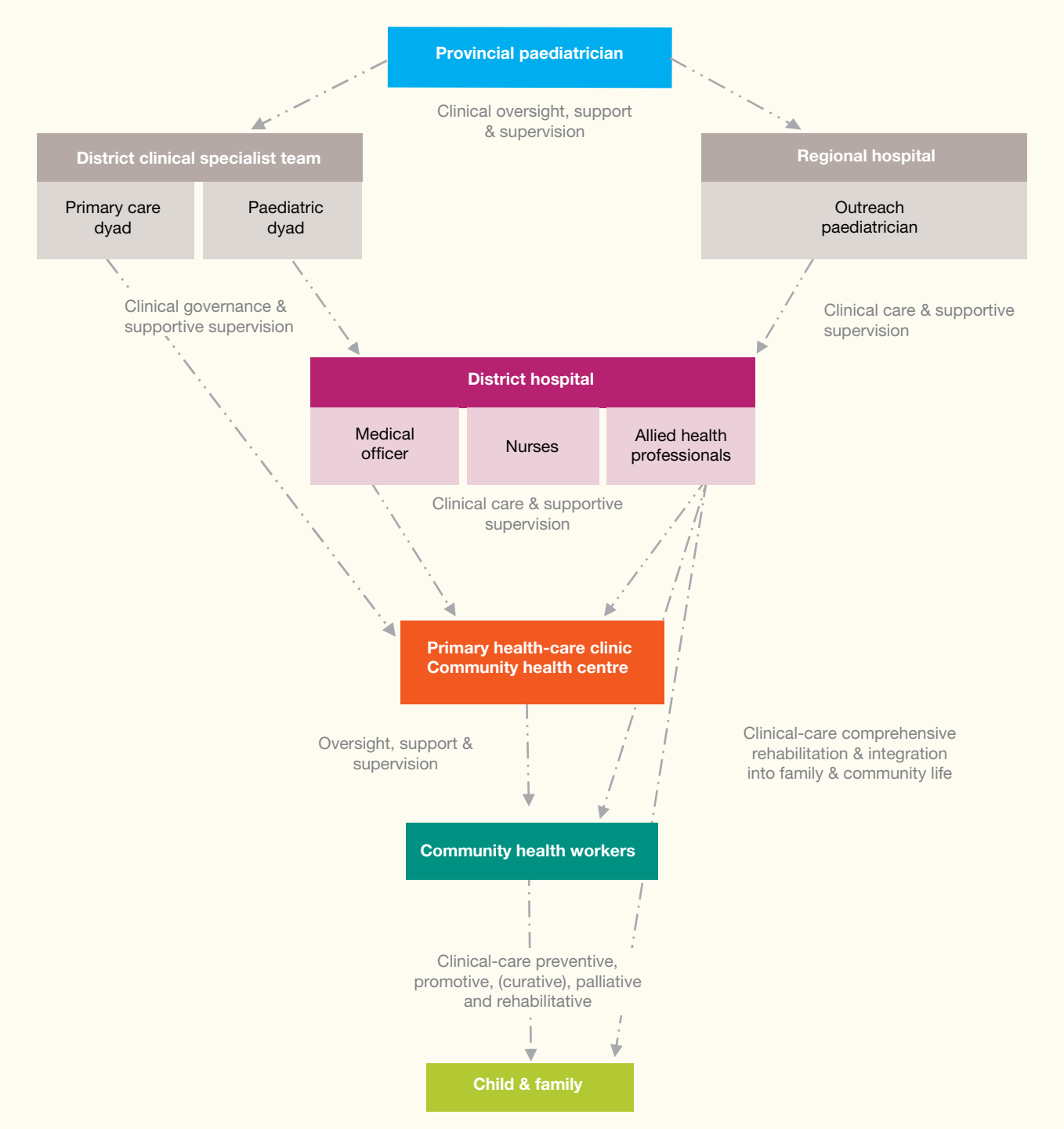
1. To support clinical care and provide a specialist service for the follow up of "old", or the assessment of new, patients in the children's ward, nursery or outpatient clinic.
2. To strengthen health systems in the children's ward and neonatal nursery by ensuring that the infrastructure of the ward or nursery supports an appropriate standard of care; that appropriate child-friendly equipment is available; that consumables are appropriate for children; and that there is an equitably allocation of staff to services for newborns and other children.
3. To encourage quality improvement/assurance programmes, including mortality audits (PPIP[i] and Child PIP[ii]); the use of standard treatment guidelines and clinical records; the implementation of clinical and document audits; and the strengthening of health information systems.
4. To support the maintenance of clinical skills and the ongoing development of staff working with neonates and children.
5. To facilitate implementation of priority programmes to reduce neonatal and child morbidity and mortality.

The programme consists of four core activities:

1. On-site support with scheduled monthly visits by each pediatrician to their district hospital. The visit provides an opportunity to monitor key interventions or activities and a standard report is submitted to the facility, district and provincial teams after each visit.
2. Off-site support from paediatricians to their district hospitals as:
   a. Scheduled weekly telephonic ward rounds of all children in the hospital to ensure that the correct diagnosis has been made and the right management is in place.
   b. Unscheduled telephonic consultation for advice on problem patients, even when a referral or transfer is not required.
3. In-reach for staff in peripheral hospitals to spend a week or two in a regional hospital paediatric department for experiential learning.
4. Ad hoc events for staff development such as Emergency Triage, Assessment and Treatment or Management of Small and Sick Newborn courses.

i Perinatal Problem Identification Programme – a computer-based programme used for auditing stillbirths and neonatal deaths
ii Child Healthcare Problem Identification Programme – a computer-based programme used for auditing child deaths

Figure 59: Child- and family-friendly health workforce: Clinical care, support and supervision



Oversight is also needed at the facility level. At the PHC clinic on-site responsibility lies with the operational manager (OM). At the district hospital, oversight must be shared between the OM – preferably a specialist children's nurse of the children's ward – and the medical officer allocated to child health services. As the OM is a permanent, non-rotating presence in the children's ward, s/he is best placed to drive clinical governance activities in the ward. The rotating medical officer has a responsibility for clinical care in the hospital, the integration of hospital and community-based services, as well as links with specialised regional level services, a role that should be shared with the DCST members and outreach paediatrician.

Box 20: Core competency framework for a child- and family-centred health workforce

Global and national strategies, including the national HRH strategy and the Strategic Plan for Maternal, Newborn, Child and Women's Health in South Africa, highlight the need for an appropriately trained, resourced and skilled inter-professional and multi-tiered workforce to deliver child-, adolescent-, and family-centred health services. While specific knowledge and contributions will vary between professions and cadres, it is possible to define a common set of competencies that need to be shared by all workers in order to achieve integrated child, adolescent and family-centred service delivery. Various international[37] and local[38] core competency frameworks for child and adolescent care have been considered in developing recommended core competencies for a child-, adolescent- and family-centred health workforce in South Africa.

In Table 33, these frameworks have been adapted to the local context – lower-resourced, high need, primary care model of service delivery, integrating the care and support provided to children with additional and complex needs into homes and communities – and tailored to focus on South Africa's leading causes of death in infants and children.

Table 33: Core competencies for a child- and family-centred workforce

Domain	A child- and family-friendly workforce has the essential knowledge and skills to …
Growth and development	• Understand the life course approach with particular emphasis on the first 1,000 days and the adolescent period. • Support children, adolescents and families to optimise their health, development and quality of life. • Understand, assess and monitor normal child and adolescent growth and development. • Recognise abnormal growth and development and take appropriate steps to manage or refer appropriately.

Communication and partnership	• Interact with children, adolescents and their families in ways which are:
	  • engaging and meaningful;
	  • tailored to the child's age and stage of life;
	  • responsive to individual needs and preferences; and
	  • culturally sensitive.
	• Offer appropriate information, support and counselling to promote health and facilitate informed participation in their health care.

Child rights	• Act as advocates for child, adolescent and family health and well-being. • Safeguard and promote the welfare of the child and adolescent. • Identify and respond to the needs and vulnerabilities of children and adolescents. • Respect, protect and fulfil the rights of children and adolescents. • Consistently apply laws and policies with respect to care, protection, informed consent, confidentiality and privacy. • Respect the evolving capacity of children and adolescents for autonomous decision-making. • Recognise and report violence, exploitation, abuse and neglect.
Integrated working	• Appreciate the social determinants of health and the contribution of different sectors to child and adolescent health and well-being. • Understand the need and value of intersectoral collaboration. • Foster integrated, coordinated and continuous care between disciplines and levels within the health sector. • Use health information systems to achieve an efficient and effective health system for children and adolescents.
Clinical care of children	• Understand the continuum of care as well as the structure, functioning and relationships within the health system. • Appreciate the value of multi-disciplinary care and teamwork. • Identify children in need and provide or help them to access appropriate care. • Understand and recognise health challenges of the different life stages and implement evidence-based care and management.

Conclusion

The effective delivery of health care requires a sufficient number of appropriately skilled health professionals. A child- and family-centred health workforce must cater for the continuum of care – promotion, prevention, cure, palliation and rehabilitation – across all levels of the health service from the home and clinic to the hospital. In order to cater for the changing burden of childhood diseases and accommodate a broader range of children, it is critical that such a workforce includes a wide spectrum of professions – medical, nursing, allied services and community health workers – who have the necessary competencies to work with children (see Box 1); are able to work as a multi-disciplinary team; in a coordinated, supported and supervised system; to deliver appropriate, quality care to both children and their families.

To achieve the vision of a child- and family-centred workforce, all cadres of health professionals will require basic and ongoing training in their specific clinical discipline, as well as in clinical governance and leadership which is appropriate to the local context. The health service requires champions for children who are able to promote the needs of children; unite and lead the child health workforce; and cooperate with other professionals within the health sector such as environmental health practitioners, who can contribute to a safer and cleaner environment for children; and engage with non-health sectors to address the social determinants of health.

References

1 United Nations General Assembly (2015) *Transforming our World: The 2030 Agenda for Sustainable Development*, 21 October 2015, A/RES/70/1. Viewed 29 August 2017: www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E.
2 United Nations (2015) *The Millennium Development Goals Report*. New York: UN.
3 Every Woman, Every Child (2015) *The Global Strategy for Women's, Children's and Adolescents' Health* (2016 – 2030). *Survive, thrive, transform. Every woman, every child*. New York: EWEC.
4 Department of Health (2011) *Provincial Guidelines for the Implemention of the Three Streams of PHC Re-engineering*. Pretoria: DoH.
5 UNAIDS (2015) *Operation Sukuma Sakhe: Best practices report*. Pretoria: UNAIDS.
6 Department of Health (2018) *Policy Framework and Strategy for Ward Based Primary Health Care Outreach Teams 2018/19 – 2023/24*. Pretoria: DoH.
7 See no. 5 above.
8 World Health Organization/UNICEF (2012) *Joint Statement Integrated Community Case Management. An equity-focused strategy to improve access to essential treatment services for children*. New York: UNICEF.
9 Dorrington R, Bradshaw D, Laubscher R & Nannan N (2015) *Rapid Mortality Surveillance Report 2017*. Cape Town: South African Medical Research Council.
10 Doherty T, Kroon M, Rhoda N & Sanders D (2016) Ending preventable child deaths in South Africa: What role can ward-based outreach teams play? *South African Medical Journal*, 106(7): 672-674.
11 Genesis Analytics (2019) *Evaluation of Phase 1 Implementation of Interventions in the National Health Insurance (NHI) Pilot Districts in South Africa*. Johannesburg: Genesis Analytics.
12 Schneider H, English R, Tabana H, Padayachee T & Orgill M (2014) Whole-system change: Case study of factors facilitating early implementation of a primary health care reform in a South African province. *BMC Health Services Research*, 14(1): 609.
13 See no. 10 above.
14 Besada D & Daviaud E (in press) Resource requirements for community-based care in rural, deep-rural and peri-urban communities in South Africa: A comparative analysis in 2 South African provinces. *PLOS One* (in press).
15 Daviaud E, Besada D, Budlender D, Sanders D & Kerber K (2018) *Saving Lives, Saving Costs: Investment case for community health workers in South Africa*. Cape Town: South African Medical Research Council.
16 Department of Health (2019) *National Policy on Nursing Education and Training*. Pretoria: DoH.
17 Nursing Act 33 of 2005.
18 South African Nursing Council (2013) *SANC Position Statement – advanced practice nursing*. Viewed 14 August 2019: www.sanc.co.za/position_advanced_practice_nursing.htm.
19 South African Nursing Council (2012) *Competencies for a Paediatric Nurse Specialist*. Pretoria: SANC.
20 Coetzee M (2010) The multidisciplinary team. Nursing. In: Westwood TS & Kibel M (eds) *Child Health for All*. 5th edition. Cape Town: Oxford University Press.
21 See no. 20 above.
22 Chukwu U, Shung-King M, Sieberhagen S & North N (2019) The situation of the children's nursing workforce and training in South Africa: A short report. *South African Journal of Child Health*, 13(3): 105-107.
23 North N, Shung-King M & Coetzee M (2019) The children's nursing workforce in Kenya, Malawi, Uganda, South Africa and Zambia: Generating an initial indication of the extent of the workforce and training activity. *Human Resources for Health*. https://doi.org/10.1186/s12960-019-0366-4.
24 Coetzee M (2014) Re-envisioning paediatric nurse training in a re-engineered health care system. *Curationis*, 37(2): Art.#1261.
25 Ladouceu R (2016) Are attending physician rotations costing hospitalized patients their lives? *Canada Family Physician*, 63(4): 264.
26 Fouché L, Bezuidenhout C, Liebenberg C & Adefuye AO (2018) Medico-legal documentation of rape or sexual assault: Are community-service doctors equipped for the task? *South African Family Practice*, 60(1): 8-12.
27 Department of Health (2011) *Human Resources for Health South Africa 2030. Draft HR Strategy for the Health Sector 2012/13 – 2016/17*. Consultation Document. Pretoria: DoH.
28 Schoo AM, Boyce RA, Ridoutt L & Santos T (2008) Workload capacity measures for estimating allied health staffing requirements. *Australian Health Review*, 32(3): 548-558.
29 King G, Strachan D, Tucker M, Duwyn B, Desserud S & Shillington M (2009) The application of a transdisciplinary model for early intervention services. *Infants & Young Children*, 22(3): 211-223.
30 Dayal H (2008) Management of Rehabilitation Personnel within the Context of the National Rehabilitation Policy. A research report submitted to the Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of Master of Public Health. Unpublished thesis.
31 Peers for Progress (2015) *Economic Analysis in Peer Support. Breadth of approaches and implications for peer support programmes*. Viewed 12 October 2019: http://peersforprogress.org/wp-content/uploads/2015/04/150417-economic-analysis-in-peer-support.pdf.
32 Cole J (2012) *Situational and Gap Analysis of Rehabilitation and the Human Resource Need and Supply of Health Therapists in South Africa*. Prepared the South African Committee of Health Sciences Deans. Cape Town: Social Trends Development Services.
33 Department of Health (2011) *National Perinatal Morbidity and Mortality Committee (NaPeMMCo) Triennial Report (2008 – 2010)*. Pretoria: DoH.
35 Department of Health (2011) *First Report of the Committee on Morbidity and Mortality Committee in Children Under 5 Years (CoMMiC): 2008 – 2010*. Pretoria: DoH.
34 Department of Health (2011) *District Clinical Specialist Team in South Africa: Ministerial task team report to the honorable Minister of Health, Dr Aaron Motsoaledi*. Pretoria: DoH.
35 Gaede B & McKerrow N (2011) CME: Outreach program: consultant visits to rural hospitals. *Continuing Medical Education Journal*, 29(2): 54-58; Caldwell RI, Gaede B & Aldous C (2016) The value of internal medicine outreach in rural KwaZulu-Natal, South Africa. *South African Medical Journal*, 106(3): 259-262.
36 World Health Organization (2018) *Standards for Improving the Quality of Care for Children and Young Adolescents in Health Facilities*. Geneva: WHO;
The Children's Workforce Development Council (2010) *The Common Core of Skills and Knowledge: At the heart of what you do*. Leeds: Department for Children, Schools and Families (UK);
New Zealand Children's Action Plan Directorate (2016) *Children's Action Plan: Identifying, protecting and supporting vulnerable children. Workforce core competencies – Abridged version*;
Michaud P & Baltag V (2015) *Core Competencies in Adolescent Health and Development for Primary Care Providers*. Geneva: World Health Organization.
38 Department of Health of the Republic of South Africa (2017) *National Adolescent and Youth Health Policy*. Pretoria: DoH.
Department of Health (2012) *National Strategic Plan for Maternal, Newborn, Child and Women's Health and Nutrition 2012-2016*. Pretoria: DoH.

PART THREE

Children count – the numbers

Part three presents a set of key indicators highlighting drivers of child and adolescent morbidity and mortality and disaggregates data to make visible inequalities in children's health, living conditions and access to services. A set of key indicators tracks progress in the following domains:

- Demography of South Africa's children
- Income poverty, unemployment and social grants
- Child health
- Nutrition
- Education
- Housing
- Basic services

A full set of indicators and detailed commentaries are available on www.childrencount.uct.ac.za.

Continuously monitoring and measuring children's development and well-being across their life course helps to track progress and, more importantly, address deficiencies.

Introducing Children Count

South Africa's commitment to the realisation of socio-economic rights is contained in the Constitution, the highest law of the land, which includes provisions to ensure that no person should be without the basic necessities of life. These are specified in the Bill of Rights, particularly section 26 (access to adequate housing); section 27 (health care, sufficient food, water and social security); section 28 (the special rights of children) and section 29 (education).

Children are specifically mentioned and are also included under the general rights: every child has the right to basic nutrition, shelter, basic health-care services and social services. These form part of what are collectively known as socio-economic rights. While these rights are guaranteed by the Constitution, the question is: how well is South Africa doing in realising these rights for all children? In order to answer this question, it is necessary to monitor the situation of children, which means there is a need for regular information that is specifically about them.

A rights-based approach

Children Count was established in 2005 to monitor progress for children and is an ongoing data and advocacy project of the Children's Institute. It provides reliable and accessible child-centred information that can be used to inform the design and targeting of policies, programmes and interventions, and as a tool for tracking progress in the realisation of children's rights.

Child-centred data

Any monitoring project needs regular and reliable data, and South Africa is fortunate to have a fairly good supply. There is an array of administrative data sets, and the national statistics body, Statistics South Africa, undertakes regular national population surveys that provide useful information on a range of issues. Most reports about the social and economic situation of people living in South Africa do not focus on children, but rather count all individuals or households. This is the standard way for central statistics bodies to present national data, but it is of limited use for those interested in understanding the situation of children.

"Child-centred" data does not only mean the use of data about children specifically. It also means using national population or household data and analysing it at the level of the child. This is important, because the numbers can differ enormously depending on the unit of analysis. For example, national statistics describe the unemployment rate, but only a child-centred analysis can tell how many children live in households where no adult is employed. National statistics show the share of households without adequate sanitation, but when a child-centred analysis is used, the share is significantly higher.

Counting South Africa's children

Children Count presents child-centred data on many of the areas covered under socio-economic rights. As new data become available with the release of national surveys and other data sources, it is possible to track changes in the conditions of children and their access to services over time. This year, national survey data are presented for each year from 2002 to 2018, and many of the indicators in this issue compare the situation of children over this 17-year period.

The tables on the following pages give basic information about children's demographics, care arrangements, income poverty and social security, education, health and nutritional status, housing and basic services. Each table is accompanied by commentary that provides context and gives a brief interpretation of the data. The data are presented for all children in South Africa and, where possible, by province.

The indicators in this *South African Child Gauge* are a sub-set of the Children Count indicators. The project's website contains the full range of indicators and more detailed interactive data, as well as links to websites and useful documents. It can be accessed at www.childrencount.uct.ac.za.

Confidence intervals

Sample surveys are subject to error. The percentages simply reflect the mid-point of a possible range, but the true values could fall anywhere between the upper and lower bounds. The confidence intervals indicate the reliability of the estimate at the 95% level. This means that, if independent samples were repeatedly taken from the same population, we would expect the estimate to lie between upper and lower bounds of the confidence interval 95% of the time.

It is important to look at the confidence intervals when assessing whether apparent differences between provinces or subgroups are real: the wider the confidence interval, the more uncertain the estimate. Where confidence intervals overlap for different subpopulations or time periods, it is not possible to claim that there is a real difference in the estimates, even if the mid-point percentages differ. In the accompanying bar graphs, the confidence intervals are represented by vertical lines at the top of each bar (|).

Data sources and citations

Children Count uses a few data sources. Most of the indicators are analysed by our team using data from the General Household Survey conducted by Statistics South Africa, while some draw on administrative databases used by government departments (Health, Education, and Social Development) to record and monitor the services they deliver.

Most of the indicators presented were developed specifically for this project. Data sources are carefully considered before inclusion, and the technical notes and strengths and limitations of each are outlined on the project website.

Here are a couple of examples of how to reference Children Count data correctly:

When referencing from the Demography section in this publication, for example:

Hall K (2019) Demography of South Africa's children. In: Shung-King M, Lake L, Sanders D & Hendricks M (eds) *South African Child Gauge 2019*. Cape Town: Children's Institute, University of Cape Town.

When referencing from the Housing and Services online section, for example:

Hall K (2019) Housing and Services – Access to adequate water. *Children Count* website, Children's Institute, University of Cape Town. Viewed 20 November 2019: www.childrencount.uct.ac.za

Each domain is introduced below, and key findings are highlighted.

Demography of South Africa's children

(pages 216 – 220)

This section provides child population figures and gives a profile of South Africa's children and their care arrangements, including children's co-residence with biological parents, the number and proportion of orphans and children living in child-only households. There were 19.7 million children in South Africa in 2018. Fourteen percent of children are orphans who have lost either their mother, father or both parents; 20% of children do not live with either of their biological parents; and 0.3% of children live in child-only households.

Income poverty, unemployment and social grants

(pages 221 – 227)

In 2018, over half of children (59%) lived below the "upper bound" poverty line (with a per capita income below R1,183 per month), and 30% lived in households where no adults were employed. Social assistance grants are therefore an important source of income for caregivers to meet children's basic needs. In March 2019, nearly 12.4 million children received the Child Support Grant; 386,000 children received the Foster Child Grant; and a further 150,000 children received the Care Dependency Grant.

Child health

(pages 228 – 233)

This section monitors child health through a range of indicators. Under-five mortality has decreased from 41 deaths per 1,000 live births in 2012 to 32 deaths per 1,000 live births in 2017. The infant mortality rate has also declined and is estimated at 23 deaths per 1,000 live births in 2017. The neonatal mortality rate, however, has not declined, remaining at 12 per 1,000 live births between 2012 and 2017. A fifth (20%) of children travel far to reach their primary health-care facility and 77% of children are fully immunised in their first year. Child-bearing rates among young women have remained stable over the last decade, at 7%, and are lowest in the 15 – 17-year age group, at 2%.

Nutrition

(pages 234 – 239)

Many children suffer the effects of food insecurity. Over two million (11%) live in households where children are reported to experience hunger and 27% of children younger than five years are stunted. This manifestation of chronic malnutrition has been persistent for many years. At the same time, rates of obesity are rising and in 2016, 13% of children under five years were estimated to be overweight or obese. Obesity is also a form of malnutrition, linked to poor diets and sedentary lifestyles.

Children's access to education

(pages 240 – 247)

Many children in South Africa travel long distances to school. One in seven children (13%) live far from their primary school and this increases to nearly one in five children (19%) in secondary school. Despite these barriers, South Africa has made significant strides in improving access to education with a reported attendance rate of 98% in 2018. Access is also increasing in the preschool years, with 92% of 5 – 6-year-olds attending some kind of educational institution or care facility. However, this does not necessarily translate into improved educational outcomes or progress through school. In 2018, 88% of 10 – 11-year-olds had completed grade 3, and only 70% of 16 – 17-year-olds had completed grade 9. A third of young people aged 15 – 24 (34%) are not in employment, education or training, and there has been no improvement in this measure since 2002.

Children's access to housing

(pages 248 – 251)

This domain presents data on children living in rural or urban areas, and in adequate housing. The latest available data show that, in 2018, 57% of children were living in urban areas, and 83% of children lived in formal housing. Nearly one in 10 children (1.7 million) lived in backyard dwellings and shacks in informal settlements, and one in six children (18%) lived in overcrowded households.

Children's access to basic services

(pages 252 – 254)

Without water and sanitation, children face substantial health risks. In 2018, 70% of children had piped drinking water at home, and 79% have an adequate toilet on site – an improvement from 47% in 2002.

Demography of South Africa's children

Katharine Hall (Children's Institute, University of Cape Town)

The UN General Guidelines for Periodic Reports on the Convention on the Rights of the Child, paragraph 7, says that reports made by states should be accompanied by "detailed statistical information … Quantitative information should indicate variations between various areas of the country … and between groups of children …".[1]

The child population in South Africa

In mid-2018, South Africa's total population was estimated at 57.7 million people,[2] of whom 19.7 million were children under 18 years. Children therefore make up 34% of the total population.

The distribution of children across provinces is slightly different to that of adults, with a greater share of children living in provinces with large rural populations. Together, KwaZulu-Natal, the Eastern Cape and Limpopo accommodate almost half of all children in South Africa. Gauteng, the smallest province in terms of physical size, has overtaken KwaZulu-Natal to become the province with the largest child population: 21% of all children in the country live in Gauteng. Gauteng also has the largest share of the adult population (28%) and the largest share of households. The child population of Gauteng has grown by 42% since 2002, making it the fastest growing province.

There have also been striking changes in other provincial child populations since 2002. The number of children living in the Eastern Cape has decreased substantially (by 14%), while the number of children living in the Western Cape has risen by 22%. The North West has also seen a substantial increase of 19% in the child population since 2002. A rise in the child population is partly the result of population movement (for example, when children are part of migrant households or move to join existing urban households), and partly the result of natural population growth (new births within the province).

We can look at inequality by dividing all households into five equal groups or income quintiles, based on total income to the household (including earnings and social grants) and dividing that by the number of household members, with quintile 1 being the poorest 20% of households, quintile 2 being the next poorest and so on. Quintile 5 consists of the least-poor 20%. Two-thirds of children live in the poorest 40% of households (i.e. the poorest two quintiles).

The gender split is equal for children. In terms of the apartheid-era racial categories, 86% of children are African, 8% are Coloured, 4% White and 2% Indian.

These population estimates are based on the General Household Survey (GHS), which is conducted annually by Statistics South Africa. The GHS collects data on about 20,000 households and over 70,000 individuals. The population numbers derived from the survey are weighted to the mid-year population estimates using weights provided by Statistics South Africa. Using previously weighted data (the 2013 population model), it appeared that the child population had remained fairly stable, with a marginal reduction of 0.2% in the population size between 2002 and 2015. However, there was considerable uncertainty around the official population estimates, particularly in the younger age groups.[3] In 2017, Statistics South Africa updated the model and recalibrated the mid-year population estimates all the way back to 2002,[4] and re-released the data with new weights in 2018. The Children Count team reanalysed all the data retrospectively. Based on the recently revised weights it appears that the child population has grown by 8%, increasing from 18.1 milion in 2002 to 19.7 million in 2018.

Table 1a: Distribution of households, adults and children in South Africa, by province, 2018

Province	Households		Adults		Children		
	N	%	N	%	N	%	% change 2002 – 2018
Eastern Cape	1,685,149	10	3,994,247	11	2,514,000	13	-14%
Free State	901,319	5	1,869,794	5	1,021,000	5	2%
Gauteng	4,883,861	29	10,475,112	28	4,186,000	21	42%
KwaZulu-Natal	2,904,523	17	7,031,487	19	4,184,000	21	1%
Limpopo	1,578,772	9	3,479,374	9	2,374,000	12	-2%
Mpumalanga	1,288,862	8	2,850,795	8	1,673,000	8	10%
North West	1,209,525	7	2,542,741	7	1,382,000	7	19%
Northern Cape	341,651	2	793,830	2	436,000	2	10%
Western Cape	1,877,193	11	4,679,036	12	1,971,000	10	22%
South Africa	16,670,854	100	37,716,416	100	19,741,000	100	9%

Source: Statistics South Africa (2019) *General Household Survey 2018*. Pretoria: Stats SA.
Analysis by Katharine Hall & Winnie Sambu, Children's Institute, UCT.

Children living with their biological parents

Many children in South Africa do not live consistently in the same household as their biological parents. This is a long established feature of childhoods in South Africa, and international studies have shown that the country is unique in the extent that parents are absent from children's daily lives.[5] Parental absence is related to many factors, including historic population control, labour migration, poverty, housing and educational opportunities, low marriage and cohabitation rates, as well as customary care arrangements.[6] It is common for relatives to play a substantial role in child-rearing. Many children experience a sequence of different caregivers, are raised without fathers, or live in different households to their biological siblings.

Parental absence does not necessarily mean parental abandonment. Many parents continue to support and see their children regularly even if they have to live elsewhere.[7]

Virtually all children live with at least one adult, and nearly 90% of children live in households where there are two or more co-resident adults. This indicator examines co-residence between children and their biological parents specifically. Although many children live with just one of their biological parents (usually the mother), this does not mean that the mother is a "single parent" as she is not necessarily the only adult caregiver in the household. In most cases, there are other adult household members such as aunts, uncles and grandparents who may contribute to the care of children.

The share of children living with both parents decreased from 39% in 2002 to 34% in 2018. Forty-three percent of all children (8.5 million children) live with their mothers but not with their fathers. Only 3% of children live in households where their fathers are present and their mothers absent. Twenty percent do not have either of their biological parents living with them. This does not necessarily mean that they are orphaned: most children without any co-resident parents have at least one parent who is alive but living elsewhere.

