Training health workers with advanced technology to assess and triage diabetes-related foot disease in Aboriginal and Torres Strait Islander people

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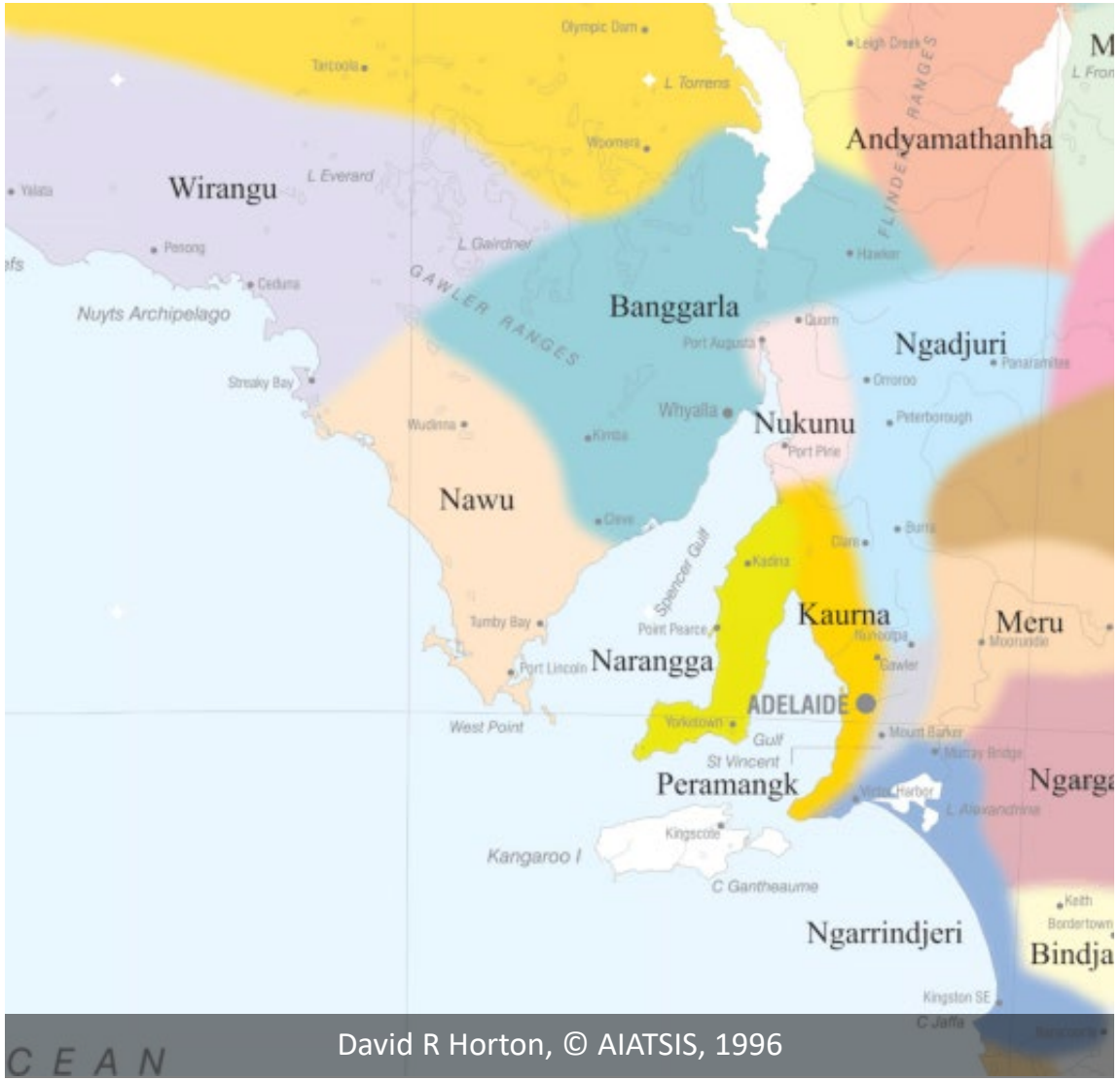
Acknowledgement of Country

We acknowledge the Kaurna people on whose lands we meet today; and the Ngarrindjeri, Nukunu, Barngarla, Wirangu, and other traditional owners whose lands are included in these projects. We thank these First Nations people for their collaboration, and for the Custodianship of the land by their Elders past, present, and future.



