

Mapping UNSW Impact Global Development

Primary SDG	3: GOOD HEALTH AND WELL-BEING
Broad theme	Sexually transmitted infections among pregnant women, cervical cancer
Research	Trialling new point-of-care testing and treatment strategies for pregnant women with sexually transmitted infections; and for women at risk of cervical cancer
Impact region	PNG, Fiji, Myanmar
Faculty	Medicine
School/Institute	Kirby Institute
Academic	Andrew Vallely
Project partners	<p>Maternal and neonatal health: PNGIMR, University of PNG, PNG National Department of Health, PNG Obstetrics and Gynaecology Society, University of Technology Sydney, Burnet Institute, University of Melbourne, Royal Women's Hospital, Melbourne, University of Bern, Switzerland, London School of Hygiene and Tropical Medicine, UK. Funding: NHMRC, Wellcome Trust UK, Medical Research Council UK, UK DFID, Swiss National Science Foundation (total: \$9 million)</p> <p>Cervical cancer screening: PNGIMR, University of PNG, PNG National Department of Health, PNG Obstetrics and Gynaecology Society, Royal Women's Hospital, Melbourne, Burnet Institute, Victorian Cytology Service, Cancer Council NSW. Funding: Government of PNG, PNGIMR, NHMRC (total: \$ 1 million)</p>
Related SDGs	5: Gender Equality

Elevator pitch

Andrew is evaluating point of care testing and treatment of sexually transmitted infections among pregnant women in PNG to demonstrate whether this strategy could improve mother and newborn health. He is also trialling a novel point-of-care 'test and treat' model for cervical cancer screening in PNG.

The Challenge: Pregnant women have infections, high cases of cervical cancer

In PNG it is estimated that around 50% of pregnant women have one or more curable sexually-transmitted infection (STIs) but the majority (more than 80%) of those with an infection do not have symptoms, which makes it extremely difficult to identify those who require treatment. These STIs have been associated with poor health outcomes of the baby, such as miscarriage, preterm birth and low birth weight. Research evidence to date has shown that the diagnosis and treatment of syphilis (using a simple clinic-based blood test) has substantial benefits in terms of mother and newborn health, but the impact of diagnosing and treating other curable STIs (such as chlamydia, gonorrhoea or trichomonas) in pregnancy is far less clear.

There are an estimated 1,000-1,500 deaths from cervical cancer in PNG every year. An NGO-led program in PNG was able to screen 45,000 women for cervical cancer over 15 years using the Pap test but only around

40% of those with high grade disease could subsequently be found in the community and provided with treatment in the clinic. An estimated 85% of all women in PNG live in rural communities without designated street addresses, and the majority do not have access to postal or telecommunication services. To overcome this challenge, Andrew worked with health partners in PNG to evaluate a same-day screen and treat approach based on visual inspection of the cervix after application of acetic acid (dilute vinegar solution) or VIA. This WHO-endorsed approach has been used for screening in many low-income settings worldwide. An evaluation of this approach in PNG led by Andrew's group found however that VIA performed poorly in this setting. Similar findings have been reported in other low-income countries and led to the search for more accurate screening strategies. In PNG alone, the challenge is considerable: there are around 1 million women aged 39-50 years in PNG who require screening.

UNSW's solution: Trial new testing methods that enable results and treatment on the spot

In a major new field trial taking place among 4,600 pregnant women and their babies at 10 sites in PNG (the WANTAIM Trial), Andrew's group is evaluating antenatal point-of-care STI testing and treatment to improve birth outcomes in high-burden, low-income settings. This study compares rates of low birth weight, preterm birth and other adverse health outcomes among women who receive point-of-care STI testing and same-day treatment in the clinic, compared with women who receive care based on current national clinical guidelines (treating those with clinical symptoms only). The WANTAIM study started in 2017 and is expected to be completed in 2020.

Following the disappointing evaluation of VIA-based cervical screening in PNG, Andrew's group began evaluating an approach based on the detection of human papillomavirus (HPV) infection, the causative agent of cervical pre-cancer and cancer. This research demonstrated for the first time that specimens collected by women perform equally well to specimens collected by a clinician for the detection of HPV infection. It was also possible to integrate molecular point-of-care HPV testing into routine clinical settings in PNG, and to provide women with their test results within one hour. Furthermore, the study showed that HPV test results using self-collected specimens were strongly predictive of underlying cervical pre-cancer and cancer, and could be used to reliably detect those who should be offered same-day treatment in the clinic. Self-collection identified 92% of women with high-grade cervical disease, compared with around 47% using VIA.

A large-scale study among 3,500 women attending four cervical screening clinics in PNG is now underway to confirm these exciting findings. They are evaluating the cost-effectiveness and health service requirements of HPV 'test and treat' as a screening strategy for women in PNG and other countries. This study commenced in 2017 and is expected to complete in 2019. Andrew's group will be evaluating this same approach in Fiji and Myanmar in 2018.

The Impact: Minimise harm to pregnant women and babies, help more women avoid cervical cancer

If the WANTAIM trial of point of care STI testing among pregnant women in PNG is successful, it has the potential to lead to substantial improvements in mother and newborn health in PNG and other low-income countries worldwide.

If the HPV 'test and treat' model being evaluated by Andrew's group is shown to be cost-effective and feasible to implement and scale-up within existing health services, it is likely to have a major impact on international policy and clinical practice, and to result in substantial improvements in the burden of cervical cancer among women in low-income settings globally.

Researcher

Andrew Vallely is an Associate Professor with the Public Health Interventions Research Group at the Kirby Institute, and at the Faculty of Medicine at UNSW. He has over 20 years' experience in international public health, HIV/STI and infectious disease interventions research, and has worked in Australia, Kenya, Papua New Guinea, Solomon Islands, Tanzania, United Kingdom and Vanuatu. He leads an international collaborative research group in HIV and sexual health that he established between the Papua New Guinea Institute of Medical Research (PNGIMR), the University of Queensland (UQ) and UNSW in 2007. Andrew is passionate about reproductive health.

Ben Falkenmire 06.08.18