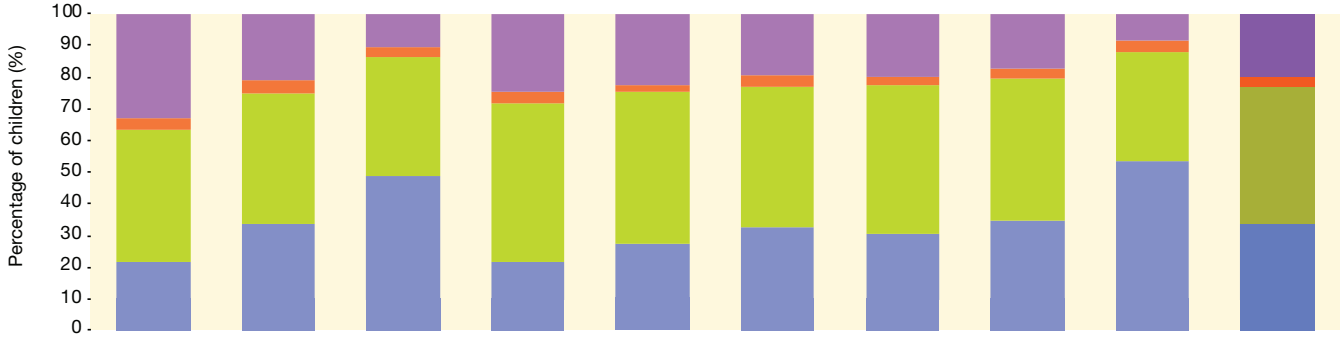
There is substantial provincial variation within these patterns. In the Western Cape and Gauteng, the share of children living with both parents is significantly higher than the national average, with around half of children resident with both parents (54% and 49%, respectively). Similarly, the number of children living with neither parent is relatively low in these two provinces (8% and 11%, respectively). In contrast, a third of children (33%) in the Eastern Cape live with neither parent. These patterns are consistent from 2002 to 2018.

Children in the poorest 20% of households are least likely to live with both parents: only 15% have both parents living with them, compared with 74% of children in the wealthiest 20% of households.

Less than one-third (29%) of African children live with both their parents, while the vast majority of Indian and White children (85% and 78%, respectively) reside with both biological parents. Almost a quarter of all African children do not live with either parent and a further 46% live with their mothers but not their fathers. These figures are striking for the way in which they suggest the limited presence of biological fathers in the home lives of large numbers of children.

Younger children are more likely than older children to have co-resident mothers, while older children are more likely to be living with neither parent. While 12% of children aged 0 – 5 years (875,000) live with neither parent, this increases to 27% (1.6 million) of children aged 12 – 17 years.

Figure 1a: Children living with their biological parents, by province, 2018



	EC	FS	GT	KZN	LP	MP	NW	NC	WC	**SA**
Both parents	21.8%	33.9%	48.9%	21.8%	27.6%	32.5%	30.7%	34.8%	53.7%	33.8%
	548,000	346,000	2,047,000	910,000	655,000	544,000	424,000	152,000	1,059,000	6,677,000
Mother only	41.7%	41.2%	37.2%	49.8%	47.8%	44.7%	46.7%	44.8%	34.3%	43.1%
	1,048,000	421,000	1,556,000	2,082,000	1,135,000	747,000	646,000	195,000	677,000	8,510,000
Father only	3.5%	3.8%	3.2%	4.1%	1.8%	3.6%	2.7%	3.0%	3.6%	3.3%
	87,000	39,000	133,000	170,000	44,000	60,000	37,000	13,000	70,000	653,000
Neither parent	33.1%	21.1%	10.8%	24.4%	22.8%	19.2%	19.9%	17.3%	8.4%	19.8%
	831,000	216,000	450,000	1,022,000	541,000	322,000	275,000	76,000	165,000	3,902,000

Source: Statistics South Africa (2019) *General Household Survey 2018*. Pretoria: Stats SA.
Analysis by Katharine Hall & Winnie Sambu, Children's Institute, UCT.

Orphaned children

An orphan is defined as a child under the age of 18 years whose mother, father or both biological parents have died (including those whose living status is reported as unknown, but excluding those whose living status is unspecified). For the purpose of this indicator, orphans are defined in three mutually exclusive categories:

- A maternal orphan is a child whose mother has died but whose father is alive.
- A paternal orphan is a child whose father has died but whose mother is alive.
- A double orphan is a child whose mother and father have both died.

The total number of orphans is the sum of maternal, paternal and double orphans.

In 2018, there were 2.7 million orphans in South Africa. This includes children without a living biological mother, father or both parents, and is equivalent to 14% of all children in South Africa. The majority (63%) of all orphans in South Africa are paternal orphans (with living mothers).

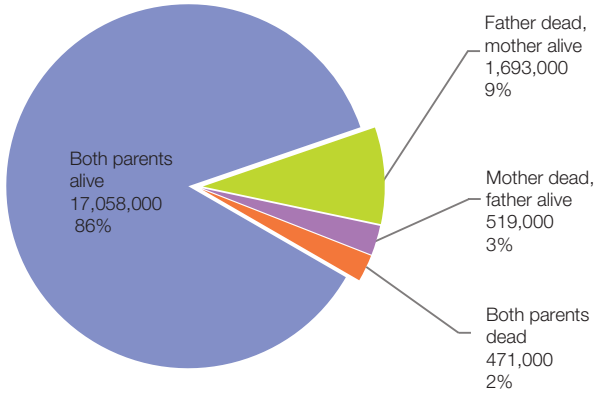
The total number of orphans increased by over a million between 2002 and 2009, after which the trend was reversed. By 2017, orphan numbers had fallen to below 2002 levels. This was largely the result of improved access to antiretrovirals.

Orphan status is not necessarily an indicator of the quality of care that children receive. It is important to disaggregate the total orphan figures because the death of one parent may have different implications for children than the death of both parents. In particular, it seems that children who are maternally orphaned are at risk of poorer outcomes than paternal orphans – for example, in relation to education.[8]

In 2018, 3% of all children in South Africa were maternal orphans with living fathers, 9% were paternal orphans with living mothers, and a further 2% were recorded as double orphans. This means that 5% of children in South Africa (nearly a million children) did not have a living biological mother and twice that number did not have a living biological father. The numbers of paternal orphans are high because of the higher mortality rates of men in South Africa, as well as the frequent absence of fathers in their children's lives (1.8% or 353,000 children have fathers whose vital status is reported to be "unknown", compared with 0.3% or 66,000 children whose mothers' status is unknown).

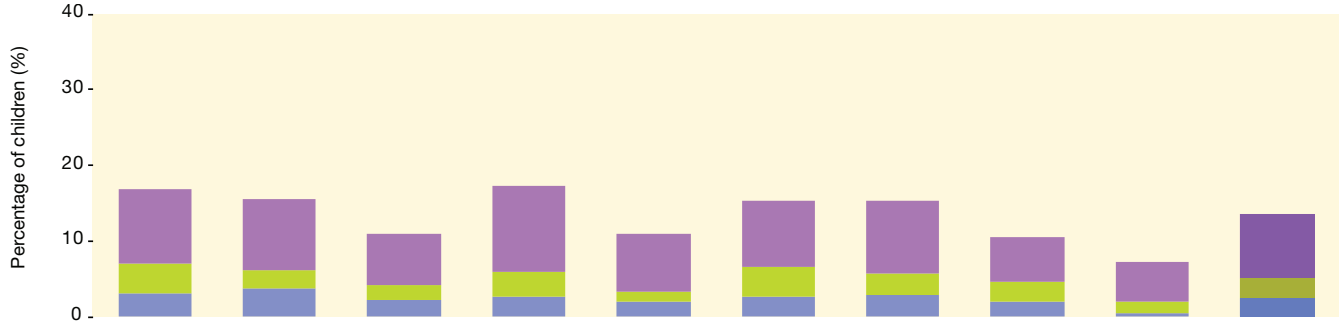
The number and share of children who are double orphans more than doubled between 2002 and 2009, from 361,000 to 866,000, after which the rates fell again.[9] In 2018, 471,000 children had lost both their parents. Orphaning rates are particularly high in provinces that contain the former homelands, as these areas bear a large burden of care for orphaned children. In terms of orphan numbers, double orphans are concentrated mostly

Figure 1b: Children living in South Africa, by orphanhood status, 2018



Source: Statistics South Africa (2019) *General Household Survey 2018*. Pretoria: Stats SA. Analysis by Katharine Hall, Children's Institute, UCT.

Figure 1c: Number and percentage of orphans, by province, 2018



	EC	FS	GT	KZN	LP	MP	NW	NC	WC	**SA**
Double orphan	3.2%	3.8%	2.2%	2.7%	1.9%	2.7%	2.9%	2.0%	0.5%	2.4%
	80,000	39,000	93,000	111,000	45,000	45,000	41,000	9,000	9,000	471,000
Maternal orphan	3.9%	2.4%	2.0%	3.2%	1.4%	3.8%	2.8%	2.7%	1.5%	2.6%
	99,000	24,000	85,000	135,000	32,000	64,000	38,000	12,000	30,000	519,000
Paternal orphan	9.8%	9.5%	6.6%	11.4%	7.7%	8.8%	9.6%	6.0%	5.3%	8.6%
	247,000	97,000	277,000	478,000	183,000	148,000	133,000	26,000	105,000	1,693,000

Source: Statistics South Africa (2019) *General Household Survey 2018*. Pretoria: Stats SA. Analysis by Katharine Hall & Winnie Sambu, Children's Institute, UCT.

in three provinces: KwaZulu-Natal (24% of double orphans), Gauteng (24%) and the Eastern Cape (17%). Together these three provinces are home to 60% of all double orphans.

KwaZulu-Natal has one of the largest child population and the highest orphan numbers, with 17% of children in that province recorded as orphans who have lost a mother, a father or both parents. Orphaning rates in the Eastern Cape (17%) are similarly high. Other provinces with high orphaning rates (above the national average) are the Free State (16%), Mpumalanga (15%) and North West (15%). The lowest orphaning rates are in Gauteng (11% of children have lost at least one parent), and the Western Cape (7%). However it should be remembered that the orphans of parents who died in these provinces may be living with relatives in other provinces, and so might be counted in the orphaning populations of the Eastern Cape or Mpumalanga, for example.

The poorest households carry the greatest burden of care for orphans. Close to half (48%) of all orphans are resident in the poorest 20% of households. Seventeen percent of children in the poorest 20% of households are orphans, compared with the richest 20% where total orphaning rates are around 4%.

The likelihood of orphaning increases with age. Across all age groups, the main form of orphaning is paternal orphaning, which increases from 4% among children under six years of age, to 15% among children aged 12 – 17 years. While less than 1% of children under six years are maternal orphans, this increases to 5% in children aged 12 – 17 years.

Child-only households

A child-only household is defined as a household in which all members are younger than 18 years. These households are also commonly referred to as "child-headed households", although this definition differs from the one contained in the Children's Act. The Children's Act definition of a child-headed household includes households where there are adults who may be too sick or too old to effectively head the household, and a child over 16 years bears this responsibility.

While orphaning undoubtedly places a large burden on families, there is little evidence to suggest that their capacity to care for orphans has been saturated, as commentators feared in the past. Rather than seeing increasing numbers of orphaned children living on their own, the vast majority of orphans live with adult family members.

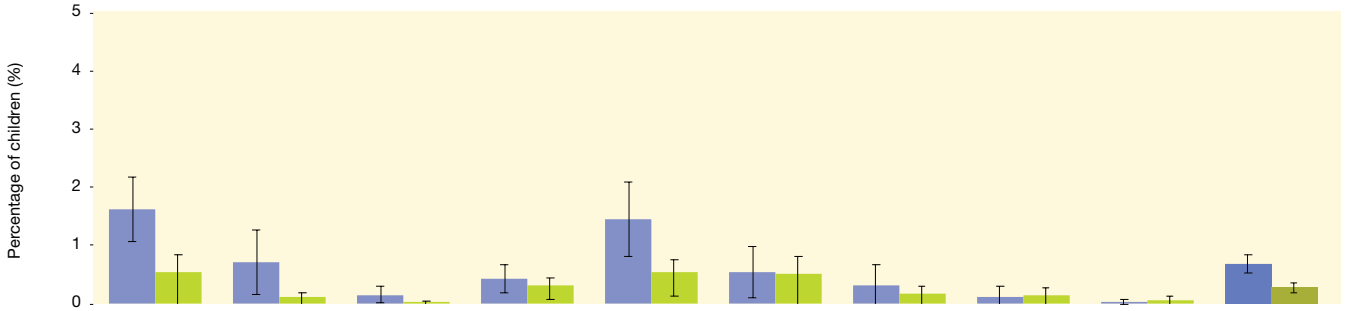
There were about 55,000 children living in a total of 33,000 child-only households across South Africa in 2018. This equates to 0.3% of all children. While children living in child-only households are rare relative to those residing in other household forms, the number of children living in this extreme situation is of concern.

Importantly, however, there has been no increase in the share in 2018. If anything, the number has dropped. Predictions of rapidly increasing numbers of child-headed households as a result of HIV are at this point unrealised. An analysis of national household surveys to examine the circumstances of children in child-headed households in South Africa revealed that most children in child-only households are not orphans[10] and 84% have a living mother. These findings suggest that social processes other than HIV-related mortality may play important roles in the formation of these households. For example, leaving teenage boys to look after a rural homestead while parents migrate for work may be a livelihood strategy for the household.

While it is not ideal for any child to live without an adult resident, it is positive that more than half (58%) of all children living in child-only households are aged 15 years and above and a quarter are 17 years old. Children can work legally from the age of 15, and from 16 they can obtain an identity document and receive grants on behalf of younger children. Only 4% of children in child-headed households are under six years of age.

Figure 1d: Children living in child-only households, 2002 & 2018

(Y-axis reduced to 5%)



	EC	FS	GT	KZN	LP	MP	NW	NC	WC	**SA**
2002	1.6%	0.7%	0.1%	0.4%	1.5%	0.5%	0.3%	0.1%	0.0%	0.7%
	47,000	7,000	4,000	18,000	35,000	8,000	4,000	0	0	125,000
2018	0.6%	0.1%	0.0%	0.3%	0.5%	0.5%	0.2%	0.2%	0.1%	0.3%
	14,000	1,000	1,000	13,000	13,000	9,000	2,000	1,000	1,000	55,000

Source: Statistics South Africa (2003; 2019) *General Household Survey 2002; General Household Survey 2018.* Pretoria: Stats SA.
Analysis by Katharine Hall & Winnie Sambu, Children's Institute, UCT.

Research suggests that child-only households are frequently temporary arrangements, and often exist just for a short period, for example while adult migrant workers are away, or for easy access to school during term time, or after the death of an adult and prior to other arrangements being made to care for the children (such as other adults moving in or the children moving to live with other relatives).[11]

Over 70% of all children in child-only households live in three provinces: the Eastern Cape, Limpopo and KwaZulu-Natal. From 2002 to 2018, these provinces have consistently been home to the majority of children living in child-only households.

Relative to children in mixed-generation households, child-only households are vulnerable in a number of ways. Child-only households are predominantly clustered in the poorest households; 88% of children living in child-only households are in the poorest 20% of households. In addition to the absence of adult members who may provide care and security, they are at risk of living in poorer conditions, with poor access to services, less (and less reliable) income, and low levels of access to social grants.

There has been very little robust data on child-headed households in South Africa to date. The figures should be treated with caution as the number of child-only households forms just a very small sub-sample of the General Household Survey. In 2018, only 101 children (unweighted) were identified as being in child-headed households, out of a sample of over 25,000 children.

References

1 United Nations Children's Fund (1990) *First Call for Children. World Declaration and Plan of Action from the World Summit for Children.* New York: UNICEF.

2 Statistics South Africa (2018) *Mid-year Population Estimates 2018.* Pretoria: Stats SA.

3 Dorrington R (2013) *Alternative South African Mid-year Estimates 2013.* Centre for Actuarial Research Monograph 13, University of Cape Town.

4 Statistics South Africa (2017) *Mid-year Population Estimates 2017.* Pretoria: Stats SA.

5 Social Trends Institute (2017) *World Family Map 2017: Mapping family change and child well-being outcomes.* New York, Barcelona: Social Trends Institute;
Martin F (2016) Who cares for children? A descriptive study of care-related data available through global household surveys and how these could be better mined to inform policies and services to strengthen family care. *Global Social Welfare*, 3(2): 51-74.

6 See, for example: Hall K & Mokomane Z (2018) The shape of children's families and households: A demographic overview. In: Hall K, Richter L, Mokomane Z & Lake L (2018) *Children, Families and the State: Collaboration and Contestation. South African Child Gauge 2018.* Cape Town: Children's Institute, UCT;
Hall K & Posel D (2019) Fragmenting the family? The complexity of household migration strategies in post-apartheid South Africa. *IZA Journal of Development and Migration*, 10(4), 20190004. doi: https://doi.org/10.2478/izajodm-2019-0004;
Hall K (2017) Children's Spatial Mobility and Household Transitions: A study of child mobility and care arrangements in the context of maternal migration. Unpublished PhD thesis. University of the Witwatersrand;
Makiwane M, Nduna M & Khalema E (2016) *Children in South African Families: Lives and times.* Newcastle upon Tyne: Cambridge Scholars;
Amoateng A & Heaton T (eds) (2007) *Families and Households in Post-Apartheid South Africa: Socio-demographic perspectives.* Cape Town: HSRC Press.

7 Hatch M & Posel D (2018) Who cares for children? A quantitative study of childcare in South Africa. *Development Southern Africa*, 35(2): 267-282;
Van den Berg W & Makusha T (2018) *State of South Africa's Fathers 2018.* Cape Town: Sonke Gender Justice & Human Sciences Research Council;
Madhavan S, Townsend N & Garey A (2008) Absent breadwinners: Father-child connections and paternal support in rural South Africa. *Journal of Southern African Studies*, 34(3): 647-663.

8 Ardington C & Leibrandt M (2010) Orphanhood and schooling in South Africa: Trends in the vulnerability of orphans between 1993 and 2005. *Economic Development and Cultural Change*, 58(3): 507-536.

9 Hall K (2019) Demography – orphaning. *Children Count* website. Children's Institute, UCT. Viewed 2 October 2019: www.childrencount.uct.ac.za.

10 Meintjes H, Hall K, Marera D & Boulle A (2010) Orphans of the AIDS epidemic? The extent, nature and circumstances of child-headed households in South Africa. *AIDS Care*, 22(1): 40-49.

11 Hill C, Hosegood V & Newell ML (2008) Children's care and living arrangements in a high HIV prevalence area in rural South Africa. *Vulnerable Children and Youth Studies*, 3(1): 65-77.

Income poverty, unemployment and social grants

Katharine Hall (Children's Institute, University of Cape Town)

The Constitution of South Africa, section 27(1)(c), says that "everyone has the right to have access to … social security, including, if they are unable to support themselves and their dependants, appropriate social assistance".[1]

The UN Convention on the Rights of the Child, article 27, states that every child has the right "to a standard of living adequate for his or her development" and obliges the state "in case of need" to "provide material assistance". Article 26 guarantees "every child the right to benefit from social security".[2]

Children living in income poverty

This indicator shows the number and share of children living in households that are income-poor. As money is needed to access a range of services, income poverty is often closely related to poor health, reduced access to education and physical environments that compromise personal safety.

International law and the Constitution recognise the link between income and the realisation of basic human rights and acknowledge that children have the right to social assistance (social grants) when families cannot meet children's basic needs. Income poverty measures are therefore important for determining how many people need social assistance, and for evaluating the state's progress in realising the right to social assistance.

No poverty line is perfect. Using a single income measure tells us nothing about how resources are distributed between family members, or how money is spent. But this measure does give some indication of how many children are living in households with severely constrained resources.

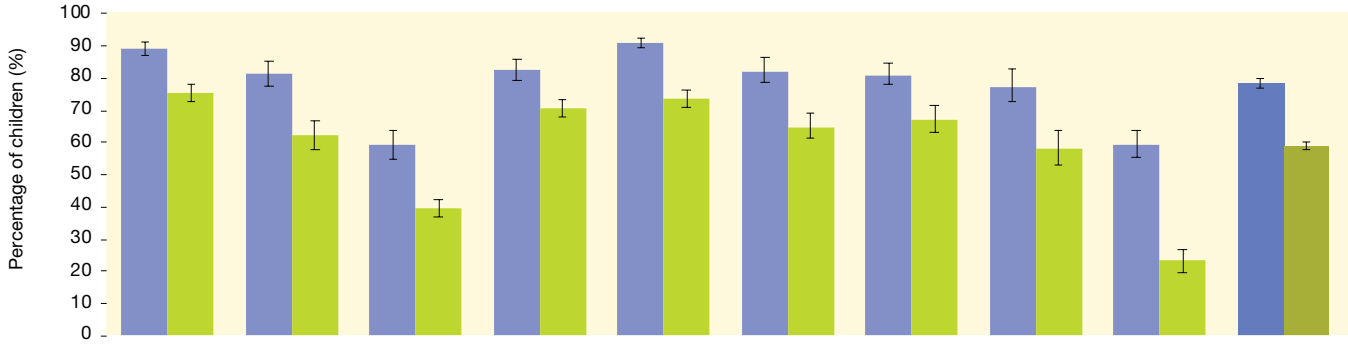
The measure used is the Statistics South Africa "upper-bound" poverty line that was set at R779 per person per month in 2011 prices. Poverty lines increase with inflation and in 2018 the real value of the upper-bound line was R1,183.[3] Per capita income is calculated by adding all reported income for household members older than 15 years, and social grants received by anyone in the household, and dividing the total household income by the number of household members.

Statistics South Africa has proposed two other poverty lines:

- A "lower-bound" poverty line is calculated by adding to the food poverty line the average expenditure on essential non-food items by households whose food expenditure is below but close to the food poverty line. The value of the lower-bound poverty line in 2011 prices was R501 per person per month (R785 in 2018 prices). *Those living below this line would not be able to pay for the minimum non-food expenses or would be sacrificing their basic nutrition to pay for non-food expenses.*
- A "food" poverty line is based on the cost of the minimum nutritional requirement of 2,100 kilocalories per person per day, without any allowance for non-food basic necessities. The value of the food poverty line in 2011 prices was R335 per

Figure 2a: Children living in income poverty, by province, 2003 & 2018

(Upper-bound poverty line: Households with monthly per capita income less than R1,183, in 2018 rands)



	EC	FS	GT	KZN	LP	MP	NW	NC	WC	**SA**
2003	89.0%	81.1%	59.1%	82.3%	90.8%	82.0%	81.1%	77.4%	59.4%	78.3%
	2,544,000	813,000	1,759,000	3,349,000	2,165,000	1,237,000	941,000	302,000	961,000	14,070,000
2018	75.2%	62.4%	39.5%	70.7%	73.5%	64.9%	67.1%	58.3%	23.4%	58.8%
	1,890,000	637,000	1,655,000	2,960,000	1,744,000	1,086,000	927,000	254,000	461,000	11,615,000

Source: Statistics South Africa (2004; 2019) *General Household Survey 2003; General Household Survey 2018*. Pretoria: Stats SA.
Analysis by Katharine Hall & Winnie Sambu, Children's Institute, UCT.

person per month (R547 in 2018). *Anyone living below this line will be malnourished and their health and survival may be at risk.*

We use the upper-bound poverty line as our main indicator for tracking child poverty as this is linked to the minimum requirement for basic nutrition as well as other basic needs such as clothing and shelter. In other words, this is the only poverty line that meets the minimum requirement for children's basic needs.

South Africa has very high rates of child poverty. In 2018, 59% of children lived below the upper-bound poverty line. Income poverty rates have fallen substantially since 2003, when 78% of children (14.1 million) were defined as "poor" at this income threshold. The reduction in the child poverty headcount is partly the result of a massive expansion in the reach of the Child Support Grant over the same period. Although there have been reductions in the child poverty rate, large numbers of children still live in poverty: in 2018, 11.6 million children lived below the upper-bound poverty line.

There are substantial differences in poverty rates across the provinces. Using the upper-bound poverty line, around three-quarters of children in the Eastern Cape and Limpopo are poor, and the child poverty rate in KwaZulu-Natal is 71%. Gauteng and the Western Cape have the lowest child poverty rates – at 40% and 23% respectively. Child poverty remains most prominent in the rural areas of the former homelands, where 81% of children are below the poverty line. The urban child poverty rate, by contrast, is 44%.

There are glaring racial disparities in income poverty: while 65% of African children lived in poor households in 2018, and 31% of Coloured children were defined as poor, only 3% of White children lived below this poverty line. There are no significant differences in child poverty levels across gender or between different age groups in the child population.

Using Statistics South Africa's lower-bound poverty line (which does not provide enough for basic essentials), 45% of children (8.9 million) were poor in 2018, and 33% (6.4 million children) were below the food poverty line, meaning that they were not getting enough nutrition.

The international ultra-poverty line used to track progress towards the Sustainable Development Goals (SDGs) is $1.90 per person per day. This translated to R361 per person per month in 2018, using the International Monetary Fund purchasing power parity conversion. This poverty line is extremely low – below survival level – and is not appropriate for South Africa. No child should be below it. In 2003, 52% of children (9.3 million) lived below the equivalent of the SDG poverty line. By 2018, this decreased to 20% (four million).

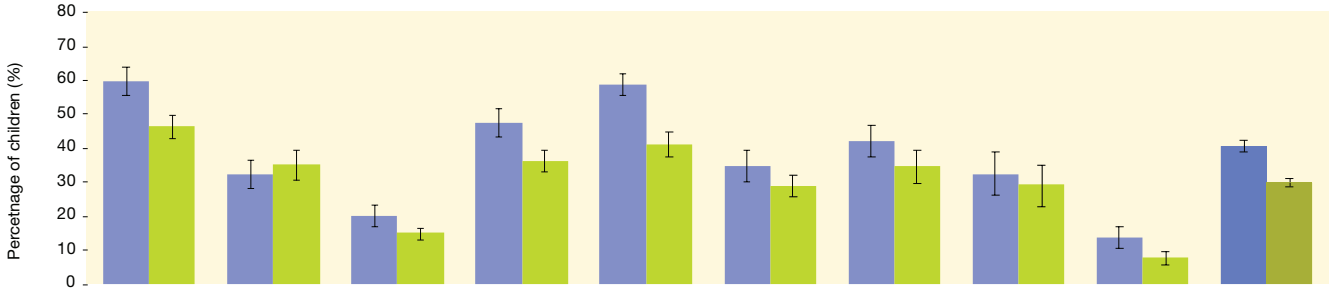
The SDGs replaced the Millennium Development Goals in 2015 and set the global agenda for development by 2030. Target 1.1 is to eradicate extreme poverty using the same international poverty line of $1.90 per person per day. Target 1.2 is that, by 2030, countries should reduce by at least half the proportion of men, women and children of all ages living in poverty in all its dimensions, according to national definitions. This would mean reducing the number of children below the upper-bound poverty line by at least two million.

Children living in households without an employed adult

This indicator measures unemployment from a children's perspective and gives the number and proportion of children who live in households where no adults are employed in either the formal or informal sector. It therefore shows the proportion of children living in "unemployed" households where it is unlikely that any household members derive income from labour or income-generating activities.

Unemployment in South Africa continues to be a serious problem. The official national unemployment rate was 27.5% in the third quarter of 2018.[4] This rate is based on a narrow definition of unemployment that includes only those adults who are defined as economically active (i.e. they are not studying or retired or

Figure 2b: Children living in households without an employed adult, by province, 2003 & 2018



	EC	FS	GT	KZN	LP	MP	NW	NC	WC	**SA**
2003	59.7%	32.4%	20.3%	47.6%	58.7%	34.9%	42.2%	32.6%	13.9%	40.8%
	1,706,000	325,000	603,000	1,935,000	1,400,000	527,000	490,000	127,000	225,000	7,338,000
2018	46.3%	35.2%	15.1%	36.3%	41.3%	29.1%	34.8%	29.3%	8.0%	29.9%
	1,165,000	360,000	632,000	1,518,000	981,000	487,000	480,000	128,000	158,000	5,909,000

Source: Statistics South Africa (2004; 2019) *General Household Survey 2003; General Household Survey 2018.* Pretoria: Stats SA.
Analysis by Katharine Hall & Winnie Sambu, Children's Institute, UCT.

voluntarily staying at home) and who actively looked but failed to find work in the four weeks preceding the survey. An expanded definition of unemployment, which includes "discouraged work-seekers" who were unemployed but not actively looking for work in the month preceding the survey, would give a higher, more accurate, indication of unemployment. The expanded unemployment rate (which includes those who are not actively looking for work) was 37.3%. Gender differences in employment rates are relevant for children, as it is mainly women who provide for children's care and material needs. Unemployment rates remain higher for women (41.2%) than for men (33.9%), using the expanded definition.[5]

Apart from providing regular income, an employed adult may bring other benefits to the household, including health insurance, unemployment insurance and parental leave that can contribute to children's health, development and education. The definition of "employment" is derived from the Quarterly Labour Force Survey and includes regular or irregular work for wages or salary, as well as various forms of self-employment, including unpaid work in a family business.

In 2018, 70% of children in South Africa lived in households with at least one working adult. The other 30% (5.9 million children) lived in households where no adults were working. The number of children living in workless households has decreased by 1.4 million since 2003, when 41% of children lived in households where there was no employment.

This indicator is very closely related to the income poverty indicator in that provinces with relatively high proportions of children living in unemployed households also have high rates of child poverty. Over 40% of children in the Eastern Cape and Limpopo live in households without any employed adults. These two provinces are home to large numbers of children and have the highest rates of child poverty. In contrast, Gauteng and the Western Cape have the lowest poverty rates, and the lowest unemployment rates. In the Western Cape, only 8% of children live in households where nobody is working.

Racial inequalities are striking: 33% of African children have no working adult at home, while 13% of Coloured children, 10% of Indian children and 2% of White children live in these circumstances. There are no significant differences in child-centred unemployment measures when comparing girls and boys or between age groups. In the rural former homelands, 48% of children live in households where nobody works.

Income inequality is clearly associated with unemployment. Over two-thirds of children in the poorest income quintile (5.2 million) live in households where no adults are employed.

Children receiving the Child Support Grant

This indicator shows the number of children receiving the Child Support Grant (CSG), as reported by the South African Social Security Agency (SASSA) which disburses social grants on behalf of the Department of Social Development.

