School of
CLINICAL MEDICINE

BIENNIAL RESEARCH DAY

PROGRAMME & ABSTRACT BOOK
23 October 2019
http://www.wits.ac.za/clinicalmed/research-day-2019/

WITS SCHOOL OF
CLINICAL MEDICINE

UNIVERSITY OF THE
WITWATERSRAND,
JOHANNESBURG
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INTRODUCTION AND WELCOME

Message from Prof Daynia Ballot, SOCM Head of School

Dear Colleagues

It gives me great pleasure to welcome all of you to the School of Clinical Medicine’s Biennial Research Day. With more than 180 quality research abstracts this Research Day is something that makes us, as the School of Clinical Medicine, very proud.

This is an indeed an opportunity to showcase our research!

Special thanks to the Organising Committee, under the Chairmanship of Professor Bernard Janse van Rensburg, for their sterling effort and contributions.

Congratulations and thank you to all the presenters for their submissions and to the Chairs for participating in the event. Thank you to the various sponsors for their support. I hope that you will enjoy sharing our School’s research achievements with us.

Last, but not least, a huge thank you to Mrs Rita Kruger for her tireless efforts in making the day happen.

Kind regards,

________________________
Prof Daynia Ballot
Head of School: Clinical Medicine
Faculty of Health Sciences
University of the Witwatersrand
COMMITTEES AND SUPPORT

ORGANIZING COMMITTEE

- Prof Bernard Janse van Rensburg – Chair, Assistant HOS
- Prof Elena Libhaber FHS, HSRO
- Prof Michelle Wong, Internal Medicine
- Prof Pravin Manga, Editor WITS Journal of Clinical Medicine
- Prof Deirdré Kruger, Surgery

SCIENTIFIC COMMITTEE

- Dr Nimmisha Govind, Internal Medicine
- Dr Unati Nqebelele, Internal Medicine
- Prof Hennie Lombaard, O&G
- Prof Ashraf Coovadia, Paediatrics
- Prof Ugash Subramaney, Psychiatry
- Prof Sarala Naicker, SOCM Graduate Studies

ACKNOWLEDGEMENTS

- Mrs Rita Kruger, Ms Phumzile Molefe, Ms Pam Moodley, Mr Naseem Ebrahim, Mr Carl Nkosi
- WITS School of Public Health
- Audio Visual, ITC, Parking, Protection Service, Cleaning Services
1. **Best oral presenters** (first and second prize) in each category: (1) Undergraduate student; (2) MMed/Registrar; (3) MSc/Medical Scientist; and (4) PhD/PostDoc/Consultant.

2. **Best poster presenters** (first and second prize) in each category: (1) Undergraduate student; (2) MMed/Registrar; (3) MSc/Medical Scientist; and (4) PhD/PostDoc/Consultant.

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**CPD**

The meeting has been CPD accredited by the WITS Health Consortium:

1 Point per Hour, 2 points per presenter, 6 Hours: 50 min = 7 Points.

(Conference reference number: MDB08/041/09/2019)
An NRF A-rated scientist, CEO and President of the South African Medical Research Council (SAMRC), Professor Glenda Gray is a qualified paediatrician and co-founder of the internationally recognised Perinatal HIV Research Unit in Soweto, South Africa. Prior to her appointment at the SAMRC, she was the Executive Director of the Perinatal HIV Research Unit, an affiliate of Wits University.

Glenda’s global profile includes a role as Co-PI of the HIV Vaccine Trials Network (HVTN), a transnational collaboration for the development of HIV/AIDS prevention vaccines. She is also Director of International Programmes for HVTN and Chairperson of the Board of the Global Alliance for Chronic Diseases, and a member of the Institute of Medicine of the National Academies, USA.

She received South Africa’s highest honour - the Order of Mapungubwe - for her pioneering research in PMTCT. Other prestigious accolades include the Nelson Mandela Health and Human Rights Award for her significant contributions in the field of mother-to-child transmission of HIV. Selected as one of Time’s 100 Most Influential People in the World, Glenda is a recognised leader in her field. Her qualifications include an MBBCH, FCPaeds (SA), DSc (honoris causa SFU), DSc (honoris causa SUN), LL.D (Rhodes).  

http://www.mrc.ac.za/about-us/our-president
PROF KEBASHNI THANDRAYEN

Prof Kebashni Thandrayen is a paediatrician since 2006, and subspecialist paediatric endocrinologist since 2014 at Chis Hani Baragwanath Academic Hospital (CHBAH) and the University of the Witwatersrand. She completed a PhD on the ethnic differences in the prevalence of fractures among black and white South African children in 2014 and she was promoted to Adjunct Professor in December 2018. Her research and clinical interests lie mainly in the area of paediatric bone disease, with particular focus on osteogenesis imperfecta and rickets, and she now runs the paediatric metabolic bone disease clinic at CHBAH, where she is also the research coordinator in the Department. She is involved in several multicentre clinical trials in the area of corticosteroid-induced osteoporosis in children.

DR UNATI NQEBELELE

Dr Unati Nqebelele is a senior specialist in the Division of Nephrology at the University of the Witwatersrand. She is a past recipient of the prestigious Carnegie Corporation of New York scholarship and is a South African Medical Council National Health Scholar. She has recently completed her PhD, entitled ‘Genetics of hypertension-attributed chronic kidney disease in black South Africans’. She has published in peer-reviewed journals. She was awarded the Ken Huddle Role Model Award for 2018 by the Department of Internal Medicine at the University of the Witwatersrand. She is a member of the South African Minister of Health’s Ministerial Advisory Committee on Organ and Tissue Transplantation and Renal Dialysis.
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<td>08:00 – 08:10</td>
<td><strong>Public Health Auditorium</strong></td>
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<td>Welcome: Prof Daynia Ballot, SOCM Head of School</td>
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<td>08:10 – 08:30</td>
<td>PLENARY Opening Lectures</td>
<td></td>
<td>Chair - Prof Maria Papathanasopoulos (1) Prof Kebashni Thandrayen (Paediatrics) &amp; (2) Dr Unati Nqebelele (Nephrology)</td>
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<td>08:30 – 10:20</td>
<td>Breakaway Presentations</td>
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<td></td>
<td><strong>SESSION 1. EMERGENCY &amp; FAMILY MEDICINE, NEUROSCIENCES, PSYCHIATRY</strong></td>
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<td>Oral Session 1: Public Health Auditorium</td>
<td>08h30-10h20</td>
<td>Co-Chairs: Prof G Modi</td>
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<td>10:20 – 10:50</td>
<td>Tea Break &amp; Poster Session</td>
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<td>10:50 – 12:20</td>
<td>Breakaway Presentations</td>
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<td><strong>SESSION 3. RADIATION SCIENCES</strong></td>
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<td>Oral Session 3: Public Health Auditorium</td>
<td>10h50-12h20</td>
<td>Chair: Prof M Vangu</td>
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<td><strong>SESSION 4. PAEDIATRICS &amp; CHILD HEALTH</strong></td>
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<td>Oral Session 4: Marie Curie Lecture Theatre</td>
<td>10h50-12h20</td>
<td>Chair: Prof A Coovadia</td>
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<td>12:20 – 13:00</td>
<td>Lunch &amp; Poster Session</td>
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<td>13:00 – 14:30</td>
<td>Breakaway Presentations</td>
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<td><strong>SESSION 5. ANAESTHESIA &amp; ORTHOPAEDICS</strong></td>
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<td>Oral Session 5: Public Health Auditorium</td>
<td>13h00-14h30</td>
<td>Co-Chairs: Prof M Ramokgopa &amp; Dr P Motshabi</td>
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<td><strong>SESSION 6. SURGERY (1)</strong></td>
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<td>Oral Session 6: Marie Curie Lecture Theatre</td>
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<td>Chair: Prof M Smith</td>
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<td>14:30 – 15:00</td>
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<td>15:00 – 16:30</td>
<td>Breakaway Presentations</td>
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<td><strong>SESSION 7. INTERNAL MEDICINE, OBSTETRICS &amp; GYNAECOLOGY, STEVE BIKO CENTRE FOR BIOETHICS</strong></td>
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<td>Oral Session 7: Public Health Auditorium</td>
<td>15h00-16h30</td>
<td>Co-Chairs: Prof C Menezes &amp; Prof H Lombaard</td>
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<td><strong>SESSION 8. SURGERY (2)</strong></td>
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<td>Oral Session 8: Marie Curie Lecture Theatre</td>
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<td>Public Health Auditorium</td>
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<td>SPEAKER: Prof Glenda Gray</td>
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<td>PRIZE-GIVING: Prof Daynia Ballot</td>
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## SESSION 1: EMERGENCY & FAMILY MEDICINE, NEUROSCIENCES, PSYCHIATRY

**Public Health Auditorium**

**ORAL SESSION 1: 08:30 – 10:20 – Co-Chairs: Prof Girish Modi**

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<td>08:30 – 08:40</td>
<td>VALIDATION OF A LOW COST, DISPOSABLE, AND ULTRASOUND-GUIDED SUPRAPUBIC CATHETER INSERTION TRAINER. (Ref. 123) JAMES NONDE</td>
<td>SOCM1-01</td>
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<td>08:40 – 08:50</td>
<td>ANALYSIS OF CORNEAL BIOMETRY IN A BLACK SOUTH AFRICAN POPULATION. (Ref. 6) THARIQ BAGUS</td>
<td>SOCM1-02</td>
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<td>08:50 – 09:00</td>
<td>INTRACTABLE EPISTAXIS: LOOKING BEYOND THE USUAL SITES. (Ref. 113) SHEETAL MUNGUL</td>
<td>SOCM1-03</td>
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<td>09:00 – 09:10</td>
<td>THE CAUSES OF VISUAL IMPAIRMENT IN CHILDREN IN A SCHOOL FOR THE BLIND IN JOHANNESBURG – A CROSS SECTIONAL STUDY. (Ref. 36) NIRA ESRA</td>
<td>SOCM1-04</td>
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<td>09:10 – 09:20</td>
<td>CHILDHOOD FOOD INSECURITY IN SOUTH AFRICA: A HOUSEHOLD LEVEL ANALYSIS. (Ref. 98) SILULEKO MKHIZE</td>
<td>SOCM1-05</td>
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<td>09:20 – 09:30</td>
<td>PAEDIATRIC EMERGENCY DEPARTMENTS IN NIGERIA: HOW PREPARED ARE THEY TO PROVIDE EMERGENCY CARE? (Ref. 32) CALLISTUS ENYUMA (PRESENTED BY ABDULLAH LAHER)</td>
<td>SOCM1-06</td>
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<td>09:30 – 09:40</td>
<td>MONITORING AND EVALUATION OF THE USE OF ELOGBOOKS IN THE CLINICAL ASSOCIATE CURRICULUM. (Ref. 153) SCOTT SMALLEY</td>
<td>SOCM1-07</td>
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<tr>
<td>09:40 – 09:50</td>
<td>CLINICAL ASSOCIATE STUDENTS’ PERCEPTION OF FACTORS THAT INFLUENCE THEIR DEVELOPING PROFESSIONAL IDENTITY. (Ref. 93) AVIWE MGOBOZI</td>
<td>SOCM1-08</td>
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<td>09:50 – 10:00</td>
<td>TONSIL HISTOPATHOLOGY IN HIV-INFECTED VERSUS HIV-UNINFECTED ADULTS. (Ref. 78) SHIVESH H MAHARAJ</td>
<td>SOCM1-09</td>
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<td>10:00 – 10:10</td>
<td>A PROSPECTIVE COHORT STUDY OF NYAOPE USERS ATTENDING REHABILITATION: ASSESSING PSYCHIATRIC COMORBIDITIES AND TREATMENT OUTCOMES. (Ref. 180) NIRVANA MORGAN</td>
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<td>TEA BREAK &amp; POSTER SESSION</td>
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<td>08:30 – 08:40</td>
<td>PROVIDER PERSPECTIVES ON PATIENT-CENTERED CARE FOR PATIENTS WITH HIV AND DIABETES AT A PUBLIC TERTIARY HOSPITAL IN SOUTH AFRICA. (Ref. 10) EDNA BOSIRE</td>
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<td>08:40 – 08:50</td>
<td>ASSESSING PATIENT RECALL, UNDERSTANDING, AND VOCABULARY OF GENETIC CONCEPTS, IN A SOUTH AFRICAN SETTING. (Ref. 147) BARRY SHINGWENYANA</td>
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<td>08:50 – 09:00</td>
<td>COMMON AFRICAN NPHS2 V260E MUTATION IN BLACK SOUTH AFRICAN CHILDREN IN STEROID RESISTANT FOCAL SEGMENTAL. (Ref. 52) GLOMERULOSECROSIS MELANIE GOVENDER</td>
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<td>09:00 – 09:10</td>
<td>THERE IS NO PLACE FOR CONSCIENTIOUS OBJECTION TO ABORTION IN SOUTH AFRICA. (Ref. 41) ELONGO FRITZ</td>
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<td>09:10 – 09:20</td>
<td>PHARMACOKINETICS AND SAFETY OF TRIMETHOPRIM-SULFAMETHOXAZOLE IN HIV-EXPOSED LOW BIRTH WEIGHT INFANTS. (Ref. 117) FIRDLOSE LAMBEY NAKWA</td>
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<tr>
<td>09:20 – 09:30</td>
<td>THE ASSOCIATION BETWEEN HOUSEHOLD SOCIOECONOMIC STATUS, MATERNAL SOCIO-DEMOGRAPHIC CHARACTERISTICS AND ADVERSE BIRTH AND INFANT GROWTH OUTCOMES IN SUB-SAHARAN AFRICA: A SYSTEMATIC REVIEW. (Ref. 21) NGANDU CHRISTIAN BWANGANDU</td>
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<td>09:30 – 09:40</td>
<td>EXCLUSIVE BREASTFEEDING POLICY, PRACTICE AND INFLUENCES IN SOUTH AFRICA, 1980 TO 2018: A MIXED-METHODS SYSTEMATIC REVIEW. (Ref. 122) SARA NIEUWOUDT</td>
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<td>09:40 – 09:50</td>
<td>PROGRESSIVE RISES IN WEIGHT AND CLINICAL OBESITY FOR TAF/FTC/DTG AND TDF/FTC/DTG VERSUS TDF/FTC/EFV: ADVANCE AND NAMSAL TRIALS. (Ref. 106) MICHELLE MOORHOUSE</td>
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<td>09:50 – 10:00</td>
<td>UNINTENDED PREGNANCIES IN WOMEN USING EFAVIRENZ- AND DOLUTEGRAVIR-BASED ANTIRETROVIRAL THERAPY AND THE CONTRACEPTIVE IMPLANT: A RETROSPECTIVE ANALYSIS. (Ref. 9) BROWNYN BOSCH</td>
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<td>10:00 – 10:10</td>
<td>SERUM FOLATE AND BIRTH OUTCOMES: DOLUTEGRAVIR VS EFAVIRENZ TRIAL EVIDENCE FROM SOUTH AFRICA. (Ref. 19) NOMATHEMBA CHANDIWANA</td>
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<td>10:10 – 10:20</td>
<td>CONDOM AND ORAL PREP USE AMONG FEMALE SEX WORKERS: FINDINGS FROM A STUDY IN SOUTH AFRICA. (Ref. 146) PATIENCE SHAMU</td>
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<td>10:20 – 10:50</td>
<td>TEA BREAK &amp; POSTER SESSION</td>
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<td>10:50 – 11:00</td>
<td>BREAST TUBERCULOSIS: A RETROSPECTIVE ANALYSIS OF THE DISEASE BURDEN AMONG THREE TERTIARY HOSPITALS IN JOHANNESBURG. (Ref. 87) Denny Mathew</td>
<td>SOCM3-01</td>
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<td>11:00 – 11:10</td>
<td>MRI FINDINGS AND CLINICAL MANIFESTATIONS OF CHILDREN WITH SUSPECTED HYPOXIC ISCHEMIC INJURY AT A TERTIARY ACADEMIC HOSPITAL IN SUB-SAHARAN AFRICA. (Ref. 72) Liam Lorentz</td>
<td>SOCM3-02</td>
</tr>
<tr>
<td>11:10 – 11:20</td>
<td>ABDOMINAL AORTIC CALCIFICATION IN PSORIASIS. (Ref. 142) Sofia Ramos</td>
<td>SOCM3-03</td>
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<td>11:20 – 11:30</td>
<td>PATIENTS’ AWARENESS ON NUCLEAR MEDICINE STUDIES- THE IMPACT OF VISUAL COMMUNICATION. (Ref. 61) Ayesha Ismail</td>
<td>SOCM3-04</td>
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<tr>
<td>11:30 – 11:40</td>
<td>CLINICIAN AND PATIENT REPORTED OUTCOMES FOR SEVERE LATE BLADDER AND GASTROINTESTINAL TOXICITY IN LOCALLY ADVANCED CERVICAL CANCER PATIENTS TREATED WITH CHEMORADIATION. (Ref. 138) Prinitha Pillay</td>
<td>SOCM3-05</td>
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<td>11:40 – 11:50</td>
<td>RADIOPHOTOLUMINESCENCE GLASS DOSIMETRY END-TO-END AUDIT OF HIGH DOSE RATE GYNAECOLOGICAL BRACHYTHERAPY IN CHARLOTTE MAXEKE JOHANNESBURG ACADEMIC HOSPITAL. (Ref. 125) Lethukuthula Ntombela</td>
<td>SOCM3-06</td>
</tr>
<tr>
<td>11:50 – 12:00</td>
<td>ASSESSMENT OF DOCTORS’ IN TRAINING - AT TWO ACADEMIC HOSPITALS-KNOWLEDGE OF THE BASIC PRINCIPLES AND CLINICAL APPLICATIONS OF NUCLEAR MEDICINE. (Ref. 27) Shireen Dhodhat</td>
<td>SOCM3-07</td>
</tr>
<tr>
<td>12:00 – 12:10</td>
<td>THE USE OF 18F-FDG PET/CT IN THE DETECTION OF HARMFUL LUNG INFLAMMATION DURING EARLY TREATMENT OF PULMONARY TB CO-INFECTED BY HIV. (Ref. 167) Mboyo Willy Vangu</td>
<td>SOCM3-08</td>
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<td>12:10 – 12:20</td>
<td>METASTATIC LYMPHADENOPATHY OR REACTIVE ADENOPATHY? NODES VISUALIZED ON 18F-FDG PET/CT IN HIV PATIENTS WITH INVASIVE CERVICAL CARCINOMA. (Ref. 3) Ayeni Akinwale</td>
<td>SOCM3-09</td>
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<td>LUNCH &amp; POSTER SESSION</td>
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# ORAL PRESENTATIONS SESSION 4

