



Indigenous Health Division



Australian Government  
Department of Health



Flinders  
UNIVERSITY



UNSW  
AUSTRALIA



Kirby Institute

# The public health impact of molecular POC testing for COVID-19 in remote Aboriginal and Torres Strait Islander communities during the pandemic in Australia

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*Artwork by Rickesha Burdett, a Noongar woman from the Menang Region of WA currently living in the Whadjuk Country*

# Remote communities and COVID-19

## Aboriginal & Torres Strait Islander community led response:

- Learnings from H1N1
- Establishment of National Aboriginal and Torres Strait Islander COVID-19 advisory group (now NATSIHP)
- Co-led by NACCHO and the Department of Health
- Australian Health Protection Principal (AHPPC) Sub Committee





# Aboriginal and Torres Strait Islander Advisory Group

## Remote communities



Limited access to  
health care



Long distance to labs  
and hospitals



Large household  
groups



Chronic disease

Need for a rapid, robust, tailored community-led response



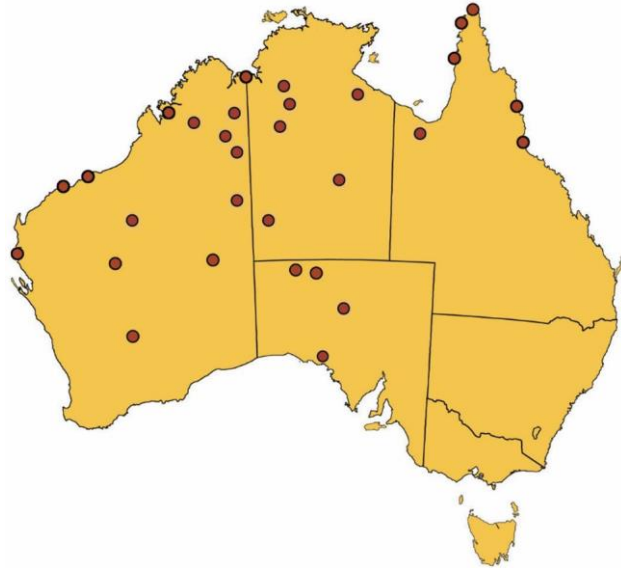


# National guidelines for remote communities – multiple strategies





## Chlamydia trachomatis, Neisseria gonorrhoeae and Trichomonas vaginalis



- 9 years
- Aboriginal Health Practitioner and Registered Nurse operators
- GeneXpert testing
- Improved time to treatment
- National Program – 31 sites at the beginning of COVID

