

Mapping UNSW Impact Global Development

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| Primary SDG | 3: GOOD HEALTH AND WELL-BEING |
| Broad theme | Preventing heart attacks and strokes |
| Research | Trialling medication strategies that lower a patient's blood pressure and risk of experiencing a heart attack or stroke |
| Impact region | Sri Lanka |
| Faculty | Medicine |
| School/Institute | The George Institute |
| Academic | Dr Ruth Webster |
| Project partners | Remedium One (Sri Lanka), NHMRC project grant, Global Alliance for Chronic Disease; funding of over \$1 million |
| Related SDGs | 10: Reduced Inequalities |

Elevator pitch

Ruth is pioneering combination medicines to lower blood pressure levels in Sri Lanka, helping patients to reduce the risk of experiencing a heart attack or stroke, and setting a benchmark for non communicable disease preventative medication that is quicker and more effective.

The Challenge: High blood pressure is not being treated adequately

Non communicable disease (NCD), such as cardiovascular disease and diabetes, is the leading cause of death and disability in the world. NCDs are increasingly becoming a challenge for low to middle income countries where diets and modes of work are changing. One of the key risk factors for cardiovascular disease is high blood pressure. A quarter to a third of people in the world have high blood pressure. Even when these people are diagnosed and treated, only around a third reach their target levels.

Blood pressure can be lowered by medication. Combining medicine types is an accepted strategy for preventing cardiovascular disease and achieving a target blood pressure level but many guidelines do not yet advise the use of combination therapies early in the treatment process. In lower to middle income countries, access to drugs can be an issue due to cost and the need to visit the doctor multiple times to get the right dosage. How can we make it easier for people to get the drugs they need? Can we make it easier for them to take the drugs?

UNSW's solution: Provide pills which combine medication to achieve target blood pressure levels

In Sri Lanka, Ruth and her team trialled the use of combination medicine for early treatment in 700 patients with high blood pressure. The use of two drugs is consistent with international guidelines, but Ruth and her team opted for three low dose drugs in one convenient pill. Patients took one pill per day for six months. Within six weeks more patients were reaching their blood pressure targets compared to those in the control group. After six months 70% of patients being treated achieved their target blood pressure levels with no increase in

side effects, compared to 50% in the control group. Ruth, along with her colleagues at The George Institute, are currently investigating potential scale up of this strategy more broadly in Sri Lanka.

In other work Ruth is exploring the combination of blood pressure, cholesterol and aspirin medicine in the one pill (called polypills) to treat for the prevention of NCDs. Combining these drugs is more challenging from a regulatory point of view and also challenges established treatment paradigms for clinicians. Along with other colleagues globally, Ruth has applied to the World Health Organisation a number of times to get polypills listed on the essential medicines list but has been rejected each time. Ruth is now co-hosting a symposium in conjunction with Medicine Sans Frontiers and the Centre for Global Chronic Conditions at the London School of Hygiene and Tropical Medicine where WHO officials, experts in malaria and HIV, and polypill experts will discuss how to move this field forward to get polypills used and implemented.

The Impact: Lower blood pressure, increase ease of taking medication

Ruth's work in Sri Lanka is lowering the blood pressure levels of patients, reducing the risk of NCD in later life, and preventing NCD events like heart attacks and strokes. The use of three drugs in one pill leap frogs the steps a patient has to go through with a physician for each type of medication. It is quicker and easier for the patient, with less physician contact required than under the standard method. This saves patients time and money from visiting their local GP.

Her work in the area of polypills is a demonstration of the success of combining medications to improve health conditions. Patients are finding the one pill solution more convenient and are taking the pill more consistently, suggesting combination pills are an effective solution and could be a valuable tool to address the global epidemic of cardiovascular disease.

Researcher

Dr Ruth Webster is the Head of Research Programs within the Office of the Chief Scientist at The George Institute and a Senior Lecturer in Medicine at UNSW. She has a PhD in Medicine from the University of Sydney and holds a NHMRC Early Career Fellowship. She is the International Coordinator of the SPACE (Single Pill to Avert Cardiovascular Disease) Collaboration and Study Director for the TRIUMPH and INTEGRATE studies. Her research is focused on improving adherence to essential medications in those with the highest risk of cardiovascular disease.

Ben Falkenmire 03.07.18