## SESSION 4: PAEDIATRICS & CHILD HEALTH

**Marie Curie Lecture Theatre**  
**ORAL SESSION 4: 10:50 – 12:20 – Chair: Prof Ashraf Coovadia**

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<tr>
<td>10:50 – 11:00</td>
<td>GROWTH OF EXTREMELY LOW BIRTH WEIGHT INFANTS AT A TERTIARY HOSPITAL IN A MIDDLE-INCOME. COUNTRY. (Ref. 31) TENDAI MABHANDI</td>
<td>SOCM4-01</td>
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<tr>
<td>11:00 – 11:10</td>
<td>THE BURDEN OF EARLY ONSET SEPSIS IN NEONATES WITH NEONATAL ENCEPHALOPATHY. (Ref. 18) KATHLEEN CAR</td>
<td>SOCM4-02</td>
</tr>
<tr>
<td>11:10 – 11:20</td>
<td>A REVIEW OF NEONATAL OUTCOMES TO DISCHARGE, OF PERINATAL ASPHYXIA AND THE USE OF INDUCED HYPOTHERMIA AS A TREATMENT MODALITY AT A TERTIARY CENTRE IN SOUTH AFRICA. (Ref. 151) REBECCA SIMPSON</td>
<td>SOCM4-03</td>
</tr>
<tr>
<td>11:20 – 11:30</td>
<td>NEGATIVE DIAGNOSTIC PCR TESTS IN SCHOOL-AGED, HIV-INFECTED CHILDREN ON ANTIRETROVIRAL THERAPY SINCE EARLY LIFE IN JOHANNESBURG, SOUTH AFRICA. (Ref. 16) MEGAN BURKE</td>
<td>SOCM4-04</td>
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<tr>
<td>11:30 – 11:40</td>
<td>PATHOGENS ISOLATED FROM CEREBROSPINAL FLUID OF INFANTS ADMITTED TO A NEONATAL UNIT IN A TERTIARY HOSPITAL IN SOUTH AFRICA. (Ref. 155) LINO SONO</td>
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<td>11:50 – 12:00</td>
<td>ADDRESSING INEQUALITIES IN PAEDIATRIC ONCOLOGY SERVICES IN AFRICA: A GLOBAL MAPPING PROJECT BY SIOP. (Ref. 44) JENNIFER GEEL</td>
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<td>12:00 – 12:10</td>
<td>THE ADVANCE TRIAL: TAF/FTC/DTG, TDF/FTC/DTG OR TDF/FTC/EFV FOR FIRST-LINE TREATMENT OF HIV-1 INFECTION. (Ref. 11) SIMISO SOKHELA</td>
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### ORAL SESSION 5: 13:00 – 14:30

**Anaesthesia & Orthopaedics**

**Public Health Auditorium**

**Co-Chairs:** Prof Mmampapatla Ramokgopa & Dr Palesa Motshabi

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<td>13:10 – 13:20</td>
<td>THE ILLUMINANCE OF LARYNGOSCOPES AT TWO CENTRAL HOSPITALS. (Ref. 2) GWYNETH DAVIES</td>
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<td>13:20 – 13:30</td>
<td>SHORT TERM RESULTS FOLLOWING TWO-STAGE REVISION FOR PERIPROSTHETIC JOINT INFECTION. (Ref. 28) JASON DU PLESSIS</td>
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<td>13:30 – 13:40</td>
<td>THE DEVELOPMENT OF A FRAMEWORK FOR IMPROVEMENT OF INTENSIVE CARE DELIVERY IN SOUTH AFRICA: A SYSTEMIC INTERVENTION. (Ref. 143) JUAN SCRIBANTE</td>
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<td>13:40 – 13:50</td>
<td>ASSESSMENT OF ELBOW FUNCTIONAL OUTCOME AFTER CLOSED REDUCTION AND PERCUTANEOUS PINNING OF DISPLACED SUPRACONDYLAR FRACTURES IN CHILDREN. (Ref. 5) AMBROSE B RUTARAMA</td>
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<td>TRAIN RELATED INJURIES IN A TERTIARY HOSPITAL IN CHILDREN AND ADOLESCENTS. (Ref. 149) BERNARD STEYN</td>
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<td>MINIMALLY INVASIVE TREATMENT OF TUBERCULOSIS OF SPINE: AN OLD DISEASE WITH A MODERN WAY OF TREATMENT. (Ref. 172) AFTAB YOUNUS</td>
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## ORAL PRESENTATIONS SESSION 7

### SESSION 7: INTERNAL MEDICINE, OBSTETRICS & GYNAECOLOGY, STEVE BIKO CENTRE FOR BIOETHICS

**Public Health Auditorium**

**ORAL SESSION 7: 15:00 – 16:30 – Co-Chairs: Prof Colin Menezes & Prof Hennie Lombaard**

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<td>15:00 – 15:10</td>
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CLOSING VENUE: PUBLIC HEALTH AUDITORIUM

16:30 – 17:00 CLOSING LECTURE – KEY NOTE SPEAKER

17:00 – 17:15 PRIZE-GIVING
SESSION 1: NEUROSCIENCES, PSYCHIATRY, EMERGENCY & FAMILY MEDICINE

Category: MMed/Registrar

**SOCM1-01**

Validation of a Low Cost, Disposable, and Ultrasound-guided Suprapubic Catheter Insertion Trainer.

James Nonde, Ahmed Adam, Abdullah Ebrahim Laher

Department of Emergency Medicine

**Introduction:** This study was a validation of the newly designed ultrasound-guided suprapubic catheter insertion trainer (USSCIT) model against the real life experience by enrolling participants with prior confidence in the technique of US-guided suprapubic catheter (SPC) insertion.

**Aim/Objectives:** To validate USSCIT model.

**Methods:** The US-SCIT was self-constructed from common disposables and equipment found in the emergency department. A validation questionnaire was completed by all participants after SPC insertion on the US-SCIT model.

**Results:** Fifty participants enrolled in the study. Each participant had reported confidence in the SPC insertion technique, prior to participation in this study. There were 13 “super-users” (>65 previous successful real life SPC insertions) in the study. The total material cost per US-SCIT unit was 1.71 USD. The US-SCIT’s value in understanding the principals of US-guided SPC insertion had a mean score of 8.86 (standard deviation [SD] 1.03), whereas its value in simulating contextual anatomy had a mean score of 8.26 (SD 1.48). The mean score of the model’s ability to provide realistic sensory feedback was 8.12 (SD 1.78), whereas that of realism of initial urine outflow was 9.06 (SD 1.20). Simulation with the model compared well with real life SPC insertion, with a mean score of 8.30 (SD1.48).

**Conclusions:** The US-SCIT model performed well in various spheres developed to assess its ability to simulate real life SPC insertion. We are confident that this low-cost, validated, US compatible SPC trainer, constructed from common material present in the ED, will be a valuable learning asset to trainees across the globe.

Category: MMed/Registrar

**SOCM1-02**


Thariq Bagus, Kerry Alberto, Michel Muteba, Aubrey Makgotloe

Division of Ophthalmology, Department of Neurosciences
Introduction: Corneal astigmatism and central corneal thickness are important clinical parameters for cataract surgery and glaucoma, respectively. There is very little research on the central corneal thickness and the prevalence and pattern of corneal astigmatism in black South Africans.

Aim/Objectives: The aim of this study was to analyse the corneal astigmatism and central corneal thickness of a large population of black South Africans awaiting cataract surgery.

Methods: This was a cross-sectional study of a database of adult black patients awaiting cataract surgery at St John Eye Hospital, Soweto, South Africa. Biometric data was captured using Sheimpflug Imaging (Nidek Al-Scan). Steep corneas (K readings of more than 48) or abnormally thin or thick corneas (Central corneal thickness [(CCT] < 350 µm or CCT > 650 µm) were excluded from the study.

Results: A total of 3231 eyes of 1713 patients were included in this study. Patient ages ranged from 18 to 99 years with a median age of 67 years (interquartile range 57–75). There were more females (n = 1064) than males (n = 649). The median central corneal thickness was 494 µm (IQR 473 µm–516 µm). The median corneal astigmatism was 0.92 dioptres (IQR 0.55–1.43 dioptres). A large proportion (45%) of our study sample patients had 1 dioptre or more of corneal astigmatism.

Conclusions: This analysis of corneal biometric data revealed that a large proportion of black South African patients awaiting cataract surgery have thin corneas and visually significant corneal astigmatism.

SOCM1-03

Category: MMed/Registrar

Intractable epistaxis: looking beyond the usual sites.

Sheetal Mungul, Shivesh Maharaj

Neuro ENT Otolaryngology Head and Neck Surgery (ENT)

Introduction: Intractable epistaxis is a challenge to manage and often requires multiple interventions both medical and surgical. After anterior and posterior packing, many options exist on how to manage the patient. From the 17 patients that were identified with intractable epistaxis, 5 had documented the site of bleeding and were included in the study.

Aim/Objectives: To identify sites of bleeding in patients with intractable epistaxis

Methods: We conducted a retrospective study of patients that presented in a private practice setting with intractable epistaxis from Jan 2010 till July 2015. The clinical notes were reviewed noting the demographics of the patients and the treatment plan that followed. In particular, we assessed to see the site of bleeding that was documented.

Results: The documented areas that may have contributed to bleeding included the superior nasal septum at the olfactory cleft (n=3), the inferior meatus (n=1), the spheno-ethmoid recess (n=1).

Conclusions: Nasal endoscopy should be considered as part of the management plan for idiopathic Intractable epistaxis. After resuscitation and investigation, it should be conducted when nasal packing and cautery has failed to control the epistaxis.
The causes of visual impairment in children in a school for the blind in Johannesburg – a cross sectional study.

Nira Esra, Ismail Mayet

Division of Ophthalmology, Department of Neurosciences

Introduction: Over 1.4 million children are blind worldwide. This has significant social, emotional and economic implications, which are endured throughout a lifetime of “blind years”. Information regarding the epidemiology and risk factors is essential for the development and implementation of targeted interventions.

Aim/Objectives: To identify the causes of childhood blindness in a school for the blind in Johannesburg, as a representation of trends in our urban population, and to compare these findings with those of a study conducted in 1996, in order to inform health policy decision making.

Methods: All learners attending a school for the blind in Johannesburg were evaluated. Information was recorded using the World Health Organisation’s Programme for the Prevention of Blindness (WHO/PBL) method and reporting form.

Results: One hundred and eighty nine learners were examined, of which, 110 (58%) had severe visual impairment or blindness. The major affected anatomical sites were the retina (43%), whole globe (16%), optic nerve (10%), cornea (10%), uvea (6%) and lens related conditions (4%). Retinopathy of prematurity was the most common retinal condition (n=26, 14%). This has increased when compared to the findings in 1996. Aetiology was indeterminate in 45% of learners. Avoidable causes accounted for 29% of learners with visual impairment which was significantly lower than findings from the previous study (p=0.016).

Conclusions: There has been a change in the disease pattern of childhood blindness. While many advances have been made regarding immunisation, vitamin supplementation and ophthalmic management, the implementation of further measures are still required.

Childhood food insecurity in South Africa: a household level analysis.

Siluleko Mkhize, Elena Libhaber, Laurel Baldwin-Ragaven

Department of Family Medicine and Primary Care

Introduction: Childhood food insecurity has emerged as a major household-level disparity affecting the health of children across socioeconomic strata of society, and South Africa is not exempt. Furthermore, the pediatric obesity pandemic, various forms of undernutrition and developmental cognitive deficits are health concerns attributable to childhood food insecurity. Moreover, these adverse health outcomes in childhood may persist throughout the life-course, into adulthood.
**Aim/Objectives:** Therefore, we set out to estimate the prevalence of childhood (0-19 years) food insecurity, using an index from the Childhood Hunger Identification Project, and determine household head socio-demographic characteristics associated thereof.

**Methods:** We extracted household and individual-level data (household heads) from the first wave of the 2012/13 South African National Health and Nutrition Examination Survey, a nationally-representative sample of 9,423 households of the non-institutionalized civilian population of South Africa. Prevalence was calculated as percentage and 95% CI. Comparisons of household size between households with and without children, and household head socio-demographic characteristics with food security were performed with Mann-Whitney and Chi-squared tests.

**Results:** Of the 6,172 occupied households, 70% had children aged 9.3 ± 5.6 years, with 52% girls. Households with children had a greater household size than those without children [median of 5 (1-20); vs 2 (1-9), p<0.0001] and were mostly female-headed (56%), younger; 49.17 ± 14.70 years old, and of African descent (70%, p<0.001). Most households with children were food insecure/at risk of hunger [55%, 95% CI (51-57)]; however, having a male head of household is protective against being at risk of food insecurity (p<0.0001). Old age, African origin, rural location and informal settlements increased the risk of food insecurity (p=0.0003, p<0.001, p<0.001), respectively.

**Conclusions:** This study warrants for further analyses to tease out what household factors are contributing the most to food insecurity and therefore control the progression to chronic diseases in adulthood.

**Category:** MSc/Medical Scientist

**SOCM1-06**

**Paediatric Emergency Departments in Nigeria: How prepared are they to provide Emergency Care?**

Callistus Enyuma, Abdullah E Laher, Muhammed Moolla, Feroza Motara, Gbenga Olorunfemi

**Emergency Medicine**

**Introduction:** Paediatric emergency care is poorly developed in low and middle-income countries. Established Paediatric Emergency Department (PED) facilities face significant challenges. The magnitude of challenges facing the PED in Nigeria has not been well described.

**Aim/Objectives:** This study aimed to assess paediatric emergency care preparedness across PEDs in Nigeria.

**Methods:** A cross-sectional questionnaire-based study of PEDs recruited across various regions of Nigeria. Self-administered questionnaire and a checklist were used to obtain information on the availability of skilled personnel, medications and equipment. Preparedness performance was assessed using a point score scale. Results were described, compared and correlated.

**Results:** Of the 34 studied PEDs, 52.9% (n=18) were located in the North region of Nigeria. The mean (SD) number of patient visits and admission to short-stay wards within the last 30-days prior to data collection was 253.2 (±261.2) and 116.4 (±68.3) patients respectively. Most (70.6%) PEDs ran 2 shift duties per day. Most of the resident doctors (70.4%) and nurses (85.3%) did not have Basic Life Support certification. The mean managerial, medication, equipment and total performance scores of all 34 PEDs was 42.9%, 50.7%, 43.9% and 46.9% respectively. There was a significant difference in medication availability (p-value = 0.008)
and performance scores (p-value = 0.035) across the geopolitical zones of the country.

Conclusions: This study reports a global remediable deficiency of emergency care preparedness among PEDs in tertiary care centres in Nigeria. This study highlights the need for training of PED staff in basic and advanced life support and improvement in medication and equipment procurement across Nigeria.

**Category: PhD/Postdoctoral/Consultant**

**SOCM1-07**

Monitoring and Evaluation of the use of eLogbooks in the Clinical Associate curriculum.

Scott Smalley

Division of Clinical Associates

Introduction: The Pick Report on Human Resources for Health recommended training of a physician assistant category to address shortages in human resources, especially in rural South Africa. The BCMP programme to train clinical associates was started to address healthcare needs of communities through task sharing of medical practice under doctor mentorship and supervision. Wits introduced an integrated curriculum with work-based training and technology enhanced learning using tablets and eLogbooks with Digital Integration of Clinical and Academic Practice programme.

Aim/Objectives: The study of the DICAP programme, use of eLogbooks, tracks clinical experience, student training and work-based assessments.

Methods: The programme gathers data via student’s eLogbooks on patient interactions, medical conditions, skills performed, clinical and afterhours performed for clinical rotations. Work-based assessments such as mini-cex, preceptor evaluations and student evaluations are logged.

Results: Information gathered tracks student performance, logs required skills/procedures, monitors clinical activities. In 2017, 47 Year 3 students logged 5 700 clinical hours during six, 5-week emergency medicine rotations. The students performed over 3 440 patient consultations, were exposed to 521 different types of medical conditions and performed 9 400 skills for these patients.

Conclusions: Analysis of the eLogbook data provides information for course coordinators to monitor student performance, meet learning objectives and measure competence of students. Comparing eLogbook data for different hospital sites informs decisions of student placement and training in specific disciplines, as well development and refinement of the curriculum. The DICAP programme offers an effective and efficient teaching and learning tool for clinical associate student training.
Clinical Associate students’ perception of factors that influence their developing professional identity.

Aviwe Mgobozi, Ian Couper

Division of Clinical Associates

Introduction: Strengthening professional identities produces healthcare professionals who embody the professional qualities, values and dispositions required in an effective profession. The factors influencing professional identity amongst nurses and doctors is identified through the observation of role modelling, patient encounters, clinical experience, and lived experience through professional practice. However, factors influencing professional identity amongst the clinical associate profession has not been identified.

Aim/Objectives: To explore students’ definitions and understanding of professional identity. To identify factors that are thought of by students to influence their developing professional identities.

Methods: The research inquiry used a qualitative descriptive interpretivist approach. The study was conducted at the University of Witwatersrand in Johannesburg. First year and third year Clinical Associate students were grouped per year group to form focus group discussions. Ethics approval was received from Stellenbosch University and the University of Witwatersrand.

Results: Findings identify negative and positive influences. The results demonstrate three emerging themes depicting sources of influence to the students developing professional identity. First theme relates to individual factors, the second theme to influences experienced during the training and lastly the students’ perceptions of the clinical associate identity. Influencing factors to professional identity in order to provide formal educational platforms for the professional identity to positively develop.

Conclusions: Recommendations include increase in advocacy of the profession, improvement of student selection into the programme, increase interprofessional education, strengthen faculty development and promote clinical associate graduates becoming mentors and role models.

Tonsil Histopathology in HIV-Infected versus HIV-Uninfected Adults.

Shivesh H Maharaj, R Essa, Dr Shahpar Motakef, Dr Kapila Hari

Department of Otorhinolaryngology, Neurosciences ENT

Introduction: In resource rich centres, histopathology assessments are performed routinely on adult tonsillectomy specimens. This routine histopathology may reveal unexpected malignant lesions. The incidence of unexpected malignant lesions is extremely rare (0.015%) but early diagnosis in these instances could lead to timely treatment and an improved prognosis. The merits of routine tonsillar
histopathology in poorly resourced centres have been questioned

**Aim/Objectives:** There is minimal data on the histopathology of tonsillectomy specimens in the HIV infected population. To review the histopathological diagnoses of palatine tonsil diseases and to this retrospective review compared the incidence of malignancy tonsil histopathology in between HIV infected and HIV uninfected patients.