The right to social assistance is designed to ensure that people living in poverty can meet basic subsistence needs. Government is obliged to support children directly when their parents or caregivers are too poor to do so. Income support is provided through social assistance programmes such as the CSG, which is an unconditional cash grant paid to the caregivers of eligible children.

Introduced in 1998 with an initial value of R100, the CSG has become the single biggest programme for alleviating child poverty in South Africa. Take-up of the CSG has increased dramatically over the years and the grant amount is increased slightly each year, more or less keeping pace with overall inflation. At the end of March 2019, a monthly CSG of R420 was paid to 12,445,000 children aged 0 – 17 years. The value of the CSG increased to R430 per month from the beginning of October 2019.

There have been two important changes in eligibility criteria. The first concerns age eligibility. Initially the CSG was only available for children younger than seven years. From 2003 it was gradually extended to older children up to the age of 14. Since January 2012, following a second phased extension, children are eligible for the grant until they turn 18.

The second important change concerns the income threshold or means test. The income threshold remained static for 10 years until a formula was introduced – set at 10 times the amount of the grant. This means that every time the grant is increased, the means test also increases. From April 2019 the income threshold was R4,200 per month for a single caregiver and R8,400 per month for the joint income of the caregiver and spouse, if the caregiver is married. These increased to R4,300 and R8,600 per month respectively in October.

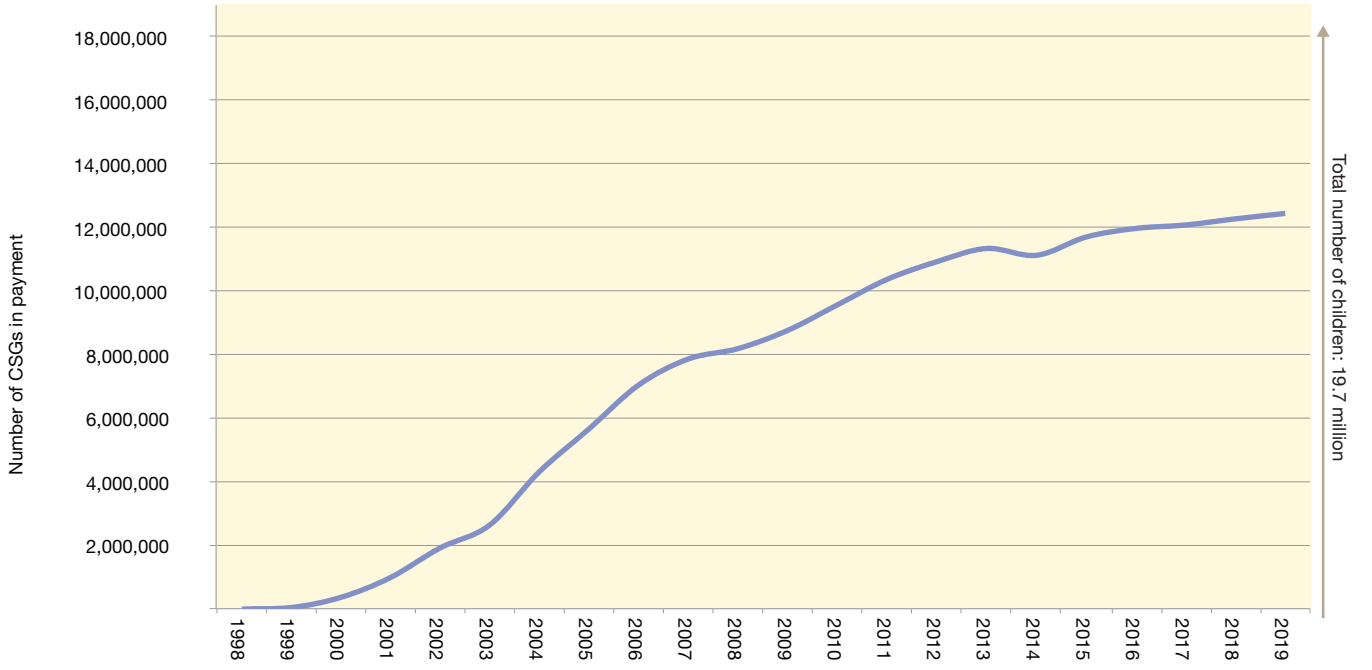
There is substantial evidence that grants, including the CSG, are being spent on food, education and basic goods and services. This evidence shows that the grant not only helps to alleviate income poverty and realise children's right to social assistance, but is also associated with improved nutritional, health and education outcomes.[6]

Table 2a: Children receiving the Child Support Grant, by province and age group, 2019

Province	Number of child beneficiaries at end March 2019			
	0 – 5 years	6 – 11 years	12 – 17 years	TOTAL
Eastern Cape	624,082	698,065	585,105	1,907,252
Free State	226,342	255,372	210,906	692,620
Gauteng	637,501	692,352	536,496	1,866,349
KwaZulu-Natal	949,095	1,025,684	862,851	2,837,630
Limpopo	680,705	659,179	505,141	1,845,025
Mpumalanga	386,225	394,208	324,819	1,105,252
North West	294,504	313,589	248,252	856,345
Northern Cape	110,753	111,927	91,248	313,928
Western Cape	334,832	384,049	302,028	1,020,909
South Africa	4,244,039	4,534,425	3,666,846	12,445,310

Source: South African Social Security Agency (2019) SOCPEN database – special request. Pretoria: SASSA.

Figure 2c: Children receiving the Child Support Grant, 1998 – 2019



Sources: 1998 – 2007: National Treasury Intergovernmental Fiscal Reviews.
2008 – 2019: South African Social Security Agency SOCPEN monthly reports, by special request.

Given the positive and cumulative effects of the grant, it is important that caregivers can access it for their children as early as possible. One of the main concerns is the slow take-up for young children. An analysis of exclusions from the CSG found that exclusion rates for eligible infants under a year were as high as 43% in 2014, up only three percentage points from 47% in 2008. Exclusion rates were found to be highest in the Western Cape and Gauteng. The total rate of exclusion for all ages was estimated at 17.5% (more than 1.8 million children).[7] Barriers to take-up include confusion about eligibility requirements and the means test in particular; lack of documentation (mainly identity books, birth certificates, and proof of school enrolment, although the latter is not an eligibility requirement) and problems of institutional access (including the time and cost of reaching SASSA offices, long queues and lack of baby-friendly facilities).

Children receiving the Foster Child Grant

This indicator shows the number of children who are accessing the Foster Child Grant (FCG) in South Africa, as recorded in the SOCPEN administrative data system of SASSA.

The FCG is available to foster parents who have a child placed in their care by an order of the court. It is a non-contributory cash grant valued at R1,000 per month from April 2019. The grant was initially intended as financial support for children removed from their families and placed in foster care for protection in situations of abuse or neglect. The relatively large value of the grant, compared to the CSG, is justified on the basis that the child is technically a ward of the state, and the state is therefore directly responsible for all the child's needs. However, the FCG has increasingly been used to provide financial support to caregivers of children who are orphaned and has effectively been used as a poverty alleviation grant for orphans in kinship care. The appropriateness and effectiveness of this approach was questioned as far back as 2003, particularly because many children live with kin, whether or not their parents are alive.[8]

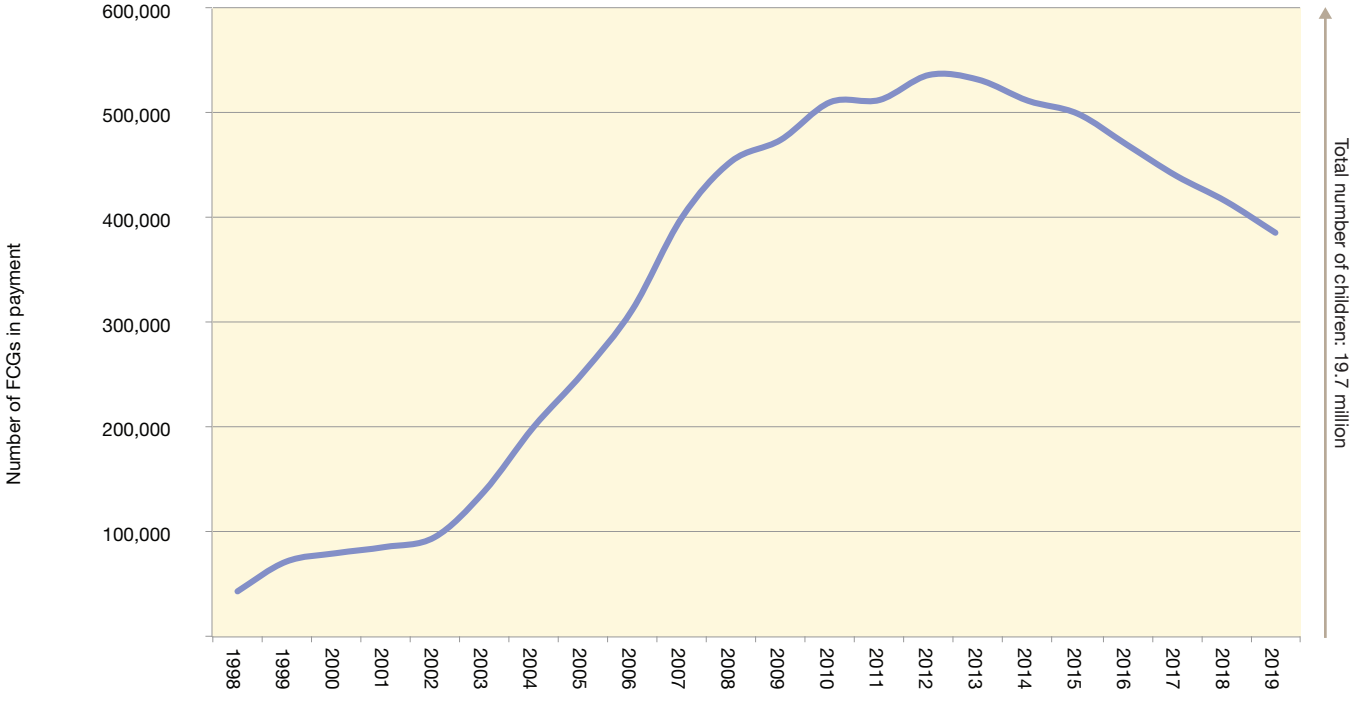
The number of FCGs remained stable for many years when foster care applied mainly to children who were in need of care and protection because of abuse or neglect, or because they were

Table 2b: Children receiving the Foster Child Grant, by province, 2012 & 2019

Province	2012	2019	Difference	% difference
Eastern Cape	116,826	90,704	-26,122	-22%
Free State	43,311	28,813	-14,498	-33%
Gauteng	56,451	45,848	-10,603	-19%
KwaZulu-Natal	142,114	75,177	-66,937	-47%
Limpopo	56,066	44,314	-11,752	-21%
Mpumalanga	32,886	27,768	-5,118	-16%
North West	45,634	29,553	-16,081	-35%
Northern Cape	14,456	11,970	-2,486	-17%
Western Cape	29,003	31,872	2,869	10%
South Africa	536,747	386,019	-150,728	-28%

Source: South African Social Security Agency (2012; 2019) SOCPEN database, by special request. Pretoria: SASSA.

Figure 2d: Children receiving the Foster Child Grant, 1998 – 2019



Sources: 1998 – 2007: National Treasury Intergovernmental Fiscal Reviews.
2008 – 2019: South African Social Security Agency SOCPEN monthly reports, by special request.

awaiting adoption. Its rapid expansion since 2003 coincided with the rise in HIV-related orphaning and an implied policy change by the Department of Social Development, which from 2003 started encouraging family members (particularly grandmothers) caring for orphaned children to apply for foster care and the FCG. During the subsequent five years, the number of FCGs increased by over 50,000 per year as orphans were brought into the foster care system. The increases were greatest in provinces with large numbers of orphaned children: the Eastern Cape, KwaZulu-Natal, Limpopo and Mpumalanga.

However, by 2010 more than 500,000 FCGs were in payment and the foster care system was struggling to keep pace with the numbers due to the required initial investigations and reports by social workers, court-ordered placements, and additional two-yearly social worker reviews and court-ordered extensions. SASSA is not allowed to pay the FCG without a valid court order or extension order, and more than 110,000 FCGs lapsed between April 2009 and March 2011 because of backlogs in the extensions of court orders.[9]

In 2011 a court-ordered settlement stipulated that the foster care court orders that had expired – or that were going to expire in the following two years – must be deemed to have been extended until 8 June 2013. This effectively placed a moratorium on the lapsing of these FCGs. As a temporary solution, social workers could extend orders administratively until December 2014, by which date a comprehensive legal solution should have been found to prevent qualifying families from losing their grants in future.[10] Yet no policy solution had been developed by the 2014 cut-off date. Instead, the Department of Social Development sought (and received) an urgent court order extending the date to the end of 2017, which was then extended until the end of November 2019. At this time, a legal solution must be found or thousands of children in foster care stand to lose their grants.

Since 2012 the number of FCGs has declined, and there has been a substantial increase in the number of grants that terminate at the end of each year, when children turn 18. At the end of 2014, 300,000 court orders had expired, representing more than 60% of all foster care placements.[11] The grants remained in payment only because of a High Court order which prevented them from lapsing. In March 2019, 386,000 FCGs were paid to caregivers of children in foster care, substantially down from 2012 when 537,000 grants were in payment. The FCG is therefore now back to below 2007 levels. The most dramatic drop has been in KwaZulu-Natal, where the number of FCGs fell by 47%, from 142,000 to 75,000.

It is not possible to calculate a take-up rate for the FCG as there is no accurate record of how many children are eligible for placement in foster care – and indeed, no clear guidelines about how it should be targeted in the context of high orphaning rates. If all double orphans were to be placed in foster care, this would require around 470,000 foster care placements, excluding those who need to be placed in foster care because they are awaiting adoption or have been removed from their families for reasons of abuse or neglect. This would once again send the number of children in foster care well above half a million – which the system has not previously been able to support.

The systemic problems that caused FCGs to lapse and reduced social worker capacity to respond to children in need of protection services will need to be addressed through a legislative amendment to clarify the eligibility criteria for foster care. An option still under consideration is to provide a larger CSG for orphaned children living with kin (colloquially called the

"CSG top-up"). This would create inequalities in grant values between different categories of children living in the same levels of poverty but may alleviate the pressure on welfare services caused by high foster care caseloads.[12] An amendment to the Social Assistance Act was tabled in Parliament in April 2018, providing for a CSG top-up for orphaned children living with kin. However, the Social Assistance Amendment Bill has not yet been introduced or considered by Parliament. The CSG top-up approach would give orphaned children living with relatives access to a larger child grant, around halfway between the value of the CSG and the FCG, without first having to go through a foster care placement.

Children receiving the Care Dependency Grant

This indicator shows the number of children who are accessing the Care Dependency Grant (CDG) in South Africa, as recorded in the SOCPEN administrative data system of SASSA.

The CDG is a non-contributory monthly cash transfer to caregivers of children with disabilities who require permanent care or support services. It excludes those children who are cared for in state institutions because the purpose of the grant is to cover the additional costs (including opportunity costs) that the parent or caregiver might incur as a result of the child's disability. The child needs to undergo a medical assessment to determine eligibility and the parent must pass an income or "means" test.

Although the CDG targets children with disabilities, children with chronic illnesses are eligible for the grant once the illness becomes disabling, for example children who are very sick with AIDS-related illnesses. Children with disabilities and chronic illnesses need substantial care and attention, and parents may need to stay at home or employ a caregiver to tend to the child. Children with health conditions may need medication, equipment or to attend hospital often. These extra costs can put strain on families that are already struggling to make ends meet. Poverty and chronic health conditions are therefore strongly related.

It is not possible to calculate a take-up rate for the CDG because there are no reliable data on the number of children with disabilities or who are chronically ill and in need of permanent care or support services. At the end of March 2019, 150,000 children were receiving the CDG, and from the beginning of April 2019, the grant was valued at R1,780 per month.

The provincial distribution of CDGs is fairly consistent with the distribution of children. The provinces with the largest numbers of children – Gauteng, KwaZulu-Natal and the Eastern Cape – receive the largest share of CDGs. There has been a gradual but consistent increase in access to the CDG each year since 1998, when only 8,000 CDGs were disbursed.

Table 2c: Children receiving the Care Dependency Grant, by province, 2019

Province	Children
Eastern Cape	22,784
Free State	8,439
Gauteng	19,835
KwaZulu-Natal	39,716
Limpopo	16,012
Mpumalanga	11,580
North West	9,916
Northern Cape	5,959
Western Cape	15,763
South Africa	150,004

Source: South African Social Security Agency (2019) SOCPEN database, by special request. Pretoria: SASSA.

References

1 Constitution of the Republic of South Africa, Act 108 of 1996.
2 Office of the High Commissioner of Human Rights (1989) *Convention on the Rights of the Child, UN General Assembly Resolution 44/25*. Geneva: United Nations.
3 Statistics South Africa (2018) *National Poverty Lines. Statistical Release No. P0310.1*. Pretoria: Stats SA.
4 Statistics South Africa (2018) *Quarterly Labour Force Survey: Quarter 3, 2018. Statistical Release No. P0211*. Pretoria: Stats SA.
5 See no. 4 above.
6 For an overview of impacts, see: Grinspun A (2016) No small change: The multiple impacts of the Child Support Grant on child and adolescent well-being. In: Delany A, Jehoma S & Lake L (eds) *South African Child Gauge 2016*. Cape Town: Children's Institute, UCT;
See also: Coetzee M (2014) *Do Poor Children Really Benefit from the Child Support Grant?* Econ3x3 Working Paper, 10 July 2014. Accessed 14 July 2018: www.econ3x3.org/article/do-poor-children-really-benefit-child-support-grant;
Coetzee M (2013) Finding the benefits: Estimating the impact of the South African Child Support Grant. *South African Journal of Economics*, 81(3): 427-450;
Department of Social Development, South African Social Security Agency & UNICEF (2012) *The South African Child Support Grant Impact Assessment: Evidence from a survey of children, adolescents and their households*. Pretoria: UNICEF South Africa;
Woolard I & Leibbrandt M (2010) *The Evolution and Impact of Unconditional Cash Transfers in South Africa*. A Southern Africa Labour and Development Research Unit Working Paper 51. Cape Town: SALDRU, UCT;
Agüero JM, Carter MR & Woolard I (2007) *The Impact of Unconditional Cash Transfers on Nutrition: The South African Child Support Grant*. International Policy Centre for Inclusive Growth Working Paper 39. Brasilia: International Poverty Centre;
Samson M, Heinrich C, Williams M, Kaniki S, Muzondo T, Quene KM & Van Niekerk I (2008) *Quantitative Analysis of the Impact of the Child Support Grant*. Produced by the Economic Policy Research Institute for the Department of Social Development, SASSA & UNICEF. Pretoria: UNICEF;
Budlender D & Woolard I (2006) *The Impact of the South African Child Support and Old Age Grants on Children's Schooling and Work*. Geneva: International Labour Office;
Case A, Hosegood V & Lund F (2005) The reach and impact of Child Support Grants: Evidence from KwaZulu-Natal. *Development Southern Africa*, 22(4): 467-482;
Samson M, Lee U, Ndlebe A, Mac Quene K, Van Niekerk I, Ghandi V, Harigaya T & Abrahams C (2004) *The Social and Economic Impact of South Africa's Social Security System*. Commissioned by the Department of Social Development. Cape Town: Economic Policy Research Institute.
7 Department of Social Development, South African Social Security Agency & UNICEF (2016) *Removing Barriers to Accessing Child Grants: Progress in reducing exclusion from South Africa's Child Support Grant*. Pretoria:

UNICEF South Africa.

8 Meintjes H, Budlender D, Giese S & Johnson L (2003) *Children 'in Need of Care' or in Need of Cash? Questioning social security provisions for orphans in the context of the South African AIDS pandemic*. Joint working paper of the Children's Institute & the Centre for Actuarial Research, UCT.

9 Hall K & Proudlock P (2011) *Orphaning and the Foster Child Grant: A Return to the 'Care or Cash' Debate*. Children Count Brief, July 2011. Cape Town: Children's Institute, UCT;
Proudlock P (2012) *The Case of Child SS and 1.1 Million Others like Him – Orphan Children in Need of Social Assistance*. Paper presented at Towards Carnegie3: Strategies to Overcome Poverty & Inequality Conference, 3 – 7 September 2012, UCT;
Skelton A (2012) *The Story of 110,000 Foster Child Grants that Stopped Being Paid in 2010/2011*. Paper presented at "Towards Carnegie3: Strategies to Overcome Poverty & Inequality" Conference, 3 – 7 September 2012, UCT.

10 *Centre for Child Law v Minister of Social Development and Others*, North Gauteng High Court, case no. 21726/11.

11 Department of Social Development (2014) Annexure to urgent application to the High Court In: *Re: Centre for Child Law v Minister of Social Development and Others*. Unreported case 21726/110. December 2014.

12 For more detail on the foster care crisis and the proposed CSG top-up, see: Hall K, Skelton A & Sibanda S (2016) Social assistance for orphaned children living with family. In: Delany A, Jehoma S & Lake L (eds) *South African Child Gauge 2016*. Cape Town: Children's Institute, UCT.

Child health

Katharine Hall, Nadine Nannan and Winnie Sambu

Section 27 of the Constitution of South Africa provides that everyone has the right to have access to health care services. In addition, section 28(1)(c) gives children "the right to basic nutrition and basic health care services".[1]

Article 14(1) of the African Charter on the Rights and Welfare of the Child states that "every child shall have the right to enjoy the best attainable state of physical, mental and spiritual health".[2]

Article 24 of the UN Convention on the Rights of a Child says that state parties should recognise "the right of the child to the enjoyment of the highest attainable standard of health and to facilities for the treatment of illness and rehabilitation of health". It obliges the state to take measures "to diminish infant and child mortality" and "to combat disease and malnutrition".[3]

The infant and under-five mortality rate

Nadine Nannan (Burden of Disease Research Unit, South African Medical Research Council)

The infant and under-five mortality rates are key indicators of heath and development. They are associated with a broad range of bio-demographic, health and environmental factors which are not only important determinants of child health but are also informative about the health status of the broader population.

The infant mortality rate (IMR) is defined as the probability of dying within the first year of life and refers to the number of babies under 12 months who die in a year per 1,000 live births during the same year. Similarly, the under-five mortality rate (U5MR) is defined as the probability of a child dying between birth and their fifth birthday. The U5MR refers to the number of children under five years old who die in a year per 1,000 live births in the same year.

This information is ideally obtained from vital registration systems. However, like in many middle- and lower-income countries, the under-reporting of births and deaths renders the South African system inadequate for monitoring purposes. South Africa is therefore reliant on alternative methods, such as survey and census data, to measure child mortality. Despite several surveys which should have provided information to monitor progress, the lack of reliable data since 2000 led to considerable uncertainty around the level of childhood mortality for a prolonged period. However, the second South Africa National Burden of Disease Study has produced national and provincial infant and under-five mortality trends from 1997 up until 2012.[4]

An alternative approach to monitoring age-specific mortality nationally since 2009 is the rapid mortality surveillance system (RMS) based on the deaths recorded on the population register by the Department of Home Affairs.[5] The RMS data have been recommended by the Health Data Advisory and Co-ordinating Committee because corrections have been made for known biases. In other words, the indicators shown in Table 3a are nationally representative. The RMS reports vital registration data adjusted for under-reporting which allows for the evaluation of annual trends. They suggest the IMR peaked in 2003 when it was 53 per 1,000 and decreased to 23 per 1,000 in 2017. During the same period the U5MR decreased from 81 per 1,000 to 32 per 1,000.

Table 3a: Child mortality indicators, rapid mortality surveillance, 2012 – 2017

INDICATOR	2012	2013	2014	2015	2016	2017
Under-five mortality rate per 1,000 live births	41	41	40	37	34	32
Infant mortality rate per 1,000 live births	27	28	28	27	25	23
Neonatal mortality	12	11	12	12	12	12

Source: Dorrington RE, Bradshaw D, Laubscher R & Nannan N (2019) *Rapid Mortality Surveillance Report 2017*. Cape Town: South African Medical Research Council.

The neonatal mortality rate (NMR) is the probability of dying within the first 28 days of life per 1,000 live births. The NMR was 12 deaths per 1,000 live births in 2017. Estimates of the NMR are derived directly from vital registration data (i.e. registered deaths and births without adjustment for incompleteness) up to 2013, and from 2013 onwards the estimates were derived directly from neonatal deaths and live births recorded in the District Health Information System.

The South Africa Demographic and Health Survey (SADHS) also reports child mortality rates. After a long gap (since 2003) the SADHS was conducted again in 2016.[6] For the period 2012 – 2016, the RMS estimated a slightly higher overall under-five mortality rate than the SADHS – 42 versus 39 per 1,000 live births. However, the SADHS infant mortality rate (IMR) for recent years is much higher than the IMR from the RMS (35 versus 27 per 1,000 live births for the period 2012 – 2016). The SADHS estimates are likely to be too high because its neonatal mortality rate is too high.

Children living far from their health facility

This indicator reflects the distance from a child's household to the health facility that they normally attend. Distance is measured as the length of time travelled to reach the health facility, by whatever form of transport is usually used. The health facility is regarded as "far" if a child would have to travel more than 30 minutes to reach it, irrespective of mode of transport.

A review of international evidence suggests that universal access to key preventive and treatment interventions could avert up to two-thirds of under-five deaths in developing countries.[7] Preventative measures include the promotion of breast and complementary feeding, micronutrient supplements (vitamin A and zinc), immunisation, and the prevention of mother-to-child transmission of HIV, amongst others. Curative interventions provided through the government's Integrated Management of Childhood Illness strategy include oral rehydration, infant resuscitation and the dispensing of medication.

According to the UN Committee on Economic, Social and Cultural Rights, primary health care should be available (in sufficient supply), accessible (easily reached and affordable), acceptable and of good quality.[8] In 1996, primary level care was made free to everyone in South Africa, but the availability and physical accessibility of health-care services remain a problem, particularly for people living in remote areas.

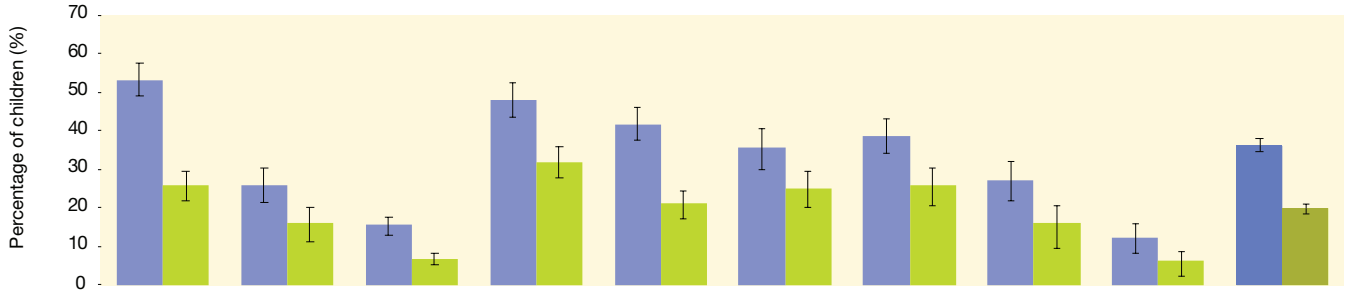
Physical inaccessibility poses particular challenges when it comes to health services because the people who need these services are often unwell or injured or need to be carried because they are too young, too old or too weak to walk. Physical inaccessibility can be related to distance, transport options and costs, or road infrastructure. Physical distance and poor roads also make it difficult for mobile clinics and emergency services to reach outlying areas. Within South Africa, the extent to which patients use health-care services is influenced by the distance to the health service provider: those who live further from their nearest health facility are less likely to use the facility. This "distance decay" is found even in the uptake of services that are required for all children, including immunisation and maintaining the Road-to-Health Book.[9]

A fifth (20%) of South Africa's children live far from the primary health-care facility that they normally use, and 94% attend the facility closest to their home. Within the poorest 20% of households, only 3% do not use their nearest facility, while 14% of children in the wealthiest quintile travel beyond their nearest health facility to seek medical attention. The main reasons for attending a remote health service relate to perceptions of service quality; a preference for private health services (37%), and other specific quality complaints including long waiting times (16%); the unavailability of medication (6%) and rude or uncaring staff (4%). Cost considerations also inform choices, and 11% of households that did not use their nearest facility chose to travel further in order to access cheaper medical care or free government health services.[10]

In total, 3.9 million children travel more than 30 minutes to reach their usual health-care service provider. This is a significant improvement since 2002, when 36% (or 6.6 million children) lived far from their nearest clinic. It is encouraging that the greatest improvements in access have been made in provinces which performed worst in 2002: the Eastern Cape (where the share of children with poor access to health facilities dropped from 53% in 2002 to 26% in 2018), KwaZulu-Natal (down from 48% to 32%), Limpopo (from 42% to 21%) and North West (from 39% to 26%). Provinces with the highest rates of access are the largely metropolitan provinces of the Western Cape (where only 6% of children live more than 30 minutes from their usual health-care service) and Gauteng (7%).

There are also significant differences between population groups. A quarter (22%) of African children travel far to reach a health-care facility, compared with between 4% and 9% of Indian, White and Coloured children. Racial inequalities are amplified by access to transport: if in need of medical attention, 93% of White children would be transported to their health facility in a private car, compared with only 11% of African children. Only 2% of the poorest children (quintile 1) travel to their health facility in a private car, while nearly 60% walk. Poor children bear the greatest burden of disease due to undernutrition and poorer

Figure 3a: Children living far from their health facility, by province, 2002 & 2018



	EC	FS	GT	KZN	LP	MP	NW	NC	WC	**SA**
2002	53%	26%	15%	48%	42%	35%	39%	27%	12%	36%
	1,559,000	259,000	453,000	1,988,000	1,010,000	538,000	451,000	108,000	199,000	6,568,000
2018	26%	16%	7%	32%	21%	25%	26%	16%	6%	20%
	650,000	164,000	282,000	1,333,000	500,000	421,000	355,000	69,000	122,000	3,902,000

Source: Statistics South Africa (2003; 2019) *General Household Survey 2002; General Household Survey 2018*. Pretoria: Stats SA.
Analysis by Katharine Hall & Winnie Sambu.

living conditions and access to services (water and sanitation). Yet health facilities are least accessible to the poor. More than a quarter of children (29%) in the poorest 20% of households have to travel far to access health care, compared with 7% of children in the richest quintile. There are no significant differences in patterns of access to health facilities when comparing children of different sex and age groups.

