

Mapping UNSW Impact Global Development

Primary SDG	3: GOOD HEALTH AND WELL-BEING
Broad theme	Testing for disease
Research	Using molecular point of care testing to test and treat for STIs, HIV, tuberculosis, HPV and cervical cancer
Impact region	Indigenous Australia, PNG, Myanmar, Fiji, South Sudan
Faculty	Medicine
School/Institute	Kirby Institute
Academic	Steven Badman
Project partners	Indigenous Australia: State based health services, Indigenous health bodies
	PNG: Burnet Institute, PNGIMR, CDC, Wellcome Trust, Victorian Cytology Services, The Global Fund, key NGOs
Related SDGs	10: Reduced Inequalities

Elevator pitch

Steve specialises in molecular, point-of-care (POC) testing that enables patients to be tested and treated for a range of sexually transmissible infections (STIs), tuberculosis, and viruses (HIV and HPV) on the spot, avoiding time and transport challenges typical in rural Australia and PNG.

The Challenge: Testing and diagnosing for STIs and cervical cancer difficult in rural settings

STIs among Indigenous Australians are more prevalent than they are among the non-Indigenous. The majority of STIs are asymptomatic; people don't know they have them. Screening is therefore needed to accurately test and treat people. If individuals remain undiagnosed and untreated, their health and potentially the health of others is impacted. But screening and diagnosis takes time using standard methods. In rural and remote Indigenous settings it is often difficult to find people to inform them of their diagnosis and potential need for treatment due to lack of fixed contact details and the distances involved.

In Papua New Guinea (PNG) it is estimated up to 50% of pregnant women may have STIs and no symptoms. STIs can impact the health of the baby in terms of possible miscarriage, pre term birth and low birth weight. There are also an estimated 1,500 deaths from cervical cancer in PNG every year. Around 1 million women aged 30-50 in PNG need be tested for HPV if the burden of cervical cancer is to be significantly reduced.

UNSW's solution: Use molecular POC testing to diagnose and treat on the spot

Steve Badman is an expert in the planning, implementation and evaluation of point of care (POC) testing in remote Australia and low and middle-income settings (LMIC). The testing systems used are portable, easy to use and accurate. They enable testing and treatment to be performed by health service staff in clinical settings.

Together with Associate Professor Rebecca Guy (UNSW), Steve worked on a trial that used molecular POC testing for STIs at 12 Indigenous health services across three states. This testing enabled patients to be diagnosed and treated on the same day, avoiding the need for health services to track down patients who are often mobile and difficult to locate days or weeks later.

In PNG, Steve's expertise has been called on by the PNGIMR (UNSW's Angela Kelly) and Associate Professor Andrew Vallely (Kirby Institute) on a range of trials. These include the testing of female sex workers, men who have sex with other men and transgender for STIs and blood borne viruses, including Hep B and HIV (ending 2017), and the screening of pregnant mothers and newborns for STIs (Kirby). Steven is also working with Andrew on the screening of 4,800 PNG women for human papillomavirus (HPV) and cervical cancer using new treatment strategies that are less damaging to the cervix and more comfortable for women. Women are retested three months later to clear the risk of an ongoing HPV infection and cervical cancer.

In partnership with the Burnette Institute, Steve was an investigator on a pilot study in Myanmar and PNG where 400 newborns with HIV-positive mothers were tested for HIV. This testing determined if the child needed antiretroviral therapy. If a HIV-positive child does not get this medication they are at risk of dying within two years. Steve will also provide input into a South Sudan study being conducted late 2018 which aims to establish STI and HPV prevalence estimates.

The Impact: Increase screening numbers, improve health, and prevent infections and death

Molecular POC testing enables patients to be diagnosed and treated on the spot using testing systems that are small, portable and accurate. This approach has obvious benefits in rural communities in Australia and PNG where people are mobile and travel large distances to clinics, and where the distance between clinics and pathology departments results in delays. It means more Indigenous Australians and PNG men and women are being screened for STIs and treated if necessary, improving their health and well-being, and minimising spread of disease.

More PNG women at risk of HPV and cervical cancer are also being screened and receiving treatment, minimising the risk of damaging infections that could result in permanent damage and even death. The testing method is also a cost saver for service providers as it avoids the costs of waiting and delays, and can be easily implemented in a range of non-laboratory settings.

Researcher

Steve Badman started working in Public Health in 1986. He taught at Curtin University and then worked for its Centre for Aboriginal Studies before joining the Indigenous Health Unit at the Australian Centre for International Tropical Health and Nutrition (ACITHN) at the UQ School of Population Health. He has conducted international public health research in Vanuatu, Thailand, PNG, Fiji and Myanmar. Steve is passionate about the sustainable use of molecular POC testing in low resource settings where electricity is a challenge. Based in Brisbane he also speaks Pidgin (or Tok Pisin/Bislama) English and is due to complete his PhD thesis in 2018.

Ben Falkenmire 24.07.18