**Methods:** This study is a retrospective record review of 319 adult patients undergoing tonsillectomy over the period 1 July (2005 to 30 June 2015) HIV results were available for 160. The patients were recruited from the Otorhinolaryngology departments at the Chris Hani Baragwanath Academic Hospital, Charlotte Maxeke Johannesburg Academic Hospital and Helen Joseph Hospital in Johannesburg, South Africa. Records were collected from the National Health Care Laboratory database. The histological findings were compared in the HIV infected and HIV uninfected sub-groups. The effects of age; HIV status and CD4 count on the risk of malignancy were determined of patients above 18 years of age.

**Results:** The histology results of 319 patients were obtained. Reactive lymphoid hyperplasia was present in the vast majority (77.3%). Fourteen patients had underlying malignancies. There were 86 patients who were HIV infected and 74 were HIV uninfected. The rest of the patients’ HIV status was not known. Reactive lymphoid hyperplasia was the most common diagnosis in both groups (77%). Malignancies were diagnosed in 8 HIV infected and 6 HIV uninfected patients. Eight malignancies (9.3%) were discovered in the HIV infected patients and 6 malignancies (8.1%) were discovered in the HIV uninfected patients. There was no statistically insignificant difference in the incidence of malignancies between the HIV infected and uninfected groups.

**Conclusions:** The majority of patients undergoing tonsillectomy had an underlying benign condition. HIV status does not appear to be a specific risk factor for tonsil malignancies, but advanced age may be.

**Category:** PhD/Postdoctoral/Consultant

**SOCM1-10**

A prospective cohort study of nyaope users attending rehabilitation: assessing psychiatric comorbidities and treatment outcomes.

Nirvana Morgan, William Daniels, Ugasvaree Subramaney

**Department of Psychiatry**

**Introduction:** Despite the rise in heroin use in South Africa, there has been little data published on the profile of heroin users and the outcomes of treatment for those who attend public treatment services.

**Aim/Objectives:** To describe the clinical and psychosocial characteristics of heroin users entering detoxification and the outcomes post treatment.

**Methods:** 300 heroin users were assessed on entry into rehabilitation and 3 and 9 months after treatment. Structured interviews measured changes in drug use, psychopathology, injecting and sexual behaviour, criminality, social functioning and general health.

**Results:** Of the original cohort 252 (84.0%) and 225 (75.0%) were seen at 3 and 9 months respectively. At 9-months 72.4% had relapsed to heroin use, 22.7% used other substances and 4.9% were abstinent of all substances. Alcohol use increased significantly from enrolment to 3 and 9-months ($p < 0.0001$). There was no significant change in the prevalence of mental...
illness from enrolment (49.3%) to 3-months (45.8%) and 6 participants received psychotropic medication over the study period. At 9-months 11.1% were retained in any form of aftercare treatment. The relative risk for continued heroin use was greater for those who smoked heroin with cannabis (RR 1.88; 95% CL 1.14-3.10), completed fewer days in rehabilitation (RR 1.03; 95% CL 1.01-1.05) and did not attend an aftercare programme (RR 0.44; 95% CL 0.22-0.89).

Conclusions: Among heroin users attending state-funded treatment facilities, there is low retention in treatment, high rates of untreated psychiatric comorbidities and low rates of heroin abstinence. There are significant gaps in treatment services.

SESSION 2: PAEDIATRICS, REPRODUCTIVE HEALTH & GENETICS

Category: MSc/Medical Scientist

SOCM2-01

Provider perspectives on patient-centered care for patients with HIV and diabetes at a public tertiary hospital in South Africa.

Edna Bosire, Emily Mendenhall, Shane Norris, Jane Goudge

Department of Paediatrics and Child Health

Introduction: South Africa is experiencing rapid and colliding epidemics of chronic infectious diseases (such as HIV) and non-communicable diseases (such as diabetes). Managing multiple chronic morbidities is challenging particularly with overburdened health care systems. Although care for HIV is integrated into primary health care (PHC), diabetes care is largely provided at secondary or tertiary levels, which are more specialized. An integrated and patient-centered approach that enables chronic patients to play an active role in disease management process is often recommended.

Aim/Objectives: Our aim was to explore how patient-centered care is practiced when managing patients with comorbid Type 2 diabetes and HIV at a public tertiary hospital in urban South Africa.

Methods: This study utilizes ethnographic methods, encompassing clinical observations and qualitative interviews with health care providers (n=30) at a tertiary public hospital in Soweto. Data were transcribed verbatim and analysed using a grounded theory approach, with the aid of QSR NVivo 12 software

Results: Providers desired to practice patient-centered care. However, structural challenges such as staff shortages, lack of guidelines for comorbid care, and fragmented care, and patient barriers such as poverty, language, and missed appointments, impeded the possibility of doing so.

Conclusions: Health systems could be strengthened by: (i) ensuring appropriate guidelines exist, (ii) integrating diabetes care in PHC, (iii) training medical students to better understand patients in their socio-cultural contexts, and (iv) understanding patient challenges to effective care to improve attendance and adherence.
Assessing patient recall, understanding, and vocabulary of genetic concepts, in a South African setting.

Barry Shingwenyana, Merlyn Glass and Shelley Macaulay

Department of Human Genetics

Introduction: Effective communication between the counsellees and genetic counsellor is necessary for a good outcome, however, for a multilingual nation like South Africa, English is often the preferred language in healthcare leading to miscommunication. Currently no African vocabulary exists for genetic terminology. This impedes counsellees’ understanding during genetic counselling (GC) sessions. This study aimed to assess counsellees’ recall and understanding of genetic concepts discussed during a GC session for Down syndrome (DS) and to develop a suitable South African-specific genetic vocabulary.

Aim/Objectives: To assess counsellees’ recall and understanding of genetic language and illustrations used during GC for DS. To determine the terminology counsellees would use in their own home languages to describe genetic concepts.

Methods: Participants were recruited from the Genetic clinics of the National Health Laboratory Service and the University of the Witwatersrand in Johannesburg. They were interviewed post-genetic counselling. Recall and understanding were assessed using illustrations of genetic concepts. Participants were asked to provide words in their home language for each genetic term. Data were analysed quantitatively.

Results: The participants represented four ethno-linguistic groups. They had an average score of 73.1% for genetic recall and understanding. Participants provided appropriate words and analogies to describe genetic terms in their home languages.

Conclusions: Most of these participants were able to retain information, proving that using illustrations and analogies to explain genetic concepts is effective. The proposed terminology and analogies can be utilized by South African genetic counsellors to facilitate better understanding during a GC session for non-English speaking counsellees.
Introduction: In black African children, there is evidence of a more rapid progression from focal segmental glomerulosclerosis (FSGS) to end stage kidney disease (ESKD) and higher rates of steroid resistance.

Aim/Objectives: The aim of this study was to determine genetic associations with apolipoprotein L1 (APOL1) renal risk variants and podocin (NPHS2) variants in 30 unrelated black children with FSGS.

Methods: Three APOL1 risk variants were genotyped and the exons of the NPHS2 gene sequenced in the cases (including 2 sib-pairs) and healthy ethnically matched controls. The presence of the NPHS2 V260E variant was correlated with kidney function and response to treatment in FSGS cases.

Results: Steroid resistant nephrotic syndrome (SRNS) and steroid sensitive nephrotic syndrome (SSNS) were present in 20 and 10 of the cases, respectively. APOL1 risk alleles show a modest association with SS- and SRNS. The NPHS2 V260E variant was present in the homozygous state in 11/20 and in the heterozygous state in 4/20 SRNS cases. This variant was not detected in SSNS cases. The presence of the NPHS2 V260E variant in SRNS was associated with a decline in kidney function over a 60-month period (p= 0.026).

Conclusions: Genotyping the V260E variant in black children with FSGS could provide useful information in a clinical setting to guide treatment, may prevent the need for invasive renal biopsy and avoid side effects of glucocorticoid and other immunosuppressive therapies, and facilitate genetic counselling in families.

Category: MSc/Medical Scientist

SOCM2- 04

There is no place for conscientious objection to abortion in South Africa.

Elongo Fritz, Christopher Wareham

Steve Biko Centre for Bioethics and Health Law

Introduction: Demand for reproductive health services including termination of pregnancy is very high in South Africa. Approximately 84% of pregnancies are unintended with 39% of unintended pregnancies ending as abortions. One of the factors limiting access to safe medical abortion is conscientious objection, the legal right of a health care professional to cite personal moral or religious beliefs as a reason to refuse treatment.

Aim/Objectives: This research analysed the moral basis of conscientious objection using the philosophy of Immanuel Kant and that Aristotle (virtue theory).

Results: Using Kantian ethics, I argue that conscientious objection goes against a health care professional’s promise to serve all humanity, to put the wellbeing of the patient above all else, and to respect the autonomy of the patient. In addition, conscientious objection is not moral because it cannot be universalised according to Kant’s first formulation of the categorical imperative. Using virtue theory, I argue that there is no support for conscientious objection in this theory. I also argued that conscientious objection as practiced in South Africa fails to demonstrate the key virtues of honesty and compassion. These virtues are required for human flourishing.

Conclusions: The report concludes that since there is no moral basis for conscientious objection, South Africa should outright disallow conscientious objection except in extreme circumstances where the psychological wellbeing of the healthcare professional is threatened. The report also recommends an ethical or regulatory body such as the Health Professions Council of South Africa (HPCSA) to review applications and register genuine conscientious objectors.
**SOCM2-05**

**Pharmacokinetics and safety of trimethoprim-sulfamethoxazole in HIV-exposed low birth weight infants.**

Firdose Lambey Nakwa, A Bekker, A Violari, J Wang, M Cababasay, K McCarthy, B Graham, J Norman L Wiesner, M Cotton, M Mirochnick, E Capparelli, IMPAACT P1106 team

**Department of Paediatrics**

**Introduction:** Limited pharmacokinetic (PK) and safety data exist for low birth infants receiving trimethoprim-sulfamethoxazole (TMP-SMX).

**Aim/Objectives:** To assess the PK and safety of TMP-SMX in South African HIV exposed LBW infants

**Methods:** IMPAACT P1106, a Phase IV study assessing PK and safety of antiretrovirals and related medicines including TMP-SMX. Analysis included HIV-exposed infants receiving TMP-SMX (20/100mg) from age 6 weeks. PK and safety evaluations were performed from enrollment (7-14 days of life) to week 24. Adverse events (AE) were expected (associated with prematurity) or unexpected. Plasma samples were assayed by LC MS/MS methods.

**Results:** At October 2018, 39 infants were included with median (range) birthweight 1650g (880-2424) and gestational age (GA) 32 (28-38) weeks. TMP-SMX started at 5.5 (4.1-8.5) mg/kg/day at 39 (35-49) weeks corrected GA, and continued for 16 (3-21) weeks. Twenty-nine infants contributed 138 TMP-SMX concentrations; 38 (28%) observations below quantifiable levels were excluded. Median trough levels were TMP (0.22 mcg/ml) and SMX (7.35mcg/ml). Higher TMP troughs (0.62 vs 0.14 mcg/ml; p = 0.01) were observed in infants born <1800g. Seventeen (44%) had grade 3/4 expected AEs, sepsis (n=5, 13%) the commonest. Few cases of anemia (n=2, 5%), thrombocytopenia (n=1, 3%) and no neutropenia. Nine (23.1%) had grade 3/4 unexpected AEs, with pneumonia (n=5, 13%) the commonest. Two infants died of SIDS.

**Conclusions:** TMP-SMX prophylaxis was well tolerated; grade 3/4 AEs were unrelated to TMP-SMX. Higher TMP troughs in the lowest birth weight infants suggests immature clearance. Standard infant TMP-SMX prophylaxis was safely used in LBW infants from 35 weeks corrected GA.

**Category:** PhD/Postdoctoral/Consultant

**SOCM2-06**

**The association between household socioeconomic status, maternal socio-demographic characteristics and adverse birth and infant growth outcomes in sub-Saharan Africa: a systematic review.**

Ngandu Christian Bwangandu, Doug Momberg, Magan Ansuyah, Chola Lumbwe, Shane A Norris, R Said-Mohamed R

Developmental Pathways for Research Unit, Department of Paediatrics
Introduction: Adverse birth outcomes and infant undernutrition remain the leading causes of morbidity and mortality in sub-Saharan Africa (SSA). The aim of this systematic review was to assess the associations between maternal demographic characteristics and household socioeconomic status (SES), and preterm birth (PTB), small for gestational age, low birth weight (LBW), stunting, wasting and underweight in children under two years of age in SSA countries.

Aim/Objectives: To identify and summarize the evidence on the association between maternal and household SES factors and infant undernutrition up to two years of age in SSA, to support infant undernutrition by acting on relevant SES factors.

Methods: Following the PRISMA guidelines, we searched for publications in PubMed, Scopus, and ScienceDirect.

Results: Eleven studies on children under two years of age, in four SSA regions, published between 1990-2018 were included. All the studies were observational in design (cross-sectional or cohort studies). Maternal education was the most commonly explored exposure. Most studies (63.3%) focused on undernutrition during the first two years. Lower maternal education, maternal unemployment, and lower household wealth index were the SES factors most commonly associated with adverse birth outcomes and infant undernutrition. Maternal marital status was not associated with any infant outcomes.

Conclusions: The definitions of the SES varied, which may explain discrepancies between studies. Nutrition intervention programs in SSA need to promote education and poverty alleviation in women of reproductive age, starting from pre-pregnancy, to optimize infant growth and development, and prevent the increase in the prevalence of cardio-metabolic diseases.

Category: PhD/Postdoctoral/Consultant

SOCM2-07


Sara Nieuwoudt, Shane Norris, Lenore Manderson, Christian Ngandu

School of Public Health

Introduction: In 2011 South Africa committed to promoting exclusive breastfeeding (EBF) for six months for all mothers, regardless of HIV status, in line with World Health Organization recommendations. This was a marked shift from earlier policies, with EBF increasing from less than 10% to 32% in 2016.

Aim/Objectives: The aim of this mixed-methods systematic review was to describe EBF practices in South Africa and their multi-level influences over four policy periods.

Methods: We searched seven databases and conducted hand searches for eligible articles following a published protocol. The article quality was assessed and separate policy analysis was conducted to delineate four distinct policy periods. We compared EBF rates by these periods. We analysed EBF influences concurrently by method and then synthesized by policy period, applying an ecological framework.

Results: A total of 72 unique articles were reviewed. Despite this large sample, several provinces were poorly represented and many studies were assessed.
as low to moderate quality. Despite these limitations, our historical lens enabled us to explore the slow progress on increasing EBF in South Africa. The review reflects increasingly supports EBF, but failures in accounting for family, community, and workplace influences. The findings also highlight the unintended damage caused by rapidly introducing global guidelines.

**Conclusions:** We identified geographic and methodological biases, as well as gaps in our understanding of inequities in EBF. We make policy, programming and research recommendations to inform measures to increase EBF in South Africa. Our findings have broader implications for investing in multi-level interventions and limiting changes to infant feeding guidelines.

**Category:** PhD/Postdoctoral/Consultant

**SOCM2-08**

**Progressive rises in weight and clinical obesity for TAF/FTC/DTG and TDF/FTC/DTG versus TDF/FTC/EFV: ADVANCE and NAMSAL trials.**

Michelle Moorhouse, A. Hill, W.F. Venter, E. Delaporte, S. Sokhela, C. Kouanfack, K. McCann, B. Simmons, A. Calmy

**Ezintsha, Wits Reproductive Health and HIV Institute**

**Introduction:** Clinical trials and cohort studies have shown increased body weight and clinical obesity associated with dolutegravir, especially in black people and women. Tenofovir disoproxil fumarate (TDF) is associated with lower body weight, compared to tenofovir alafenamide (TAF), abacavir or NRTI-sparing treatment.

**Aim/Objectives:** In NAMSAL, 613 treatment-naïve patients in Cameroun were randomised to TDF/lamivudine/dolutegravir or TDF/lamivudine/efavirenz. Body weight was measured at baseline and Week 48. In ADVANCE, 1053 treatment-naïve patients in South Africa were randomised to TAF/emtricitabine/dolutegravir, TDF/emtricitabine/dolutegravir or TDF/emtricitabine/efavirenz.

**Methods:** Body weight was measured at baseline and 12-weekly; DXA scans evaluated limb and trunk fat at baseline, Weeks 48 and 96. For both trials, changes in body weight, Body Mass Index (BMI), and trunk fat (ADVANCE only) were compared between treatments.

**Results:** In the NAMSAL trial, mean weight rose +7.3% for TDF/lamivudine/dolutegravir versus +5.3% for TDF/lamivudine/efavirenz (p< 0.001); treatment-emergent clinical obesity (BMI>30kg/m2) occurred in 12% on TDF/lamivudine/dolutegravir versus 5% on TDF/emtricitabine/efavirenz (p=0.004). BMI rose +1.7 kg/m2 for TDF/lamivudine/dolutegravir versus +1.2kg/m2 for TDF/emtricitabine/efavirenz. In ADVANCE, there were progressive, linear rises in body weight to Week 96 for women treated with dolutegravir; in men, mean body weight rose in the dolutegravir arms to Week 48 and stabilised to Week 96. Trunk fat rose significantly in the TAF/emtricitabine/dolutegravir arm.

**Conclusions:** In NAMSAL and ADVANCE, dolutegravir is associated with increased body weight, clinical obesity and trunk fat. These rises are higher if used in combination with TAF/emtricitabine. Rises in body weight on TAF/emtricitabine/dolutegravir are progressive: longer-term follow-up and reanalysis of other studies is required to evaluate clinical consequences.
Unintended Pregnancies in Women using Efavirenz- and Dolutegravir-based Antiretroviral Therapy and the Contraceptive Implant: A Retrospective Analysis.

Bronwyn Bosch, Michelle Moorhouse

Ezintsha, Wits Reproductive Health and HIV Institute

Introduction: Integration of family planning services and modern contraception are vital in preventing unintended pregnancies, particularly in women living with HIV, the majority of whom live in low- and middle-income countries. HIV-positive women are at increased risk of adverse pregnancy outcomes, acquiring sexually transmitted infections and maternal mortality. Progestin-containing subdermal implants, one of the most effective contraceptive forms, are more frequently being used in sub-Saharan Africa, particularly in women with HIV. However, drug-drug interactions between implants and antiretroviral therapy (ART) compromises implant effectiveness.

