

HIGH SCHOOL OUTREACH

IN REMOTE NORTHWEST QUEENSLAND

— DR KATJA FISCHER —



QIMR Berghofer
Medical Research Institute



the
Lowitja
Institute

Australia's National Institute for Aboriginal and
Torres Strait Islander Health Research

— KALKADOON COUNTRY 2015 —

SCIENCE & YOUNG MINDS

YOUTH ENGAGEMENT IN SKIN HEALTH

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BACKGROUND

The QIMR Berghofer's Science and Young Minds project aimed to inspire the scientists and medical professionals of tomorrow by relaying the importance of medical research and health-related professions in an integrated school education and capacity building program.

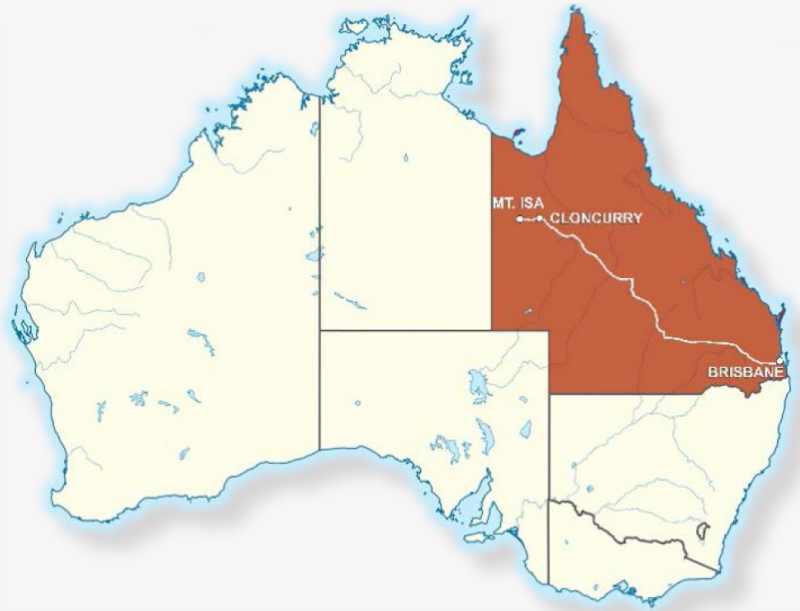
Focussing on skin health, the project included the development and delivery of science workshops to senior high school students in remote areas of northwest Queensland during 2014 and 2015. In addition, selected students and teachers participated in a laboratory work experience program at the QIMR Berghofer in Brisbane. The project targeted, in particular, the engagement of students with Aboriginal and Torres Strait Islander backgrounds.

WHY SKIN HEALTH?

The health burden of infectious skin conditions in remote Australian Aboriginal and Torres Strait Islander communities is significant, particularly scabies and associated bacterial disease; approximately 10 per cent of medical admissions of children to Mt Isa Hospital, Queensland, are due to scabies associated disease.¹ Admissions of cases with scabies combined with acute rheumatic fever or renal disease have increased, re-admissions are frequent and costs involved are high.

The research team, which has expertise in parasitology and infectious disease, particularly in skin infections such as scabies and associated bacterial disease, has noted an alarming lack of general knowledge about scabies and other infectious and parasitic skin conditions. This emphasises the need to improve education and community engagement with skin health.

¹ Whitehall, J., Kuzulugil, D., Sheldrick, K. & Wood, A. 2013, Burden of paediatric pyoderma and scabies in North West Queensland, *Journal of Paediatrics and Child Health*, vol. 49, no.2, pp. 141–3, doi: 10.1111/jpc.12095.



PROJECT OBJECTIVES

The project aimed to:

- engage young people in discussions, learning and hands on activities about skin health and medical research, relevant to local needs
- promote discussion and reflection about science and its role in helping to solve health problems, and to promote health science and research as viable career pathways for senior high school graduates
- share knowledge of parasitology and infectious disease, and increase awareness of health related issues, such as scabies and associated bacterial diseases, which are a major issue in remote northwest Queensland.



REGIONAL ENGAGEMENT

The project team established a relationship with, and delivered the program to Cloncurry State School in 2014, where more than 56 per cent of students identify as Aboriginal and/or Torres Strait Islander. Given the great feedback from students and teachers, the school asked the team to repeat the program in 2015. To further engage community and schools the project team formed a collaboration with Mr Rohan Corpus and Mr Andrew Goodman of the Indigenous Cardiac Outreach Program (ICOP), based at the Prince Charles Hospital in Brisbane. While travelling as part of the ICOP, Rohan and Andrew kindly consulted with schools in Mt Isa, Burketown, Doomadgee and Normanton to promote our project, covering a distance from Brisbane of more than 2000km.