Abstract

Problem: Aboriginal people, especially those in rural or remote communities, are drastically affected by diabetes-related foot disease (DRFD), which is the leading cause of amputation and require expert care that is not currently readily available at community health centres.

Our Solution: With funding from the Commonwealth Department of Health, and in collaboration with partners, we have developed a Virtual Reality education package to train local and Aboriginal health workers to assess and triage Aboriginal people with DRFD near their home communities. This VR education allows for immersive and interactive training in a culturally-safe environment.

Protocol: Our VR ‘virtual training clinic” was developed by Podiatry and Aboriginal Health in consultation with multi-disciplinary stakeholders. We are currently testing our prototype with practitioner and Aboriginal consumers in advance of a full test program to project partners in rural, regional, and remote sites in South Australia. This program includes in-software evaluation of skills progress as well as several measures of practitioner satisfaction with VR training.

Outcomes: Based on initial assessment and feedback, our training program engages users with useful and culturally-appropriate skills for helping to manage DRFD in Aboriginal people.

Diabetes-related foot disease (DFD) context

- >1.2 million individuals with diabetes (Diabetes Australia)
- >4,400 total amputations performed per year (AIHW)
- 10,000 admissions per year for diabetes-related foot ulcers
- $1.4 billion estimated cost per year
- DFD costs could be halved with best-practice care *(Cheng & Lazzarini, 2016)*
- DFD is one of the 10 major causes of global disability
- Room for improvement: What can advanced technologies do?

Telehealth Implementation

Our new Multi-Disciplinary Foot Telehealth Service at the Royal Adelaide Hospital is currently implementing:

1. Team video consults, with Podiatry/Vascular/others supporting patient with local health practitioner
2. Evidence-based management and triage tools
3. Continuity of care for people who subsequently have their foot disease managed in home community after hospital care
4. Collect data to inform future strategies to reduce adverse events
5. **Training to empower local health workers to assess & triage**

Addressing Health Inequalities

Aboriginal and Torres Strait Islander people, compared to non-Aboriginal Australians, have:

- Diabetes rates 3x higher
- Foot complication rates 3-6x higher
- Lower limb amputation rates up to 38x higher
- Higher comorbidity rates – e.g., CKD 5x higher
- Hospitalisation rates 5x (males) - 11x (females) higher
- Even higher (3x) hospitalization for those living in remote communities

*(*Australian Institute for Health and Welfare, *Diabetes indicators for the Australian National Diabetes Strategy, 2016-2020)*

Addressing Health Inequalities

Our project, designed specifically for treating DRFD in Aboriginal people, will help close the Allied Health training gap by:

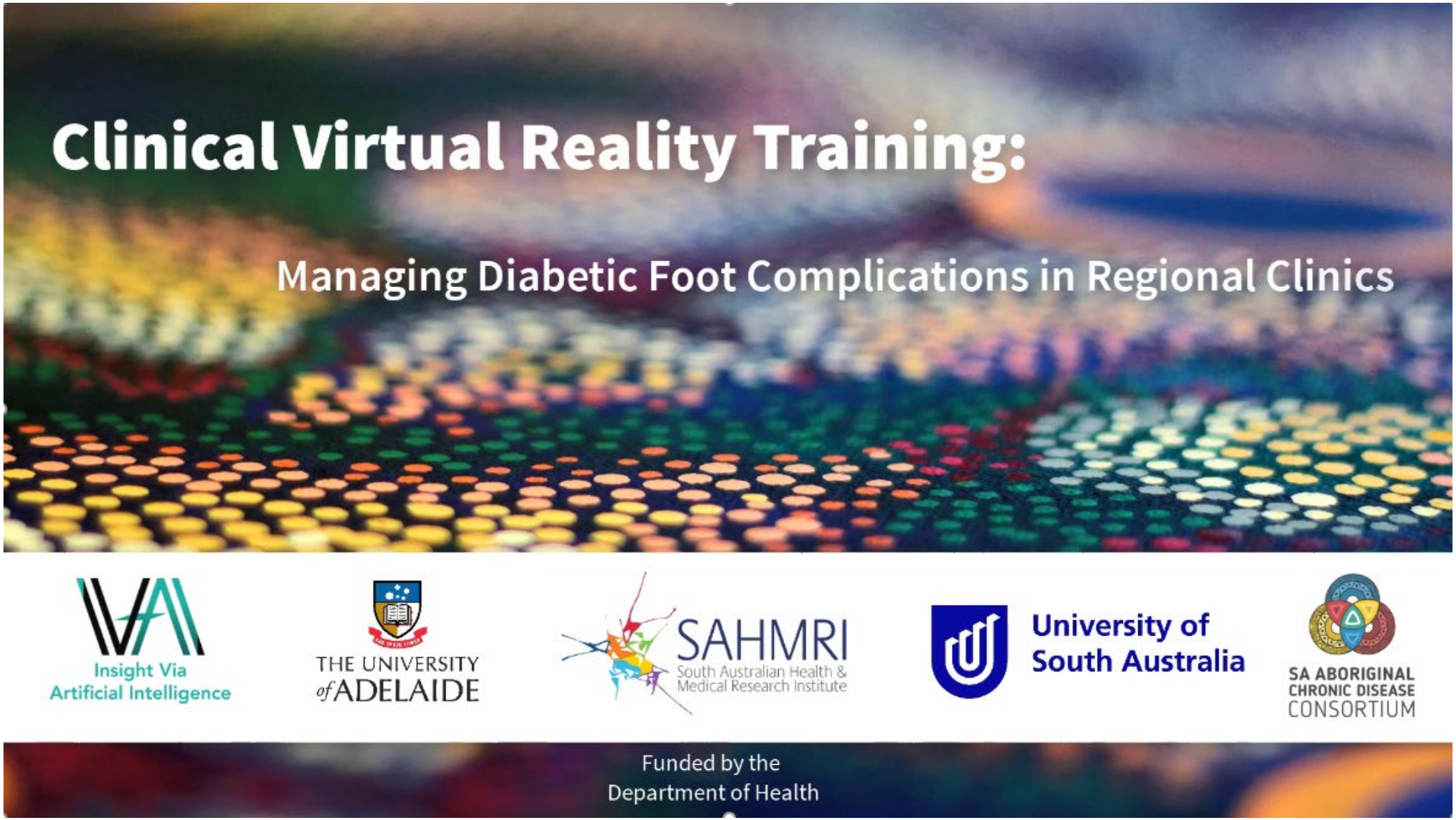
- Training assessment of risk with Aboriginal models
- Educating triage routes, including community management
- Creating a culturally-safe environment for upskilling

Outcomes

Fully funded by the Commonwealth, our VR training package has leveraged Allied Health and other multi-disciplinary consumer engagement to provide:

- Immersive training in a totally-controlled context
- Standardised presentation of stimuli
- Ability to interact with material (e.g., rotation)
- Interactive, with possibility for feedback
- Incorporation of visual design