Aim/Objectives: To describe contraceptive choices and the occurrence of unintended pregnancies in ADVANCE.

Methods: This is a retrospective analysis of the ADVANCE clinical trial data where dolutegravir-based ART was compared to an efavirenz-based regimen in inner-city Johannesburg, South Africa.

Results: Of the 623 women enrolled, 438 (70.3%) chose to use a hormonal injection, 41 (9.4%) an implant (levonorgestrel or etonogestrel) and 167 (26.8%) an oral contraceptive. Six of eleven participants on efavirenz-based ART with an active implant in situ fell pregnant (54.6%), compared to one of 30 (3.3%) on dolutegravir-based regimens.

Conclusions: These results are similar to those seen elsewhere, raising concerns around reliable contraceptive forms in women living with HIV, with 50-70% reductions in plasma progestin concentrations previously recorded when used with efavirenz-based ART. Because of African genetic diversity which may impact drug metabolism, further research, particularly pharmacokinetic studies in African populations, are important to determine the effects of efavirenz and newer first-line agents like dolutegravir on hormonal contraceptives, thereby informing contraception guidelines to offer appropriate forms of long-acting reversible contraceptives.
Introduction: Dolutegravir exposure at conception was associated with an increased risk of infant neural tube defects in the Botswana Tsepamo study. The mechanism underlying this potential association is unknown. It is possible that effects of dolutegravir on folate metabolism, especially a lowering of concentrations, could account for these findings.

Aim/Objectives: Our objective was to assess the impact of dolutegravir on preconception serum folate concentrations compared to efavirenz in women.

Methods: This was an analysis of serum from stored plasma of 483 female participants enrolled prospectively at weeks 0, 12 and 24 in the ongoing South African ADVANCE trial (NCT03122262). In ADVANCE, 1053 treatment-naïve patients were randomised to start treatment with dolutegravir-tenofovir alafenamide fumarate-emtricitabine (DTG-TAF-FTC), dolutegravir-tenofovir disoproxil fumarate-emtricitabine (DTG-TDF-FTC) or efavirenz-tenofovir disoproxil fumarate-emtricitabine (EFV-TDF-FTC). We compared changes in mean serum folate concentrations and the occurrence of marginal serum folate deficiency (<14.0 nmol/L) between study arms.

Results: Mean serum folate concentrations were balanced across treatment arms at baseline. However, at weeks 12 and 24, mean serum folate was lower in women on EFV-TDF-FTC (p<0.001), and 30% of these women had marginal serum folate deficiency, compared to 13.7% in the DTG-TDF-FTC arm, and 5.4% in the DTG-TAF-FTC group (p<0.001) at week 24. No decline in serum folate concentrations in either dolutegravir arm was noted over time.

Conclusions: Unexpectedly, women taking EFV-TDF-FTC, had lower serum folate than other women. The effect of dolutegravir on folate metabolism raises important concerns, especially that the drug may block cellular uptake of folate and thus folate metabolism.

Category: PhD/Postdoctoral/Consultant

SOCM2-11

Condom and oral PrEP use among female sex workers: Findings from a study in South Africa.

Patience Shamu, Diantha Pillay, Sarah Jenkins, Mercy Murire, Kayla Stankevitz, Michele Lanham, Kathleen Ridgeway, Saiqa Mullick

Wits Reproductive Health and HIV Institute

Introduction: Simultaneous use of oral Prep and condoms may be a challenging behavioural aspect of Prep. However, little data exists on the simultaneous use of PrEP use and condoms in real world settings. This abstract aims to contribute to this knowledge gap.

Aim/Objectives: To explore the effect of oral PrEP provision on condom use.

Methods: We administered a cross-sectional survey to female sex workers (FSW) aged 18 and above at seven facilities offering Prep, followed by in-depth interviews (IDIs) between December 2017 through January 2018. Condom use at last sex was assessed for current, past and never users of Prep in different sexual relationships (main or casual partner, client). We summarized data using descriptive statistics.

Results: We enrolled 156 self-identified FSW. In surveys, over 80% said that they used a condom the last time they had sex with a client reporting almost similar proportions, (87%) current, past (86%), and never (86%) users. Among those with main or casual
partners, condom use was higher with casual partners overall, and was higher for never (77% casual/54% main) and current users (70% casual/38% main) compared to past users (53% casual/24% main). Condom use was lowest with main partners and in IDI’s some FSW described that in steady relationships it was challenging to use condoms. Furthermore, some FSWs noted that clients removed condoms and offered more money to "tempt" participants into having sex without them.

Conclusions: There is need to reinforce counselling messages about the risks in regular and casual partnerships and to explore ways of improving condom use.

SESSION 3: RADIATION SCIENCES

Category: MMed/Registrar

SOCM3-01

Breast Tuberculosis: A retrospective analysis of the disease burden among three tertiary hospitals in Johannesburg.

Denny Mathew, Grace Rubin, Nasreen Mahomed, Sarah Rayne

Department of Diagnostic Radiology

Introduction: Breast Tuberculosis (TB) is a rare condition with the incidence in developed countries reported as less than 0.1% of all surgical breast lesions and 3.0 - 4.5% of breast lesions in countries where TB is endemic.

Aim/Objectives: To outline the disease burden of breast TB as a quantitative analysis amongst three tertiary hospitals in Johannesburg, with correlation to their clinical, demographic and imaging features.

Methods: A retrospective analysis over an 18-month period with continuous sampling of all patients undergoing pathological investigations for breast disease at the mammography departments of Charlotte Maxeke Johannesburg Academic Hospital, Helen Joseph Hospital and Chris Hani Baragwanath Academic Hospital.

Results: The prevalence of breast TB was 2.5% (n = 62) of a total of 2516 patients. The median age of presentation was 38.5 years (IQR 33 - 45). HIV status was known in 45 patients, of whom 36 were HIV infected (80%, 95% CI: [0.65 - 0.90], p < 0.0001). Based on the ultrasound and/or mammogram findings, patients were classified under five categories: TB breast abscess (40.3%), inflammatory/disseminated (24.2%), isolated TB lymphadenitis (22.6%), nodular (11.3%) and sclerosing form (1.6%). Histology demonstrated necrotizing granulomatous inflammation in 57 cases (92%). Acid-fast bacilli was positive in 8.1% (n = 5) of the cytology and 16.1% (n = 10) of the histology specimens. Culture for Mycobacterium tuberculosis was positive in 17 cases (27%).

Conclusions: Knowledge of the varied clinical and radiological features is necessary to maintain a high degree of suspicion to prevent misdiagnoses, inappropriate management and complications.
**SOCM3-02**

**MRI findings and clinical manifestations of children with suspected hypoxic ischemic injury at a Tertiary Academic Hospital in Sub-Saharan Africa.**

Liam Lorenz, Nasreen Mahomed, Tanyia Pillay, Halvani Moodley

**Department of Diagnostic Radiology**

*Introduction:* Hypoxic ischemic injury and its clinical manifestations present a global health burden. MRI is the imaging modality of choice to investigate hypoxic ischemic injury. There is limited data from low and middle-income countries describing MRI findings and clinical correlates in children with suspected hypoxic ischemic injury.

*Objective:* To describe the MRI findings and clinical manifestations of children with suspected hypoxic ischemic injury in a resource-limited setting.

*Methods:* MRI studies performed for children under the age of 15 years, with clinically suspected hypoxic ischemic injury were retrospectively evaluated. A simplified MRI classification of injury, with a majority final reading (2 out of 3 readers, blinded to clinical information, except age) was used at the data analysis phase. Clinical information available at the time of MRI was collated by the principal investigator.

*Results:* A total of 128 MRI studies were evaluated. MRI evidence of hypoxic ischemic injury was found in 57.8% of children. Normal MRI findings were present in 41 (32.0%) children. Punctate periventricular white matter injuries in 19.5%, watershed injury in 3.1%, central injury in 10.2% and diffuse injury in 23.4% of MRI studies. Preterm infants more commonly demonstrated periventricular white matter injury, n=9, (p=0.2677). 50% of children with pure motor developmental delay had a central pattern of injury (p=0.0025).

*Conclusions:* Predominant periventricular white matter injury in preterm infants is as described in the Western world literature. We found a correlation with the type of developmental delay and the MRI imaging pattern, specifically deep grey nuclei injury and motor deficit.

**Category: MMed/Registrar**

**SOCM3-03**

**Abdominal aortic calcification in psoriasis.**

Sofia Ramos, Nasrin Goolam Mahyoodeen, Sheetal Daya, Nigel J Crowther, Mohammed Tikly

**Department of Diagnostic Radiology**

*Introduction:* Psoriasis (PsO) has been shown to increase the risk of cardiovascular disease (CVD). The presence of abdominal aortic calcification (AAC) is a strong predictor of future cardiovascular events and all-cause mortality. Multi-detector computed tomography provides a reliable method for detection of AAC.
**Aim/Objectives:** To investigate the prevalence of AAC and cardiometabolic risk factors in patients with PsO.

**Methods:** Adult PsO patients (n=69) and controls (n=80) were recruited from the Dermatology and Rheumatology clinics at hospitals of the Wits Academic Complex. Controls were matched for gender, ethnicity and body mass index (BMI). Abdominal CT imaging was performed on patients and controls. Images were assessed for presence and location of AAC.

**Results:** There was a significantly higher prevalence of smoking, hypertension, type 2 diabetes and metabolic syndrome in patients compared to controls (56.5% vs 25.0%, P < 0.005; 72.5% vs 55.0%, P < 0.005; 24.6% vs 3.80%, P < 0.0005; 56.5% vs 37.5%, P < 0.05 respectively). There was a significantly higher prevalence of AAC at any site in PsO patients (47.8% vs 22.5%, P < 0.005). The aortic bifurcation was the commonest site for AAC in patients and controls and the prevalence was significantly higher in the PsO group (48.5% vs 23.2%, P < 0.005).

**Conclusions:** PsO patients had a significantly higher prevalence of AAC, with the aortic bifurcation being the commonest site. This highlights the increased CVD risk within this population and the need for lifestyle modification to decrease risk factor burden.

**Category:** MMed/Registrar

**SOCM3-04**

**Patients’ awareness on nuclear medicine studies- The impact of visual communication.**

Ayesha Ismail, Nico Malan, Desmond Maleeme, Mboyo Vangu

**Radiation Sciences / Nuclear Medicine**

**Introduction:** It is well known that patients have a thirst for information regarding their health. Several key elements in the quality of the practice of nuclear medicine (NM) are set to promoting education of patients. We have introduced videos loop run of NM studies in English and other four official languages in our department.

**Aim/Objectives:** This study is done to assess the impact of educating patients and particularly on their views and understanding of NM scans.

**Methods:** Over a period of ten working days, we submitted a questionnaire to patients scheduled for scans. After collecting the completed questionnaires, we switched on the TVs with videos on general NM, PET/CT, Bone scan, Myocardial Perfusion Imaging and renal scintigraphy. When patients completed their scans and still in the camera rooms, they were requested to fill a second questionnaire to assess the improvement of their understanding of NM.

**Results:** In total 129 of the 158 submitted questionnaires (81.6%) were completed. Although a majority (58.9%) stated that they were informed about the scan by the referring physician, almost a similar proportion (57.3%) did not know what to expect about the scan. There was a highly significant difference in the number of responders who worried about the scan before and after watching the video (p=0.0039).

**Conclusions:** The paucity of information given by the referring physicians indicates that we should engage our colleagues who are the first point of contact to patients referred for scans.
Clinician and Patient Reported Outcomes for Severe Late Bladder and Gastrointestinal Toxicity In Locally Advanced Cervical Cancer Patients Treated with Chemoradiation.

Prinitha Pillay, Carrie Minaar, Jeffery Kotzen

Radiation Oncology

Introduction: Late toxicity from radiotherapy for cervical cancer has been extensively studied yet there is paucity of data where the greatest burden of cervix cancer resides.

Aim/Objectives: To determine the incidence of severe late bladder (BC) and gastrointestinal (GIC) complications following chemoradiation, and to describe the quality of life of these patients.

Methods: A retrospective analysis of the control arm of a phase-III RCT using chemoradiation from January 2014 to June 2017 in 76 participants with FIGO stage IIB-IIIB cervical cancer. The Kaplan Meier time to event analysis was used to determine actuarial probability of complications. Clinician reported morbidity using RTOG criteria and patient reported outcomes (PRO) using EORTC QLQ-CX24 QoL questionnaires were assessed over two years.

Results: The mean age was 50 years, 50% were HIV positive and the median CD4 count was 518 (374-626). All participants completed the course of chemoradiation within 56 days. In those with no evidence of disease (NED) the actuarial probability of BC was 3.3% and 12.5% at 1 and 2 years respectively; and risk for GIC was 0% at 1 year but 23.1% at two years. BC are predominantly fistulas, highest in the first year whilst GIC were largely obstructive, predominantly in the second year with a similar risk irrespective of disease presence. Clinicians grading using the worst toxicity underestimated the time and quality of life that participants endure with Grade 3/4 symptoms before a Grade 5 fatality.

Conclusions: There is a very high risk of developing severe complications in patients who survive the first year; and their QoL outlook is significantly worse than those without complications. Patterns of tell-tale symptoms and their intensity reported by patients are our best early-warning system to detect severe late complications.

Radiophotoluminescence glass dosimetry end-to-end audit of high dose rate gynaecological brachytherapy in Charlotte Maxeke Johannesburg Academic Hospital.

Lethukuthula Ntombela, Debbie Van der Merwe

Medical Physics/ Radiation Oncology

Introduction: Radiotherapy utilises ionising radiation to treat cancers, and sometimes a combination of modalities are used such as external beam radiotherapy and brachytherapy, depending on a number of factors, including the tumour site and extent. Brachytherapy is a form of treatment using small
radioactive sources transferred within or very close to the tumour. The high dose is delivered to the tumour with rapid fall-off, enabling the sparing of surrounding normal structures. Therefore, this technique requires a high standard of precision in source positioning to achieve accurate dose delivery to the target.

**Aim/Objectives:** To improve medical physics quality aspects in HDR brachytherapy treatments at CMJAH. To establish the end to end dosimetry in HDR gynaecological brachytherapy at CMJAH. To develop a methodology for gynaecological brachytherapy audits in South Africa.

**Methods:** A water phantom was designed using CAD (Computer Aided Design) software and was manufactured in order to perform Ir-192 HDR brachytherapy absolute-dose measurements in the water around an applicator in a fixed geometry. The applicators were CT scanned and reconstructed on the images and plans were created, using standard clinical protocols at CMJAH. The prescribed dose of 8 Gy at point “A” was used. In this work, the doses calculated by the planning system were compared with the results obtained from the RPLGD and Monte Carlo simulations.

**Results:** The dose measured by the RPLG dosimeters was in good agreement with treatment planning calculated doses and Monte Carlo simulated doses. From point “A” to point “B” the overall variation between the measured, calculated and simulated doses was less than +/- 3%. For distances greater than 6 cm from the sagittal center of the applicator shows the deterioration with under response of RPLG dosimeters.

**Conclusions:** The results of this work have shown RPLG dosimeters capable of dose distribution measurements around gynaecological applicators for the purpose of dosimetric audits in HDR brachytherapy.

**Category:** PhD/Postdoctoral/Consultant

**SOCM3- 07**

**Assessment Of Doctors' In Training - At Two Academic Hospitals- Knowledge Of The Basic Principles And Clinical Applications Of Nuclear Medicine.**

Shireen Dhoodhat, Mboyo-Di-Tamba Vangu

Department of Nuclear Medicine and Molecular Imaging

**Introduction:** Nuclear medicine (NM) is an important diagnostic and therapeutic tool in disease management. The exposure of undergraduate training of medical students in the field of NM is often limited. This may result in inappropriate referrals or simply overlooking NM as a possible diagnostic tool.

**Aim/Objectives:** To survey interns and registrars at CMJAH and CHBAH in determining their knowledge on basic principles and clinical applications of NM.

**Methods:** This is a cross sectional, prospective study using a questionnaire to study a selected population. A total of 141 doctors participated in the study. Correct answering of less than 25% of the questions was considered poor, 25-50% was fair, 50-75% was medium and >75% good.

**Results:** The interns form 55.3% of the respondents, while the remainder was registrars. 58 (41.1%) responders indicated to have had undergraduate exposure to NM education. About half of them (51.7%) had 5 hours or less NM exposure. Only 9.9% considered their undergraduate NM exposure to have been sufficient. The mean NM knowledge score for those with undergraduate exposure to NM training (62.5%, SD 15.4%) was significantly higher to that of those who did not (56.0%; SD 17.4%) (p=0.025). Large
proportion of poor respondents came from those without previous exposure to NM.

Conclusions: Our study shows that the level of knowledge of junior doctors for NM may be improved with adequate undergraduate teaching. The majority of respondents would like to receive more information regarding NM thus the need to improve the undergraduate curriculum with regards to NM.

Category: PhD/Postdoctoral/Consultant

SOCM3- 08

The use of 18F-FDG PET/CT in the detection of harmful lung inflammation during early treatment of pulmonary TB co-infected by HIV.

Mboyo Willy Vangu, Lizette Louw, Khushica P. Purbhoo, Pholo Maenetje, Robert Wallis, Gavin Churchyard, Gregory P. Bisson

Nuclear Medicine, Radiation Sciences

Introduction: Antiretroviral therapy (ART) mediated functional immune restoration may trigger the TB immune reconstitution inflammatory syndrome (TB-IRIS).

Aim/Objectives: Aim: we test the hypothesis that robust ART-mediated immune recovery induces pulmonary inflammation and impairs lung function in HIV/TB co-infected adults.

Methods: The Lung Function after TB-IRIS (LIFT-IRIS) Study is a prospective cohort study evaluating changes in lung function and pulmonary symptoms up to 48 weeks after ART initiation. Participants needed to complete at least the baseline FDG PET-CT scan at CMJAH for analysis of pulmonary total glycolytic activity (TGA). Lung function was measured by spirometry. Lung symptoms were assessed by the COPD Assessment Test (CAT) score.