HEALTH SCIENCE WORKSHOPS AT THE REMOTE SCHOOLS

Workshops on the topic of skin health were conducted in two consecutive years at Cloncurry State School (May 2014 and June 2015) and Mt Isa Flexible Learning Centre (June 2015). Some 25 students, primarily years 10–12, attended the two and a half-day activity at each school, which included the following components:

- six lectures about skin health and biomedical research topics identified by the teachers and researchers
- four laboratory workshops covering health science activities (e.g. microscopy, dermatoscopy, basic microbiology, basic molecular biology)
- a 'career in health and medical research' session, group discussions and a parasite quiz.

Workshop materials were carefully transported by car from Brisbane during the dry season, while roads were still accessible. Materials to create a science laboratory included: 10 microscopes, a centrifuge, a gel apparatus, a vortexer, laboratory plastic ware, micropipettes, reagents, personal protection equipment for all participants, and educational materials such as a large 3D plastic model of the skin, books, posters and workshop booklets designed by the research team.

QIMR BERGHOFER LABORATORY WORK EXPERIENCE

Selected students and accompanying teachers from each cohort participated in a one-week work experience placement at the QIMR Berghofer Medical Research Institute (August 2014/July 2015) in Brisbane.

Work experience and orientation activities included:

- introduction to laboratory work in a one-day course at the QIMR Berghofer education laboratory
- hands-on experiments in the hosting scabies laboratory at QIMR Berghofer and visits to other laboratories and facilities, including the mosquito facility, animal house, twin testing laboratory, DNA sequencing and peptide synthesis facility, flow cytometry/microscopy facility, scientific glassware, autoclaving, media services facility, and QIMR Berghofer stores
- QIMR Berghofer high school lecture presentations on a broad spectrum of medical science topics. Students were also briefed about current QIMR Berghofer PhD and Master projects, with Indigenous PhD student Ms Linda Medlin presenting her project on particles in mining dust affecting respiration, which is a topic of particular relevance to people from major Queensland mining regions
- Herston Campus and the Royal Brisbane Hospital excursions, including a three-hour workshop at the University of Queensland (UQ) Integrated Pathology Learning Centre (IPLC). Students were encouraged to develop an understanding of the effects of behavioural and environmental factors on health— with a focus on alcohol consumption and smoking— the role of research in understanding disease, and the ethical issues associated with the use of human tissue specimens in science and education
- visit to the Queensland University of Technology (QUT) Oodgeroo Unit, where QUT students spoke about university life and the benefits of linking with the Unit. This was followed by a Kelvin Grove Library tour and a visit to the Gardens Point Campus, including a tour through the 'Cube', one of the world's largest digital interactive learning and display spaces. Here the students enjoyed an inspiring, explorative and participatory experience of workshop activities.





BENEFITS AND OUTCOMES

- Successful development and delivery of a two and a half-day science workshop to years 10–12 students at two remote high schools in northwest Queensland.
- Completion by students and accompanying teachers of a one-week work experience program at QIMR Berghofer.
- Increased student and community awareness of local skin related health issues and the role of medical research and health professions in solving health problems.
- Genuine excitement about ‘doing science’ and participating in their school’s first guided science practical workshop.
- Promotion of further education and science and research as possible career pathways for young Aboriginal and Torres Strait Islander people living in remote locations.
- Increased connection between researchers and remote communities, and increased researchers’ recognition of everyday living in remote locations.

CONCLUSIONS & RECOMMENDATIONS

During 2014 and 2015, the Science and Young Minds project established strong ties, knowledge sharing and increased understanding between QIMR Berghofer Medical Research Institute and participating schools and communities in remote northwest Queensland.

Student and teacher feedback surveys and comments confirm the success and value of the project, and the importance of its delivery in remote high school settings. The lack of research and science experiences afforded to students in remote areas of Australia, especially those of Aboriginal and Torres Strait Islander background, is stark and points to an inequity of opportunity with their metropolitan peers.

Efforts to increase people’s knowledge of research and science, and awareness of the everyday issues it can help address, is a precursor to improving health and wellbeing.

QIMR Berghofer will continue to build Aboriginal and Torres Strait Islander young people’s knowledge of research, calling for further funding and supporting strategic policy development to:

- promote research and science as possible career pathway for young Aboriginal and Torres Strait Islander people, especially those living in rural and remote locations
- deliver quality science education programs, such as Science and Young Minds, that engage high school students in learning that is relevant to them and the needs of their community, and
- increase the knowledge of communities on the health issues facing them.

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