Teenage pregnancy

This indicator shows the number and proportion of young women aged 15 – 24 who are reported to have given birth to a live child in the past year.

Teenage pregnancy rates are difficult to calculate directly because it is hard to determine how many pregnancies end in miscarriage, still-birth or abortion: these are not necessarily known to the respondent, or accurately reported. In the absence of reliable data on pregnancy, researchers tend to rely on childbearing data (i.e. the percentage of women in an age group who have given birth to a live child).

Despite widespread assumptions that teen pregnancy in South Africa is an escalating problem, the available data suggest that the percentage of teenage mothers is not increasing. A number of studies have suggested a levelling off and even a decrease in fertility rates among teenagers in South Africa.[11] Teenage fertility rates have declined after the 1996 census, and Department of Health data between 2004 and 2017 have showed a consistent decline in the share of teenagers aged 15 – 19 who attended antenatal clinics.[12]

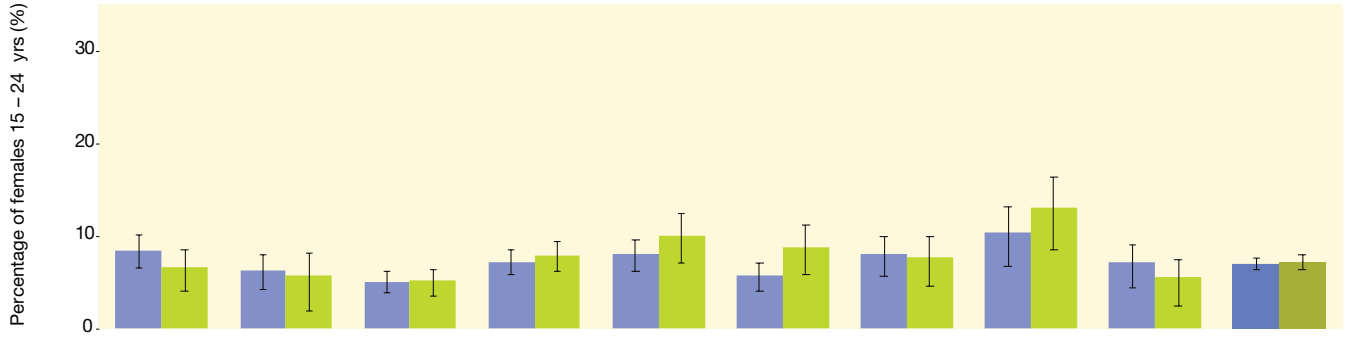
Fertility rates are, of course, an indicator of possible exposure to HIV. HIV prevalence rates are higher among women in their late twenties and thirties, and lower among teenagers, and the prevalence rate in the 15 – 24-age group has decreased over the past 10 years. However, prevalence rates are still worryingly high: of the young pregnant women surveyed in antenatal clinics in 2017, 11.3% of those aged 15 – 19 and 21.9% of those aged 20 – 24 were HIV positive.[13] For many years the majority of deaths in young mothers were caused by HIV.[14] Much of the overall decline in maternal deaths since 2011 is attributed to implementation of policies to manage and prevent HIV,[15] but it is still important that safe sexual behaviour is encouraged and practised.

Studies have found that early childbearing – particularly by teenagers and young women who have not completed school – has a significant impact on the education outcomes of both the mother and child, and is also associated with poorer child health and nutritional outcomes.[16] For this reason, it is important to delay childbearing, and to ensure that teenagers who do become pregnant are appropriately supported. This includes ensuring that young mothers can complete their education, and that they have access to parenting support programmes and health services. Although pregnancy is a major cause of school drop-out, some research has also suggested that teenage girls who are already falling behind at school are more likely to become pregnant than those who are progressing through school at the expected rate.[17] So efforts to provide educational support for girls who are not coping at school may also help to reduce teenage pregnancies.

Poverty alleviation is important for both the mother and child, but take-up of the Child Support Grant (CSG) among teenage mothers is low compared with older mothers.[18] This suggests that greater effort should be made to assist young mothers to obtain identity documents for themselves and birth certificates for their babies so that they can apply for CSGs. Ideally, home affairs and social security services should form part of a comprehensive maternal support service at all maternity facilities.

Since 2009 the nationally representative General Household Survey (GHS), conducted by Statistics South Africa, has included questions on pregnancy and fertility. The pregnancy question

Figure 3b: Annual childbearing rates among young women aged 15 – 24 years, by province, 2009 & 2018



	EC	FS	GT	KZN	LP	MP	NW	NC	WC	**SA**
2009	8.5%	6.3%	5.2%	7.3%	8.1%	5.7%	8.1%	10.5%	7.2%	7.1%
	58,000	17,000	50,000	77,000	50,000	23,000	24,000	11,000	34,000	346,000
2018	6.6%	5.8%	5.2%	8.0%	10.1%	8.9%	7.7%	13.0%	5.5%	7.2%
	34,000	14,000	57,000	81,000	55,000	34,000	25,000	15,000	30,000	346,000

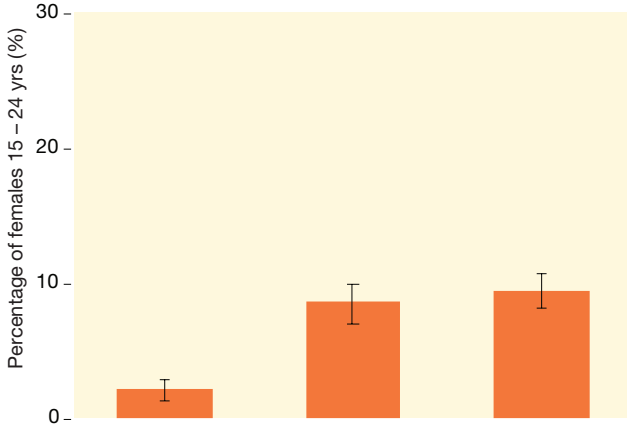
Source: Statistics South Africa (2010; 2019) *General Household Survey 2009; General Household Survey 2018.* Pretoria: Stats SA.
Analysis by Katharine Hall, Children's Institute, UCT.

asks the household respondent: "Has any female household member [between 12 – 50 years] been pregnant during the past 12 months?" For those reported to have been pregnant, a follow-up question asks about the current status of the pregnancy. This indicator calculates the number and percentage of young women who have given birth in the past year.

According to the GHS, the national childbearing rate for young women aged 15 – 24 was 7% in 2018. There has been no significant change in this rate since 2009 when the question was first asked in the survey, and the estimated number of young women giving birth in a year has remained fairly stable at around 350,000.

As would be expected, childbearing rates increase with age. Only 2% of girls aged 15 – 17 were reported to have given birth in the previous 12 months (representing 31,000 teenagers in this age group). Childbearing rates rose to 9% among 18 – 20-year-olds (125,000 when weighted), and 10% in the 21 – 24 age group (188,000). These rates have also been stable over the past decade.

Figure 3c: Childbearing rates among young women aged 15 – 24 years, by age group, 2018



	15 – 17 years	18 – 20 years	21 – 24 years
Live births in past 12 months	2.3%	8.6%	9.5%
	31,000	125,000	188,000

Source: Statistics South Africa (2019) *General Household Survey 2018.* Pretoria: Stats SA.
Analysis by Katharine Hall, Children's Institute, UCT.

Immunisation coverage of children

This indicator shows the percentage of children younger than one year who are fully immunised. "Full immunisation" refers to children having received all the required doses of vaccines given in the first year of life.

Immunisation is one of the most effective health care interventions to prevent serious illnesses and death in young children. It entails giving injections or drops to young children that protect them against potentially life-threatening illnesses such as tuberculosis, polio, hepatitis and measles. South Africa has an up-to-date immunisation programme, in keeping with world standards.

The Expanded Programme on Immunisation (EPI) in South Africa was last updated in 2015. The revised EPI schedule for public health facilities providing services to children in the first year of life includes immunisation at birth, and then at six weeks, 10 weeks, 14 weeks and nine months.[19] Thus, by the time of their first birthday, all babies should have visited a health facility at least four times after birth for immunisation services, and these immunisations should be recorded in the child's Road-to-Health Book.

Immunisation coverage serves as a good indicator of the extent to which young children access primary health-care services. Immunisation coverage is also a proxy for the extent to which children access other health services, as the immunisation schedule provides a point of contact for identifying other health problems and for scheduling preventative child health interventions. Examples of these are the vitamin A supplementation programme, developmental screening, and prophylaxis for babies born to HIV-positive mothers.

Immunisation rates are tracked in the District Health Information System and are calculated as the number of children who have received complete immunisation divided by the child population within that district. The percentages obtained in this way will be influenced by population movement in health seeking behaviour – for example, if children from one district are taken to a health facility in a neighbouring district. This has sometimes resulted in some districts, and even provinces, reporting immunisation rates of over 100%. The immunisation rates are also affected by national (and district-level) estimates of population size.

The 2015/16 immunisation rate, as reported in the 2017 District Health Barometer, reflected high levels of immunisation for infants under a year, at 89.2%.[20] Since then, Statistics South Africa revised its model to derive the mid-year population estimates, and it was found that the number of children in the country had previously been underestimated.[21] The 2015/16 immunisation rate was revised downwards to 79.5%. The 2016/17 rate had dropped even before the new population estimates were released, to 82.3%, and after retrospective adjustment to the revised population estimates, the rate for that year was calculated at 71.2%. The lower immunisation rate for that year was attributed to a global shortage of Hexavalent vaccine.[22] In 2017/18 the immunisation rate was estimated at 77%. The immunisation rates in the District Health Barometer have not been adjusted retrospectively before 2015, and so it is not possible to determine long-term trends in immunisation uptake.

The highest immunisation rates for 2017/18 were in Mpumalanga (90%), the Northern Cape (85%), KwaZulu-Natal (82%) and the Western Cape (81%) – all of which exceeded the national average of 77%. Eastern Cape and North West had the lowest immunisation rate (69%).

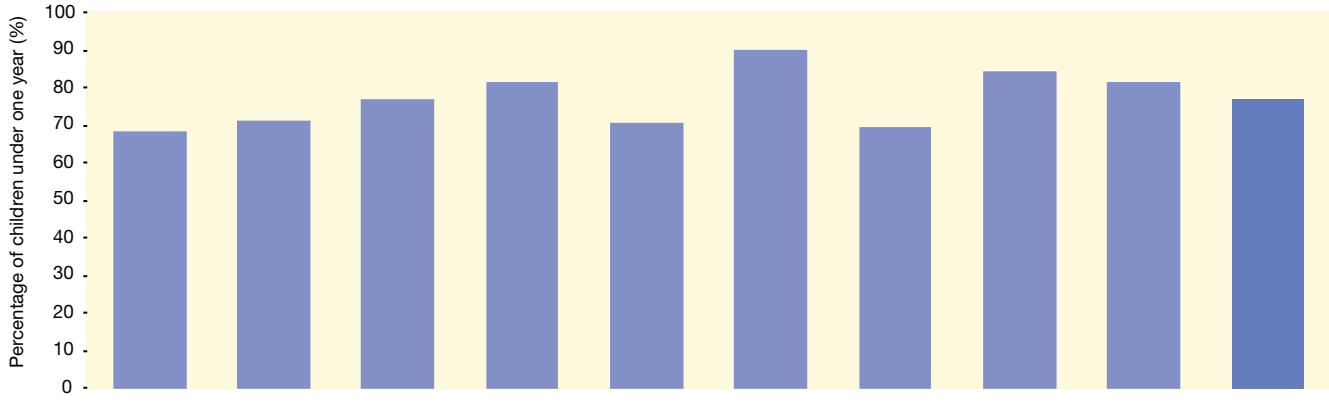
The challenge of national and provincial aggregates is that they can mask differences between districts and hide areas with low coverage. District coverage is available in the 2017/18 District Health Barometer, where 29 of the 52 districts show coverage below the national average. Coverage for individual districts demonstrates significant inter-district inequities in service access for young children – ranging from a low coverage rate of 56% in the Sarah Baartman District Municipality of the Eastern Cape, to 98% in the eThekwini Metropolitan Municipality in KwaZulu-Natal. Low coverage rates are concentrated mainly in poorer districts, where health needs may be greatest.

Effective immunisation requires high levels of coverage to achieve a certain level of immunity within the broader community. This is known as "herd immunity" and it means that, if immunisation coverage has reached a high enough level, even the most vulnerable who have not been immunised in that community will be protected – including young children and those with low immunity.

Even though immunisation is freely available, and the goal is for it to be universal, it is voluntary and there is growing evidence that some parents choose not to immunise their children. A "worldwide increase in vaccine hesitancy and refusal" has been described as a threat to the public health achievements in controlling and preventing infectious diseases.[23] At a country level, vaccine sentiment and voluntary compliance are inversely correlated with socio-economic status (i.e. compliance is lower in wealthy countries than in poorer ones).[24]

The completion rates for "basic immunisation" (BCG, three doses of DTaP-IPV-Hib, and one dose of measles vaccine) in the South Africa Demographic and Health Survey of 2016 were substantially lower than those recorded in the District Health Information System (at 61%, compared with 77%). The reason for this discrepancy is not clear, but it is important to note that compliance was highest in the poorest wealth quintile (66%) while the richest quintile was lower, at 60%.[25] This suggests an inverse correlation between socio-economic status and immunisation in South Africa, a highly unequal country.

Figure 3d: Immunisation coverage of babies younger than one year, by province, 2017/18



	EC	FS	GT	KZN	LP	MP	NW	NC	WC	**SA**
2017/18	68.5%	71.3%	77.3%	81.7%	70.7%	90.4%	69.4%	84.5%	81.4%	77.0%

Source: Department of Health (2019) District Health Information System. Reported in: Massyn N, Pillay Y & Padarath A (eds) *District Health Barometer 2017/18*. Durban: Health Systems Trust.

References

1 Constitution of the Republic of South Africa, Act 108 of 1996.
2 Organisation of the African Union (1990) *African Charter on the Rights and Welfare of the Child, 11 July 1990*. OAU Doc. 24.9/49. Addis Ababa: OAU.
3 Office of the High Commissioner of Human Rights (1989) *Convention on the Rights of the Child. UN General Assembly Resolution 44/25*. Geneva: United Nations.
4 Nannan N, Groenewald P, Pillay-van Wyk V, Msemburi W, Dorrington R & Bradshaw D (2019) Child mortality trends and causes of death in South Africa, 1997 – 2012, and the importance of a national burden of disease study. *South African Medical Journal*, 209(7): 480-485. Provincial profiles can be seen at: www.mrc.ac.za/bod/reports.htm.
5 Bradshaw D, Dorrington RE, Nannan N & Laubscher R (2014). *Rapid Mortality Surveillance Report 2013*. Cape Town: South African Medical Research Council.
6 Department of Health, Statistics South Africa, South African Medical Research Council & ICF (2017) *South Africa Demographic and Health Survey 2016: Key Indicators*. Pretoria and Rockville, Maryland: NDOH, Stats SA, SAMRC & ICF.
7 Jones G, Steketee RW, Black RE, Bhutta ZA, Morris SS & Bellagio Child Survival Study Group (2003) How many deaths can we prevent this year? *The Lancet*, 362(9977): 65-71.
8 United Nations Economic and Social Council (2000) *International Covenant on Economic, Social and Cultural Rights, Article 12: The Right to the Highest Attainable Standard of Health: General Comment No. 14*. Geneva: Committee on Economic, Social and Cultural Rights.
9 McLaren Z, Ardington C & Leibbrandt M (2013) *Distance as a Barrier to Health Care Access in South Africa*. A Southern Africa Labour and Development Research Unit Working Paper 97. Cape Town: SALDRU, UCT.
10 Statistics South Africa (2019) *General Household Survey 2018*. Pretoria: Stats SA. Analysis by Katharine Hall, Children's Institute, UCT.
11 See, for example: Jonas K, Crutzen R, Van den Borne B, Sewpaul R & Reddy P (2016) Teenage pregnancy rates and associations with other health risk behaviours: A three-wave cross-sectional study among South African school-going adolescents. *Reproductive Health*, 13(1): 50; Ardington C, Branson N & Leibbrandt M (2011) *Trends in Teenage Childbearing and Schooling Outcomes for Children Born to Teens in South Africa*. A Southern Africa Labour and Development Research Unit Working Paper 75. Cape Town: SALDRU, UCT; Makiwane M, Desmond C, Richter L & Udjo E (2006) *Is the Child Support Grant Associated with an Increase in Teenage Fertility in South Africa? Evidence from national surveys and administrative data*. Pretoria: Human Sciences Research Council.
12 Department of Health (2004 – 2019) *National Antenatal Sentinel HIV and*

Syphilis Prevalence Surveys 2004 – 2017. Pretoria: DoH.
13 Department of Health (2019) *National Antenatal Sentinel HIV and Syphilis Prevalence Survey 2017*. Pretoria: DoH.
14 Ardington C, Menendez A & Mutevedzi T (2015) Early childbearing, human capital attainment and mortality risk. *Economic Development and Cultural Change*, 62(2): 281-317.
15 Department of Health (2018) *Saving Mothers 2014 – 2016: Seventh triennial report on confidential enquiries into maternal deaths in South Africa: Short report*. Pretoria: DoH.
16 Branson N, Ardington C & Leibbrandt M (2015) Health outcomes of children born to teen mothers in Cape Town, South Africa. *Economic Development and Cultural Change*, 63(3): 589-616;
See no. 14 above;
See no. 11 (Ardington et al, 2011) above.
17 Timæus I & Moultrie T (2015) Trends in childbearing and educational attainment in South Africa. *Studies in Family Planning*, 46(2): 143-160.
18 Makiwane M (2010) The Child Support Grant and teenage childbearing in South Africa. *Development Southern Africa*, 27(2): 193-204;
Kesho Consulting and Business Solutions (2006) *Report on Incentive Structures of Social Assistance Grants in South Africa*. Report commissioned by Department of Social Development, Pretoria;
See no. 11 (Makiwane et al, 2006) above.
19 Dlamini N (2019) Chapter 8: Immunisation. In: Massyn N, Pillay Y & Padarath A (eds) *District Health Barometer 2017/18*. Durban: Health Systems Trust.
20 Massyn N, Padarath A, Peer N & Day C (eds) (2018) *District Health Barometer 2016/17*. Durban: Health Systems Trust.
21 See "Demography" in this section, and Hall K, Sambu W, Almeleh C, Mabaso K, Giese S & Proudlock P (2019) *South African Early Childhood Review 2019*. Cape Town: Children's Institute, UCT & Ilifa Labantwana.
22 See no. 19.
23 Verelst F, Kessels R, Delva W, Beutels P & Willem L (2019) Drivers of vaccine decision-making in South Africa: A discrete choice experiment. *Vaccine* 37(15): 2079-2089.
24 See no. 23 above.
25 See no. 6 above.

Child health: Nutrition

Winnie Sambu

Section 28(1)(c) of the Constitution of South Africa gives children the right to basic nutrition.[1]

Article 14(1) of the African Charter on the Rights and Welfare of the Child states that "every child shall have the right to enjoy the best attainable state of physical, mental and spiritual health", and article 14(2)(c) says that State Parties shall take measures "to ensure the provision of adequate nutrition…".[2]

Article 24 of the UN Convention on the Rights of a Child says that State Parties should recognise "the right of the child to the enjoyment of the highest attainable standard of health" and obliges the State to take measures "to combat disease and malnutrition… through, inter alia… the provision of adequate nutritious foods and clean drinking water…".[3]

Children living in households where there is reported child hunger

This indicator shows the number and proportion of children living in households where children are reported to go hungry "sometimes", "often" or "always" because there isn't enough food.

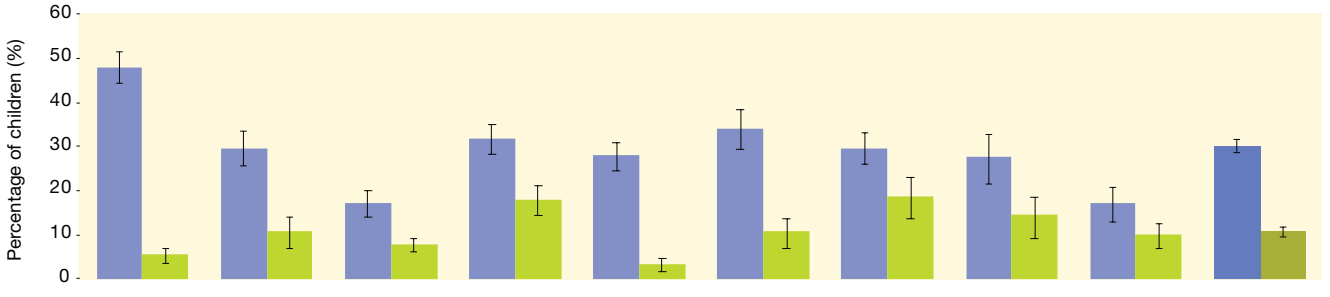
Section 28(1) (c) of the Bill of Rights in the Constitution gives every child the right to basic nutrition. The fulfilment of this right depends on children's access to sufficient food. There are a number of ways in which access to food can be monitored. At a global level, the Food and Agricultural Association (FAO) regularly publishes estimates of the prevalence of undernourishment, which is defined as the percentage of a population without access to sufficient dietary energy needed for an active and healthy life.[4] South Africa's average undernourishment rate for the 2016 – 2018 period was 6%, an increase from an average of 4.4% for the 2002 – 2004 period. The relatively low rate of undernourishment in South Africa, compared to other countries in the region which have undernourishment rates above 20% (Botswana, Namibia and Eswatini), suggests that there is enough food to cater for the majority of the country's population. However, distribution and accessibility constraints, coupled with high rates of poverty and inequality, mean that a substantial proportion of the country's population is food insecure.

At the household level, one of the main indicators used to monitor food insecurity is reported hunger. Child hunger is emotive and subjective, and this is likely to undermine the reliability of estimates on the extent and frequency of reported hunger, but it is assumed that variation and reporting error will be reasonably consistent so that it is possible to monitor trends from year to year.

In 2018, 11% of children (2.1 million) lived in households that reported child hunger. More than a third of these children (36%) are from KwaZulu-Natal, while a fifth are from Gauteng. Child hunger rates in 2018 were 19 percentage points lower than they were in 2002 when 30% of children (5.5 million) lived in households that reported child hunger. The largest declines have been in the Eastern Cape, Limpopo and Mpumalanga. One of the main contributors to this decline is the expansion of the Child Support Grant which in 2018 covered over 12 million children.[5] Another is the National School Nutrition Programme, which by 2016/2017 reached over 9 million learners in approximately 20,000 schools[6] (though only during term-time and excluding children who are too young to attend school).

Analysis of child hunger rates within provinces shows that child hunger rates are highest in the North West and KwaZulu-

Figure 4a: Children living in households with reported child hunger, 2002 & 2018



	EC	FS	GT	KZN	LP	MP	NW	NC	WC	**SA**
2002	48.0%	29.7%	17.1%	31.7%	27.9%	34.0%	29.7%	27.5%	17.1%	30.1%
	1,407,000	297,000	503,000	1,314,000	675,000	518,000	346,000	109,000	275,000	5,455,000
2018	5.4%	10.8%	7.8%	18.0%	3.4%	10.7%	18.8%	14.4%	10.0%	10.7%
	135,000	111,000	325,000	753,000	80,000	180,000	260,000	63,000	197,000	2,110,000

Source: Statistics South Africa (2003; 2019) *General Household Survey 2002; General Household Survey 2018*. Pretoria: Stats SA.
Analysis by Katharine Hall & Winnie Sambu, Children's Institute, UCT.

Natal provinces, affecting 19% and 18% of children living there respectively. The lowest hunger rates are in Limpopo and Eastern Cape provinces (3% and 5% respectively). Despite high poverty rates, Limpopo has always reported child hunger rates below the national average, perhaps because of its highly fertile and productive land in rural areas where most of the population lives. However, there is no clear explanation for the dramatic decline in reported hunger in the Eastern Cape. Over the period from 2002 – 2018, reported child hunger rates in that province fell from 48% (higher than any other province) to 5% (the second lowest). This is despite the fact that the Eastern Cape has the highest poverty rates in the country, with 48% of children living below the food poverty line.

There are no differences in reported child hunger across gender or age groups. However, there are significant differences across race; 12% of African children live in households that reported child hunger, compared to 7% of Coloured children and less than 1% of Indian and White children. Differences are even more pronounced across income quintiles. While 18% of children living in the poorest 20% of households experienced hunger, only one percent of children in quintile 5 (the richest 20%) lived in households that reported child hunger.

Children who suffer from hunger are at risk of various forms of malnutrition, including wasting, stunting, overweight and micronutrient deficiencies. It must be recognised that child hunger is a subjective indicator and does not capture other important aspects of food security such as dietary diversity and consumption of nutrient-dense foods, both of which are important for children's healthy growth especially in early childhood. Children may live in households that do not report hunger but may still not have access to sufficient nutritious food and are therefore at risk of malnutrition. In 2018, approximately 30% of children who lived in households that did not report child hunger were classified as living below the food poverty line, an indicator that their households lacked the financial resources needed to meet minimum dietary requirements for children and other household members.[7]

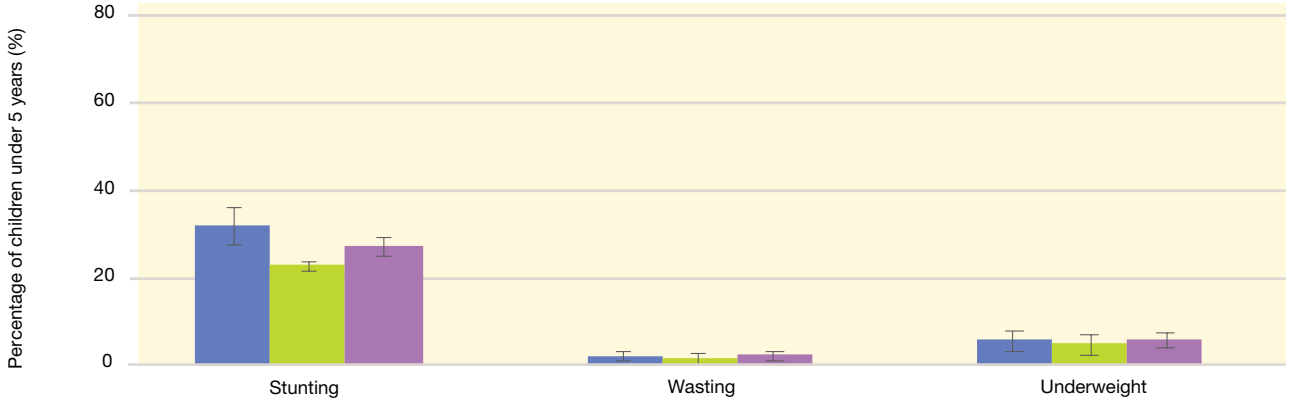
Undernutrition in children: stunting, wasting and underweight

Children who consume diets that are insufficient in energy and nutrients are at risk of undernutrition, which can manifest in the form of stunting, wasting, or underweight.

- **Stunting** occurs when a child's height-for-age is low compared to healthy children in the same reference population. Stunting is a chronic form of malnutrition that manifests over a relatively long period of time compared to other forms of malnutrition.
- **Wasting** is an acute form of malnutrition and is present when the child's weight-for-height is below the World Health Organization (WHO) reference point.
- **Underweight** is defined as low weight-for-age and occurs when child's weight-for-age is below the WHO reference point.

A child is classified as stunted, wasted or underweight if their height-for-age, weight-for-height, or weight-for-age scores respectively are more than two standard deviations below the globally accepted reference cut-off point as defined by WHO. Analysis of the 2016 South Africa Demographic and Health Survey (SADHS) shows that stunting is the most common manifestation of malnutrition in South Africa and affects 27% of children under five years old. Wasting and underweight rates for children under five are substantially lower, at 2.5% and 5.9% respectively. The prevalence of stunting is higher among young boys (30%) than girls (25%). Rural areas have significantly higher stunting rates (29%) than urban areas (26%). Provincial estimates

Figure 4b: Stunting, wasting and underweight in children under five years, 2016



	Stunting	Wasting	Underweight
0 – 2 years	32.0%	2.3%	5.9%
3 – 4 years	22.9%	1.8%	5.1%
Under five	27.4%	2.5%	5.9%

Source: Department of Health, Statistics South Africa, South African Medical Research Council and ICF (2017) *South Africa Demographic and Health Survey 2016: Key Indicators*. Pretoria and Rockville, Maryland: DOH, Stats SA, SAMRC & ICF. Analysis by Winnie Sambu.

show that stunting is highest in the Free State and Gauteng (both at 34%), and lowest in Mpumalanga and Northern Cape provinces (both at 21%). However, it must be noted that the South Africa Demographic and Health Survey sample size is small and therefore the confidence intervals are wide when the data is disaggregated to lower levels, especially in provinces with small populations, like Northern Cape.