Results: Increases in lung TGA during the initial 4 weeks of ART tended to occur in subjects who developed an FEV1 decrease or worsening symptoms. The median change in lung TGA was an increase of 0.1 log10 SUVs (IQR -0.1 - 0.5) among those with an FEV1 decrease versus a decrease of 0.2 log10 SUVs in those without an FEV1 decrease (IQR -0.3 - 0.0; p=0.06). Participants with increasing lung TGA on ART had significantly greater increases in the frequency of PPD-specific CD4+ T cells expressing TNF and IFN-γ. The most robust associations were between increase in lung TGA and increase in CD4+T cells expression (p<0.001).

Conclusions: Our study indicates that greater lung inflammation on FDG PET-CT is associated with worse lung function and symptoms.

Category: PhD/Postdoctoral/Consultant

SOCM3- 09

Metastatic lymphadenopathy or reactive adenopathy? Nodes visualized on 18F-FDG PET/CT in HIV patients with invasive cervical carcinoma.

Ayeni Akinwale, Carrie Minnaar, Khushica Purbhoo, Mboyo-Di-Tamba Heben Vangu
Introduction: Despite the established role of [18F] FDG PET/CT in cervical cancer imaging, inflammatory/infectious lesions may hinder accurate interpretation.

Aim/Objectives: With the emergence of FDG PET/CT facilities locally, we aim to differentiate these two entities with the aid of simple PET positive node characteristics.

Methods: We analyzed 184 FDG-PET/CT studies performed pre- and post-treatment in 92 patients with cervical cancer (FIGO stages IIB to IIIB), half of the patients being HIV positive. Qualitative and semi-quantitative metabolic PET metric, CT nodal size and CT score were assessed in different nodal sites and were compared between HIV positive and negative patient groups. Correlation between CD4 count level (HIV positive) and ‘PET positive’ lymph nodes was also assessed.

Results: There was higher median SUVmax in the pelvic lymph nodes of HIV-positive patients compared with negative both on pre-treatment (p<0.0001) and post-treatment (p<0.0001) PET/CT scans using the Mann Whitney test. Overall, the qualitative and quantitative metabolic PET metric studied performed poorly in differentiating cervical carcinoma from reactive adenopathy. However, median CT nodal size is higher in neck (p=0.027) and thoracic (p=0.05) lymph nodes of HIV positive patients. There was negative correlation between CD4 count and FDG uptake on pre-treatment PET/CT scans with moderate correlation in the abdominal nodes (rs = - 0.5138, p = 0.006).

Conclusions: Overall, in this study, 18F- FDG PET/CT scan has a limited role to play in achieving a clear distinction in the two groups, using simple PET metrics. Therefore, without histopathologic confirmation, differentiating metastatic lymphadenopathy from reactive adenopathy in HIV-infected patients still remain a challenge.

SESSION 4: PAEDIATRICS & CHILD HEALTH

Category: MMed/Registrar

SOCM4-01

Growth of extremely low birth weight infants at a tertiary hospital in a middle-income country.

Tendai Mabhandi, Tanusha Ramdin, Elizabeth Daynia Ballot

Department of Paediatrics

Introduction: Survival of extremely low birth weight (ELBW; birth weight less than 1000g) infants has improved significantly since the 1990s. Consequently, growth monitoring in ELBW infants has gained more relevance.

Aim/Objectives: To describe the growth of ELBW infants at a tertiary hospital. To audit macronutrient intake. To explore the association of prematurity complications with growth.

Methods: This was a retrospective study on 92 ELBW infants born at Charlotte Maxeke Johannesburg Academic Hospital. The association between good growth (regaining birth weight in 21 days or less and subsequent growth velocity > 15g/kg/day) and complications of prematurity was explored.
Results: Only 11 infants (13%) had a discharge weight above the 10th centile when the Fenton growth chart was used compared to 20 infants (22.4%) when the Intergrowth 21st Project growth standard was used. The mean weight velocity was 13.5g/kg/day and the mean number of days to regain birth weight was 18.2 days. Factors associated with poor growth were late-onset sepsis, persistent patent ductus arteriosus, continuous positive airway pressure for more than two days, invasive ventilation, oxygen on day 28 and being kept nil per os. Protein and caloric intake correlate positively with growth velocity. Unlike the Fenton Growth Charts, use of the Intergrowth 21st Project growth standards revealed the association between neonatal factors and poor growth.

Conclusions: Growth outcome in infants is poor at 36 weeks postmenstrual age at our institution. Intergrowth 21st Project growth standards were superior to Fenton Growth Charts, however a multicentre study is required before adoption.

Category: MMed/Registrar

SOCM4-02

The Burden of Early Onset Sepsis in Neonates with Neonatal Encephalopathy.

Kathleen Car, C Tann, S Velaphi, F Solomon, S Lala, S Madhi, Z Dangor, F Nakwa

Department of Paediatrics and Child Health

Introduction: Neonatal Encephalopathy (NE) contributes to a large burden of deaths worldwide. Studies have shown that early-onset sepsis (EOS) is an independent risk factor for NE.

Aim/Objectives: We aimed to describe the burden of EOS among neonates born with NE in a large tertiary hospital in South Africa.

Methods: We undertook a retrospective study in neonates with NE, born at or referred to Chris Hani Baragwaneth Hospital (CHBAH) between January 2016 and June 2018. Neonates with a birth weight ≥2,500 grams or ≥35 weeks gestation with NE were identified through a discharge summary database. EOS was defined as bacterial organisms cultured on blood or cerebrospinal fluid (confirmed EOS), or in the absence of culture confirmation: a CRP > 10mg/L or WCC >30x10^9/L or <5x10^9/L or an absolute neutrophil count <1.8 x10^9/L or an immature to total neutrophil ratio (I:T) >0.3 or elevated CSF WCC >21 or CSF glucose <1.7mmol.

Results: Of 10,182 neonates hospitalized, 1027 (10.1%) were diagnosed with NE. Overall, 411 (40.0%) of NE cases had EOS, 52 (5.1%) were culture confirmed. The incidence (per 1,000 live births) of NE and EOS was 5.2 (95%CI 4.7-5.7) and the case fatality ratio (CFR) 16.8% (95%CI 13.3-20.8). Neonates with NE and EOS were more likely to be treated with therapeutic hypothermia (p<0.001), Sarnat staging 2 or 3 (p<0.001) and demise (p<0.001) compared to neonates with NE without EOS.

Conclusions: In a setting with a high burden of NE, we report a high incidence and CFR amongst neonates with NE and EOS.
A Review of Neonatal Outcomes to Discharge, of Perinatal Asphyxia and the Use of Induced Hypothermia as a Treatment Modality at a Tertiary Centre in South Africa.

Rebecca Simpson, Daynia Ballot

Department of Paediatrics and Child Health

Introduction: Perinatal asphyxia (PA) and hypoxic ischemic encephalopathy (HIE) is a significant cause of death and disability.

Aim/Objectives: To review the neonatal clinical, demographic characteristics and outcomes of PA and HIE with induced hypothermia (IH) as a treatment modality in Charlotte Maxeke Johannesburg Academic Hospital (CMJAH).

Methods: A descriptive retrospective analysis of an established database. Neonates admitted between January 2013 and July 2017 with a birth weight >1800g and a 5-minute Apgar score ≤5, with/without features of HIE, were included.

Results: N=639 neonates with 399 males (62.4%). The majority were inborn (499/639, 84.5%) and by normal vaginal delivery (285/639, 44.6%). 527 neonates (82.6%) had evidence of HIE, with majority classed as grade two, 43.3%. The overall survival rate was 87.1% to discharge. An increased incidence of HIE 7.7 /1000 live births since previous study. 33.3% neonates received IH. IH side effects and death were not significantly increased. Incidence of death was increased with the presence of seizures, MSL, MAS, PPHN, HIE, and grade 3 HIE classification (p <0.05).

Conclusions: IH has not increased survival rates significantly but a study to assess the impact on the morbidity is warranted. IH for severe HIE and possible adjunct therapies should be considered to improve survival outcomes. The crude use of an Apgar less than 7 at 10-minutes could be used as a poor prognostic factor. The high incidence rate echoes the need for a set criterion for HIE to enable the incidence to be recorded consistently and a benchmark set for improvement.

Negative diagnostic PCR tests in school-aged, HIV-infected children on antiretroviral therapy since early life in Johannesburg, South Africa.

Megan Burke, Faeezah Patel, Cara Thurman, Afaaf Liberty, Renate Strehlau, Stephanie Shiau, Ashraf Coovadia, Elaine J Abrams, Avy Violari

Department of Paediatrics and Child Health

Introduction: Younger age at antiretroviral therapy (ART) initiation has been associated with a smaller HIV reservoir in children.

Aim/Objectives: We investigated whether younger age of ART initiation would be associated with testing negative and weaker signal strength on a HIV diagnostic test in children on ART for several years.
Methods: 316 HIV-infected children on continuous ART since diagnosis at a median 6.3 months of age, were tested with the HIV PCR test usually used for infant diagnosis. All children with negative results were repeat tested. Viral load (VL) and CD4 counts and percentages at the time of this test, along with data collected during the cohort study, were used in multivariable regression to investigate predictors of negative results and higher cycle threshold (Ct) values on the diagnostic PCR.

Results: Seven (2.2%, 95% CI: 0.6-3.8) of 316 children had negative PCRs; all seven were also in a subset of 102 (6.9%, 95% CI: 2.0-11.8) who had initiated ART 0-4 months of age and had VL <50 copies/mL at the time of PCR testing. One of the seven repeat tested as negative. Younger age at ART initiation, VL <50 copies/mL, sustained VL <400 copies/mL during the cohort study, lower CD4 counts and ever treated with efavirenz-based regimen were significant predictors of weaker signal on the diagnostic test.

Conclusions: In a small proportion of children who start ART in the first months of life and remain on continuous therapy, standard diagnostic HIV PCR tests may result as negative. Repeat testing resolves any uncertainty of diagnosis in most cases.

Category: PhD/Postdoctoral/Consultant

SOCM4-05

Pathogens Isolated from Cerebrospinal Fluid of Infants Admitted to a Neonatal Unit in a Tertiary Hospital in South Africa.

Lino Sono

Department of Paediatrics / Neonatology

Introduction: Performing lumbar puncture (LP) in neonates is difficult, resulting in some clinicians limiting LP to those with positive blood culture thus assuming concordance. Organisms causing meningitis in developing countries, and proportion of neonates with meningitis having abnormal cerebrospinal fluid (CSF) white cell count (WCC) are not well known.

Aim/Objectives: To determine organisms causing meningitis in neonates, and proportion of neonates with high CSF-WCC or positive blood culture amongst those with positive CSF culture (concordance).

Methods: A computerized microbiological database was reviewed for positive blood and CSF culture results. Abnormalities in CSF parameters, were assessed amongst those with positive CSF culture. Comparison were made between pathogens isolated in CSF and blood cultures.

Results: A total of 106 CSF cultures were positive due to organisms considered pathogens over a year period. Among the 101 with CSF-WCC and positive CSF culture results, 27 (26.7%) had abnormal CSF-WCC (WCC >20). Common organisms isolated were Acinetobacter baumannii (50.9%) and Klebsiella pneumoniae (18.9%). Forty four (41.5%) patients with positive CSF culture had negative blood cultures. Of the 62 patients with both positive CSF and blood cultures, 50 (80.6%) had the same pathogen as the blood culture and 12 (19.4%) had different organism from blood culture.

Conclusions: A negative blood culture should not be used as a reason not to perform lumbar puncture as there is high discordance between blood and CSF culture results. A normal CSF white cell count does not exclude meningitis, thus one should always wait for CSF culture results before stopping antibiotics.
A description of early neurodevelopment in a cohort of HIV-exposed uninfected children.

Renate Strehlau, Megan Burke, Joanne Potterton

Department of Paediatrics and Child Health

Introduction: Successful strategies preventing mother-to-child HIV transmission have resulted in increasing numbers of uninfected children exposed to maternal HIV and ART in-utero, and while breastfeeding. Some reports describe exposure as impacting neurodevelopment.

Aim/Objectives: The aim of this study was to describe neurodevelopmental assessment results at 12 months of age from a single cohort of HEU children from similar socioeconomic backgrounds.

Methods: This cross-sectional analysis included 49 of the 70 HIV-exposed uninfected (HEU) birth-enrolled children as the control arm of an observational cohort study of early treatment in HIV-infected infants in Johannesburg, South Africa. We used the Bayley Scales of Infant and Toddler Development-3rd Edition (BSID-III) to assess neurodevelopment at 12 months of age. Cognitive, language and motor subscale composite scores and performance categories were analysed. We evaluated associations between BSID-III performance categories and cohort variables.

Results: Evaluating composite scores according to performance categories showed a higher percentage of scores in the average, high average and superior categories as compared to test reference norms. Maternal BMI $\geq 25$kg/m$^2$ and mid-upper arm circumference $\geq 32$ cm were associated with higher than average infant language scores. Six children scored below average (<90) - three in the cognitive and three in the language subscale.

Conclusions: No developmental delay was found in ART-exposed HEU children at 12 months of age. A small number of at-risk children suggest ongoing screening, referral and follow-up is needed.
**Aim/Objectives**: To complement the WHO’s mission to increase survival rates of children with cancer, this project creates a baseline of paediatric oncology resources across Africa.

**Methods**: An extensive search for contacts in Africa was performed by the SIOP PODC Education and Training Working Group, supported by a My Child Matters grant from Sanofi Espoir Foundation. The survey was published online and disseminated. Parameters included location, staffing, equipment, specialised medical, surgical and psychosocial services.

**Results**: From November 2018 to March 2019, 537 responses were received: 293 were evaluable -192 from African respondents. Responses were predominantly in English (154), French (36), and Portuguese (2); 46/52 African countries were represented. Twenty countries reported having no full time paediatric oncology physicians. Median annual number of new patients reported from each centre was 120 (IQR 45-300); median number of dedicated paediatric beds/centre was 22 (IQR 10-48). Multidisciplinary services included radiotherapy (22/46), palliative care (15/46) and psychosocial.

**Conclusions**: This study provides the most comprehensive overview of paediatric oncology services in Africa and highlights marked disparities. This baseline data can be used to measure efforts to improve comprehensive paediatric oncology care. This data is available to assist other childhood cancer stakeholder groups in lobbying for more resources.

**Category**: PhD/Postdoctoral/Consultant

**SOCM4- 08**

The ADVANCE trial: TAF/FTC/DTG, TDF/FTC/DTG or TDF/FTC/EFV for first-line treatment of HIV-1 infection.

Simiso Sokhela, Michelle Moorhouse, Lee Fairlie, Nkuli Mashabane, Ambar Qavi, Masebole Masenya, Polly Clayden, Elaine Abrams, Andrew Hill, Willem Daniel Francois Venter

**Ezintsha, Wits Reproductive Health and HIV Institute**

**Introduction**: The majority of HIV positive, treatment-naive patients in low/middle-income countries take a combination of tenofovir disoproxil fumarate (TDF), FTC/3TC and efavirenz. Dolutegravir(DTG) and tenofovir alafenamide fumarate (TAF) are recommended in international guidelines, but clinical experience with these ARVs in sub-Saharan Africa is limited.

**Aim/Objectives**: To demonstrate the non-inferiority of TAF/FTC/DTG and TDF/FTC/DTG versus TDF/FTC/EFV

**Methods**: We conducted a 96-week, open-label randomised trial in South Africa, comparing TAF/FTC/DTG, TDF/FTC/DTG and TDF/FTC/EFV. Inclusion criteria included: age ≥12 years; no prior ART >30 days; creatinine clearance >60 mL/min and HIV-1 RNA >500 copies/mL. Pregnancy and tuberculosis were exclusions. The primary treatment failure endpoint was 48-week HIV-1 RNA >50 copies/mL, discontinuation or missing data. We report 48-week efficacy and safety data.

**Results**: We randomised 1053 PLWH between February 2017 and May 2018: 99% black; 59% female; mean age 32 years; with mean CD4 336 cells/µL. At week 48 the percentage of participants with HIV RNA <50 copies/mL was 83.8% for TAF/FTC/DTG, 84.9% for TDF/FTC/DTG and 78.6% for TDF/FTC/EFV. In the on-treatment analysis, 96% of participants on TAF/FTC/DTG, 94% on TDF/FTC/DTG and 95% on
TDF/FTC/EFV had HIV RNA <50 copies/mL at Week 48. Both DTG arms demonstrated non-inferior efficacy versus the EFV arm. Approximately 70% of participants with HIV RNA >50 copies/mL re-suppressed after adherence counselling. Clinical adverse events and laboratory abnormalities were similar between treatment arms.

Conclusions: In this study, TAF/FTC/DTG and TDF/FTC/DTG demonstrated non-inferior efficacy versus TDF/FTC/EFV at week 48, with low rates of virologic failure in all three arms despite country-level background NRTI and NNRTI resistance.

SESSION 5: ANAESTHESIA & ORTHOPAEDICS

Category: MMed/Registrar

SOCM5-01

Preoperative cognitive dysfunction in older patients at a central hospital.

Leandra Amado, Helen Perrie, Juan Scribante, Karin-Ann Ben-Israel

Department of Anaesthesiology

Introduction: Cognitive decline following surgery includes delirium and postoperative cognitive dysfunction. Important risk factors for these include increased age and pre-existing cognitive dysfunction.

Aim/Objectives: To describe and compare the subjective and objective assessment of cognitive functioning of patients ≥ 60 years old at Chris Hani Baragwanath Academic Hospital awaiting elective non-cardiac surgery; and to describe factors associated with cognitive dysfunction in these patients.

Methods: A prospective, contextual, descriptive study design with consecutive convenience sampling was used. Assessment of cognition was subjective (through casual conversation) and objective (using the Mini-Cog test).

Results: A total of 194 outpatients (median age: 65 years) were assessed. A score ≤ 3 was obtained by 111 patients (57.2%). The subjective assessment of cognition was shown to be poor in comparison (sensitivity 47.8%; specificity 70%). Univariate analyses demonstrated significant associations between low Mini-Cog scores and increasing age (rs = −0.1901; p = 0.0079), unskilled occupation (p = 0.0033), low functional status (rs = −0.1831; p = 0.0106), low level of education (p = 0.0005) and frailty (rs = −0.3010; p < 0.0001). Logistic regression showed level of education and frailty to be significant. Patients with grade 11 to tertiary education are 71.8% less likely to obtain a score ≤ 3 (OR: 0.2820; p = 0.0034), and frail patients are 7.54 times more likely to obtain a score ≤ 3 than robust patients (p = 0.0026).

Conclusions: This study found undiagnosed pre-existing cognitive dysfunction to be common in older patients awaiting surgery. These “brains at risk” should be identified through brief preoperative screening.
The illuminance of laryngoscopes at two central hospitals.

