



## RACP Foundation Research Awards

### FINAL REPORT

<b>Project Title</b>	Active case finding of streptococcal infections for rheumatic fever prevention: a school-based community program using novel diagnostics (Finding ARF and strep).	
<b>Name</b>	Associate Professor Anna Ralph	
<b>Award Received</b>	2017 Bayer Australia Medical Research Establishment Fellowship	
<b>Report Date</b>	31 July 2018	
<b>Chief Investigator / Supervisor</b>	Associate Professor Anna Ralph	
<b>Administering Institution</b>	Menzies School of Health Research	
<b>Funding Period</b>	Start Date:	2 January 2017
	Finish Date:	30 June 2018

#### PROJECT SUMMARY

This project investigated new rapid tests for the detection of Group A streptococcus (StrepA) in a remote Aboriginal community and a Northern Territory laboratory. StrepA is a major problem in remote Aboriginal communities, causing a number of complications including rheumatic fever and rheumatic heart disease. The study found that in our context, antigen-based tests are inadequately sensitive (do not pick up infection every time), and molecular tests are overly sensitive (give a positive result when the traditional method is negative for StrepA). We have concluded therefore that antigen-based tests are not useful in this setting, but the molecular tests may be able to provide helpful new knowledge about preceding StrepA throat infections in children who develop rheumatic fever. This information is greatly needed, to inform public health campaigns about whether skin or throat infections with StrepA (or both) need to be targeted. A new study is therefore underway now to further evaluate the molecular test in people with a range of clinical conditions including rheumatic fever.

#### PROJECT AIMS / OBJECTIVES

The objective of this study was to improve the detection of StrepA in a remote Aboriginal community, using a school-based screening approach.

Aims:

1. To test the performance of rapid diagnostic tests in detecting Group A Streptococcus in throat swab specimens in symptomatic and asymptomatic individuals, compared with culture as the gold standard;

2. To use this process as a means of providing training about research methodology and rheumatic heart disease pathogenies, in order to develop culturally-appropriate prevention messaging.

### **SIGNIFICANCE AND OUTCOMES**

The investigation of rapid tests to improve active case finding revealed that different point of care tests available for the detection of StrepA have very different tests characteristics – RADT are insensitive compared with the current gold standard (culture), and molecular methods are highly sensitive but non-specific. A meta-analysis of different rapid tests had already highlighted differences in test performance,<sup>3</sup> but the brands used in our study, including a new research-only molecular test, had not been reported on or tested against Northern Territory StrepA strains.

These findings demonstrate that at this stage it is not appropriate to promote switching away from the traditional method of culture for detecting Strep A. We have recommended that RADTs not be rolled out for StrepA testing in the NT, but are now conducting a follow-up study on whether the molecular test can provide infection of pathophysiological and public health value in StrepA control programs.

### **PUBLICATIONS / PRESENTATIONS**

Preparation of a manuscript is underway

Preliminary findings were presented at the Lowitja-NHMRC Knowledge Translation conference, Brisbane, Nov 2017

### **ACKNOWLEDGEMENTS**

This opportunity has been of great value for the Principle Investigator, in particular in leveraging additional funding and strengthening research collaborations.

This Fellowship supported a community-based and a laboratory-based research assistant to gain important skills respectively in community engagement and laboratory methods.

With co-funding from the University of Sydney, eleven Aboriginal community members were trained (Certificate 2 in Community Research).