Maternal health is one of the most important predictors of child nutritional outcomes. Pregnant women who are undernourished are more likely to deliver babies with low birthweight who are in turn at risk of being stunted.[8] Other maternal factors, such as education, can also affect a child's nutritional status in that mothers with higher education levels are more likely than those without to make informed decisions around feeding and may make more regular visits to health care facilities during and after pregnancy.[9] While 33% of children whose mothers do not have matric are stunted, the percentage among those whose mothers have at least a matric qualification is 17%.[10]

An important driver of stunting and other forms of malnutrition is the consumption of inadequate diets that are not sufficient in quantity and quality. In South Africa, only 23% of children aged 6 – 23 months were reported to have been fed a minimum acceptable diet that had minimum dietary diversity, meal frequency and appropriate milk feeds.[11]

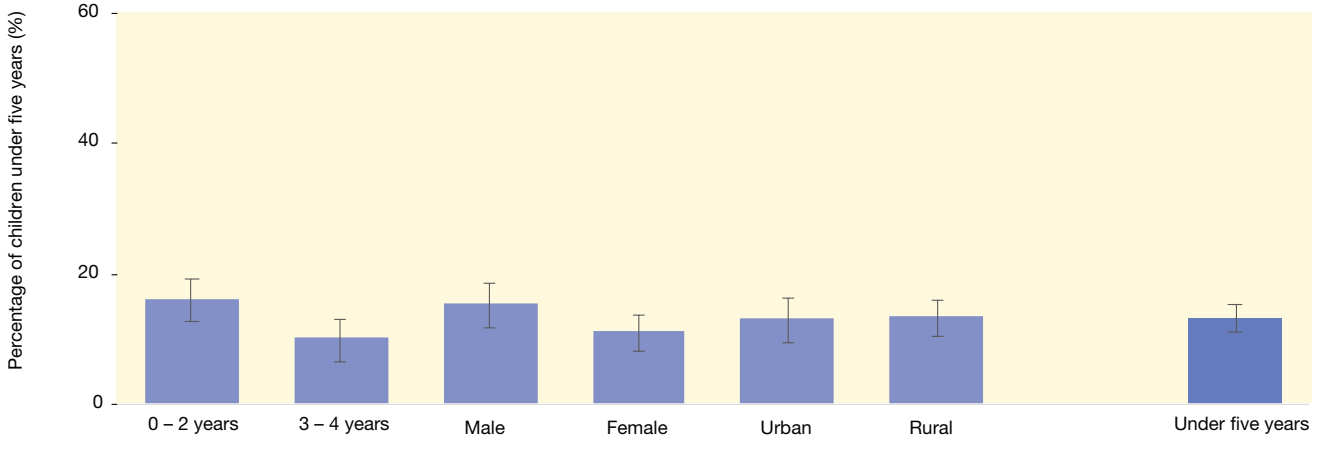
Poverty is the main underlying cause of undernutrition, leading to more direct causes of poor nutritional status. Hunger and low dietary diversity are more prevalent in poor households. Similarly, inadequate living conditions such as inadequate water and sanitation, are more common among poor households. These conditions can cause children to suffer from infections like diarrhoea and pneumonia, increasing the risk of them becoming wasted. If these infections occur frequently or become severe, they can result in more chronic forms of malnutrition.[12] Under-five stunting rates are highest in the poorest wealth quintile (36%), and lowest in the richest quintile (13%).[13]

Undernutrition rates are higher among young children, particularly those in the first 1,000 days of life. This is mainly because early childhood is a period of rapid growth and development and inadequate dietary intake can easily compromise this process. During this stage, children are also prone to illness due to poor feeding or exposure to poor living conditions in the home and environment. A third of children aged 0 – 2 years are stunted, compared to nearly a quarter for children aged 3 – 4 years.

Undernutrition increases the risk of infection in early childhood, which in turn compromises the child's health and increases health-care costs for the child's household and government. Undernutrition is an underlying cause of mortality in children. An audit of hospital child deaths in South Africa found that 30% of infants (28 days – 1 year) and 42% of 1 – 5-year-olds who died in 2012/13 were severely malnourished (suffering from Kwashiorkor, Marasmus, or Marasmic Kwashiorkor).[14] Of those who died from diarrhoeal causes, almost 40% were severely malnourished.[15]

Older children who are undernourished are more likely to be absent from school, and this compromises their learning. In addition, malnutrition is a risk factor for poor child development, with various studies showing associations between stunting and poor motor and cognitive development.[16] The effects of malnutrition also extend to adulthood, where productivity has been shown to be significantly affected.[17] It can be difficult for children who are stunted to recover, and for those who do, the negative effects experienced while stunted (such as poor cognitive development), may be irreversible.[18]

Figure 4c: Children under five years who are overweight or obese, 2016



	0 – 2 years	3 – 4 years	Male	Female	Urban	Rural	Under five years
2016	16.2%	10.2%	15.5%	11.1%	13.2%	13.5%	13.3%

Source: National Department of Health, Statistics South Africa, South African Medical Research Council and ICF (2017) *South Africa Demographic and Health Survey 2016: Key Indicators.* Pretoria and Rockville, Maryland: NDOH, Stats SA, SAMRC & ICF. Analysis by Winnie Sambu.

Overnutrition in children: Overweight and obesity

Overnutrition occurs when there is an excessive intake of dietary energy. It manifests in two main forms: overweight and obesity. Children under five years old are defined as overweight when their weight-for-height is greater than two standard deviations above the WHO reference cut-off point. They are defined as obese when their weight-for-height is more than three standard deviations above the WHO Child Growth Standards. Among children older than five years, body mass index (BMI) is used to classify children into five categories: normal weight, thin, severely thin, overweight, and obese.

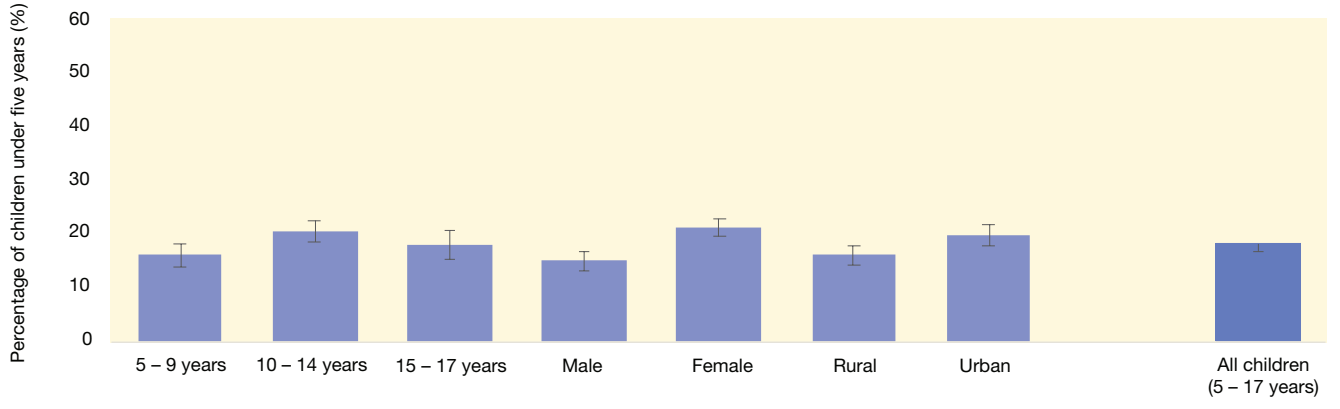
Overweight and obesity in early childhood increases the risk for adult obesity, as well as associated conditions like high cholesterol, diabetes and high blood pressure.[19] All of these are conditions with rising prevalence in South Africa.

Consumption of high-calorie diets, including those that are rich in salt, sugar and fats, is a main cause of overweight and obesity among children and adults. This is in turn influenced by other factors such as household poverty coupled with the high cost of healthy foods. Another contributing factor is an increasingly sedentary lifestyle. Maternal feeding practices and cultural beliefs about ideal child weight have also been linked to overnutrition. In addition, the consumption of infant formula milk has been associated with childhood obesity because protein and energy intake are higher among infants who are formula-fed.[20] Therefore, exclusive breastfeeding for the first six months of a baby's life is important as it protects against overweight and obesity in childhood, in addition to numerous other positive effects.[21]

Approximately 13% of South Africa's children under five years are overweight. Overnutrition rates are higher among young boys than girls (15% vs 11%). There are no significant differences in overnutrition rates across urban and rural areas. Compared to estimates from the 2008 National Income Dynamics Study (NIDS),[22] overweight rates have remained fairly stable, at 13%.

Overweight and obesity rates are significantly higher among older children. Data from the most recent wave of NIDS (2017) show 16% of children aged 5 – 9 and 22% of those aged 10 – 14 are classified as overweight or obese. Overall, 18% of children aged 15 – 17 years were found to be overweight or obese. The rate was significantly higher for girls (22%) than boys (15%), and for children living in urban areas (20%) compared to rural areas (16%).

Figure 4d: Children over five years who are overweight or obese, 2017



	5 – 9 years	10 – 14 years	15 – 17 years	Male	Female	Rural	Urban	All children (5 – 17 years)
2017	16.3%	20.7%	18.3%	15.2%	21.5%	16.3%	20.1%	18.4%

Source: Southern Africa Labour and Development Research Unit (2018) *National Income Dynamics Study 2017, Wave 5 [dataset]. Version 1.0.0.* Cape Town: SALDRU, UCT [producer]. Cape Town: DataFirst [distributor]. Analysis by Winnie Sambu.

Micronutrient deficiencies

Early childhood is a period of rapid growth with a high demand for micronutrients (vitamins and minerals) such as zinc, iron and vitamin A. Inadequate nutrient intake causes micronutrient deficiency, which has negative effects for children given that micronutrients are crucial for healthy growth and development. For example, zinc plays an important role in brain functioning, and inadequate intake can cause poor cognitive development. Iron deficiency affects motor and cognitive development in children younger than four years.[23] Vitamin A deficiency causes illness, can cause visual impairment and increases the risk for mortality.[24]

In South Africa, the main forms of micronutrient deficiencies that affect children are vitamin A, iron and zinc deficiencies. However, because data on the prevalence of micronutrient deficiencies are not regularly collected at national and regional levels, it is difficult to monitor prevalence and trends. A national survey conducted in 2012, the South Africa Health and Nutrition Examination Survey, has estimated vitamin A deficiency among children under five years at 44%, with the deficiency rates higher among boys (49%) than girls (39%).[25]

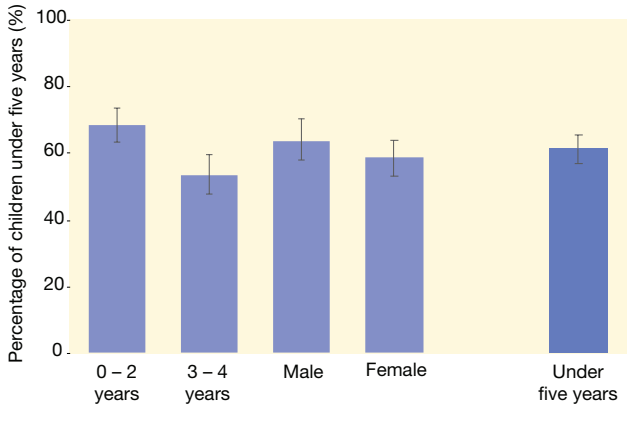
A global analysis of vitamin A deficiency in 138 low- and middle-income countries estimated that 1.7% of deaths among children under five years in 2013 could be attributed to vitamin A deficiency.[26] To prevent micronutrient deficiencies, South Africa introduced a national food fortification programme in 2003 which requires all maize and wheat products to be fortified with vitamins and minerals. The government has also been running

a national vitamin A supplementation programme, since 2002, to combat vitamin A deficiency and reduce the mortality risk in young children.[27] In 2017/18, 54% of children aged 12 – 59 months received vitamin A supplementation.[28]

The prevalence of anaemia among young children is also high. The 2016 South Africa Demographic and Health Survey classified 61% of children under five years as anaemic. A quarter (24%) suffer from mild anaemia while 35% are moderately anaemic and 2% are severely anaemic. Anaemia rates are higher among poor children; 35% of those in the poorest wealth quintile were moderately anaemic, compared to 18% in the top quintile. The anaemia estimates reported here are significantly higher than those reported in previous national surveys. There is no clear reason for this and so these estimates must be treated with caution.[29]

There are no recent national level estimates on zinc deficiency. The 2005 National Food Fortification Baseline Survey found that 44% of children aged 1 – 9 years had inadequate zinc status and were therefore at risk of zinc deficiency.[30] Some recent studies, although with small sample sizes, have found a high prevalence of zinc deficiency. One such study, involving 349 children from a rural area of Limpopo province, found that 43% of the children were found to be zinc deficient.[31]

Figure 4e: Anaemia in children under five years, 2016



	0 – 2 years	3 – 4 years	Male	Female	Under five years
2016	68.4%	53.7%	63.9%	58.7%	61.3%

Source: Department of Health, Statistics South Africa, South African Medical Research Council & ICF (2017) *South Africa Demographic and Health Survey 2016: Key indicators*. Pretoria and Rockville, Maryland: DoH, Stats SA, SAMRC & ICF. Analysis by Winnie Sambu.

References

1 Constitution of the Republic of South Africa, Act 108 of 1996.
2 Secretary General of the Organisation of the African Union (1990) *African Charter on the Rights and Welfare of the Child, OAU Resolution 21.8/49*. Addis Ababa: OAU.
3 Office of the High Commissioner of Human Rights (1989) *Convention on the Rights of the Child, UN General Assembly Resolution 44/25*. Geneva: United Nations.
4 FAO, IFAD, UNICEF, WFP & WHO (2019) *The State of Food Security and Nutrition in the World 2019. Safeguarding against economic slowdowns*. Rome: FAO.
5 Hall K (2019) Income poverty and grants – Child Support Grant. *Children Count*, Children's Institute, UCT. Viewed 24 October 2019: www.childrencount.uct.ac.za.
6 *Government Gazette* No. 41704, 15 June 2018;
National Treasury (2019) *Estimates of National Expenditure*. Pretoria: National Treasury.
7 Statistics South Africa (2019) *General Household Survey 2018*. Pretoria: Stats SA. Analysis by Winnie Sambu, Children's Institute, UCT.
8 Danaei G, Andrews GK,Sudfeld RC,Fink G, McCoy DC, Peet E, Sania A, Fawzi MCS, Ezzati M & Fawzi WW (2016) Risk factors for childhood stunting in 137 developing countries: a comparative risk assessment analysis at global, regional, and country levels. *PLOS Medicine*, 13(11): 1-18;
Richter LM, Orkin FM, Roman GD, Dahly DL, Horta BL, Bhargava SK, Norris SA & Stein AD (2018) Comparative models of biological and social pathways to predict child growth through age 2 years from birth cohorts in Brazil, India, the Philippines, and South Africa. *Journal of Nutrition*, 148(8): 1364-1371.
9 Casale D & Desmond C (2016) Recovery from stunting and cognitive outcomes in young children: Evidence from the South African Birth to Twenty Cohort Study. *Journal of Developmental Origins of Health and Disease*, 7(2): 163-171.
10 Department of Health, Statistics South Africa, South African Medical Research Council & ICF (2017) *South Africa Demographic and Health Survey 2016: Key Indicators*. Pretoria and Rockville, Maryland: DoH, Stats SA, SAMRC & ICF. Analysis by Winnie Sambu.
11 See no. 10 above.
12 Black RE, Victora CG, Walker SP, Bhutta ZA, Christian P, De Onis M, Ezzati M, Grantham-Mcgregor S, Katz J, Martorell R & Uauy R (2013) Maternal and child undernutrition and overweight in low-income and middle-income countries. *The Lancet*, 382(9890): 427-451;
See no. 8 (Danaei et al, 2016) above.
13 See no. 10 above.
14 Harper K (2016) An overview of child PIP national data 2012 – 2013. In: Stephen CR (2016) *Saving Children 2012 – 2013: An eighth survey of child healthcare in South Africa*. Pretoria: Tshepesa Press, South African Medical Research Council & CDC.
15 See no. 14 above.
16 Grantham-McGregor S, Cheung YB, Cueto S, Glewwe P, Richter L & Strupp B (2007) Developmental potential in the first five years for children in developing countries. *The Lancet*, 369(9555): 60-70;
Walker SP, Wachs TD, Grantham-Mcgregor S, Black MM, Nelson CA, Huffman SL, Baker-Henningham H, Chang, SM, Hamadani JD, Lozoff B, Gardner JMM, Powell CA, Rahman A & Richter L (2011) Inequality in early childhood: Risk and protective factors for early child development. *The Lancet*, 378(9799): 1325-1338;
Walker SP, Chang SM, Wright A, Osmond C & Grantham-McGregor SM (2015) Early childhood stunting is associated with lower developmental levels in the subsequent generation of children. *Journal of Nutrition*, 145(4): 823-828.
17 Hoddinott J, Alderman H, Behrman JR, Haddad L, Horton S (2013) The economic rationale for investing in stunting reduction. *Maternal and Child Nutrition*, 9(S2): 69-82.
18 See no. 9 above.
19 Koplan JP, Liverman CT & Kraak VI (2005) Preventing childhood obesity: health in the balance. Executive summary. *Journal of the American Dietetic Association*, 105(1): 131-138;
Lloyd LJ, Langley-Evans SC & McMullen S (2012) Childhood obesity and risk of the adult metabolic syndrome: A systematic review. *International Journal of Obesity*, 36(1): 1-11.
20 Horta BL & Victora CG (2013) Long-term health effects of breastfeeding: A systematic review. *Lijec Vjesn*, 129(8-9): 293-8;
See also World Health Organization (2014) *Exclusive breastfeeding to reduce the risk of childhood overweight and obesity*. Viewed 3 November 2019: www.who.int/elena/titles/bbc/breastfeeding_childhood_obesity/en/.
21 Horta BL, Victora CG & World Health Organization (2013) *Short-term Effects of Breastfeeding: A systematic review of the benefits of breastfeeding and pneumonia mortality*. Geneva: World Health Organization.
22 Southern Africa Labour and Development Research Unit (2018) *National Income Dynamics Study (NIDS) Wave 1, 2008 [dataset]. Version 7.0.0*. Pretoria: SA Presidency [funding agency]. Cape Town: SALDRU, UCT [implementer]. Cape Town: DataFirst [distributor].
23 See no. 12 (Black et al, 2013) above.
24 See no. 12 (Black et al, 2013) above.
25 Shisana O, Labadarios D, Rehle T, Simbayi L, Zuma K, Dhansay A, Reddy P, Parker W, Hoosain E, Naidoo P, Hongoro C, Mchiza Z, Steyn NP, Dwane N, Makoae M, Maluleke T, Ramlagan S, Zungu N, Evans MG, Jacobs L, Faber M & SANHANES-1 Team (2013) *South African Health and Nutrition Examination Survey (SANHANES-1)*. Cape Town: HSRC Press.
26 Stevens GA, Bennett JE, Hennocq Q, Lu Y, De-Regil LM, Rogers L, Danaei G, Li G, White RA, Flaxman SR, Oehrle SP, Finucane MM, Guerrero R, Bhutta ZA, Then-Paulino A, Fawzi W, Black RE & Ezzat M (2015) Trends and mortality effects of vitamin A deficiency in children in 138 low-income

and middle-income countries between 1991 and 2013: a pooled analysis of population-based survey. *The Lancet Global Health*, 3(9): e528–e536.
27 Imdad A, Yakoob MY, Sudfeld C, Haider BA, Black RE & Bhutta ZA (2011) Impact of vitamin A supplementation on infant and childhood mortality. *BMC Public Health*, 11(3): 1-15;
Mayo-Wilson E, Imdad A, Herzer K, Yakoob MY & Bhutta ZA (2011) Vitamin A supplements for preventing mortality, illness, and blindness in children aged under 5: systematic review and meta-analysis. *BMJ (Online)*, 343(7822): 1-19.
28 Health Systems Trust (2019) *District Health Barometer.* Durban: Health Systems Trust. Viewed 10 October 2019: www.hst.org.za/publications/Pages/HSTDistrictHealthBarometer.aspx.
29 See no. 10 above.
30 Labadarios D, Swart R, Maunder EMW, Kruger HS, Gericke GJ, Kuzwayo PMN, Ntsie PR, Steyn NP, Schloss I, Dhansay MA, Jooste PL, Dannhauser A, Nel JH, Molefe D & Kotze TJvW (2008) Executive summary of the National Food Consumption Survey Fortification Baseline (NFCS-FB-I) South Africa, 2005. *South African Journal of Clinical Nutrition*, 21(3): 245-300.
31 Motadi SA, Mbhenyane XG, Mbhatsani HV, Mabapa NS & Mamabolo RL (2015) Prevalence of iron and zinc deficiencies among preschool children ages 3 to 5y in Vhembe district, Limpopo province, South Africa. *Nutrition*, 31(3): 452-458.

Children's access to education

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Section 29(1)(a) of the South African Constitution states that "everyone has the right to a basic education", and section 29(1)(b) says that "everyone has the right to further education", and that the state must make such education "progressively available and accessible".[1]

Article 11(3)(a) of the African Charter on the Rights and Welfare of the Child says "States Parties to the present Charter shall take all appropriate measures with a view to achieving the full realization of this right and shall in particular … provide free and compulsory basic education".[2]

Article 28 of the UN Convention on the Rights of the Child recognises "the right of the child to education" and also obliges the state to "make primary education compulsory and available free to all".[3]

Children attending an educational institution

This indicator shows the number and percentage of children aged 7 – 17 who are reported to be attending a school or educational facility. It is different from "enrolment rate", which reflects the number of children enrolled in educational institutions, as reported by schools to the national Department of Basic Education (DBE) early in the school year.

Education is a central socio-economic right that provides the foundation for lifelong learning and economic opportunities. Children have a right to basic education and are admitted into grade 1 in the year they turn seven. Basic education is compulsory in grades 1 – 9, or for children aged 7 – 15. Children who have completed basic education also have a right to further education (grades 10 – 12), which the government must take reasonable measures to make available.

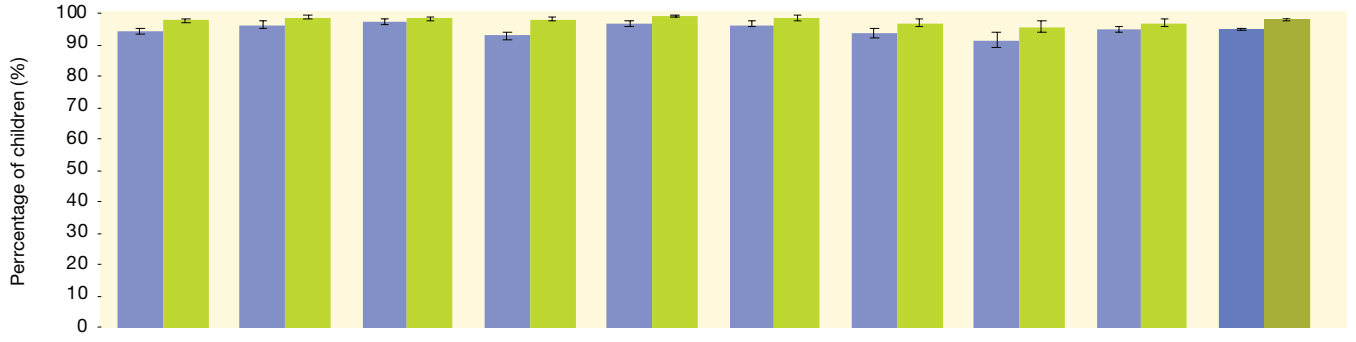
South Africa has high levels of school enrolment and attendance. Amongst children of school-going age (7 – 17 years), the vast majority (98%, or 11.3 million children) attended some form of educational facility in 2018. This is a small but significant increase from 2002, when the reported attendance rate was 95%.

The overall increase is mainly due to a small but real growth in reported attendance rates for African and Coloured children over the 17-year period. In 2018, for the first time since this indicator was tracked, there are no significant differences in attendance rates across race groups. Of a total of 11.6 million children aged 7 – 17 years, 232,000 were reported as not attending school in 2018.

At a provincial level, the Northern Cape and KwaZulu-Natal have seen the most significant increases in attendance rates between 2002 and 2018. In the Northern Cape, attendance increased from 91% to 95% while in KwaZulu-Natal attendance increased from 93% to 98%.

Overall attendance rates tend to mask drop-out among older children. Analysis of attendance among discrete age groups shows a significant drop in attendance amongst children older than 15. This also coincides with the end of compulsory schooling. Whereas around 99% of children in each age year from seven to 14 are reported to be attending an educational institution, the attendance rate drops to 98% for 15-year-olds, 96% for 16-year-olds, 92% for 17-year-olds, and 83% of 18-year-olds are reported

Figure 5a: School-age children (7 – 17-year-olds) attending an educational institution, by province, 2002 & 2018



	EC	FS	GT	KZN	LP	MP	NW	NC	WC	**SA**
2002	94.2%	96.3%	97.4%	92.9%	96.6%	96.4%	93.6%	91.2%	94.8%	95.0%
	1,811,000	603,000	1,763,000	2,470,000	1,525,000	917,000	671,000	221,000	944,000	10,926,000
2018	97.8%	98.6%	98.3%	98.0%	99.0%	98.5%	97.0%	95.4%	96.8%	98.0%
	1,456,000	615,000	2,378,000	2,482,000	1,331,000	948,000	779,000	249,000	1,094,000	11,332,000

Source: Statistics South Africa (2003, 2019) *General Household Survey 2002; General Household Survey 2018*. Pretoria: Stats SA.
Analysis by Katharine Hall & Winnie Sambu, Children's Institute, UCT.

to be attending school (based on those who have not completed grade 12). Differences in reported school attendance rates between boys and girls are not statistically significant.

Amongst children of school-going age who are not attending school the main set of reasons for non-attendance relate to the quality of education or the learners ability to progress: "Education is useless or not interesting" is the reason given for 10% of those not attending school. Another 9% are "unable to perform at school" while 5% dropped out because they failed the exams. These signals of failures in the education system account for a quarter of all reported non-attendance. A further 7% of children not attending school are excluded because they were not accepted for enrolment.

The second main barrier to education is financial constraints. These include the cost of schooling (the reason given for 13% of children not attending schools) – which would also include related costs such as uniform and transport – and the opportunity costs of education where children have family commitments such as child minding (4%) or are needed to work in a family business or elsewhere to support household income (2%).

Disability is also an important reason, accounting for 15% of non-attendance, while illness accounts for an additional 5% of the non-attendance rate.

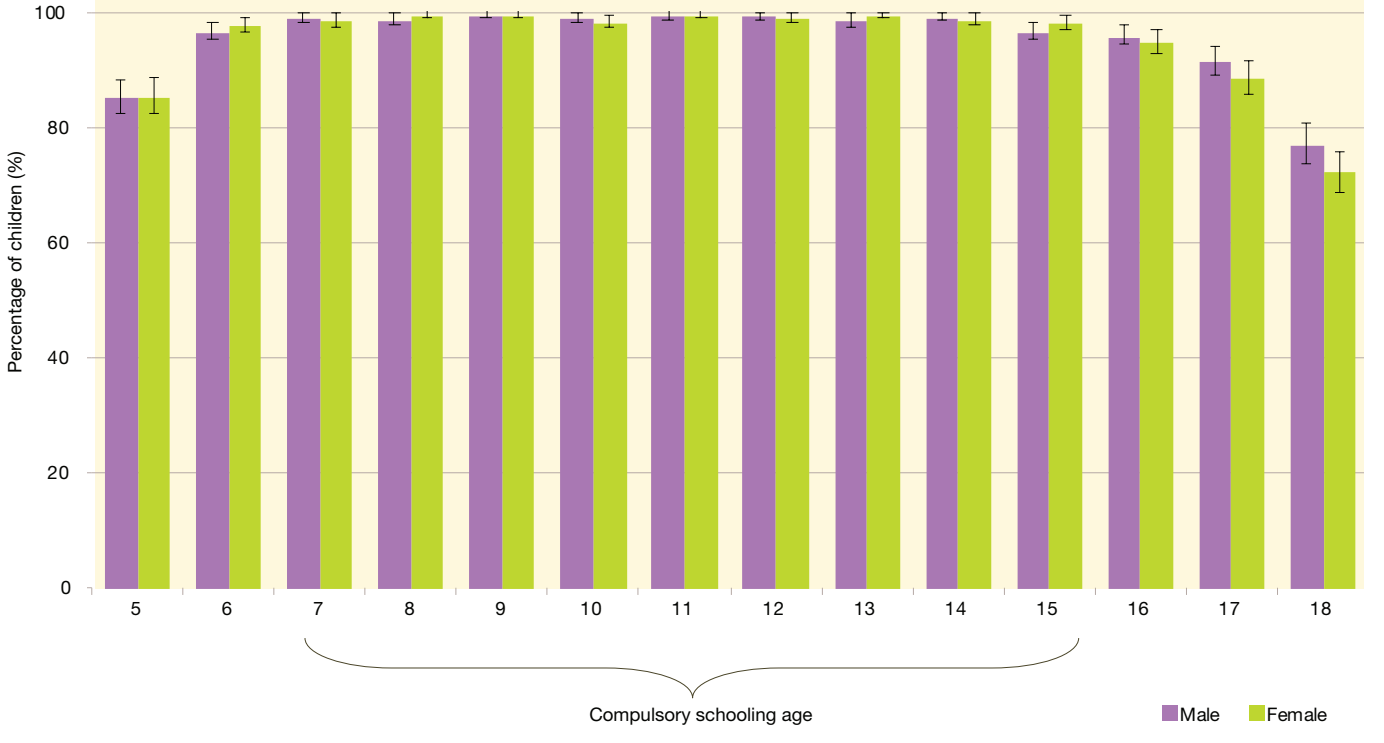
The main reasons for non-attendance can therefore be divided into three main categories: system failures (including exclusions and quality problems); financial barriers; and illness or disability. Together, these account for over 70% of non-attendance.

Pregnancy accounts for around 7% of drop-out amongst teenage girls not attending school, and only 3% of all non-attendance.[4]

Although the costs of education are cited as a barrier to attendance, the overall attendance rate for children in the lower income quintiles is not significantly lower than those in the wealthier quintiles.

Attendance rates alone do not capture the regularity of children's school attendance or their progress through school. Research has shown that children from more disadvantaged backgrounds – with limited economic resources, lower levels of parental education, or who have lost their mother – are more prone to dropping out or progressing more slowly than their more advantaged peers. Racial inequalities in school advancement remain strong.[5] Similarly, school attendance rates tell us nothing about the quality of teaching and learning.[6] Inequalities in learning outcomes are explored through standardised tests such as those used in the international SAQMEC,[7] TIMMS and PIRLS[8] studies. The DBE's Annual National Assessments[9] have been discontinued.