Gwyneth Davies, Helen Perrie, Juan Scribante, Christopher Anamourlis

Department of Anaesthesiology

Introduction: Direct laryngoscopy and successful endotracheal intubation require optimal illumination of laryngeal structures. The International Organization of Standardization (ISO) describes minimum adequate laryngoscope illuminance as 500 lux after 10 minutes, and further describes optimal dimensions of the illumination field. Laryngoscope light is subjectively assessed by the anaesthetist as part of theatre preparation.

Aim/Objectives: This study sought to describe the illumination of laryngoscopes at two academic hospitals, to compare illumination of incandescent and fibreoptic laryngoscopes and to compare the accuracy of a mobile phone application (app) to a lux meter.

Methods: A prospective, contextual, descriptive study was conducted, testing the illumination of 43 laryngoscopes with a lux meter, as well as a mobile phone app. The illumination field size of each laryngoscope was determined.

Results: ISO Standard for illumination was met by 8 (18.6%) laryngoscopes, and 11 (25.5%) had an adequate illumination field. Only 4 (9.3%) laryngoscopes met both criteria. The mobile phone app readings were significantly different to those obtained with a lux meter (p = 0.0008). After battery replacement 23 further laryngoscopes demonstrated an adequate illuminance. No significant difference was found between incandescent and fibreoptic laryngoscope illuminance (p = 0.86).

Conclusions: This study demonstrated that the available laryngoscopes had poor illuminance. A mobile phone app was not comparable to a lux meter. Routine objective illuminance testing as well as regular battery changes are suggested to be implemented.

Short term results following two-stage revision for periprosthetic joint infection.

Jason du Plessis, Richard Greeff, Virsen Singh, Nico Fang, Christian Frey

Department of Orthopaedic Surgery

Introduction: Hip and knee arthroplasty procedures are successful surgical procedures, with total hip arthroplasty being named the operation of the century. With there being an estimated rate globally of periprosthetic joint infection of 1% for hips and 2% for knees, this minimal infection rate represents a large global concern. The successful management of periprosthetic joint infection remains controversial with multiple proposed strategies. Our aim is to present our short-term data for a two-staged revision protocol.

Aim/Objectives: Our aim is to present our short-term data for a two-staged revision protocol.
Methods: A single centre retrospective review of an existing database starting from January 2013 and ending April 2019 was conducted looking at patients having undergone two-stage revision for periprosthetic joint infection. The unit utilised a standard approach to two stage revisions. Data was collected from the existing database to ascertain short term success based on the Delphi-based international multidisciplinary consensus criteria.

Results: A total of 2125 entries were reviewed from the database comprising 1912 primary arthroplasty procedures. From all revision cases 19 patients were identified to have undergone a two-staged revision by our unit. Of these patients we managed to collect sufficient data to gauge treatment success in 12 patients. Of these 12 patients with a mean follow up of 25.6 months, 10 reported complete wound healing, pain improvement and no subsequent surgery. One patient demised from septic complications and one required subsequent arthrodesis which controlled the sepsis.

Conclusions: Our short-term results showed a high infection eradication rate following our two-staged revision protocol despite frequent delays between first and second stages as a result of resource constraints and limitations.

Category: PhD/Postdoctoral/Consultant

SOCM5-04


Juan Scribante, Theo Andrew, Sats Bhagwanjee, Anthoni Van Nieuwkerk

Department of Anaesthesiology

Introduction: Intensive care (ICU) is a small but complex system; context-specific and continually confronted by dynamic changes and challenges in the environment.

Aim/Objectives: The aim was to develop a systemic framework for the improvement of ICU delivery

Methods: The factors affecting the delivery of ICU was elucidated by a comprehensive review of ICU literature. A further understanding of ICU delivery in was obtained by “making sense of the mess” using a systems approach. Systemic intervention served as the meta-methodology and methods and techniques from interactive planning, critical systems heuristics, soft systems methodology and the viable system model were employed.

Results: Making sense of the mess emphasised the complexity of ICU delivery, on a situational and a cognitive level. It became clear that a single methodology would not suffice, but that a pluralist methodology was required to guide improvement in ICU delivery. Based on this understanding, nine principles were formulated to guide the development of a framework. Systemic intervention was again used as the meta-methodology. Interactive planning was identified as the key methodology, incorporating methods and techniques used in the first phase to build a systemic framework. Embedded in the proposed framework are matters relating to systemicity, complexity, flexibility, empowerment, and transformation of ICU delivery.

Conclusions: The proposed framework allows for multiple-perspectives, including that of marginalised stakeholders, the mitigation of multi-vested interests and power relationships. It is both flexible and adaptable to promote learning about the complex
problems of ICU delivery and it accommodates the strengths of various relevant approaches to complex problem solving.

Category: PhD/Postdoctoral/Consultant

SOCM5-05

Assessment of elbow functional outcome after closed reduction and percutaneous pinning of displaced supracondylar fractures in children.

Ambrose B Rutarama, GB Firth

Department of Orthopaedic Surgery

Introduction: To assess elbow functional outcome after closed reduction and percutaneous pinning (CRPP) of displaced supracondylar humerus fractures in children.

Aim/Objectives: I. To measure elbow ROM at three, six, 12 and 24 weeks after CRPP; II. To assess functional outcome of injured elbow comparing it with normal elbow. III. To compare elbow functional outcome of children less than 7 years versus older children. IV. To assess other risk factors associated with poor outcomes.

Methods: Children between 5 – 14 years with isolated displaced supracondylar fractures were included. Range of movement of affected elbow was measured at three, six, 12 and 24 weeks after CRPP. Unaffected contra-lateral elbow was used as a control. Paediatric outcome data collection instrument (PODCI) was used.

Results: Thirty-eight children were included in the study. All elbow range of motions improved at 24 weeks (p < 0.0001). At 24 weeks, the mean elbow extension was reduced in comparison with the controls (p = 0.0094). Patients less than seven years recovered extension more rapidly (p = 0.0011). Eighty percent of the children achieved satisfactory PODCI results. Nerve palsy (18.4%) and severe soft tissue injuries (7.9%) were the main prognostic factors of poor outcome.

Conclusions: Majority of children recover fully by 24 weeks without use of physiotherapy. Older children, neurovascular and soft tissue injuries accounted for poor function. Further studies are needed to assess which patients can benefit from physiotherapy.

Category: PhD/Postdoctoral/Consultant

SOCM5-06

Train related injuries in a tertiary hospital in children and adolescents.

Bernard Steyn, Dina Simmons, Anthony Robertson

Department of Orthopaedic Surgery

Introduction: In developing countries train travel is economical and popular. Train surfing is a high-risk
phenomenon that has become a trend in South Africa. Lack of safety precautions on trains and stations also results in injury.

**Aim/Objectives:** We are presenting a case series of paediatric and adolescent patients presenting after train related trauma

**Methods:** We determined types of injuries and common trends in the mechanisms to suggest preventive strategies. A retrospective review of inpatient records of patients under 20 presenting with train related injuries over nine months. The family answered a detailed questionnaire relating to the circumstances resulting in trauma and also precise location. We studied demographics, injury patterns, injury severity, outcomes of injuries and complications.

**Category:** PhD/Postdoctoral/Consultant

**SOCM5-07**

**Minimally Invasive Treatment of Tuberculosis of Spine: An Old Disease with a Modern Way of Treatment.**

Aftab Younus, Adrian Kelly, Allen Sekette, Mohammad Hamza Sultan Aftab

**Department of Orthopaedic Surgery**

**Introduction:** Tuberculosis is one of the oldest disease known to the modern world. Its prevalence is increasing secondary to the high burden of HIV disease within the South African setting. Other factors involved include multi-drug resistant tuberculosis and emigration of immigrants from neighbouring countries of South Africa. Spinal tuberculosis accounts for 50% of musculoskeletal tuberculosis and most commonly affects the lower thoracic and thoracolumbar spine. This classic disease leads to distraction of the intervertebral disc and the adjacent vertebral body with the patient presenting with kyphotic deformity, gibbous formation and neurological stigmata.

**Aim/Objectives:** To evaluate the role of the minimally invasive spine surgery in tuberculosis of the spine. To find out this method is superior to the usual conventional method of treatment.

**Methods:** In Helen Joseph Hospital there were 3497 reported cases of Pulmonary Tuberculosis during the last 2 years (2015-2016). These included 29 cases of spinal Tuberculosis. Out of these 13 patients presented with neurology and deformity of the lumbar spine in addition ten of these patients were HIV positive as well. All these patients underwent surgery, with 2 patients having a percutaneous posterior spinal fusion, 2 Patients having open Posterior spinal fusion, 3 having spinal biopsies, 3 open thoracotomies and 3 underwent thoracoscopic corpectomy and anterior spinal fusion.
Results: All patients who underwent surgery were started on anti-tuberculosis drugs. The neurology was graded according to the Frankel grading system. Seven patients were classified as Frankel grade B, one patient Frankel grade A, 5 patients were Frankel C. They were followed up (and some continue to follow-up) at 6 monthly intervals for 2 years. All included patients had improved by one or two Frankel grades following the operation and anti-tuberculosis treatment. The patients who had minimally invasive spine surgery showed early improvement and mobilization compared to the other patients.

Conclusions: The outcome of following an appropriate treatment of spinal tuberculosis is generally good, with about 85-95% of patients showing improvement with deformity and neurological deficit. In the patient with neurological deficit, good prognostic factors include young age, incomplete paralysis, the performance of good surgical decompression and stabilization. Minimally invasive surgery showed the advantage of early mobilization, less analgesia, early discharge from hospital and earlier return to work.

SESSION 6: SURGERY (1)

Category: MMed/Registrar

SOCM6-01

Indications for Emergency Thoracotomy in Penetrating Thoracic Trauma.

Megan Lubout, Pascale Fru, Deirdré Kruger, Jacques Goosen

Division of General Surgery, Department of Surgery

Introduction: Violent interpersonal acts account for a large proportion of unnatural deaths in South Africa. A significant proportion is due to penetrating thoracic trauma and the preventable haemorrhage it leads to. Current indications for emergency thoracotomy are unreliable.

Aim/Objectives: To assess the use of lactate, shock index (SI) and base deficit (BD) as a triage tool in patients with penetrating thoracic injuries to identify high-risk patients requiring surgical intervention in order to prevent treatment delays.

Methods: A review of the trauma registry of the Charlotte Maxeke Johannesburg Academic Hospital was carried out between March 2011 and March 2016. A sample size of 491 patients was collected consisting of a non-operative group (n=245) and an operative group (n=246). We compared lactate, SI and BD independently and in combinations to ascertain which would best predict the need for operative intervention in these patients. Abnormal index levels were defined as lactate ≥4 mmol/L, SI ≥0.8 and BD ≤-4 mmol/L.

Results: Of the 491 patients, lactate (p<0.001), SI (p<0.001) and BD (p<0.001) differed significantly between operative and non-operative groups. Statistical significance was lost (p=0.34) once BD was analysed in combination with lactate and SI. Lactate alone was a strong predictor of intervention (AUC=0.814). The strongest predictor was a combined panel of lactate and SI (AUC=0.831, p<0.001).

Conclusions: Lactate and SI in combination are useful as a triage tool that could assist in decision making, as well as aid in predicting which patients are more likely to require surgical intervention and thus avoid unnecessary delays.
**SOCM6- 02**

The Influence of HIV Status and the Stage of Anal Squamous Cell Carcinoma on the Duration and Toxicity of Chemoradiotherapy.

Ahmed Zubi, Daniel Surridge, Jeffery Kotzen

*Division of General Surgery, Department of Surgery*

*Introduction:* There has been a noticeable increase in the incidence of anal squamous cell carcinoma (ASCC) in recent years and the HIV epidemic has changed the demographic of this disease. The standard of care is chemoradiotherapy and its duration has a crucial role in the response to treatment. Since this therapy is toxic, many patients are unable to complete the course.

*Aim/Objectives:* To determine whether stage of disease or HIV status influenced ability to complete standard chemoradiotherapy.

*Methods:* A retrospective observational study was conducted of all patients presenting to the Charlotte Maxeke Johannesburg Academic Hospital Radiation Oncology Department with ASCC from 2014-2016. Standard chemoradiotherapy was offered to all patients. Stage of ASCC, HIV status and CD4>200 were measured and compared in groups completing care. We considered a maximum of 42 days as complete therapy without delay.

*Results:* Ninety two patients with ASCC were identified, of whom 77 were people live with HIV (PLWH) and 8 were HIV negative and 7 with unknown HIV status. PLWH were younger (P<0.001), less likely to receive full dose chemotherapy and more prone to default. No patients presented in stage 1. 14%, 62%, 12% and 12% presented in stage 2, 3, 4 and unknown respectively. 47% of PLWH and 57% of HIV negative were able to complete the 50Gy radiation in 42 days (P=0.70). CD4 above 200 did not impact therapy at all (P=0.62).

*Conclusions:* It seems that HIV status and the stage of ASCC has minimal impact on the duration of chemoradiotherapy.

**SOCM6- 03**

A Case of Severe Tricuspid Regurgitation Due to Traumatic Tricuspid Valve Papillary Muscle Rupture.

Bongane Ngutshane, Shungu Mogaladi

*Division of Cardiothoracic Surgery, Department of Surgery*

*Introduction:* Since the 1960’s there have been at least 160 published case reports on the subject of traumatic tricuspid valve injury. These reports emanated from different parts of the world, however, reports from Africa have been scarce. Herein, we report in detail a case of trauma-related tricuspid valve insufficiency from South Africa. Further, we highlight the importance of two and three dimensional (3D) echocardiographic imaging of
the tricuspid valve and its utility in aiding a successful surgical repair.

**Aim/Objectives:** A case of a patient with suspected tricuspid valve papillary muscle rupture is described with the aid of two and 3D echocardiographic imaging. Further, a successful tricuspid valve repair is reported.

**Results:** A 25-year-old male with no co-morbidities presented to a peripheral hospital emergency unit after sustaining blunt chest trauma in a motor vehicle accident (MVA). On admission, he was assessed to have soft tissue injury and a haemo-pneumothorax for which an intercostal drain was inserted. He was referred for a routine echocardiogram three weeks post MVA. The patient was asymptomatic with a soft tricuspid regurgitation murmur in the tricuspid area and had prominent v waves in the jugular venous pulsation. On echocardiography, severe tricuspid regurgitation (TR) secondary to possible papillary muscle rupture was noted. A subsequent trans-oesophageal 3D echocardiographic imaging study confirmed a flail anterior tricuspid valve leaflet secondary to papillary muscle rupture as the mechanism of severe TR. The patient was referred for urgent surgery and underwent a successful tricuspid valve repair continuing to do well on follow-up.

**Conclusions:** This case highlights and reinforces the value of routine echocardiography post-traumatic injury. Further 3D imaging enabled a comprehensive assessment of the tricuspid valve anatomy before surgery.

**Category:** MMed/Registrar

**SOCM6-04**

**Outcomes of the Johannesburg Pediatric Kidney Transplant Program from 2004-2015.**

*Cleopatra Mshumpela, Jerome Loveland, Rene Botha, Russell Britz, Cecil Levy, Heather Maher, Aletha Withers, June Fabian, Jean Botha*

*Division of Paediatric Surgery, Department of Surgery*

**Introduction:** There are two paediatric kidney transplant programmes in South Africa (Johannesburg and Cape Town). In Johannesburg, the last published outcomes for children transplanted between 1984 - 2003 described sub-optimal patient and graft survival.

**Aim/Objectives:** The objective of this study is to conduct a contemporary analysis of outcomes of the paediatric kidney transplant programme in Johannesburg from 2004 - 2015 and compare these outcomes to previously published data.

**Methods:** A retrospective record review of all paediatric (<18 years) kidney transplants performed at Wits Donald Gordon Medical Centre and Charlotte Maxeke Johannesburg Academic Hospital between 2004 and 2015 was completed. Data included: sociodemographic details; aetiology of end-stage kidney disease; transplant type; transplant number; donor type; recipient and graft survival.

**Results:** 139 kidney transplants were performed between 2004 and 2015 with a median recipient age of 12.0 years (IQR 8.4-15.1 years) at the time of transplant. There were 75/139 (54%) deceased donor transplants during this period. The most common indication for transplant was glomerular disease 55.6% (57/105). For kidney alone, first transplants (n=115), the 1-, 5- and 10-year recipient survival was 96, 89 and 81% respectively, and 1-, 5- and 10-year graft survival was 87, 76 and 58% respectively. The most commonly identified causes of graft loss within the first week (n=11) were primary non-function 36%; vascular thrombosis 18%; and technical errors 18%.
Conclusions: Contemporary outcomes for the Johannesburg paediatric kidney transplant programme are better than previously reported, compare favorably to other middle-income countries but are still sub-optimal when compared to high income countries.

Category: MSc/Medical Scientist

SOCM6- 05

It's Contrary: Comorbidity does not impact on survival of South Africans with Colorectal Cancer - An analysis from the Colorectal Cancer in South Africa (CRCSA) cohort.

Carolyn Bouter

Wits Donald Gordon Medical Centre

Introduction: The Colorectal Cancer South Africa (CRCSA) Study is an observational cohort of participants with colorectal cancer (CRC) in Johannesburg. In high income settings, comorbidity adversely affects CRC survival.

Aim/Objectives: To determine the prevalence of comorbidity and whether comorbidity adversely affects overall survival of CRC patients in the CRCSA cohort.

Methods: The cohort comprises adults with histologically confirmed CRC, treated at the Wits Academic Teaching Hospital Complex. Demographic, clinical and histological variables were collected at baseline and participants were followed up for overall survival. The Charlson comorbidity index (CCI) scoring system was used to classify participants as: ‘no comorbidity’ (CCI score of 0) and ‘1 or more comorbidity’ (CCI score of ≥ 1). Survival across comorbidity groups was compared by the Kaplan-Meier method and Cox Proportional Hazards (PH) regression models. Multivariable Cox PH regression was performed to examine the effect of comorbidity on survival.

Results: 424 participants with mean age of 56.6 years (SD 14.1 years; range: 18-91 years) were included. 19.1% had ≥1 comorbidity, of which diabetes was most frequent (12.3%) followed by chronic obstructive pulmonary disease (COPD) (4.7%) and cardiovascular disease (CVD) (3.08%). There was no significant difference in unadjusted and adjusted risk of death for the group with ≥1 comorbidity compared to those with no comorbidity. Risk of death was significantly increased in those receiving potentially curative treatment later than 40 days after CRC diagnosis.