https://www.youtube.com/watch?v=r2CvqiVsc2U



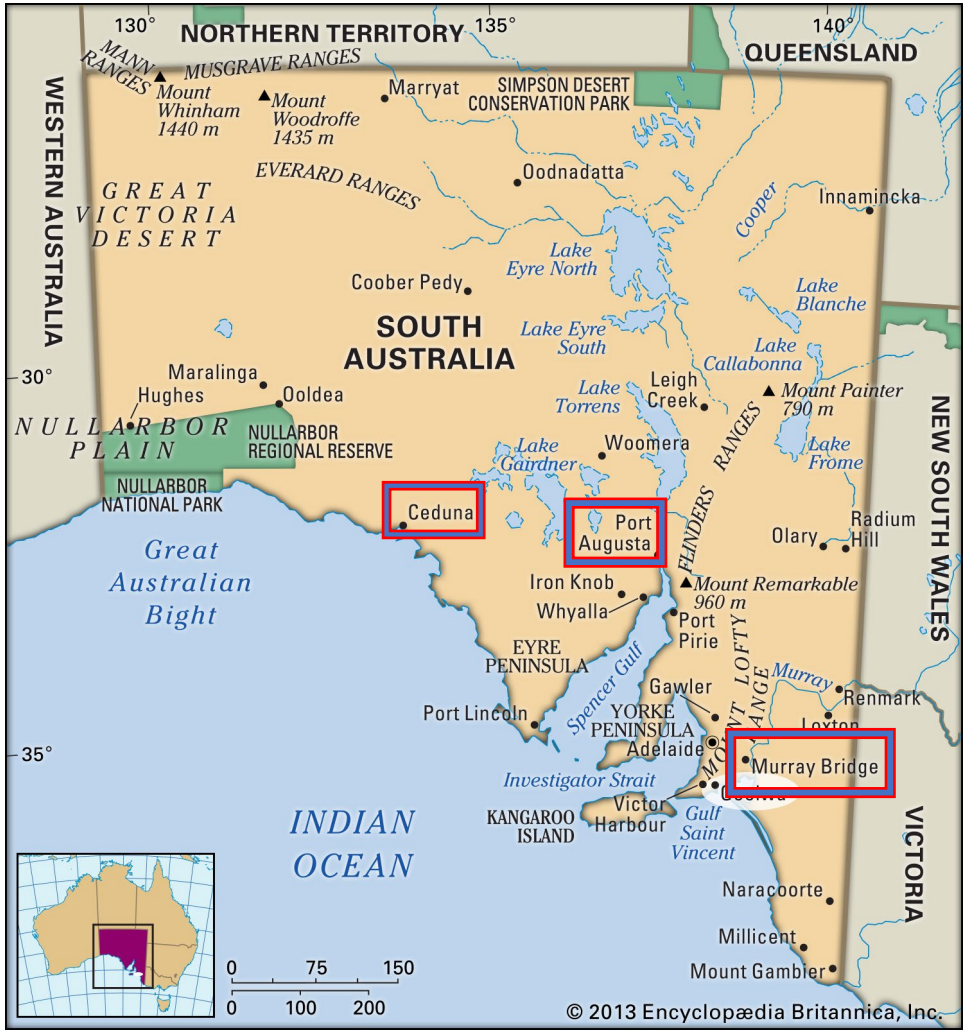
Virtual Reality case studies

- Patient 1: Low Risk
- Patient 2: Moderate Risk – pulses, sensation loss, foot deformity, callus buildup
- Patient 3: High Risk – non-palpable pulses, amputated toe
- Patient 4: Active Disease – ulcer without infection/ischaemia
- Patient 5: Acute ulcer with infection and ischaemia

Each virtual patient includes tutorials for diagnosis, action planning, and referral pathways including telehealth

Implementation/Translation to Practice

- Our implementation study will place the device/software in the hands of Aboriginal health workers at key sites in SA
- Communities already engaging our Telehealth service will use the training to upskill and provide feedback



Thank you!

Australian Government
Department of Health

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YADU HEALTH
Aboriginal Corporation

MOORUNDI
Aboriginal Community Controlled Health Service Ltd.

SAHMRI
South Australian Health & Medical Research Institute

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PIKA WIYA
HEALTH SERVICE

SA ABORIGINAL CHRONIC DISEASE CONSORTIUM

University of South Australia