Figure 5b: Reported attendance at an educational institution, by age and sex, 2017



Source: Statistics South Africa (2019) *General Household Survey 2018.* Pretoria: Stats SA. Analysis by Katharine Hall & Winnie Sambu, Children's Institute, UCT.

Access to early childhood learning programmes

This indicator shows the number and percentage of children aged 5 – 6 who are reported to be attending an early childhood development (ECD) programme or educational institution – in other words, those attending out-of-home group care and learning centres including ECD centres, pre-grade R, grade R or grade 1 in ordinary schools. While all these facilities provide care and stimulation for early learning for young children, the emphasis on providing learning opportunities through structured learning programmes differs by facility type.

Educational inequalities are strongly associated with structural socio-economic (and therefore also racial) inequalities in South Africa.[10] These inequalities are evident from the early years, even before entry into primary school.[11] They are exacerbated by an unequal schooling system,[12] and are difficult to reverse. But early inequalities can be reduced through preschool exposure to developmentally appropriate activities and programmes that stimulate cognitive development.[13] Provided that they are of good quality, early learning programmes are an important mechanism to interrupt the cycle of inequality by reducing socio-economic differences in learning potential between children before they enter the foundation phase of schooling.

The Five-year Strategic Plan[14] of the DBE includes a broad goal to improve the quality of ECD provisioning and specifically to improve access to grade R through the supply of learning materials and improving the quality of grade R educators. Evidence suggests that quality group learning programmes are beneficial for cognitive development from about three years of age[15] and the National Development Plan (NDP) priorities, cited in the DBE's strategic plan, include universal access to two years of early childhood development programmes. The DBE funds and monitors thousands of community-based grade R centres in addition to the school-based grade R classes. The NDP proposes the introduction of a second year of preschool education, and that both years be made universally accessible to children.[16] It therefore makes sense to monitor enrolment in early learning programmes of children in the 5 – 6-year pre-school age group.

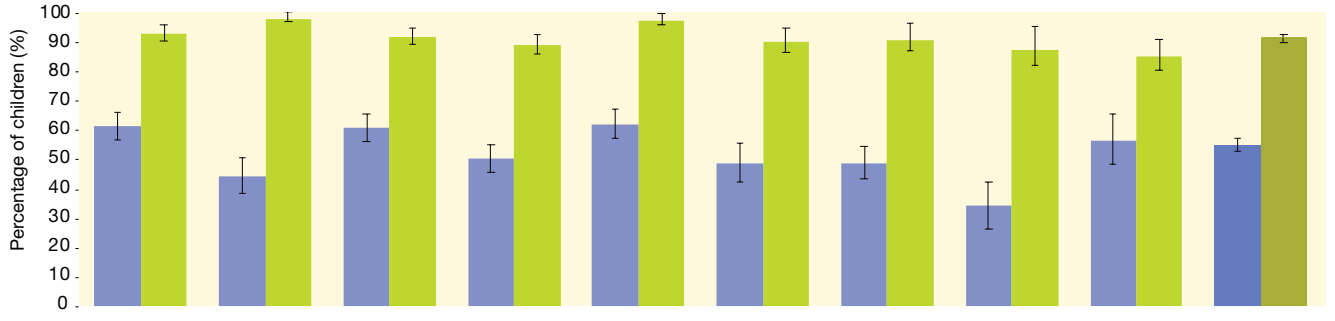
In 2015, there were 288,212 learners attending 4,058 ECD centres in South Africa, according to the DBE's administrative data.[17] Preliminary results from DBE, based on data from the Learner Unit Record Information and Tracking System (LURITS) and other provincial data sources show that, in addition to children in ECD centres, 824,000 learners were attending grade R or pre-grade R at ordinary primary schools in 2018, of whom 94% were at public (government schools) while 6%, or 46,000 learners, were at independent schools.[18]

In 2018, 92% of children (2.1 million) in the preschool age group (5 – 6-year-olds) were reported to be attending some kind of educational institution, mostly in grade R or grade 1. This was double the 2002 level, when slightly fewer than 1.1 million children in the same age group were reported to be attending an educational institution. Nearly 200,000 children in this age group are not attending any kind of educational facility.

Attendance rates are high across all provinces. The highest attendance rates in 2018 were in the Free State and Limpopo (both at 98%), the Eastern Cape (93%) and Gauteng (92%). The lowest rates were in the Western Cape (85%) and Northern Cape (88%). This pattern differs from many other indicators, where the Western Cape often outperforms poorer and more rural provinces like the Eastern Cape and Limpopo. Similar patterns were found in analyses of the 2007 Community Survey and the 2008 National Income Dynamics Study.[19]

Given the inequities in South Africa, it is pleasing to see that there are no substantial racial differences in access to educational institutions by African and White children of preschool age,

Figure 5c: Children aged 5 – 6 years attending school or ECD facility, by province, 2002 & 2018



	EC	FS	GT	KZN	LP	MP	NW	NC	WC	**SA**
2002	61.4%	44.7%	61.0%	50.8%	62.2%	49.1%	49.1%	34.7%	56.9%	55.2%
	194,000	49,000	188,000	220,000	158,000	80,000	63,000	16,000	97,000	1,064,000
2018	93.1%	98.2%	92.1%	89.2%	97.7%	90.2%	91.1%	87.6%	85.2%	91.6%
	286,000	120,000	417,000	440,000	273,000	188,000	144,000	45,000	210,000	2,123,000

Source: Statistics South Africa (2003; 2019) *General Household Survey 2002; General Household Survey 2018.* Pretoria: StatsSA.
Analysis by Katharine Hall and Winnie Sambu, Children's Institute, UCT.

Note: Prior to 2009, enrolment in crèches, playgroups and ECD centres would have been under-reported as the survey only asked about attendance at "educational institutions". More specific questions about ECD facilities were introduced in the 2009 survey and are likely to have resulted in higher response rates. (For a more detailed technical explanation, see www.childrencount.uct.ac.za).

although levels of attendance among Coloured children remain below the national average, at 83%. It is also encouraging that, as with formal school attendance, there are no strong differences in pre-school enrolment across the income quintiles. There are also no significant gender differences in access to preschool.

As with the indicator that monitors school attendance, it should be remembered that this indicator tells us nothing about the quality of care and education that young children receive at educational facilities or the resources available at those facilities. High rates of attendance provide a unique opportunity because almost all children in an age cohort can be reached at a particularly important developmental stage; but this is a lost opportunity if the service is of poor quality.

Children living far from school

This indicator reflects the distance from a child's household to the school s/he attends. Distance is measured as the length of time travelled to reach school. The school the child attends is defined as "far" if a child has to travel more than 30 minutes to reach it, irrespective of mode of transport. Children aged 7 – 13 are defined as primary school age, and children aged 14 – 17 are defined as secondary school age.

Access to schools and other educational facilities is a necessary condition for achieving the right to education. A school's location and distance from home can pose a barrier to education. Access to schools is also hampered by poor roads, transport that is unavailable or unaffordable, and danger along the way. Risks may be different for young children, for girls and boys, and are likely to be greater when children travel alone.

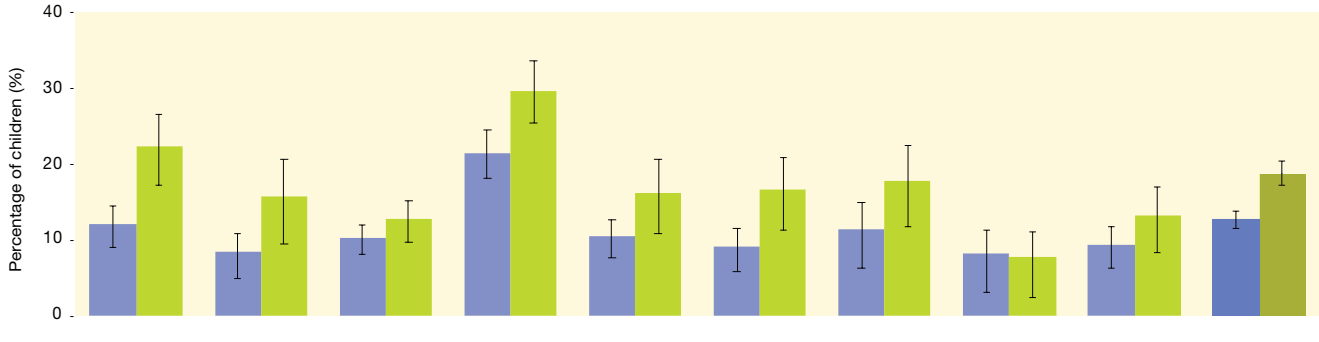
For children who do not have schools near to their homes, the cost, risk and effort of getting to school can influence decisions about regular attendance, as well as participation in extramural activities and after-school events. Those who travel long distances to reach school may wake very early and risk arriving late or physically exhausted, which may affect their ability to learn. Walking long distances to school may also lead to learners being excluded from class or make it difficult to attend school regularly.

Two-thirds (67%) of South Africa's learners walk to school, while 12% travel in vehicles hired by a group of parents, 8% travel in private cars and 8% use public transport. Only 3% report using school buses or school transport provided by the government. The majority (74%) of White children are driven to school in private cars, compared with only 17% of African children.[20] These figures illustrate pronounced disparity in child mobility and means of access to school.

Assuming that schools primarily serve the children living in communities around them, the ideal indicator to measure physical access to school would be the distance from the child's household to the nearest school. This analysis is no longer possible due to question changes in the General Household Survey. Instead, the indicator shows the number and percentage of children who travel far (more than 30 minutes) to reach the actual school that they attend, even if it is not the closest school. Eighty-four percent of school-going children attend their nearest school. School-age children not attending school are therefore excluded from the analysis.

Overall, the vast majority (84%) of the 11.3 million children who attend school travel less than 30 minutes to reach school. Children of secondary school age are more likely than primary school learners to travel far to reach school. In 2018 there were nearly 7.9 million children of primary school age (7 – 13 years) in South Africa. More than a million of these children (13%) travel more than 30 minutes to and from school every day. In KwaZulu-Natal this percentage is significantly higher than the national average, at 21%. Of the 3.7 million children of secondary school age (14 – 17 years), 19% travel more than 30 minutes to reach school, and again it is children in KwaZulu-Natal who are most likely to travel far (30%). The majority of these children live in rural areas: 25% of secondary school-age children in the former homelands travel far to school, compared to 14% of children living in urban areas.

Figure 5d: School-aged children living far from school, by province, 2018



	EC	FS	GT	KZN	LP	MP	NW	NC	WC	**SA**
Primary	12.1%	8.4%	10.3%	21.5%	10.5%	9.1%	11.4%	8.2%	9.5%	12.8%
	126,000	35,000	169,000	373,000	98,000	58,000	62,000	14,000	72,000	1,007,000
Secondary	22.3%	15.9%	12.8%	29.8%	16.3%	16.8%	17.8%	7.9%	13.3%	18.9%
	100,000	34,000	98,000	237,000	68,000	55,000	46,000	8,000	49,000	695,000

Source: Statistics South Africa (2019) *General Household Survey 2018.* Pretoria: Stats SA. Analysis by Katharine Hall, Children's Institute, UCT.

Physical access to school remains a problem for many children in South Africa, particularly those living in more remote areas where public transport to schools is lacking or inadequate and where households are unable to afford private transport for children to get to school. There are 25,000 schools in South Africa, of which just over 23,000 are public and nearly 2,000 are independent.[21] Over 3,000 government schools have closed since 2002 as the department consolidates smaller schools and closes state-funded farm schools. The Eastern Cape has lost nearly a thousand public schools, while the Free State has lost over a thousand. Other provinces with substantial reductions in the number of schools are the North West and Limpopo. While the concentration of more children into fewer schools may be an advantage from a school management perspective, it may mean that children in remote areas have more difficulty in accessing school. Over the same period, the number of independent schools in the country has increased by 61% (an increase of over 700 schools).[22]

Children's progress through school

We have already seen that school attendance rates are very high during the compulsory schooling phase (grades 1 – 9). However, attendance tells us little about the quality of education that children receive, or their progress through the education system.

Systemic evaluations by the Department of Education have recorded very low pass rates in numeracy and literacy among both grade 3 and grade 6 learners[23] and internationally comparative studies have repeatedly found South Africa's performance to be poor even when compared with other countries in the region. In the international PIRLS study, which assessed literacy amongst grade 4 learners, South Africa was placed last out of 50 participating countries. Four out of five grade 4 children in South Africa could not read for meaning in any language.[24] In the International TIMMS study, which assessed numeracy among grade 5 learners, South Africa was placed second last out of 49 countries. Three out of five learners could not do basic arithmetic calculations like addition and subtraction.[25] Despite measures to address the inherited inequities in the education system through revisions to the legislative and policy frameworks and the school funding norms, continued disparities in the quality of education offered by schools reinforce existing socio-economic inequalities, limiting the future work opportunities and life chances of children who are born into poor households.[26]

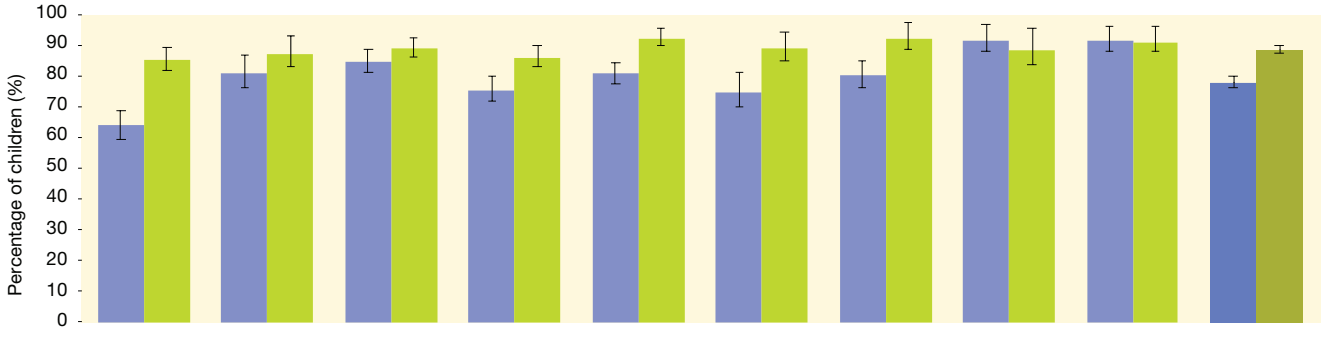
High rates of grade repetition have been recorded in numerous studies. For example, a study of children's progress at school found that only about 44% of young adults (aged 21 – 29) had matriculated, and of these less than half had matriculated "on time".[27] This was based on 2008 data from the National Income Dynamics Study. In 2016, only 51% of young people aged 20 – 24 had completed a matric or matric equivalent.[28] In South Africa, the labour market returns to education only start kicking in on successful completion of matric, not before. However it is important to monitor progress and grade repetition in the earlier grades as slow progress at school is a strong determinant of school drop-out.[29]

Assuming that children are enrolled in primary school at the prescribed age (by the year in which they turn seven) and assuming that they do not repeat a grade or drop out of school, they would be expected to have completed the foundation phase (grade 3) by the year that they turn nine, and the general education phase (grade 9) by the year they turn 15.

This indicator allows a little more leeway: it measures the number and percentage of children aged 10 and 11 who have completed a minimum of grade 3, and the percentage of those aged 16 and 17 who have completed a minimum of grade 9. In other words, it allows for the older cohort in each group to have repeated one grade.

In 2018, 88% of all children aged 10 and 11 were reported to have completed grade 3. This was up from 78% in 2002. An improvement in progress through the foundation phase was evident across most of the provinces, with significant advances in the Eastern Cape (from 64% in 2002 to 85% in 2018), North West

Figure 5e: Children aged 10 – 11 years who passed grade 3, by province, 2002 & 2018



	EC	FS	GT	KZN	LP	MP	NW	NC	WC	**SA**
2002	63.7%	81.0%	84.5%	75.4%	80.5%	74.8%	79.9%	91.5%	91.3%	77.9%
	215,000	94,000	272,000	374,000	223,000	136,000	108,000	46,000	169,000	1,637,000
2018	85.1%	87.2%	88.9%	86.0%	91.9%	88.6%	92.1%	88.3%	91.0%	88.4%
	241,000	107,000	425,000	441,000	243,000	160,000	140,000	40,000	193,000	1,989,000

Source: Statistics South Africa (2003; 2019) *General Household Survey 2002; General Household Survey 2018.* Pretoria: Stats SA.
Analysis by Katharine Hall & Winnie Sambu, Children's Institute, UCT.

(from 80% to 92%), Mpumalanga (75% to 89%), Limpopo (80% to 92%) and KwaZulu-Natal (75% to 86%). These improvements have narrowed the gap between provinces.

As would be expected, the rate of progression through the entire general education and training band (grades 1 – 9) is lower, as there is more time for children to have repeated or dropped out by grade 9. Seventy percent of children aged 16 – 17 years had completed grade 9 in 2018. This represents an overall improvement of 20 percentage points over the 17-year period, from 50% in 2002. Provincial variation is slightly more pronounced than for progress through the foundation phase: Gauteng had the highest rate of grade 9 progression (82%), followed by the Western Cape (76%). Progress was poorest in the North West and Free State, where just over half (54% and 56% respectively) of children had completed grade 9 by the expected age.

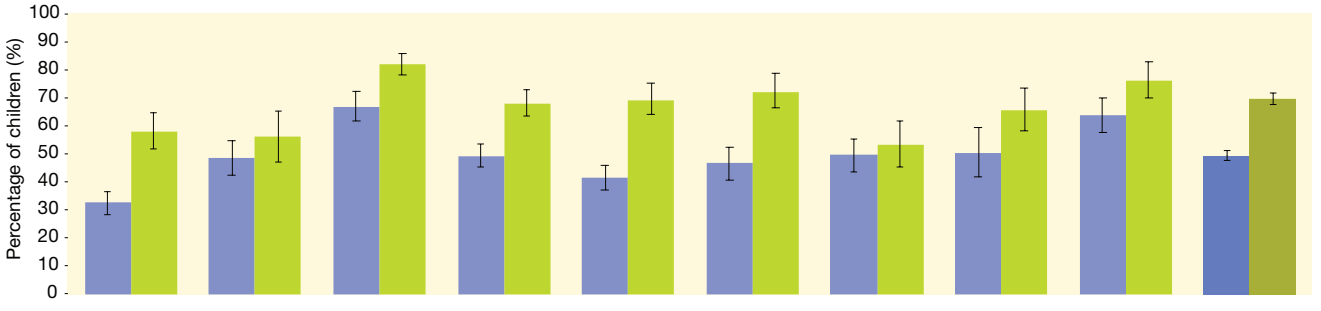
As found in other analyses of transitions through school,[30] educational attainment (measured by progress through school) varies along socio-economic and racial lines. These differences become more pronounced as children advance through the grades. Gender differences in school progression, on the other hand, have remained consistent and even widened over the years: girls are more likely than boys to progress through school at the expected rate and the difference becomes more pronounced in the higher grades. In 2018, 91% of girls aged 10 – 11 had completed grade 3, compared with 86% of boys; in the same year, 75% of 16 – 17-year-old girls had completed grade 9, compared with only 64% of boys in the same age cohort. This finding is consistent with analyses elsewhere.[31]

There are significant differences in grade completion across income quintiles, especially amongst children who have completed grade 9: in 2018, 64% of 16 – 17-year-olds in the poorest 20% of households had completed grade 9, compared to 84% in the richest 20% of households.

The most striking improvements in grade progression, at both grade 3 and grade 9 level, occurred through the years between 2002 and 2010. The rate of improvement has slowed and in some years remained stable since then.

Of course, grade progression and grade repetition are not easy to interpret. Prior to grade 12, the promotion of a child to the next grade is based mainly on assessment by teachers, and the measure may be confounded by the teacher's competence to assess the performance of the child, as well as pressure on teachers and/or schools to promote children through the system. Analyses of the determinants of school progress and drop-out point to a range of factors, many of which are interrelated: there is huge variation in the quality of education offered by schools. These differences largely reflect the historic organisation of schools into racially defined and inequitably resourced education departments. Household-level characteristics and family background also account for some of the variation in grade progression. For example, the level of education achieved by a child's mother explains some of the difference in whether children are enrolled at an appropriate age and whether they go on to complete matric successfully.[32] This in turn suggests that improved educational outcomes for children will have a cumulative positive effect for each subsequent generation.

Figure 5f: Children aged 16 – 17 who passed grade 9, by province, 2002 & 2018



	EC	FS	GT	KZN	LP	MP	NW	NC	WC	**SA**
2002	32.7%	48.9%	67.1%	49.6%	41.9%	46.8%	49.7%	50.7%	63.8%	49.6%
	113,000	55,000	225,000	238,000	122,000	80,000	64,000	21,000	120,000	1,037,000
2018	58.3%	56.2%	82.1%	68.3%	69.6%	72.4%	53.5%	65.8%	76.3%	69.7%
	119,000	55,000	322,000	280,000	144,000	113,000	71,000	35,000	143,000	1,283,000

Source: Statistics South Africa (2003; 2019) *General Household Survey 2002; General Household Survey 2018*. Pretoria: Stats SA.
Analysis by Katharine Hall & Winnie Sambu, Children's Institute, UCT.

Youth not in employment, education or training (NEETs)

"NEETs" is a term used to describe young people who are not in employment, education or training. The definition used here includes youth aged 15 – 24 who are not attending any educational institution and who are not employed or self-employed.[33]

Widespread concerns about the large numbers of youth in this situation centre on two main issues: the perpetuation of poverty and inequality, including intergenerational poverty; and the possible implications of a large "idle" youth population for risk behaviour, social cohesion and the safety of communities.

Little is known about what NEETs actually do with their time. Young people who are neither learning nor engaged in income-generating activities may nevertheless be "productive" within their households, for example by helping to maintain the home or looking after children and others in need of care. However, in the absence of income, NEETs remain dependent on the earnings of other household members, and on grants that are directed to children and the elderly. The Old Age Pension in particular has been found to support job-seeking activities for young people[34] and it has been argued that this unenvisaged expenditure of the grant could be addressed by extending social security to unemployed youth[35].

The large number of NEETs in South Africa is linked to underlying problems in the education system and the labour market. Young people in South Africa have very high participation rates in education, including at secondary level. Enrolment rates for grades 11 and 12 have increased in recent years and more young people attain grade 12 (and at an earlier age).[36] But there is still a sharp drop-off in enrolment numbers after grade 10 and only about half of young people in their early twenties have successfully completed grade 12.[37] This reduces prospects for further study or employment.[38] Low quality and incomplete education represent what are termed the "supply-side" drivers of youth unemployment, where young people do not have the appropriate skills or work-related capabilities to be employable or to set up successful enterprises of their own, and so struggle to make the transition from education to work.[39] The "demand-side" driver relates to a shortage of jobs or self-employment opportunities for those who are available to work.

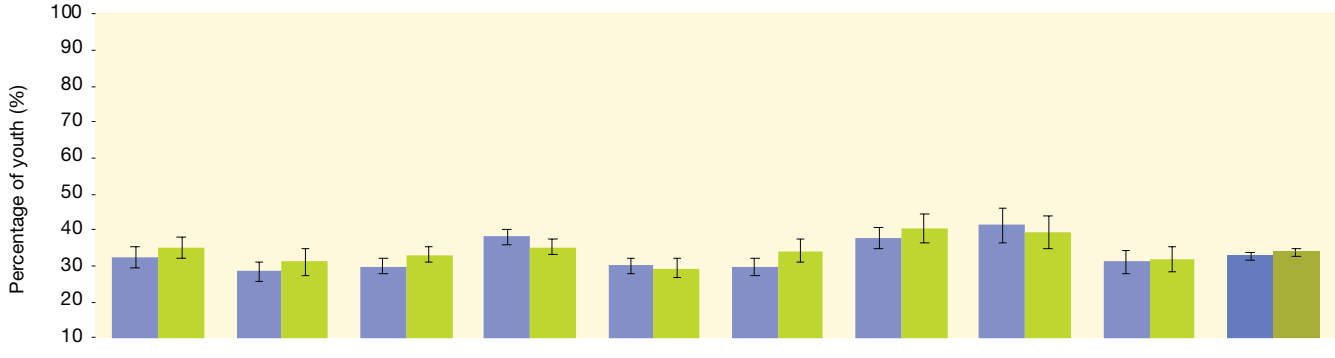
In 2018 there were 9.5 million young people aged 15 – 24 in South Africa. Of these, 34% (3.2 million) were neither working nor enrolled in any education institution such as a school, university or college. The number of young people nationally who are not in education, training or employment has remained remarkably consistent over the last decade, but has increased over the two decades since 1996 when only two million NEETs were recorded.[40] South Africa has made no progress towards what is now an explicit target of the Sustainable Development Goals, namely to substantially reduce the proportion of youth not in employment, education or training by 2020.[41] If anything, the number of NEETs has increased marginally.

The NEET rates are fairly even across the provinces. This is hard to interpret without further analysis. Limpopo, for example, is a very poor and largely rural province. It is possible that the slightly lower-than-average percentage of NEETs in that province is partly the result of many young people migrating to cities in search of work and they are therefore counted among the NEETs in more urban provinces. It is possible that young people who are not employed in the labour market may nevertheless be employed in small-scale agriculture if their household has access to land, and this could also help to smooth the provincial inequalities that are characteristic of many other indicators.

There is enormous variation within the broad youth group of 15 – 24 years. Only 5% of children aged 15 – 17 are classified as NEET because the majority are attending school. Within the 18 – 20 age band, 34% are NEETs, and more than half (53%) of those in the 21 – 24 age band are neither working nor in education or training.

While education attendance rates are fairly even for males and females, the gender disparity among NEETs is more pronounced. Thirty-seven percent of young women are not in employment, education or training – compared with 31% of young men.

Figure 5g: Youth (15 – 24 years) not in employment, education or training (NEETs), by province, 2002 & 2018



	EC	FS	GT	KZN	LP	MP	NW	NC	WC	**SA**
2002	32.4%	28.5%	30.0%	38.1%	30.1%	29.7%	37.6%	41.3%	31.1%	32.8%
	436,000	150,000	568,000	783,000	338,000	213,000	229,000	76,000	294,000	3,086,000
2018	35.0%	31.3%	33.2%	35.2%	29.4%	34.3%	40.4%	39.4%	32.0%	33.9%
	371,000	149,000	751,000	702,000	309,000	263,000	263,000	82,000	340,000	3,230,000

Source: Statistics South Africa (2003; 2019) *General Household Survey 2002; General Household Survey 2018*. Pretoria: Stats SA.
Analysis by Katharine Hall & Winnie Sambu, Children's Institute, UCT.