Conclusions: Comorbidity is uncommon in the cohort, with no significant adverse effect on survival. If potentially curative treatment is initiated within 40 days of CRC diagnosis, survival could be improved.

Category: MSc/Medical Scientist

SOCM6- 06

Using early immune responses to determine a prognostic marker for effective stratification of moderate and severe acute pancreatitis in a South African cohort.

Mwangala Nalisa, Pascaline Fru, Martin Smith, John Devar, Jones Omoshoro-Jones
Introduction: Acute pancreatitis (AP) is an inflammatory disease which presents with epigastric pain due to premature release of digestive enzymes in pancreatic tissue. Although localized to the pancreas, AP through activation of the immune system Results in a systemic inflammatory response syndrome (SIRS), and subsequently, multiple organ failure.

Aim/Objectives: To determine whether inflammatory markers in patients with moderately severe AP can be used as prognostic markers in acute pancreatitis.

Methods: Plasma isolated by gravity centrifugation from blood samples of 31 patients with AP (Mild AP, n=15; Moderate AP, n=11; severe AP, n=5) was collected on days 1, 3, 5 and 7 post onset of epigastric pain. Whole blood was used to run a 12 colour optimized immunophenotyping panel to characterize cells. All analysis was done on a flow cytometer.

Results: Out of seven cytokines tested (IL-2, IL-4, IL-6, IL-17, TNF and IFN-γ) only IL-10 and IL6 expressed enough protein for analysis. The results showed IL-10 (1.82 pg/ml ±2.01pg/ml; 7.76 pg/ml ± 6.46pg/ml; 29.9 pg/ml ±0 pg/ml) and IL-6 (35.17pg/ml± 2.01 pg/ml; 219.76 pg/ml ± 182.15pg/ml; 559.40pg/ml ±0pg/ml) in mild, moderate and severe AP respectively, were significantly elevated on day 1 of onset of pain. The percentage of lymphocytes in patients with moderate disease tripled (from 5.7% to 15.7%) as the total percentage of neutrophils decreased (from 98.8% to 70%).

Conclusions: Findings from this ongoing study suggest that cytokines and immune cells could be used as prognostic markers for severity of AP and for timely stratification of patients with moderate AP and severe AP.

Category: MSc/Medical Scientist

SOCM6-07

Angiogenic pathways are overexpressed in early pancreatic ductal adenocarcinoma in a cohort of South African patients affecting immune response.

Zanele Nsingwane, Geoffrey Candy, Ekene Nweke, John Devar, Jones Omoshoro-Jones

Introduction: Pancreatic ductal adenocarcinoma (PDAC) is the most common type of pancreatic cancer. It is asymptomatic at its early stages and characteristically aggressive in nature as it progresses. The immune system has been observed to be activated during PDAC, however, cancer cells develop mechanisms to evade detection. Avoiding immune recognition and destruction has been identified as an emerging hallmark of cancer. Angiogenic pathways are crucial in cellular development and growth, however, their dysregulation would result in uncontrolled proliferation of cells affecting immune response. Understanding how immune system acts is essential to developing effective therapeutic options.

Aim/Objectives: This study aimed to describe the expression profile of immune-related genes (with a focus on angiogenic pathways) in a cohort of South African PDAC patients.

Methods: Secondary analysis of RNA sequencing data obtained from four tissue samples (2 tumours and 2 corresponding normal samples) was done. Bioinformatics tools such as Reactome and KEGG were used for pathway analysis.
Results: Our analysis showed the upregulation of angiogenic pathways such as the vascular endothelial growth factor (VEGF) and p13k/AKT. Also, we observed that immune response pathways (including those of innate and adaptive response) were simultaneously activated.

Conclusions: This study confirms others that have identified the overexpression of angiogenic factors in PDAC progression. The secretion of these angiogenic factors assists in evading the immune response. Therefore, targeting these mechanisms might prove beneficial for the development of immune-based therapeutic strategies for PDAC treatment.

Category: MSc/Medical Scientist

SOCM6-08

Helicobacter species in rat models of hypertension.

Anza Thiba, Geoffrey Candy

Division of General Surgery, Department of Surgery

Introduction: Helicobacter pylori infects half the world’s population and is a known cause of gastritis and is associated with gastric and other cancers. H. pylori has been linked to other diseases, including cardiovascular disease (CVD) through epidemiological studies and blood pressure decreases upon successful eradication using antibiotics. Very little is known about the prevalence of Helicobacter spp in hypertension and whether or not H pylori is causal or simply associated with CVD.

Aim/Objectives: To determine the presence and abundance of Helicobacter spp in hypertensive and normotensive animal models.

Methods: Stomach, intestinal and faecal samples were harvested from normotensive Dahl (n=4), Dahl salt sensitive (SSR; n=3) and spontaneously hypertensive (SHR; n=3) rats. The samples were cultured in microaerophilic conditions (5% O2 - 10% CO2 - 85% N2) and identified using matrix assisted laser desorption ionization-time of flight mass spectrometry (MALDI-TOF). Furthermore, genomic DNA isolation, 16S rRNA gene sequencing, and analysis of microbial composition were performed on the samples.

Results: H mesocricetorum and H rodentum were identified in all the rat models. From the overall bacterial species identified in the gut, the normotensive species had 2%, SSR, a 3%, whereas SHR had a 2% abundance of both species. SHRs had a 15% abundance of H mesocricetorum and a 5% abundance of H. ganmi.

Conclusions: The presence of Helicobacter spp has observed in both hypertensive and normotensive rat models with a higher abundance of Helicobacter spp in hypertensive models. These data support a role for the bacterium in CVD but the mechanisms require elucidation.

Category: PhD/Postdoctoral/Consultant

SOCM6-09

Cell division cycle protein 27 is frequently mutated and overexpressed in Gallbladder tumours.
John Devar, Ekene Nweke, Geoffrey Candy, Martin Smith

Division of General Surgery, Department of Surgery

Introduction: Gallbladder cancer (GBC) is an aggressive cancer with poor prognosis and dismal survival rates. Molecular changes are known to be associated with GBC, however, there is a paucity of this information in any African group.

Aim/Objectives: To identify differentially expressed and mutated genes in a cohort of South African Gallbladder patients.

Methods: We performed RNA sequencing on gallbladder cancer tissues obtained from South African patients and employed several bioinformatics tools for differential gene expression, variant, and functional analyses.

Results: We identified mutations in 35 tumour specific genes in tumours. Amongst these genes, we found that CDC27 was mutated in 41.7% of samples and was concomitantly overexpressed. SKOR2 and SPARCL1 (fold changes of 539.7 and -89.58, respectively) were the most upregulated and downregulated genes. Furthermore, we observed the enrichment of voltage-gated potassium channels.

Conclusions: The dysregulation and mutation of key genes have been shown in metastatic gallbladder tumours have been shown in this study. These genes could serve as potential prognostic and therapeutic targets for gallbladder cancer progression.

SESSION 7: INTERNAL MEDICINE, OBSTETRICS & GYNAECOLOGY, STEVE BIKO CENTRE FOR BIOETHICS

Category: MMed/Registrar

SOCM7-01

Characteristics and outcomes of patients with maternal sepsis requiring admission to a South African intensive care unit: a retrospective review.

Jacqueline Y Lafon, Gladness D Nethathe

Department of Obstetrics & Gynaecology

Introduction: Maternal sepsis is a major cause of maternal mortality worldwide and constitutes one of the leading causes of preventable maternal mortality and morbidity. Post caesarean delivery puerperal sepsis has been shown to be a leading cause of sepsis in this population. This study aimed to describe the epidemiology, risk factors, management, interventions and maternal outcome of patients with maternal sepsis admitted to a South African (SA) intensive care unit (ICU) over a 2-year period.

Aim/Objectives: To describe the demographic and clinical characteristics of maternal admissions to CHBICU with the diagnosis of sepsis using the qSofa score. 2. To identify risk factors associated with peripartum sepsis at CHBAHICU. 3. To identify the commonest organisms responsible for peripartum sepsis at CHBAHICU. 4. To determine the maternal outcome of all peripartum septic patients admitted to CHBAHICU as defined by discharge from ICU or mortality.
**Methods:** We conducted as a single centre, retrospective review of data of 54 patients admitted to a tertiary referral intensive care unit in South Africa with the diagnosis of maternal sepsis from the 1st of January 2015 to the 31st of December 2016. Clinical characteristics, management interventions and maternal outcomes of patients with maternal sepsis were described and assessed.

**Results:** There were 39,884 deliveries, of which 16,060 (40.3%) were by caesarean (c/s). Sepsis was diagnosed in 1.7% (n=678). Of these, 8.0% (n=54) were admitted to ICU. The median maternal age was 30 years (IQR: 26 - 34). Sepsis post c/s accounted for 50% (n=27), vaginal birth for 12.9% (n=7), septic incomplete miscarriages for 24.0% (n=13), sepsis post preterm deliveries for 9.2% (n=5) and sepsis post exploratory laparotomy for ruptured ectopic pregnancy for 3.7% (n=2). Coagulase negative Staphylococci was the most commonly isolated organism. The median duration of ICU stay was 4 days (IQR: 2 - 6). All required mechanical ventilation. The mean duration of ventilation was 2.5 days (SD+1.7). Sixteen women (29.6%) required inotropic support, 90.7% (n=49) blood products and 9.2% (n=5) renal replacement therapy. Complications in ICU were metabolic acidosis (46.3%), acute kidney injury (40.7%), coagulopathy (25.9%), circulatory shock (12.9%), acute respiratory distress syndrome (9.2%), cardiac arrest (9.2%) and abnormal liver enzymes (7.4%). Mortality was 11.1% (n=6).

**Conclusions:** Maternal sepsis remains a significant cause of maternal morbidity and mortality. The identification of associated risk factors will help guide appropriate interventions.

*Category: MMed/Registrar*

**SOCM7-02**

**Urinary Bacterial Profile and Antibiotic Susceptibility Pattern Among Pregnant Women in Rahima Moosa Mother and Child Hospital.**

Ogbonnaya Orji, Zandile Dlamini, Amy Wise

**Department of Obstetrics & Gynaecology**

**Introduction:** Urinary tract infection (UTI) in pregnancy is associated with significant morbidity for both the mother and the baby.

**Aim/Objectives:** The aim of this study was to determine the prevalence, urinary bacterial profile and antibiotic susceptibility pattern among pregnant women with a possible UTI at Rahima Moosa Mother and Child Hospital (RMMCH) in Johannesburg

**Methods:** This is a retrospective, cross-sectional analytical study describing urine microscopy, sensitivity and culture results from National Health Laboratory Services data and medical record review at the RMMCH from January 2017 to December 2017.

**Results:** In total 1984 pregnant women who presented with symptoms or signs of a UTI had a urine microscopy, culture and sensitivity performed, and 333 (16.8%) had positive bacterial cultures. Escherichia coli was the most common bacteria isolated (50.1%). Other isolated microorganisms included Klebsiella species (14.4%) and Enterococcus faecalis (12.9%). Cephalxin/Cefazolin had the highest antibiotic sensitivity of 97.7%, followed by Cefuroxime (95.2%), Ceftriaxone/Cefotaxime (94.4%) and Nitrofurantoin (81.9%). Bacteria showed the highest resistance to Ampicillin (84.4%), Cotrimoxazole (55.6%) and Co-amoxiclav (50.2%).
Conclusions: Escherichia coli was the commonest aetiological agent of UTI in pregnancy with Enterococcus faecalis gaining prominence. Cephalexin / Cefazolin, Cefuroxime, Ceftriaxone / Cefotaxime and Nitrofurantoin had the best sensitivities against the organisms causing UTI in pregnant women.

Category: MMed/Registrar

SOCM7- 03

Pregnancy Outcomes, Complications and Experiences in Obstetrics and Gynaecology Registrars.

Catherine Tew, Amy Wise, Samantha Kerr

Department of Obstetrics & Gynaecology

Introduction: There are few international and no South African studies which investigate the impact of registrar training on an obstetrician’s own pregnancy. This study aims to evaluate pregnancy outcomes and complications of women who fell pregnant during their obstetric registrar time in South Africa.

Aim/Objectives: To describe the pregnancy outcomes, complications and experiences of women who fell pregnant during obstetric registrar time, and to compare these to those of psychiatry registrars, and to the female partners of male registrars.

Methods: An online questionnaire was sent to past and current obstetric and psychiatry registrars by SASOG, SAATOG and SASOP over three months. Those who were specializing or specialized within the last 10 years were included. The psychiatry registrars, and partners of male obstetrics and psychiatry registrars formed two separate control groups. The data was managed using REDcap and analyzed retrospectively.

Results: 86.4% of obstetricians, 96.7% of psychiatrists and 77.8% of spouses had a positive pregnancy outcome. 56% of obstetricians and 58% of psychiatrists compared to 32% of spouses reported at least one pregnancy complication. Obstetric registrars had more night call, hours of standing, and less hours of sleep per call (p<0.01). Operating more than 17 hours or working more than 81 hours per week was significantly associated with an increased relative risk of a complicated pregnancy (RR 2.12 CI 1.20-3.84).

Conclusions: These results suggest that pregnant obstetric registrars in South Africa working more than 81 hours per week may experience an increased rate of complications in pregnancy, and policies need to be developed to address this.

Category: MSc/Medical Scientist

SOCM7- 04

Understanding adherence in virally suppressed and unsuppressed patients on second-line antiretroviral therapy.

Siphamandla Gumede, WD Francois Venter, Samanta T Lalla-Edward

Department of Internal Medicine
Introduction: Understanding antiretroviral therapy (ART) adherence may assist in designing effective, tailored supportive interventions.

Aim/Objectives: This study sought elicited perspectives of both virologically suppressed and unsuppressed second-line patients on how to promote treatment adherence.

Methods: This was a cross-sectional study conducted in 2018 with randomly selected second-line patients active on ART, from five public sector Johannesburg inner-city public health facilities. We collected demographic, and clinical information, participant’s experiences and knowledge of ART.

Results: 149 of 1500 active patients on second-line ART from five public health facilities were sampled randomly. 47.7% (n=71/149) were virally unsuppressed, with majority female (69.1%, n=103/149) and median age 42 years (IQR 36 - 47 years). Approximately half (49.3%, n=35) of the unsuppressed and 42.3% (n=33) of the suppressed participants were unemployed (p=0.613). Experiencing medication-related difficulties in taking second-line ART (p=0.003), finding second-line more difficult to take than a first-line regimen (p=0.001), experiencing side effects (p<0.001) and cohabiting (AOR 3.1, CI=1.1-8.9) were all predictors of virological failure. Participants who cohabit were three times more likely to have a virological failure than those who are married (AOR 95% CI = 1.1- 8.9), p=0.035. Participants’ recommendations for improving adherence included the introduction of a single tablet regimen (31.6%, n=55), reducing the dosage to once daily (n=46, 26.4%), and reducing the pill size for second-line regimens (n=7, 4.0%).

Conclusions: Being married and unemployed were associated with virological suppression and experiencing side effects respectively. Participants on a second-line regimen had clear and predictable recommendations around improving adherence, largely focused on administration, reduced dosing and pill burden.

Category: PhD/Postdoctoral/Consultant

SOCM7-05

Proteome profiling of stem and non-stem cells from stage-specific colon cancer cell lines.

Jeyalakshmi Kandhavelu, Kumar Subramanian, Previn Naicker, Stoyan Stoychev, Amber Khan, Paul Ruff, Clement Penny

Department of Internal Medicine

Introduction: The cancer stem cell lines (CSCs) secretome has been considered fundamental for the identification of hallmarks of cancer such as uncontrolled proliferation, reduced apoptosis, invasion and metastasis, alteration in energy metabolism or resistance against anti-cancer therapy.

Aim/Objectives: The main objective was to secretory protein profile associated with both CD133+ stem cells (CSCs) and CD133- (non-stem cells (nCSCs) of two human colon cancer cell lines.

Methods: The CSC population was isolated using magnetically labeled CD133 antibody microbeads from the HT29 and DLD1 colorectal adenocarcinoma cells. Both the CSC and nCSCs population from each cell line was cultured and secretome being harvested after 48 hrs. Comparative secretome profiling in both cell lines was carried out using Mass spectrometry and SWATH-MS was used to perform quantitative analysis. The functional enrichment analysis of significantly changed proteins was accomplished using GO, Reactome and STRING analysis.
Results: A total of 2679 and 480 proteins was identified from the secretome of HT29-CSCs and DLD1-CSCs, respectively. From the nCSCs, 1775 and 2758 proteins were identified from HT29-nCSCs and DLD1-nCSCs, respectively. Quantitative proteomic analysis revealed that 339 and 180 proteins were upregulated in HT29 CSCs and DLD1-CSCs, respectively, when compared to the respective nCSCs. Further, a REACTOME analysis identified several pathways linked to metabolism and Immune system in CSCs. In particular, the neutrophil degranulation and nonsense-mediated decay (NMD) surveillance pathway were significantly enriched in the CSCs populations.

Conclusions: These results provide novel insight into the metastatic mechanisms of CSCs population of HT29 and DLD1 cells.

Category: PhD/Postdoctoral/Consultant

SOCM7-06

Does Repeat LLETZ Achieve a Cure for Histologically Proven Persistent HGSIL at Margins?

Jabulile May, Langanani Mbodi

Department of Obstetrics & Gynaecology

Introduction: Cervical cancer is the second most common malignant neoplasm in women world-wide. Cervical intraepithelial neoplasia (CIN) is a precursor lesion of cervical cancer and effective treatment by LLETZ of this lesion can prevent progression to cervical cancer.

Aim/Objectives: The aim of this study was to establish if repeat LLETZ achieves a cure for histologically proven persistent high grade CIN lesions at margins.

Methods: Retrospective, descriptive study on patients who had repeat LLETZ done at the CMJAH colposcopy clinic over 10 years (2006-2016). 71 patients met the inclusion. Categorical variables were summarised by frequency and percentages and continuous variables by the mean, SD, median and IQR. Study was approved by WHREC (M180214)

Results: 74% had HGSIL (CIN2, 3 and HGSIL) at the second/repeat LLETZ and 22.1% had LGSIL (CIN1 and LGSIL). Endo-cervical margins alone were positive in 17 (28.8%) at initial LLETZ compared to 11 (18.6%) at the second LLETZ. (improved by 35.4%). 55.9% had both ecto-cervical and endo-cervical margin involvement at initial LLETZ and 37.3% post repeat LLETZ. (improved by 33.3%). The majority of patients (72.9%) were HIV positive. They had a higher incidence of positive endo-cervical margins (25.6%), ecto-cervical margins only (7.0%), and both margins (62.8%) involvement, reported on first LLETZ.

