

WITSIE AT THE CUTTING EDGE: Researcher Profile

Dr Neil Martinson

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Who are you and what is your academic/scientific training and background?

I obtained my MBBCh from the University of the Witwatersrand (Wits) in 1988 and did my internship at the Chris Hani Baragwanath Academic Hospital. After a stint at Bethesda Hospital in northern KwaZulu Natal and some time travelling through Europe which was funded by locums in the UK, I returned to South Africa to senior house officer positions in orthopaedics and paediatrics. I then worked in Soweto Community Health Centres for two years while doing vocational training in general practice under the mentorship of the Department of Family Medicine. I worked for the Pretoria City Council and subsequently for the Johannesburg Metro Council. I managed health services on the Eastern side of Johannesburg, overseeing the transition from immunisation and family planning clinics to comprehensive primary health care facilities. I played an integral part in infectious disease outbreak response missions. In 2001 I received

funding to attend Johns Hopkins University where I obtained a Masters in Public Health. On return to South Africa, I started working at the Perinatal HIV Research Unit (PHRU) in the School of Clinical Medicine at Chris Hani Baragwanath Academic Hospital.

At the PHRU I have built a career on TB and HIV research, with over 70 peer reviewed publications and numerous research and implementation grants. I now oversee five high volume male circumcision sites in three provinces which together have performed a total of 43 000 circumcisions, preventing over 1000 new HIV infections. I also manage a self-sustaining fee-for-service clinic in downtown Johannesburg called ZuziMpilo (www.zuzimpilo.co.za). Finally, I have managed a large three-university TB research training programme which has provided specialised research training for a number of the University of the Witwatersrand's students and staff. I also supervise approximately five current Masters level students and one PhD candidate.

Explain the nature of the research that you are currently undertaking?

I collaborate with Dr Ebrahim Variava at the Klerksdorp Tshepong Hospital Complex where we have designed and managed several large studies assessing the impact of TB and HIV on individuals and populations. I am particularly interested in causes of death and how they relate to TB. With Dr Omar from Anatomical Pathology at the University of the Witwatersrand, I have conducted three autopsy studies, the last one looking at TB in people who died at home without a clear cause of death. With collaborators at Johns Hopkins University, I also oversee research studies at the PHRU assessing the impact of TB on pregnancy, and clinical trials on novel TB treatments and treatments to prevent TB. Together with Professor Bavesh Kana from the DST/NRF Centre of Excellence in the School of Pathology, we are looking at measures of bacillary response to TB treatment in HIV-infected patients diagnosed using the Gene Xpert MTB/Rif. I am also involved in work with Professor Caroline Tiemessen from the National Institute for Communicable Diseases (NICD), where we have established a cohort of unusual, HIV-infected individuals who are able to contain and even suppress their HIV infection spontaneously - without antiretroviral therapy. We are characterising their immune status. We are also planning to identify another group of unusual HIV-infected patients inherently able to resist TB infection and TB disease. Our hope is that by comparing these unusual phenotypes with more common presentations of both HIV and TB, we will obtain clues for the development of novel vaccines or treatments.

What do you think is the most pertinent/relevant/significant contribution you have made to research/science/your field?

Two manuscripts reporting viral resistance in pregnant women who received single-dose nevirapine to prevent mother-to-child transmission of HIV - which I co-authored - have been cited well over 100 times. Our unpublished data showing extremely high rates of undiagnosed TB in adults who die at home is of real concern for TB control and I hope that it will lead to further research. My primary claim to research fame is that I am the first author on a *New England Journal of Medicine* article describing results of a clinical trial of preventive treatment for TB in HIV-infected adults.

Did you have a particular mentor or supervisor who inspired you in research?

My stint at Hopkins was an enormous inspiration - seeing the possibilities both of what others had done as well as getting an understanding of study design and methods was hugely stimulating. Thereafter, Drs Chaisson, Gray and McIntyre showed me how it was, and how it could be done.

Tell us about what you do when you're not busy at work and carrying out cutting-edge research

Much of my time at work when I am not doing research is spent anticipating, responding to, and managing problems in my programmes and projects. However, I love spending time with my family, and at least weekly cycling, swimming and slow jogging interspersed with binging on nordic crime novels keeps me sane.

Read one of Neil's papers: Martinson NA, Barnes GL, Moulton LH, Msandiwa R, Hausler H, Ram M, McIntyre JA, Gray GE, Chaisson RE. New regimens to prevent tuberculosis in adults with HIV infection. *New England Journal Med.* 2011 Jul 7; 365(1):11-20.