References

1 Constitution of the Republic of South Africa, Act 108 of 1996.
2 Secretary General of the Organisation of the African Union (1990) *African Charter on the Rights and Welfare of the Child, OAU Resolution 21.8/49*. Addis Ababa: OAU.
3 Office of the High Commissioner of Human Rights (1989) *Convention on the Rights of the Child, UN General Assembly Resolution 44/25*. Geneva: United Nations.
4 Statistics South Africa (2019) *General Household Survey 2018*. Pretoria: Stats SA. Analysis by Katharine Hall, Children's Institute, UCT.
For more information on school drop-out, see also:
Branson N, Hofmeyer C & Lam D (2014) Progress through school and the determinants of school dropout in South Africa. *Development Southern Africa*, 31(1):106-126;
Gustafsson M (2011) *The When and How of Leaving School: The policy implications of new evidence on secondary school in South Africa*. Stellenbosch Economic Working Papers 09/11. Stellenbosch: Stellenbosch University.
5 Crouch L (2005) *Disappearing Schoolchildren or Data Misunderstanding? Dropout Phenomena in South Africa*. North Carolina: RTI International;
Lam D & Seekings J (2005) *Transitions to Adulthood in Urban South Africa: Evidence from a panel survey*. Prepared for the International Union for the Scientific Study of Population (IUSSP) general conference, 18 – 23 July 2005, Tours, France;
Lam D, Ardington A & Leibbrandt M (2011) Schooling as a lottery: Racial differences in school advancement in urban South Africa. *Journal of Development Economics*, 95:121-136.
6 Spaull N & Taylor S (2015) Access to what? Creating a composite measure of educational quantity and educational quality for 11 African countries. *Comparative Education Review*, 59(1): 133-165.
7 The Southern and Eastern Africa Consortium for Monitoring Education Quality. Viewed 3 November 2019: www.sacmeq.org/?q=sacmeq-members/south-africa/sacmeq-reports.
8 International Association for the Evaluation of Educational Achievement: TIMSS & PIRLS International Study Center (2019) *Trends in International Mathematics and Science Study & Progress in International Reading Literacy Study*. See http://www.pirls.org/.
9 Department of Education (2018) *Annual National Assessments*. Viewed 20 September 2018: https://www.education.gov.za/Curriculum/AnnualNationalAssessments.aspx. Note: the ANAs have not been conducted since 2014.
10 See for example: Van der Berg S, Burger C, Burger R, De Vos M, Gustafsson M, Moses E, Shepherd D, Spaull N, Taylor S, Van Broekhuizen H & Von Fintel D (2011) *Low Quality Education as a Poverty Trap.* Stellenbosch: Stellenbosch University;
Also see no. 5 above (Lam et al, 2011).
11 Hall K, Sambu W, Almeleh C, Mabaso K, Giese S & Proudlock P (2019) *South African Early Childhood Review 2019*. Cape Town: Children's Institute, UCT & Ilifa Labantwana.
12 Spaull N (2013) Poverty & privilege: Primary school inequality in South Africa. *International Journal of Educational Development*, 33(54): 436-447;
South African Human Rights Commission & UNICEF (2014) *Poverty Traps and Social Exclusion among Children in South Africa 2014*. Pretoria: SAHRC & UNICEF.
13 Heckman J (2006) Skill formation and the economics of investing in disadvantaged children. *Science*, 312: 1900-1902;
Southern and Eastern Africa Consortium for Monitoring Education Quality (2011) *Learner Preschool Exposure and Achievement in South Africa*. SACMEQ Policy Brief No. 4, April 2011. Pretoria: Ministry of Education.
14 Department of Basic Education (2016) *Five-year Strategic Plan (2015/16 – 2019/20)*. Pretoria: DBE.
15 Engel P, Black M, Behrman JR, De Mello MC, Gertler PJ, Kapiriri L, Martorell R, Young ME & International Child Development Steering Group (2007) Strategies to avoid the loss of developmental potential in more than 200 million children in the developing world. *The Lancet*, 369(9557): 229-242.
16 National Planning Commission (2012) *National Development Plan – Vision for 2030*. Pretoria: The Presidency.
17 Administrative data supplied on special request by the Department of Basic Education from their Education Management Information System (EMIS).
18 Department of Basic Education (2019) *School Realities 2018*. Pretoria: DBE.
19 Gustafsson M (2010) *Policy Note on Pre-primary Schooling: An Empirical Contribution to the 2009 Medium Term Strategic Framework*. Stellenbosch Economic Working Papers 05/10. Stellenbosch: Stellenbosch University.
20 See no. 4 (Statistics South Africa, 2019) above.
21 See no. 18 above.
22 Department of Basic Education (2004 – 2019) *Education Statistics series, and School Realities series*. Pretoria: DBE. Analysis by Katharine Hall, Children's Institute, UCT.
23 Department of Basic Education (2014) *Report on the Annual National Assessments of 2014*. Pretoria: DBE.
24 Howie SJ, Combrinck C, Tshele M, Roux K, McLeod Palane N & Mokoena GM (2017) *PIRLS 2016 Progress in International Reading Literacy Study 2016 Grade 5 Benchmark Participation: South African children's reading literacy achievement*. Pretoria: Centre for Evaluation and Assessment.
25 Reddy V, Visser M, Winnaar L, Arends F, Juan A, Prinsloo CH & Isdale K (2016) *TIMSS 2015: Highlights of Mathematics and Science Achievement of Grade 9 South African Learners*. Human Sciences Research Council.
26 Zoch A (2013) *Life Chances and Class: Estimating inequality of opportunity in South Africa for various life stages*. Stellenbosch Economic Working Papers 08/13. Stellenbosch University;
See also no. 12 (South African Human Rights Commission et al, 2014);
Spaull N (2015) Schooling in South Africa: How low quality education becomes a poverty trap. In: De Lannoy A, Swartz S, Lake L & Smith C (eds) *South African Child Gauge 2015*. Children's Institute, UCT.
27 Timæus I, Simelane S & Letsoalo T (2013) Poverty, race and children's progress at school in South Africa. *The Journal of Development Studies*, 49(2): 270-284.
28 Poverty & Inequality Initiative, University of Cape Town (2018) *Youth Explorer*. Viewed 20 September 2018: https://youthexplorer.org.za/profiles/country-ZA-south-africa/#education
29 See no. 4 (Branson et al, 2014) above.
30 Branson N & Lam D (2010) Educational inequality in South Africa: Evidence from the National Income Dynamics Study. *Studies in Economics and Econometrics*, 34(3): 85-105;
See no. 5 (Lam et al, 2011) and no. 10 (Van der Berg et al, 2011) above.
31 See, for example: Fleisch B & Shindler J (2009) Gender repetition: school access, transitions and equity in the 'Birth-to-Twenty' cohort panel study in urban South Africa. *Comparative Education*, 45(2): 265-279;
See no. 4 (Branson et al, 2014) above.
32 See no. 27 above.
33 Organisation for Economic Co-operation and Development (2017) *Youth Not in Employment, Education or Training* (NEET) (indicator). Viewed 6 June 2017: https://data.oecd.org/youthinac/youth-not-in-employment-education-or-training-neet.htm.
34 Ardington C, Bärninghausen A, Case A & Menendez A (2013) *Social Protection and Labour Market Outcomes of Youth in South Africa*. Working Paper 96. Cape Town: Southern Africa Labour and Development Research Unit, UCT.
35 Altman M, Mokomane Z & Wright G (2014) Social security for young people amidst high poverty and unemployment: Some policy options for South Africa. *Development Southern Africa*, 31(2): 347-362.
36 Department of Basic Education (2016) *Report on Progress in the Schooling Sector against Key Learner Performance and Attainment Indicators*. Pretoria: DBE.
37 See no. 36 and no. 28 above.
38 Timaeus I & Moultrie T (2015) Teenage childbearing and educational attainment in South Africa. *Studies in Family Planning*, 46(2): 143-160.
39 Smith J (2011) *Connecting Young South Africans to Opportunity: Literature review and strategy*. Cape Town: DG Murray Trust;
Lam D, Leibbrandt M & Mlatsheni C (2008) *Education and Youth Unemployment in South Africa*. Working Paper 22. Cape Town: Southern Africa Labour and Development Research Unit, UCT.
40 Department of Higher Education and Training (2013) *Fact Sheet on NEETs: An analysis of the 2011 South African Census*. Pretoria: DHET.
41 United Nations Development Programme (2017) *Sustainable Development Goals*. Viewed 14 July 2017: www.undp.org/content/undp/en/home/sustainable-development-goals.html.

Children's access to housing

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Section 26 of the Constitution of South Africa provides that "everyone has the right to have access to adequate housing", and section 28(1)(c) gives children "the right to … shelter".[1]

Article 27 of the UN Convention on the Rights of the Child states that "every child has the right to a standard of living adequate for his/her development" and obliges the state "in cases of need" to "provide material assistance and support programmes, particularly with regard to … housing".[2]

Children living in urban and rural areas

This indicator describes the number and share of children living in urban and rural areas in South Africa.

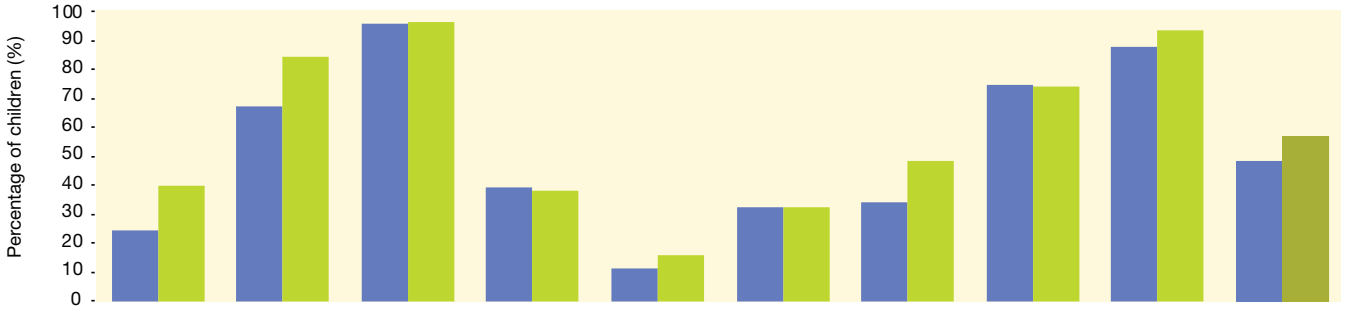
Location is one of the seven elements of adequate housing identified by the UN Committee on Economic, Social and Cultural Rights.[3] Residential areas should ideally be situated close to work opportunities, clinics, police stations, schools and child-care facilities. In a country with a large rural population, this means that services and facilities need to be well distributed, even in areas that are not densely populated. In South Africa, service provision and resources in rural areas lag far behind urban areas.

The General Household Survey captures information on all household members, making it possible to look at the distribution of children in urban and non-urban households and compare this to the adult distribution. Nearly half of South Africa's children (43%) lived in rural households in 2018 – equivalent to 8.5 million children. Looking back over a decade, there is a clear shift in the distribution of children towards urban areas: in 2002, 48% of children were found in urban households, and this increased to 57% by 2018. Yet children are consistently less urbanised than adults: In 2018, 69% of the adult population was urban, compared with 57% of children.

There are marked provincial differences in the rural and urban distribution of the child population. This is related to the distribution of cities in South Africa, and the legacy of apartheid's spatial arrangements where women, children and older people in particular were relegated to the former homelands. The Eastern Cape, KwaZulu-Natal and Limpopo provinces alone are home to about three-quarters (72%) of all rural children in South Africa. KwaZulu-Natal has the second largest child population in numeric terms, with 2.6 million (62%) of its child population being classified as rural. The least urbanised province is Limpopo, where only 16% of children live in urban areas. Proportionately more children (39%) live in the former homelands, compared with adults (27%). More than 99% of children living in the former homeland areas are African.

In 2018, children living in the Gauteng and Western Cape were almost entirely urban based (97% and 94% respectively). These provinces historically have large urban populations. The urban child population in Gauteng alone has grown by over 1.2 million since 2002 and the urban child population in the Western Cape has grown by 435,000. These increases would be partly the result of urban births, but also partly the result of within-province movement and migration from other provinces. Other provinces

Figure 6a: Children living in urban areas, by province, 2002 & 2018



	EC	FS	GT	KZN	LP	MP	NW	NC	WC	**SA**
2002	24.6%	67.2%	96.1%	39.5%	11.1%	32.5%	34.3%	74.8%	87.7%	48.2%
	721,000	672,000	2,825,000	1,641,000	270,000	494,000	399,000	298,000	1,411,000	8,730,000
2018	40.0%	84.5%	96.5%	38.2%	15.8%	32.2%	48.3%	74.4%	93.7%	57.0%
	1,005,000	863,000	4,039,000	1,598,000	374,000	538,000	667,000	324,000	1,848,000	11,256,000

Source: Statistics South Africa (2003; 2019) *General Household Survey 2002; General Household Survey 2018.* Pretoria: Stats SA.
Analysis by Katharine Hall & Winnie Sambu, Children's Institute, UCT.

that have experienced a marked growth in the urban share of the child population are the Eastern Cape, Free State and North West.

Rural areas, and particularly the former homelands, have much poorer populations. Nearly two-thirds of children in the poorest income quintile live in rural areas compared with 10% in the richest quintile. In other words, within the poorest part of the population, it is mainly rural households that care for children – even though many of these children may have parents who live and work in urban areas. The inequalities also remain strongly racialised. More than 90% of White, Coloured and Indian children are urban, compared with 51% of African children.

There are no statistically significant differences in the child population in urban and rural areas across age groups.

Children living in formal, informal and traditional housing

This indicator shows the number and share of children living in formal, informal and traditional housing. For the purposes of the indicator, "formal" housing is considered a proxy for adequate housing and consists of: dwellings or brick structures on separate stands; flats or apartments; town/cluster/semi-detached houses; units in retirement villages; rooms or flatlets on larger properties provided they are built with sturdy materials. "Informal" housing consists of: informal dwellings or shacks in backyards or informal settlements; dwellings or houses/flats/rooms in backyards built of iron, wood or other non-durable materials; and caravans or tents. "Traditional" housing is defined as a "traditional dwelling/hut/structure made of traditional materials" situated in a rural area.

Children's right to adequate housing means that they should not have to live in informal dwellings. One of the seven elements of adequate housing identified by the UN Committee on Economic, Social and Cultural Rights is that it must be "habitable".[4] To be habitable, houses should have enough space to prevent overcrowding, and should be built in a way that ensures physical safety and protection from the weather.

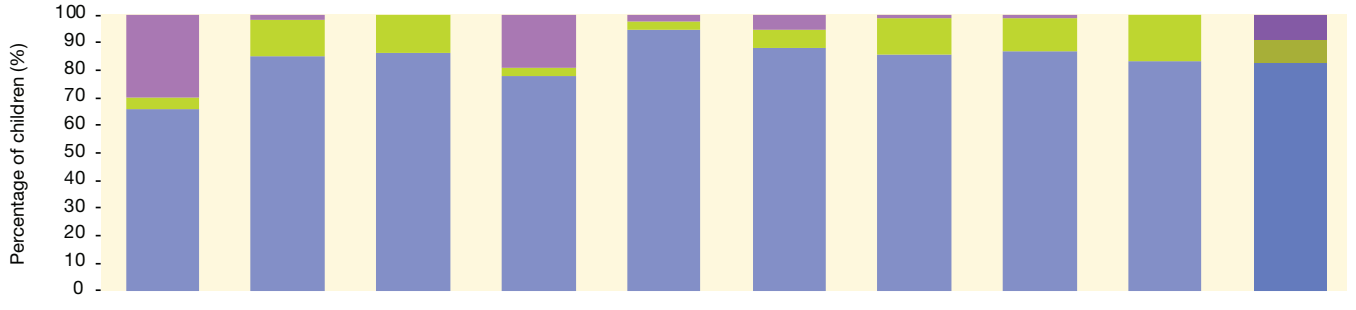
Formal brick houses that meet the state's standards for quality housing could be considered "habitable housing", whereas informal dwellings such as shacks in informal settlements and backyards would not be considered habitable or adequate. Informal housing in backyards and informal settlements make up the bulk of the housing backlog in South Africa. "Traditional" housing in rural areas cannot necessarily be assumed to be inadequate. Some traditional dwellings are more habitable than new subsidy houses – they can be more spacious and better insulated, for example.

Access to services is another element of "adequate housing". Children living in formal areas are more likely to have services on site than those living in informal or traditional dwellings. They are also more likely to live closer to facilities like schools, libraries, clinics and hospitals than those living in informal settlements or rural areas. Children living in informal settlements are more exposed to hazards such as shack fires and paraffin poisoning.

The environmental hazards associated with informal housing are exacerbated for very young children. The distribution of children in informal dwellings is slightly skewed towards younger children and babies: 42% of children in informal housing are in the 0 – 5-year-age group.

In 2018, nearly 1.7 million children (9%) in South Africa lived in backyard dwellings or shacks in informal settlements. The number of children in informal housing has declined slightly from 2.3 million (13%) in 2002. The provinces with the highest shares of informally-housed children are the Western Cape (with 17% of children in that province informally housed), Gauteng (14%), North West and Free State (each with 13% of children living in informal housing). The Eastern Cape and KwaZulu-Natal have by far the largest shares of children living in traditional dwellings (30% and 19% respectively).

Figure 6b: Children living in formal, informal and traditional housing, by province, 2018



	EC	FS	GT	KZN	LP	MP	NW	NC	WC	**SA**
Formal	66.2%	85.2%	86.1%	78.1%	94.6%	88.0%	85.8%	86.8%	83.1%	82.7%
	1,663,000	871,000	3,603,000	3,268,000	2,246,000	1,473,000	1,186,000	378,000	1,638,000	16,327,000
Informal	4.1%	13.0%	13.8%	2.7%	3.3%	6.8%	13.3%	12.1%	16.9%	8.5%
	103,000	133,000	578,000	114,000	77,000	114,000	184,000	53,000	333,000	1,684,000
Traditional	29.7%	1.8%	0.1%	19.2%	2.2%	5.2%	0.9%	1.1%	0.0%	8.8%
	747,000	18,000	5,000	802,000	51,000	86,000	13,000	5,000	0	1,730,000

Source: Statistics South Africa (2019) *General Household Survey 2018*. Pretoria: Stats SA.
Analysis by Katharine Hall, Children's Institute, UCT.

The distribution of children in formal, informal and traditional housing has remained fairly constant since 2002. But racial inequalities persist. Almost all White children (99%) live in formal housing, compared with only 81% of African children. Access to formal housing increases with income. Ninety-five percent of children in the wealthiest 20% of households live in formal dwellings, compared with 77% of children in the poorest quintile.

Children living in overcrowded households

Children are defined as living in overcrowded dwellings when there is a ratio of more than two people per room (excluding bathrooms but including kitchen and living room). Thus, a dwelling with two bedrooms, a kitchen and sitting-room would be counted as overcrowded if there were more than eight household members.

The UN Committee on Economic, Social and Cultural Rights defines "habitability" as one of the criteria for adequate housing.[5] Overcrowding is a problem because it can undermine children's needs and rights. For instance, it is difficult for school children to do homework if other household members want to sleep or watch television. Children's right to privacy can be infringed if they do not have space to wash or change in private. The right to health can be infringed as communicable diseases spread more easily in overcrowded conditions, and young children are particularly susceptible to the spread of disease. Overcrowding also places children at greater risk of sexual abuse, especially where boys and girls have to share beds, or children have to share beds with adults.

Overcrowding makes it difficult to target services and programmes to households effectively – for instance, urban households are entitled to six kilolitres of free water, but this household-level allocation discriminates against overcrowded households because it does not take account of household size.

In 2018, 3.5 million children lived in overcrowded households. This represents 18% of the child population – much higher than the share of adults living in crowded conditions (10%).

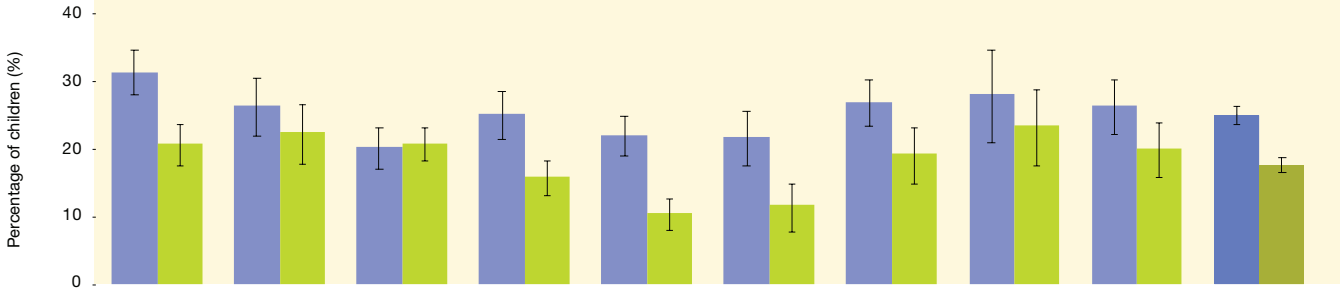
Overcrowding is associated with housing type: 57% of children who stay in informal dwellings also live in overcrowded conditions, compared with 27% of children in traditional dwellings and 13% of children in formal housing.

Young children are significantly more likely than older children to live in overcrowded conditions. Twenty-one percent of children below six years live in crowded households, compared to 17% of children aged 6 – 11, and 15% of children over 12 years.

There is a strong racial bias in children's housing conditions. While 19% of African and 21% of Coloured children live in crowded conditions, less than 1% of Indian and White children live in overcrowded households. Children in the poorest 20% of households are more likely to be living in overcrowded conditions (22%) than children in the richest 20% of households (5%).

The average household size has gradually decreased from 4.5 at the time of the 1996 population census, to around 3.4 in 2018, indicating a trend towards smaller households. This is related to the rapid growth in single-person households where adults live alone: there are nearly 17 million households in South Africa, of which 22% (around 3.7 million) are households where one person lives alone.[6] The reduction in average household size has also been linked to the provision of small subsidy houses and the splitting of households into smaller units.[7] Households in which children live are larger than the national average, although they have also declined in size over time. The mean household size for adult-only households is 1.7, while the mean household size for households with children is 4.9.[8]

Figure 6c: Children living in overcrowded households, by province, 2002 & 2018



	EC	FS	GT	KZN	LP	MP	NW	NC	WC	**SA**
2002	31.5%	26.5%	20.4%	25.2%	22.1%	21.9%	26.9%	28.3%	26.5%	25.1%
	922,000	264,000	599,000	1,046,000	534,000	333,000	314,000	113,000	427,000	4,551,000
2018	20.8%	22.6%	20.9%	15.9%	10.6%	11.7%	19.4%	23.7%	20.1%	17.8%
	522,000	230,000	873,000	665,000	252,000	196,000	268,000	103,000	397,000	3,507,000

Source: Statistics South Africa (2003; 2019) *General Household Survey 2002; General Household Survey 2018*. Pretoria: Stats SA.
Analysis by Katharine Hall & Winnie Sambu, Children's Institute, UCT.

References

1 Constitution of the Republic of South Africa, Act 108 of 1996.
2 Office of the High Commissioner of Human Rights (1989) *Convention on the Rights of the Child, UN General Assembly Resolution 44/25*. Geneva: United Nations.
3 Office of the United Nations High Commissioner for Human Rights (1991) *The Right to Adequate Housing (art.11 (1)):13/12/91. CESCR General Comment 4*. Geneva: United Nations.
4 See no. 3 above.
5 See no. 3 above.
6 Hall K & Mokomane Z (2018) The shape of children's families and households: A demographic overview. In: Hall K, Richter L, Mokomane Z & Lake L (2018) *Children, Families and the State: Collaboration and Contestation. South African Child Gauge 2018*. Cape Town: Children's Institute, UCT.
7 Hall K (2005) Accommodating the Poor? A review of the Housing Subsidy Scheme and its implications for children. In: Leatt A & Rosa S (eds) *Towards a Means to Live: Targeted poverty alleviation to make children's rights real*. Electronic series. Cape Town: Children's Institute, UCT; Public Service Commission, Republic of South Africa (2003) *Report on the Evaluation of the National Housing Subsidy Scheme*. Pretoria: Public Service Commission.
8 Statistics South Africa (2019) *General Household Survey 2018*. Pretoria: Stats SA. Analysis by Katharine Hall, Children's Institute, UCT.

Children's access to services

Katharine Hall (Children's Institute, University of Cape Town)

Section 27(1)(b) of the Constitution of South Africa provides that "everyone has the right to have access to … sufficient … water" and section 24(a) states that "everyone has the right to an environment that is not harmful to their health or well-being".[1]

Article 14(2)(c) of the African Charter on the Rights and Welfare of the Child obliges the state to "ensure the provision of … safe drinking water".[2]

Article 24(1)(c) of the UN Convention on the Rights of the Child says that states parties should "recognise the right of the child to the enjoyment of the highest attainable standard of health" and to this end should "take appropriate measures to combat disease and malnutrition …, including the provision of clean drinking-water".[3]

Children's access to basic water

This indicator shows the number and percentage of children who have access to piped drinking water at home – either inside the dwelling or on site. This is used as a proxy for access to adequate water. All other water sources, including public taps, water tankers, dams and rivers, are considered inadequate because of their distance from the dwelling or the possibility that the water is of poor quality. The indicator does not show whether the water supply is reliable or if households have broken facilities or are unable to pay for services.

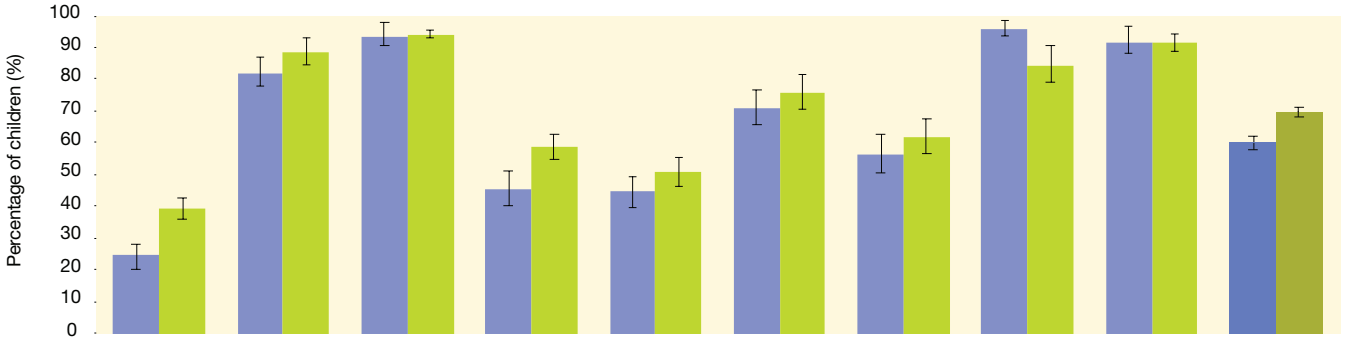
Clean water is essential for human survival. The World Health Organization defined "reasonable access" to water as being a minimum of 20 litres per person per day.[4] The 20-litre minimum is linked to the estimated average consumption when people rely on communal facilities and need to carry their own water for drinking, cooking and the most basic personal hygiene. It does not allow for bathing, showering, washing clothes or any domestic cleaning.[5] The water needs to be supplied close to home, as households that travel long distances to collect water often struggle to meet their basic daily quota. This can compromise children's health and hygiene.

More recently, the Sustainable Development Goals (target 6.1) call for universal and equitable access to safe and affordable drinking water. This is defined as a safely managed drinking water service from an improved water source that is located on premises.

Young children are particularly vulnerable to diseases associated with poor water quality. Gastro-intestinal infections with associated diarrhoea and dehydration are a significant contributor to the high child mortality rate in South Africa,[6] and intermittent outbreaks of cholera in some provinces pose a serious threat to children. Lack of access to adequate water is closely related to poor sanitation and hygiene. In addition, children may be responsible for fetching and carrying water to their homes from communal taps, or rivers and streams. Carrying water is a physical burden that can lead to back problems or injury from falls. It can also reduce time spent on education and other activities and can place children at personal risk.[7] This child-centred indicator of adequate water is therefore limited to a safe water source on site.

There has been little improvement in children's access to water over the past 15 years. Close to six million children live

Figure 7a: Children living in households with water on site, by province, 2002 & 2018



	EC	FS	GT	KZN	LP	MP	NW	NC	WC	**SA**
2002	24.4%	81.7%	93.5%	45.5%	44.5%	70.8%	56.5%	95.6%	91.7%	59.8%
	716,000	817,000	2,747,000	1,888,000	1,077,000	1,077,000	658,000	380,000	1,476,000	10,836,000
2018	39.2%	88.2%	94.2%	58.9%	50.7%	75.5%	61.9%	84.1%	91.3%	69.8%
	987,000	901,000	3,944,000	2,462,000	1,204,000	1,262,000	855,000	367,000	1,800,000	13,782,000

Source: Statistics South Africa (2003; 2019) *General Household Survey 2002; General Household Survey 2018*. Pretoria: Stats SA.
Analysis by Katharine Hall & Winnie Sambu, Children's Institute, UCT.

in households that do not have access to clean drinking water on site. In 2018, more than three-quarters (78%) of adults lived in households with drinking water on site – compared with only 70% of children.

Provincial differences are striking. More than 90% of children in Gauteng and the Western Cape have an adequate water connection. However, access to water remains poor in KwaZulu-Natal (59%), Limpopo (51%) and the Eastern Cape (39%). The Eastern Cape appears to have experienced a striking improvement in water provisioning since 2002 (when only 24% of children had water on site). KwaZulu-Natal has also recorded significant improvements. The significant decline in access to water in the Northern Cape may represent a deterioration in water access, or may be the result of weighting a very small child population. Children living in formal areas are more likely to have services on site than those living in informal settlements or in the rural former homelands. While the majority (77%) of children in formal dwellings have access, it decreases to 55% for children living in informal dwellings. Only 19% of children living in traditional housing have water available on the property.

The vast majority of children living in traditional dwellings are African, so there is also a pronounced racial inequality in access to water. In 2018, 65% of African children had water on site, while more than 95% of all other population groups had drinking water at home. There are no significant differences in access to water across age groups.

Inequality in access to safe water is also pronounced when the data are disaggregated by income category. Only 54% of children in the poorest 20% of households have access to water on site, while 93% of those in the richest 20% of households have this level of service. In this way, inequalities are reinforced: the poorest children are most at risk of diseases associated with poor water quality and the associated setbacks in their development.

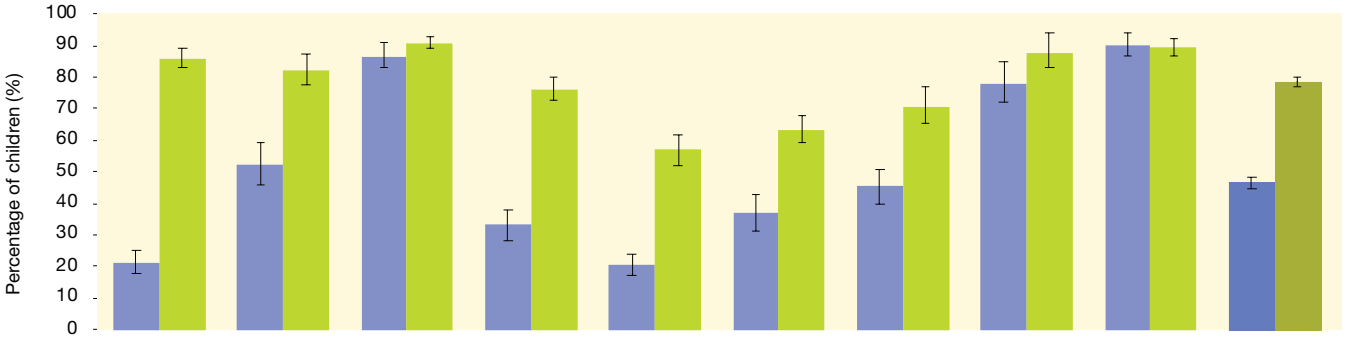
Children's access to basic sanitation

This indicator shows the number and proportion of children living in households with basic sanitation. Adequate toilet facilities are used as proxy for basic sanitation. This includes flush toilets and ventilated pit latrines that dispose of waste safely and that are within or near a house. Inadequate toilet facilities include pit latrines that are not ventilated, chemical toilets, bucket toilets, or no toilet facility at all.

A basic sanitation facility was defined in the government's Strategic Framework for Water Services as the infrastructure necessary to provide a sanitation facility that is "safe, reliable, private, protected from the weather and ventilated, keeps smells to a minimum, is easy to keep clean, minimises the risk of the spread of sanitation-related diseases by facilitating the appropriate control of disease carrying flies and pests, and enables safe and appropriate treatment and/or removal of human waste and wastewater in an environmentally sound manner".[8] Adequate sanitation prevents the spread of disease and promotes health through safe and hygienic waste disposal. To do this, sanitation systems must break the cycle of disease. For example, the toilet lid and fly screen in a ventilated pit latrine stop flies reaching human faeces and spreading disease. Good sanitation is not simply about access to a particular type of toilet. It is equally dependent on the safe use and maintenance of that technology; otherwise toilets break down, smell bad, attract insects and spread germs.