Conclusions: Patients who are above 35 years of age with positive margins on histology of the first LLETZ have higher risk of CIN persistence. Repeat LLETZ offers improvement in margins (endo- and ecto-cervical) status, even though it doesn’t offer a cure.

Category: PhD/Postdoctoral/Consultant

SOCM7-07

The ethics of increasing medical student numbers in a resource constrained setting.

Colin Menezes, Ames Dhai
**Steve Biko Centre for Bioethics**

*Introduction:* There is a need for more doctors in South Africa.

*Aim/Objectives:* This study examines the ethical implications of patients’ rights in medical education and provides evidence for optimum student to patient ratios for this dilemma.

*Methods:* A normative and descriptive component are included. 118 patients were interviewed and 120 students completed a questionnaire from four departments.

*Results:* The Constitution, NHA and Patients’ Rights Charter advocate for healthcare access. The State’s ethical obligations conflict with its utilitarian policy attempts that allow for medical education to achieve healthcare at the cost of patients’ rights in keeping with the spirit of Ubuntu. Contrarily, Principilism and Kantism, the Constitution and NHA focus on patients’ autonomy, privacy and dignity, informed consent and confidentiality whether accepted or not in healthcare choices. Students’ roles are not formally discussed in these documents.

A third of patients were unaware of their admission to a teaching hospital. Half of them were unaware of their right to refuse interaction with students. Majority of patients and students preferred smaller groups of no more than eight students per tutorial. Majority of patients never refused consent to students, while a third of students said at least up to three patients refused consent during examination with the common reason being exposure to excessive numbers of students and healthcare professionals.

*Conclusions:* Patients need to be educated on their role in medical education. Institutions need to take cognisance of numbers of students that patients can tolerate. This highlights the need for guidelines on student-patient interaction including student to patient ratios.

**SESSION 8: SURGERY (2)**

*Category: PhD/Postdoctoral/Consultant*

**SOCM8- 01**

Polymer conjugation improves the anticancer activity of betulinic acid and dihydroartemisinin against pancreatic cancer cells.

Pascaline Fru, Nompumelelo Mthimkhulu, Sindisiwe Mvango, Mohammed Balogun, Jones Omoshoro-Jones, John Devar

*Division of General Surgery, Department of Surgery*

*Introduction:* Pancreatic cancer is the forth leading cause of cancer deaths worldwide and one of the most drug-resistant cancer. Conventional treatment for pancreatic cancer has shortcomings including lack of specificity and multi-drug resistance. Using drug delivery systems like polymer therapeutics has shown to improve the drug potency and pharmacokinetics.

*Aim/Objectives:* The aim of this study was to synthesize, characterize, and screen betulinic acid (BA) and dihydroartemisinin (DHA) polymer conjugates against a pancreatic cancer cell line Mia PaCa-2, normal cell line (Vero) and PBMCs.
Methods: The parent drugs BA and DHA were conjugated to PEG and Chitosan polymers using carbodiimide chemistry. The cytotoxicity of the conjugates was tested using tetrazolium salts on MIA-PaCa-2, Vero, and peripheral lymphocytes at concentrations ranging from 0.4-100µM. (37°C, 72 hours). Selected concentrations were further used to determine the mode of cell death using flow cytometry. The antioxidant potential of the conjugates was tested using a free radical scavenging assay.

Results: The conjugates had lower IC50 values than the parent drugs suggesting that the observed cytotoxicity was as a result of conjugation. Selective cytotoxicity was observed for BA-PEG (SI=3.7 µM) with more apoptosis on MIA-PaCa-2 cells compared to Vero cells and PBMCs confirming selectivity for cancer cells. The conjugates further showed antioxidant potential with IC50s of 11.22 ±0.10, 12.02±0.09 and 15.48±1.00 for BA-PEG, DHA-PEG and DHA-Chitosan, respectively.

Conclusions: The conjugation of natural compounds such as BA to polymers holds potential for increasing the anticancer activity. This could provide a platform for the development of more potent and specific natural-based anticancer drugs.

Category: PhD/Postdoctoral/Consultant

SOCM8- 02

Inflammatory Cytokines and Combined Biomarker Panels in Pancreatic Ductal Adenocarcinoma: Enhancing Diagnostic Accuracy.

Deirdré Kruger, Yandiswa Yako, Nicola Lahoud, John Devar, Martin Smith

Division of General Surgery, Department of Surgery

Introduction: Early diagnosis of pancreatic ductal adenocarcinoma (PDAC) is challenged by the absence of accurate early diagnostic and prognostic biomarkers. CA19-9 is the established, diagnostic tumour marker in PDAC, despite its limitations.

Aim/Objectives: To investigate whether combinations of inflammatory cytokines and angiogenic factors in multivariate logistic models could facilitate earlier diagnosis of PDAC in our South African setting.

Methods: Plasma levels of 38 cytokines and angiogenic factors were measured in 131 Black South African patients, 85 with PDAC and 46 benign controls, including 25 with benign biliary pathology (BBP) and 21 benign non-HPB controls (BC). Multivariate biomarker panels were developed by identifying the top performing biomolecules from univariate logistic regression. Receiver-operator characteristic (ROC) curves and area under the ROC curve (AUC) are reported.

Results: Classification modelling to distinguish PDAC patients from BC showed that a panel of CA19-9 and CXCL10 (IP-10) demonstrated improved diagnostic power over CA19-9 alone (AUC = 0.977 vs. AUC = 0.807, p-value = 0.001). A combined panel including age, BMI and IL-15 showed significant diagnostic power in discriminating PDAC from BBP (AUC = 0.952, p < 0.0001). Finally, a combined panel of IL-8, IL-15 and gender demonstrated diagnostic accuracy (AUC = 0.830, p < 0.0001) in distinguishing PDAC in the presence of jaundice from benign controls with either jaundice, choledocholithiasis or common bile duct injury.

Conclusions: Combined biomarker panels improve diagnostic accuracy in PDAC. In addition to CA19-9,
cytokines CXCL10, IL-8 and IL-15 are strong additions to diagnostic biomarker panels in PDAC in Black South Africans.

**Category: PhD/Postdoctoral/Consultant**

**SOCM8-03**

**Clinico-Pathological Characteristics among South African Women with Breast Cancer Receiving Anti-Retroviral Therapy for HIV.**

Boitumelo Phakathi, Herbert Cubasch, Sarah Nietz, Carolin Dickens, Therese Dix-Peek, Maureen Joffe, Alfred Neugut, Judith Jacobson, Raquel Duarte, Paul Ruff

**Division of General Surgery, Department of Surgery**

**Introduction:** Breast cancer is the most common cancer in women and a leading cause of cancer-related mortality worldwide. South Africa has the largest global burden of HIV infection and the largest anti-retroviral treatment (ART) program. This study aimed to analyse the association of HIV and ART use with breast cancer clinico-pathological characteristics.

**Aim/Objectives:** To describe the clinico-pathological characteristics of HIV-positive patients with breast cancer treated at CMJAH and CHBAH. To determine if the duration of HIV-seropositivity had an impact on the clinical presentation of breast cancer. To determine if the use of ARVs had an impact on clinical presentation of breast cancer.

**Methods:** Study participants were females, newly diagnosed from May 2015 through September 2017 with invasive breast cancer at two academic Surgical Breast Units in Johannesburg, South Africa at the Charlotte Maxeke Johannesburg Academic Hospital and Chris Hani Baragwanath Academic Hospital. We compared HIV-positive and HIV negative patients’ demographic and clinical-pathological characteristics at the time of breast cancer diagnosis.

**Results:** Of 1050 patients enrolled, 1016 (96.8%) had known HIV status, with 226 (22.2%) being HIV positive. HIV positive patients were younger (median (IQR) age 45 (40-52) years), than HIV-negative patients (median (IQR) age 57 (46-67)) (p<0.001). HIV positive patients were more likely to be diagnosed with late stage breast cancer(p=0.01). However, HIV positive patients receiving ART at the time of breast cancer diagnosis were less likely to present with metastatic disease than those not on ART (p=0.05).

**Conclusions:** HIV-positive patients present with breast cancer at a younger age and later stage disease than HIV-negative patients. Neither the duration of HIV infection nor ART use was associated with clinico-pathological characteristics of breast cancer.

**Category: PhD/Postdoctoral/Consultant**

**SOCM8-04**

**Systemic Inflammatory Disease Prevalence and Its Association with Late Interventions After Endovascular Aneurysm Repair.**

Sherif Shalaby, Trent R Foster, Kirstyn E Brownson, Penny Vasilas, Michael R Hall, Alan Dardik
**Introduction:** Abdominal aortic aneurysms are associated with chronic inflammation within the aortic wall, and previous studies have suggested that chronic inflammation may be a consequence of a dysregulated and persistent autoimmune response. Persistent aortic remodeling after aneurysm repair could place the patient at risk for endoleak or sac rupture.

**Aim/Objectives:** To determine whether patients with systemic inflammatory disease and large aneurysms have persistent aortic remodeling after endovascular aneurysm repair (EVAR).

**Methods:** The records of all patients who underwent EVAR between July 2002 and June 2011 at the Veterans Affairs Connecticut Healthcare System were included in this retrospective review. Patients were considered to have a systemic inflammatory disease when confirmed by a referring specialist. Post-EVAR surveillance was performed by yearly imaging.

**Results:** A total of 51 of 79 patients (65%) had a systemic inflammatory disease. These patients had similar comorbid conditions compared with patients without inflammation but significantly greater numbers of major postoperative complications after EVAR (23.5% vs 3.6%; P = .02) and overall postoperative complications after EVAR (27.5% vs 7.1%; P = .03). Patients with a history of systemic inflammatory disease developed more endoleaks (45.1% vs 17.9%; P = .02) and late sac expansion (51.0% vs 21.4%; P = .01) and required more interventions (21.6% vs 3.6%; P = .03) during long-term follow-up. Systemic inflammatory disease was significantly associated with significant endoleak (odds ratio, 5.18; 95% CI, 1.56-17.16; P = .007).

**Conclusions:** Patients with systemic inflammatory disease are at high risk for postoperative complications, type II endoleak, sac expansion, and additional interventions after EVAR. Additional strategies for improving the efficacy of EVAR in these patients may be warranted.

**Category: PhD/Postdoctoral/Consultant**

**SOCM8- 05**

**Comparison of 14C-UBT, PCR and CLO test in the detection of Helicobacter pylori and associated risk factors among patients in Chris Hani Baragwanath Hospital, South Africa.**

Ayodeji Idowu, G Candy, A Mzukwa, U Harrison, P Palamides, R Haas, M Mbao, R Mmadoo, J Bolon, N Chopdat, I Gasim, H Baga, T Jolaiya, S Smith, R Ally, A Clarke, H Njom

**Introduction:** The global prevalence of Helicobacter pylori approaches 50%, with incidence rates of 20 - 40% in developed countries and up to 90% in Africa and developing nations. Several diagnostic methods are recommended for the detection of H. pylori infection.

**Aim/Objectives:** To compare carbon-14 urea breath test (14C UBT), polymerase chain reaction (PCR) and the Campylobacter-like organism (CLO) tests in the diagnosis of H. pylori infection in relation to the endoscopic assessment, and associated risk factors.

**Methods:** The identified laboratory tests were conducted using standard procedures and data regarding associated risk factors were obtained through questionnaires.
Results: 184 patients were enrolled between May and June 2016 at Baragwanath Hospital, 126 (68.5%) showed a positive result in the 14C UBT, 150 (81.5%) PCR and 122 (66.3%) CLO test. All the CLO test positive patients were confirmed positive in the 14C UBT. Significant disagreement occurred between PCR and both 14C UBT and the CLO test. However, all the Methods showed the agreement of 72.8% (positivity=111/184; negativity=23/184) and positive correlations (0.95, 0.37, 0.34). Of the 126 patients diagnosed by 14C UBT (as the gold standard), infection percentage was highest 56/126 (44.4%) in patients with gastritis. Infection was not associated with any of the potential risk factors investigated, although crowded living and a lack of formal education were associated with diagnosis of H. pylori.

Conclusions: Findings show a high percentage agreement among Methods, however, for clinical practice, it is recommended two test be positive, or the isolation of H. pylori by culture is obtained.

Category: PhD/Postdoctoral/Consultant

SOCM8- 06

ABO-incompatible liver transplant in children with acute liver failure.

Jean Botha

Wits Donald Gordon Medical Centre; Division of General Surgery, Department of Surgery

Introduction: Based on our experience with ABO-incompatible liver transplantation (ABOi LT) in adults, we considered this to be a rescue option in children requiring urgent transplantation for acute liver failure (ALF).

Aim/Objectives: To describe our experience with pediatric ABOi LT including long-term survival and complications.

Methods: Emergency ABOi LT was performed in cases of severe ALF with imminent death. Our immunosuppression protocol consisted of; corticosteroids, tacrolimus, and mycophenolate mofetil. Pretransplant measurement of anti-ABO titers was performed and patients underwent a course of post-transplant plasmapheresis until titers dropped below 1:4, followed by administration of 2 doses of Rituxumab one week apart. Further therapy was guided by clinical situation, hepatic function, presence of hemolysis and titer evolution.

Results: From November 2015 to July 2019, 5 children, including 3 females and 2 males with a median age 6.4 years (range, 2.7 to 14.5 years), underwent ABOi LT. Aetiology of acute liver failure was viral in 3, Acute Wilson’s Disease in 1, Non-Hodgkins B-cell lymphoma in 1. Three children received living donor grafts, 1 whole and 1 split liver. At a mean follow-up of 13 months, all 5 patients are alive with their original grafts. Major complications were 3 bile leaks, 1 re-look laparotomy for bowel perforation.

Conclusions: ABOi LT in children is justifiable in emergency situations when a blood group compatible donor is not available. With careful monitoring of hemagglutinins and specific immunosuppression with plasmapheresis and Rituximab we have obtained excellent outcomes and hopefully promoting ABOi LT in children requiring this life-saving therapy.
Can the Posterior: Anterior Urethral Ratio on Voiding Cysto-urethrogram be used as a reliable predictor of successful posterior urethral valve ablation? A systematic review.

Zakiyah Gaibie, Nasreen Mohamed, Karen L Petersen, Glenda Moonsamy, Ahmed Adam, Akram Bokhari

Division of Urology, Department of Surgery

Introduction: The role of the VCUG (Voiding Cysto-Urethrogram) in the follow-up of patients with posterior urethral valve (PUV) ablation has been considered standard practice in the follow-up algorithm. The use of the urethral ratio and gradient of change has also proven useful in recent times. We aimed to review the literature in search if the 'ideal' ratio and investigate its role of predicting residual PUV in the follow-up of PUV patients.

Aim/Objectives: Can the Posterior:Anterior Urethral Ratio on Voiding Cysto-urethrogram be used as a reliable predictor of successful posterior urethral valve ablation?

Methods: To illustrate and better define the role of the urethral ratio as part of routine assessment during the reporting of the VCUG study, a systematic review of the PubMed, SCOPUS and Web of Science database was performed (April 2019). The search terms: ‘Urethral Ratio and Posterior urethral valve ablation’ were utilised. All cited reference lists were further evaluated for additional inclusive studies assessing this parameter.

Results: 11 studies were identified, of which 9 were relevant to the topic. Case reports, comments, adult and animal studies were excluded leaving 4 articles for critical review. In total 338 patients with PUV were assessed. The control group consisted 167 patients which were age matched in most studies. Studies regions included Mumbai, Chandigarh, Chennai (India) and Westmead (Australia). The median age ranged from 15 days to 3.4 years. Most studies used a single surgeon to limit confounding factors. Based on the surgeons’ preference and patient factors the Methods for ablation included the use of a resectoscope with cutting diathermy, cold knife or Bugbee electrode. The mean urethral ratios in the control group ranged from 1.04 to 1.73. The suggested predictive urethral cut off ratios recommended include; 2.2 (p=0.001), 2.5-3 and 3.5.

Conclusions: Although the precise cut off ratio could not be clearly defined in this review. A Posterior:Anterior Urethral Ratio less than a range of 2.2-3.5 has proven to be a beneficial predictor of ablation success and should thus be incorporated into standard VCUG reporting templates in the follow-up VCUG reporting of PUV patients in a South African setting.
Introduction: Obstructive urethral lesions except posterior urethral valves (PUV) are uncommon in children and lack firm treatment algorithms.

Aim/Objectives: To report the findings of an international survey that examines the consistency of diagnosis, prognosis and treatments in uncommon urethral lesions in children.

Methods: An ethics approved, online survey was administered to members of various international Urological societies. The survey included 22 questions including those on diagnosis (n=7), investigations (n=4), prognosis (n=2) and management (n=1) in children with uncommon posterior urethral obstructive lesions with two questions on PUV as embedded controls. The index cases involved children of various ages and presentations with circumferential narrowing in the posterior or bulbar urethra. Two sets of paired questions were offered with increasing amount of information provided to see the effect of endoscopic appearances on urologists’ decision making. Kappa estimates were developed for intra-rater and inter-rater concordance in these paired questions with additional clinical information. Gini indices were estimated for the majority of multiple choice questions.

Results: 121 participants responded to the survey including members of: ESPU(20); SAUA(18) and SPUNZA(13). 71% of respondents attested to seeing less than 5 cases of urethral obstructions other than PUV every year. Majority admitted to answering based on extrapolation rather than specific teaching. A total of 75 (IQR 67-90) responses were received for each question. Moderate to high intra-rater concordance (kappa 0.4-0.6) was observed for paired questions with additional clinical information with only 7% of participants changing their answers (17/242). However, in the diagnostic group, the kappa estimate was low (0.17 95%CI 0.13 0.21) suggesting a high inter-rater variability and 0.1 (95%CI 0.05, 0.15) between questions in the investigation group. Gini coefficient was lower for the diagnosis of uncommon urethral lesions (0.35) indicating a higher variability in responses compared to posterior urethral valve (0.51).

Conclusions: This survey identifies significant variability among paediatric urologists in dealing with cases of atypical posterior and bulbar urethral obstructive lesions perhaps aggravated by a low exposure and a lack of specific teaching. Low intra-rater variability was seen indicating “fixed opinions” largely based on extrapolation of external data on PUV. Participants’ responses confirm a lack of reference resources and hence, the urgent need for firm guidelines.
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