Good sanitation is essential for safe and healthy childhoods. It is very difficult to maintain good hygiene without water and toilets. Poor sanitation is associated with diarrhoea, cholera, malaria, bilharzia, worm infestations, eye infections and skin disease. These illnesses compromise children's health and nutritional status. Using public toilets and the open veld (fields) can also put children in physical danger. The use of the open veld and bucket toilets is also likely to compromise water quality in the area and to contribute to the spread of disease. Poor sanitation

Figure 7b: Children living in households with basic sanitation, by province, 2002 & 2018



	EC	FS	GT	KZN	LP	MP	NW	NC	WC	**SA**
2002	21.4%	52.5%	86.7%	33.4%	20.6%	37.0%	45.3%	77.7%	90.0%	46.5%
	626,000	525,000	2,549,000	1,384,000	499,000	562,000	528,000	309,000	1,448,000	8,427,000
2018	85.7%	82.1%	90.6%	76.2%	57.0%	63.4%	70.8%	87.5%	89.4%	78.6%
	2,155,000	839,000	3,793,000	3,188,000	1,354,000	1061,000	979,000	381,000	1,762,000	15,508,000

Source: Statistics South Africa (2003; 2019) *General Household Survey 2002; General Household Survey 2018.* Pretoria: Stats SA.
Analysis by Katharine Hall & Winnie Sambu, Children's Institute, UCT.

undermines children's health, safety and dignity.

The data show a gradual and significant improvement in children's access to sanitation since 2002, although the share of children without adequate toilet facilities remains worryingly high. In 2002, less than half of all children (46%) had access to adequate sanitation. By 2018, the share of children with adequate toilets had risen to 79%. But 4.2 million children still use unventilated pit latrines, buckets or other inadequate forms of sanitation, despite the state's reiterated goals to provide adequate sanitation to all and to eradicate the bucket system. Over 340,000 children have no sanitation facilities at all (open defecation). Children (21%) are slightly more likely than adults (18%) to live in households without adequate sanitation facilities. This is because children are more likely than adults to live in poor and rural households.

As with other indicators of living environments, there are great provincial disparities. In provinces with large metropolitan populations, like Gauteng and the Western Cape, around 90% of children have access to adequate sanitation, while provinces with large rural populations have the poorest sanitation, and in Limpopo only 57% of children have adequate sanitation at home. Those with the greatest improvements in sanitation services are the Eastern Cape (where the number of children with access to adequate sanitation more than tripled from 626,000 to nearly 2.2 million, KwaZulu-Natal (an increase of 1.8 million children) and Gauteng (an increase of 1.2 million children with adequate sanitation facilities on site). In the Free State the share of children with sanitation improved from 53% in 2002 to 82% in 2018.

Although there have also been significant improvements in sanitation provision in Limpopo, this province still lags behind, with only 57% of children living in households with adequate sanitation. It is unclear why the vast majority of children in Limpopo are reported to live in formal houses, yet access to basic sanitation is the poorest of all the provinces. Definitions of adequate housing such as those in the UN-HABITAT and South Africa's National Housing Code include a minimum quality for basic services, including sanitation.

The statistics on basic sanitation provide yet another example of persistent racial inequality: more than 95% of Indian, White and Coloured children had access to adequate toilets in 2018, while only 76% of African children had access to basic sanitation. This is a marked improvement from 37% of African children in 2002. Children in relatively well-off households have better levels of access to sanitation than poorer children. Among the richest 20% of households, 94% of children have adequate sanitation, while 71% of children in the poorest 20% of households have this level of service.

References

1 Constitution of the Republic of South Africa, Act 108 of 1996.
2 Secretary General of the Organisation of African Unity (1990) *African Charter on the Rights and Welfare of the Child. OAU Resolution 21.8/49*. Addis Ababa: OAU.
3 Office of the High Commissioner of Human Rights (1989) *Convention on the Rights of the Child, UN General Assembly Resolution 44/25*. Geneva: United Nations.
4 Ki-moon B (2007) *Children and the Millennium Development Goals: Progress towards a world fit for children*. New York: UNICEF.
5 Howard G & Bartram J (2003) *Domestic Water Quantity, Service Level and Health*. Geneva: World Health Organization.
6 Westwood A (2011) Diarrhoeal disease. In: Stephen C, Bamford L, Patrick W & the MRC Unit for Maternal and Infant Health Care Strategies (eds) *Saving Children 2009: Five years of data. A sixth survey of child healthcare in South Africa*. Pretoria: Tshepesa Press, South African Medical Research Council & Centre for Disease Control and Prevention.
7 COHRE, AAAS, SDC & UN-Habitat (2007) *Manual on the Right to Water and Sanitation*. Geneva: Centre on Housing Rights and Evictions.
8 Department of Water Affairs and Forestry (2003) *Strategic Framework for Water Services*. Pretoria: DWAF.

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Berenice Daniels is the Director of Inclusive and Specialised Education Support in the Western Cape Education Department responsible for Specialised Support Services, Special Schools and the Care and Support Programme since 2011. Prior to this appointment, she has worked in district specialised support services. She was seconded to the National Department of Education, as a co-ordinator of the National Commission on Education Support Services and then as one of the writers of the Special Education consultative document. This led to the National Special Needs Education policy published in Education White Paper 6 in 2001, from which the SIAS policy emanates.

Aadielah Maker Diedericks has a Masters in Community Health from the University of New South Wales, Sydney, Australia. She is a public health advocate with experience in developing and producing edutainment and multi-media interventions, training, social mobilisation and campaign management. She has worked in the civil society sector for over 25 years in the areas of sexual and reproductive health; HIV and AIDS; gender and alcohol. She managed the award-winning Soul Buddyz programme and Soul City Phuza Wise campaign. She is currently coordinating the Southern African Alcohol Policy Alliance (SAAPA) – a platform for civil society organisations across eight countries lobbying for health promoting evidence-based alcohol policies.

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Rebecca Hodes is a Medical Historian, with a Master of Science degree in the History of Medicine, Science and Technology, and a DPhil in the History of Medicine and African Studies from Oxford University. She is the Director of the AIDS and Society Research Unit at UCT. Hodes is the co-principal Investigator of the Mzantsi Wakho research study, about the health of adolescents in post-apartheid South Africa, and a co-investigator of the HEY BABY study, about the health and social needs of adolescent parents. Hodes is the principal author of South Africa's National Adolescent and Youth Health Policy (2017).

Karen Hofman is the Director of SAMRC/Centre for Health Economics and Decision Science – PRICELESS SA, based at the Wits School of Public Health. She graduated from Wits and is a qualified Paediatrician. She was on faculty at Johns Hopkins and subsequently Director of Policy and Planning at the Fogarty International Center, U.S., National Institutes of Health (NIH). The mission of PRICELESS is to perform analyses that show policymakers where to expect a good return on investment for health. Significant PRICELESS research that will affect life expectancy in South Africa are regulations on the salt content of processed food in 2016 and legislation on a sugary beverage tax in 2018. An author of more than 100 journal manuscripts and chapters, Karen has been a member of several ministerial task teams and national health committees and regularly engages with the media. She also is a member of the Academy of Science of South Africa (ASSAF). In 2016, she received the public Health Association of South Africa Annual Award.

Simone Honikman is the Founding Director of the 17-year old Perinatal Mental Health Project (www.pmhp.za.org) based at the Centre for Public Mental Health, UCT. She is a medical doctor with a Masters in Maternal and Child Health. She received the international Ashoka Fellowship for Social Entrepreneurship, designs and conducts training for a wide range of health care and social service providers and consults for health policy and programme processes within South Africa and other low- and middle-income countries. Her research interests include systems strengthening for integrating mental health care into routine services for mothers.

Xanthe Hunt is a Researcher at the Institute for Life Course Health Research at Stellenbosch University and a Consultant to WHO's Department of Mental Health and Substance Use. Xanthe has a PhD in Psychology and has worked for the past five years in the fields of disability studies, maternal and child health and implementation science in public health. Her research interests include violence against women with disabilities, the role of caregiving in child development, and eco-systemic and life course approaches to mental health. Her current projects have a focus on children with developmental disorders, as well as measurement in child development.

Lucy Jamieson is a Senior Researcher at the Children's Institute, University of Cape Town. She leads and contributes to a variety of Children's Institute's research projects and works to ensure that the research findings contribute to the development of laws, policies and practices that affect children. She is currently 164 South African Child Gauge 2018 working on an international project to develop indicators for children's participation in child protection systems and leading an action-research pilot to improve intersectoral coordination in the South African child protection system through multidisciplinary case management.

Shuaib Kauchali is currently working with the National Department of Health as Newborn, Child Health and Nutrition Specialist Advisor. He is a Paediatrician and Epidemiologist with special interest in implementation science to improve quality of care and outcomes of the maternal and childpopulation. He works closely with the programme managers at national and provincial levels to translate "what we know works" into "how these interventions yield results and impact"

Florian Kroll conducts research on the structural and discursive drivers of urban food insecurity and malnutrition, working with the University of the Western Cape (UWC) School of Public Health, the Institute for Poverty, Land and Agrarian Studies (PLAAS), and the DST-NRF Centre of Excellence on Food Security (CoE-FS). He has collaborated with officials, academia and civil society in Johannesburg and Cape Town and is a convenor of communities of practice on food governance in the Western Cape and Gauteng, developing platforms for multi-stakeholder dialogue on food politics. He is currently working towards his PhD on the metropolitan biopolitics of food in South Africa.

Max Kroon is a Pediatrician in the Neonatal Service at Mowbray Maternity Hospital, and a Senior Lecturer in the Division of Neonatal Medicine at UCT for the past 20 years. He has a longstanding interest in Prevention of mother-to-child transmission of HIV, infant feeding in the context of HIV, milk banking and breastfeeding advocacy.

Lori Lake is an editor of the 2019 *Child Gauge*, and Communications and Education Specialist at the Children's Institute, University of Cape Town. She plays a central role in the production of the annual *South African Child Gauge* and specialises in making complex ideas accessible to a wider audience of policymakers, practitioners and children. Lori is Chair of the advocacy committee in the Department of Paediatrics and Child Health, and a convenor of the CI's child rights courses for health and allied professionals. She is an anthropologist by training and is currently completing her Masters in Higher Education.

Christina Laurenzi is a Researcher at the Institute for Life Course Health Research, and a doctoral candidate in the Department of Psychology, at Stellenbosch University. She has worked on research projects focused on community health worker programmes, adolescent mental health, early childhood development, and programme implementation, collaborating with local and international universities, non-governmental organisations and international agencies. She holds degrees from the University of Oxford (Master of Science in African Studies) and Princeton University (Bachelor of Arts in Politics, Global Health and Health Policy).

Tim Lloyd is an Attorney in the Pollution and Climate Change Programme at the Centre for Environmental Rights (CER). He holds an LLB from the University of Witwatersrand and an LLM in Global Environment and Climate Change Law from the University of Edinburgh. Prior to joining the CER, Tim served as a Law Clerk and Researcher to Justice Bess Nkabinde at the Constitutional Court of South Africa. Through the implementation and enforcement of South Africa's air pollution and climate change laws, his aim is to protect and fulfil various constitutional rights.

Leslie London is Chair of Public Health Medicine in the School of Public Health and Family Medicine at UCT and heads the Division of Public Health Medicine. He is an active researcher in Occupational and Environmental Health and leads the Health and Human Rights Programme in the school. He has served on national and international committees dealing with ethics and human rights and is active in the People's Health Movement South Africa. He believes health professionals should be advocates for human rights and social justice.

Kopano Matlwa Mabaso is the Executive Director of the Grow Great Campaign – a campaign that seeks to galvanize South Africa to zero-stunting by 2030. Kopano is a medical doctor by training, with a special interest in public health. She is a Rhodes Scholar and an alumnus of the University of Oxford where she gained both her Masters in Global Health Science and DPhil (PhD) in Population Health. Kopano has received a number of accolades for her work as a social entrepreneur, including the first ever Aspen Idea Award, Aspen New Voices Fellowship and Tutu Fellowship. Kopano is also an award-winning novelist and her three novels have been published in a number of languages across the world.

Catherine Mathews is Director at the Health Systems Research Unit, South African Medical Research Council. She is also an Honorary Associate Professor and Co-Director in the Adolescent Health Research Unit, Department of Psychiatry and Mental Health, University of Cape Town. Her research interests include promoting sexual and reproductive health and rights among adolescents and other populations such as people diagnosed with STI/HIV.

Shanaaz Mathews is the Director at the Children's Institute, UCT, and has a PhD in Public Health. Prior to this appointment she was a Specialist Scientist for the Gender and Health Research Unit of the Medical Research Council for 11 years. Her research interests include violence against women and children, as well as pathways to violent masculinities using both qualitative and quantitative approaches. Her current research projects have a focus on programme evaluation and strengthening child protection systems.

Roné McFarlane is the Co-Head of Research at Equal Education (EE), where she conducts research and policy analysis and advocates for equality in education. She holds a Master of Science degree in Comparative and International Education from Oxford University, which she obtained as a Chevening Scholar. Before joining EE, Roné worked as a Research Advisor to Cambridge University's Faculty of Education and interned at the BBC in London. Her research interests include education policy and reform; school governance and school violence.

Neil McKerrow is the Provincial Specialist and Head: of Paediatrics and Child Health in the KwaZulu-Natal Department of

Health and Honorary Specialist in the Department of Paediatrics and Child Health at both the University of KwaZulu-Natal and UCT. He chairs the ministerial advisory committee on morbidity and mortality in children under-5 years (CoMMiC) and is co-chair of a WHO technical advisory committee on Child Health Accountability and Tracking (CHAT). His interests are social paediatrics, child health and strengthening health systems for children.

Michelle Meiring is the CEO of Paedspal, an NGO providing paediatric palliative care services to children in Cape Town. She is also the Chairperson of PatchSA – a national paediatric palliative care network and the convenor of the Postgraduate Diploma in Palliative Medicine (paediatric stream) at UCT. Michelle is a passionate child health advocate and has been involved in advocacy work her whole career starting with issues around Paediatric HIV and adoptions and now focusing on paediatric palliative care. She enjoys teaching and speaks regularly at local and international conferences.

Zweli Lawrence Mkhize was appointed as the Minister of Health on 29 May 2019 and has a Bachelor of Medicine and Bachelor of Surgery (MBChB) degree from the University of Natal. Prior to this appointment, he served as the Minister of Cooperative Governance and Traditional Affairs from 27 February 2018 to 25 May 2019. In 1991 he began serving the ANC as a member of its National Health Secretariat – the structure that was tasked with the responsibility of developing the country's health policy. At the start of the democratic dispensation, he was appointed as the MEC for Health in KwaZulu-Natal – a position he held for a decade. He was the longest serving provincial health MEC in the country.

Tshepo Motsepe is the First Lady of South Africa, married to President Cyril Ramaphosa. She qualified as a medical doctor from the University of KwaZulu-Natal and has a Masters in Maternal Child Health and Aging from the Harvard School of Public Health. She has worked as a doctor in hospitals and clinics in South Africa and Zimbabwe, as well as with the Wits Reproductive Health and HIV Institute – a leading African research institute focusing on sexual, reproductive health and HIV research. She has served as chairperson of the Gauteng Health Department's Accreditation Committee and currently serves as patron of the South African Civil Society for Women's, Adolescents' and Children's Health (SACSoWACH). She also chairs the African Self Help Trust, focusing on Early Childhood Development and Education.

Nadine Nannan holds masters degrees in Molecular Biology and Medical Demography. Her doctoral thesis investigated alternative approaches for measuring childhood mortality in resource-limited settings using South Africa as a case study. She is a Specialist Scientist and has worked with SAMRC as a Demographer in the Burden of Disease Research Unit since 1996. Her research interests include the measurement of and differentials in childhood mortality, burden of disease assessment and inequalities in health.

Vuyisile H Ncube is a Candidate Attorney at the Centre for Environmental Rights. She completed her studies at UCT and holds an LLB and will graduate in December 2019 with an LLM (with distinction). She completed her dissertation with the NRF SARChI Research Chair: Mineral Law in Africa and her topic considers whether the African Mining Vision contains any lessons for South Africa's Social and Labour Plan System. Her research interests include ways to promote environmental and social justice using South Africa's mineral law and policy.

Aurelie Nelson studied medicine at Oxford University, after completing a Bachelor of Science in Microbiology at McGill University. After qualifying as a doctor in 2008, she came to South Africa in 2010 where she worked in hospitals in KwaZulu Natal and the Western Cape, while completing further training in Obstetrics and HIV. She joined Medecins Sans Frontieres/ Doctors Without Borders (MSF) in 2014 as Maternal and Child Health Manager in Khayelitsha, where MSF runs a long-standing HIV and drug-resistant TB project. In Khayelitsha, she helped develop and pilot several maternal and child health related initiatives, including Early Infant Diagnosis, PrEP, Youth Clubs and Postnatal Clubs. Aurelie is currently MSF's Deputy Medical Coordinator providing support to MSF's four projects which focus on increasing access to health care for people living with HIV and TB, survivors of sexual violence and migrants and refugees.

Shane Norris is a Research Professor and Director at the DST-NRF Centre of Excellence of Human Development and SAMRC - Wits Developmental Pathways for Health Research Unit at the University of the Witwatersrand, Johannesburg, and has a PhD in Physiology. He is an elected Fellow of the Academy of Science of South Africa, and President of the Africa Chapter of the International Society of Developmental Origins of Health and Disease. Shane's research expertise is in life course nutrition and epidemiology.

Natasha North is the Research Programme Director for the Child Nurse Practice Development Initiative in the Department of Paediatrics and Child Health at UCT. Natasha qualified as a nurse in the United Kingdom, before a deepening interest in health policy led her to work in national policy development in the United Kingdom, before moving with her family to Cape Town in 2014. Natasha's main areas of interest is specialist nursing workforce development, and she is currently working towards a PhD looking at the development of a process for stakeholder engaged children's nursing workforce planning for high-need, lower-resourced Primary Health Care systems.

Paula Proudlock is a Senior Legal Researcher at the Children's Institute, University of Cape Town, with an LLM in Constitutional and Administrative Law. She specialises in research, advocacy and education on human rights with a speciality in children's socio-economic rights. Paula has led several civil society law and budget reform campaigns in relation to improving social assistance and protection services for children and is currently leading a project aimed at addressing the crisis in the foster care system that requires amendments to two national laws.

Thandi Puoane is a Professor Emeritus at the School of Public Health, UWC. She has a nursing background and teaching experience at UWC and the University of California Berkeley. Areas of specialization are nutrition, child health and monitoring and evaluation of programmes. Research areas include nutrition, obesity and risk factors for chronic non-communicable diseases. She has experience in working with Community Health Workers in the development and implementing community-based intervention programs for prevention and control of non-communicable diseases. She has written several book chapters and has published widely in local and international peer-reviewed journals. She a C2 rated scientist by the National Research Foundation.

Vundli Ramokolo is an Epidemiologist employed as a Specialist Scientist at the SAMRC Health Systems Research Unit. She holds a Master of Public Health (Epidemiology) degree from UCT and a doctorate from the University of Bergen, Norway. Her research interests include the interactions between malnutrition and communicable and non-communicable disease over the life course and inequalities and health. She is an investigator in projects assessing health outcomes of HIV-exposed and -unexposed children and a birth cohort measuring the link between the Child Support Grant and dietary diversity and child growth.

Louis Reynolds is a retired Paediatrician. As a health and human rights activist, he champions the Comprehensive Primary Health Care approach embodied in the Declaration of Alma Ata. He is a member of the People's Health Movement, serving as chair in 2014. From 1987 to 1994 he served on the national executive committee of the National Progressive Primary Health Care Network. His hobby is photography.

Natasha Rhoda is the Head of Department of Neonatology, UCT. She registered for her PhD at UCT in March 2019. She joined the NIHR Global Health Research Group on Preterm Birth Prevention and Management (PRIME) at the University of Sheffield in January 2019 as the neonatal specialist for South African research. She is the PI for the Kangaroo Mother Care (KMC) and Delayed Cord Clamoing (DCC) studies conducted at hospitals on the neonatal platform. Her interests are neonatal policy and planning and bridging the gap between hospital care and community care of neonates.

Laetitia Rispel holds a Department of Science and Innovation/ National Research Foundation Research Chair on the health workforce and is a Professor of Public Health at the University of the Witwatersrand, Johannesburg. Her research interests are human resources for health, quality of care, performance of the health care system; and the intersection of these with the social determinants of health. She is the current president of the World Federation of Public Health Associations.

Hanna-Andrea Rother is a Professor and Head of the Environmental Health Division, School of Public Health and Family Medicine at UCT. Research interests include environmental health risk factors, especially related to children, climate change and chemicals. Her current projects include a large household survey in Cape Town's townships characterizing pest infestation, pest control measures and impacts on children's health; developing and evaluating risk communication materials for low-literate populations; and a systematic review of children's mental health and extreme weather events.

Gillian Saloojee is a paediatric physiotherapist and founder of Malamulele Onward, a non-profit organization working with children with cerebral palsy and their families in resource-constrained settings (www.cpchildren.org).
Haroon Saloojee is a Personal Professor and Head of the Division of Community Paediatrics at UWC, Johannesburg, and a clinical unit head at the Chris Hani Baragwanath Academic Hospital in Soweto. His areas of interest include health systems organisation and programme management, child nutrition and neonatal care.

Winnie Sambu is an Independent Researcher and PhD student at UCT. She was previously with the Children's Institute as a Research Officer. Winnie has two masters degrees in Economics (UWC) and Development Management (Ruhr-Universität Bochum). She has over seven years' experience in research on socio-economic issues affecting households. She has worked with household survey data from Ghana, Kenya, South Africa and Zambia. She is one of the authors of the South African Early Childhood Review, a statistical publication that provides a snapshot of the situation of very young children and their caregivers.

David Sanders, an emeritus professor and founding director of the School of Public Health at the University of the Western Cape, was an editor of the *2019 Child Gauge*. He was a paediatrician and public health specialist with over 35 years' experience of health policy and programme development, research and teaching in Zimbabwe and South Africa, having advised governments and United Nations (UN) agencies and published extensively on primary health care (PHC), child health and nutrition. He was an Honorary Professor in Paediatrics and Child Health, University of Cape Town (UCT) and received an Honorary Doctorate from UCT for his contribution to the global PHC policy. He received the Nutrition Society of South Africa award in 2002, and the Public Health Innovation and Lifetime Achievement Award of the Public Health Association of South Africa in 2014. He served on the UN Standing Committee on Nutrition, and the Knowledge Network on Globalisation of the World Health Organisation Commission on Social Determinants of Health. He was co-chair of the Global Steering Council of People's Health Movement, and a founding board member of Tekano, Health Equity South Africa and is sorely missed.

Hopolang Selebalo is an activist and currently employed as the Co-Head of Research at Equal Education. Prior to this role, Hopolang was the Senior Researcher and Project Manager for the Socio-Economic Rights Monitoring programme at the Studies in Poverty and Inequality Institute. Her research interests include education financing and education policy.

Maylene Shung-King is an Associate Professor in the Health Policy and Systems Division of the School of Public Health and Family Medicine at the University of Cape Town and has a DPhil (Oxon) in Social Policy. She previously worked as Deputy- and Acting Director of the Children's Institute at the University of

Cape Town for 10 years. Her passion for child health remains and she currently is involved in a multi-country research network focusing on determinants of NCDs in adolescents, in Africa and the Caribbean. She convenes a post-graduate Diploma in Health Leadership, thus contributing to health systems strengthening through leadership capacity development.

Sarah Skeen is the Co-Director of the Institute for Life Course Health Research, Department of Global Health, Stellenbosch University. Her research interests relate to child and adolescent health and development in contexts of adversity, with a particular focus on community-based interventions for adolescent mental health, well-being of children affected by HIV/AIDS and early childhood development. She is currently a consultant to WHO and UNICEF in adolescent mental health.

Wiedaad Slemming (MPH, PhD) is a Senior Lecturer in the Division of Community Paediatrics at the University of the Witwatersrand. Her range of professional and research interests and expertise include child health, early child development (ECD), early childhood intervention (ECI), childhood disability and health systems strengthening. She has extensive clinical and programmatic experience in these areas, as well as in the planning, development, implementation and review of related programmes and policies, both in South Africa and internationally. She currently serves on various technical working groups and steering committees for child health, ECD, ECI and disability.

Rina Swart is from the Department of Dietetics and Nutrition at UWC and also serves as the Nutrition Programme Leader within the DST-NRF Centre of Excellence in Food Security. She is a Registered Dietitian/Nutritionist with a PhD in Public Health. Her area of specialization is in Public Health Nutrition with a focus on the prevention of all forms of malnutrition through nutrition policies and programmes as well as the evaluation of such policies and programmes.

Mariame Sylla is the Chief of Health, HIV/AIDS and Nutrition at UNICEF South Africa Country Office. She has previously served in various capacities in UNICEF offices including Burkina Faso, Ethiopia, the Regional Office for West and Central Africa in Senegal and the organization's New York Headquarters. Before joining UNICEF in 2002, she worked in Guinea as a Medical Doctor and Technical Advisor at the Conakry City Health Directorate, and served as a Global Health Fellow for WHO's Global Programme on Evidence for Health Policy in Geneva, Switzerland. A national of Guinea, she holds a medical degree from the University of Conakry and a Masters in Public Health from the Johns Hopkins School of Public Health.

Mark Tomlinson is the co-Director of the Institute for Life Course Health Research in the Department of Global Health at Stellenbosch University in South Africa. His scholarly work has involved a diverse range of topics that have in common an interest in factors that contribute to compromised maternal health, to understanding child and adolescent development in contexts of high adversity, and how to develop effective intervention programmes. He was elected as a member of the Academy of Science in South Africa in 2017. He has published 250 papers in peer-reviewed journals, edited two books and published numerous chapters.

Elona Toska is a Senior Researcher at the Centre for Social Science Research and Associate Lecturer at the Department of Sociology, UCT. She has a PhD in Social Intervention from the University of Oxford. Her work and research over the last 14 years has focused on HIV prevention among vulnerable populations, the health and well-being of adolescents living with HIV, and adolescent mothers and their children. Elona's research aims to unpack pathways to resilience and adversity for adolescents in resource-limited settings, particularly with regards to their sexual and reproductive health.

Lungiswa Tsolekile is a Lecturer at the School of Public Health, University of the Western Cape, and has a PhD in Public Health. She has a nutrition background. Her research includes primary prevention and control chronic non-communicable diseases (NCDs) in disadvantaged communities, as well as obesity in adults and children. Furthermore, she has an interest in the use of the community health worker model to prevent and manage NCDs through motivational interviewing. She has published in local and international peer-reviewed journals.

Aviva Tugendhaft is a senior researcher and strategic advisor at the South African Medical Research Council/Wits Centre for Health Economics and Decision Science, PRICELESS SA, a research-to-policy unit at the Wits School of Public Health. Prior to joining PRICELESS, she worked in the NGO and public health sector space where she was involved in programme and policy development. She also worked in the private sector where she developed workplace wellness programmes. Aviva has a Masters in Health Sociology and is pursuing a PhD focused on applying tools to engage the public in priority setting for health in SA.

Gabriel Urgoiti is a medical doctor working in the field of child health, child participation and health communication. He was a founding member of two of South Africa's first community radio stations, Radio Zibonele and Bush Radio, and was involved in the birth and growth of the community radio sector in Southern Africa. He was a founding member and first Director of the NPPHCN Media Training Centre. He has extensive experience in working with children, using child-centred methodologies and media as a vehicle for children to tell their stories. Gabriel is the founder and station manager of RX Radio at Red Cross Children's Hospital.

Ashley van Niekerk is the Deputy Director of the South African Medical Research Council - University of South Africa's Violence, Injury and Peace Research Unit. He has a PhD in Social Medicine from the Karolinska Institute. His research portfolio is embedded within critical socio-psychological and public health understandings of the multi-layered nature of injury, its causation and prevention. He has long-standing interests in unintentional injury and child safety, especially burns, with recent work also including road traffic and drowning injury prevention.

Catherine L. Ward is a Professor in the Department of Psychology at the University of Cape Town, South Africa. She is interested in violence prevention from the perspective of children's development, and particularly in public health approaches to this. Much of her current work is focused on preventing child maltreatment. In line with this, she is one of the developers of the Parenting for Lifelong Health suite of programmes that aim to support parents to raise non-violent children in non-violent homes.

Fiona Ward is a Water, Sanitation and Hygiene (WASH) Specialist in UNICEF's Headquarters in New York, with a special focus on the impact of water scarcity and climate change, and how these impact children's access to water and sanitation, and the practice of key hygiene behaviours. Her background is in Hydrogeology and she has a keen interest in water conservation and ensuring equitable access to water. Prior to her move to New York, she worked for four years on UNICEF's Emergency Response Programme in Jordan, and has also worked in Bangladesh, Haiti, Kenya, Sudan, Ghana and Nigeria.

Tony Westwood is a Paediatrician. In the 10 years up to his recent retirement he led paediatric services at New Somerset Hospital in Cape Town. He chaired the Western Cape Department of Health's provincial committee on paediatrics and child health for 15 years. He is currently leading a project to develop child health post-graduate education at UCT.

Sanjay Wijesekera is the Representative of UNICEF in South Africa since August 2018. Sanjay joined UNICEF in October 2011 as the Global Chief of UNICEF's Water, Sanitation and Hygiene (WASH) programmes and has previously worked in Nigeria, Ghana, Sri Lanka, Rwanda and South Africa on various water and sanitations programmes. Mr Wijesekera, a national of Sri Lanka, is a Chartered Civil Engineer and holds a Masters in Water and Environmental Management from the University of Loughborough, UK.

Chantell Witten is a Senior Lecturer and a PhD candidate in the Centre of Excellence for Nutrition at the North West University. Chantell has worked in the field of nutrition for the last 20 years and her focus of interest and research is in the field of infant and young child feeding. Chantell serves as the Nutrition Lead for the South African Civil Society for Women's, Adolescents' and Children's Health (SACSoWACH). Before joining North West University, Chantell served as the Nutrition Specialist for UNICEF South Africa.

Wanga Zembe-Mkabile is a Specialist Scientist at SAMRC. She has a DPhil in Social Policy from the University of Oxford. Her main interests are research and teaching in social policy, specifically as this relates to poverty, inequality, health and well-being.

Notes