A “no brainer” – to leverage this network to close the gap during COVID-19



# The Aboriginal and Torres Strait Islander COVID-19 POC Testing Program

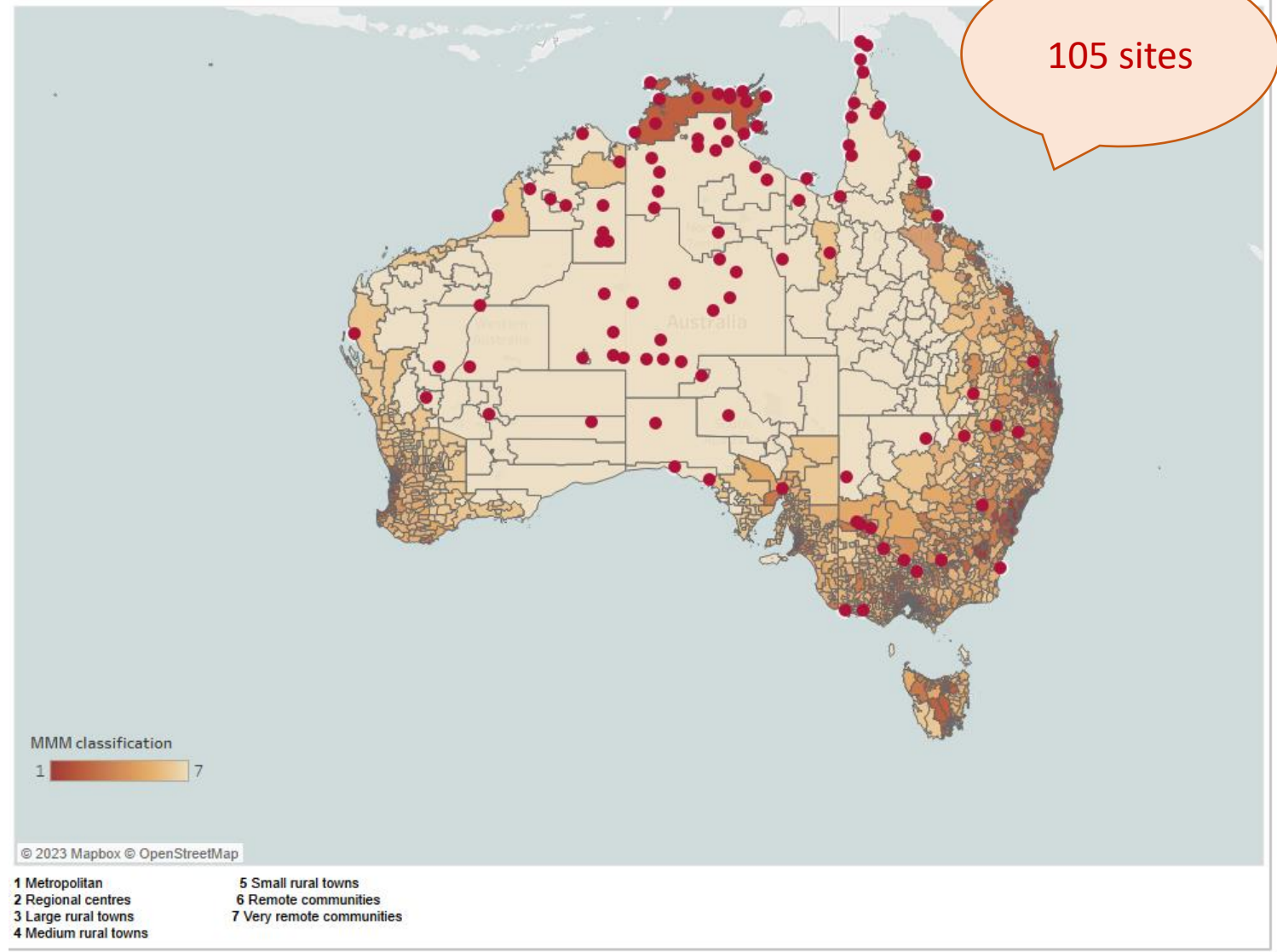


Trained health service staff (AHP, Drs, RNs) providing tests within primary health care services



Xpert® SARS-CoV-2 assay (45min)

Respiratory POCT Sites and Remoteness index



# The Aboriginal and Torres Strait Islander COVID-19 POC Testing Program



Here we'll describe the public health impact:

1. The program **scale & positivity** across the network
2. The **public health impact, for infections averted** of the program up until August 2022






# The Aboriginal and Torres Strait Islander COVID-19 POC Testing Program

## Program scale & positivity:

Using deidentified COVID-19 POC testing program data:

- Testing coverage
- Positivity across **three epidemiological phases** 

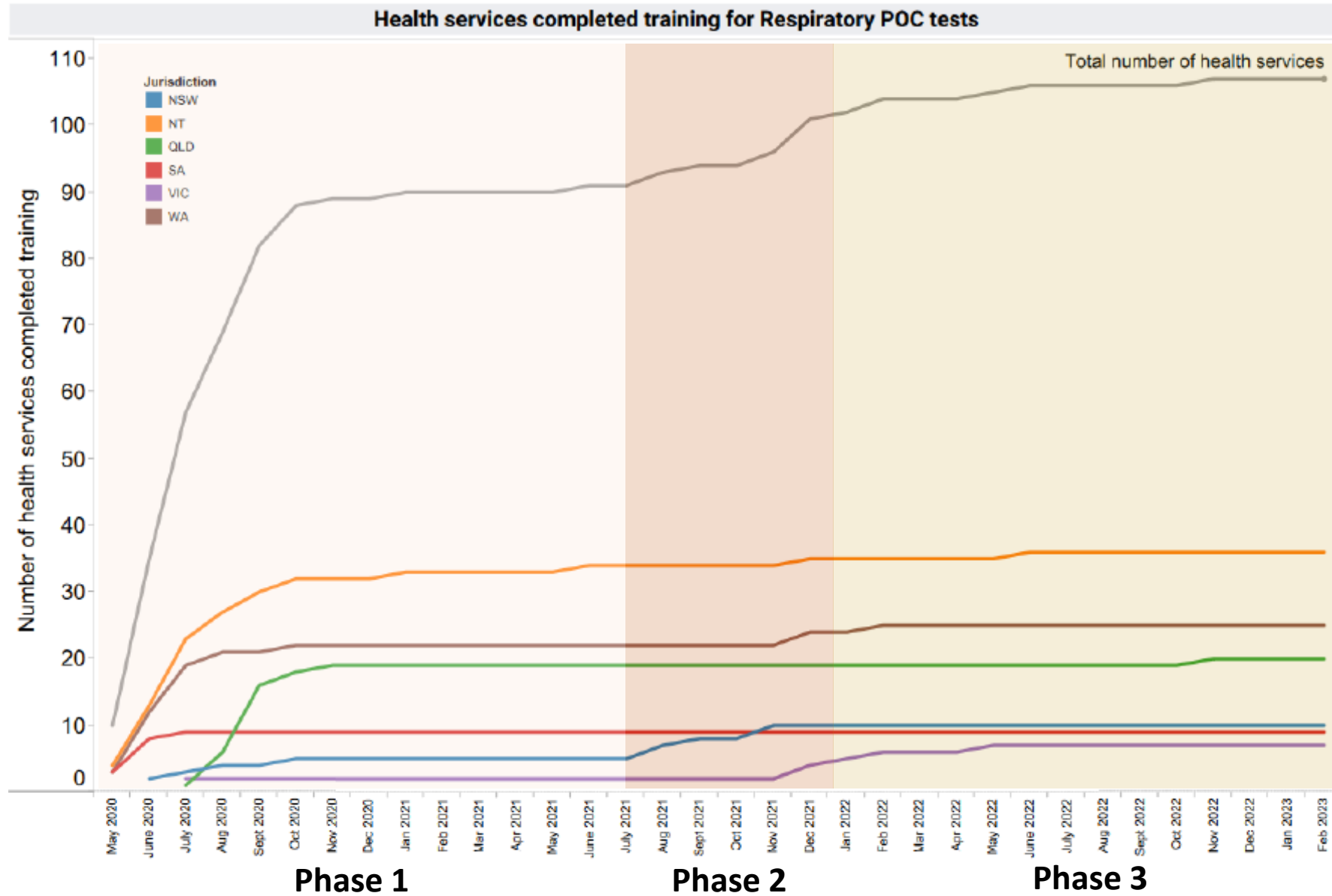
Epidemiological phase	Definition	Time period
Phase 1	Beginning of the Program till first cases of community transmission	May 2020 – July 2021
Phase 2	Established community transmission in <b>two jurisdictions</b>	August 2021 – December 2021
Phase 3	Established transmission throughout the national network  Rapid antigen tests available and national cabinet policy changes eliminated need for confirmatory PCR	January 2022 – August 2022*

\* Phase 3 is ongoing, however the study period was limited to August 2022





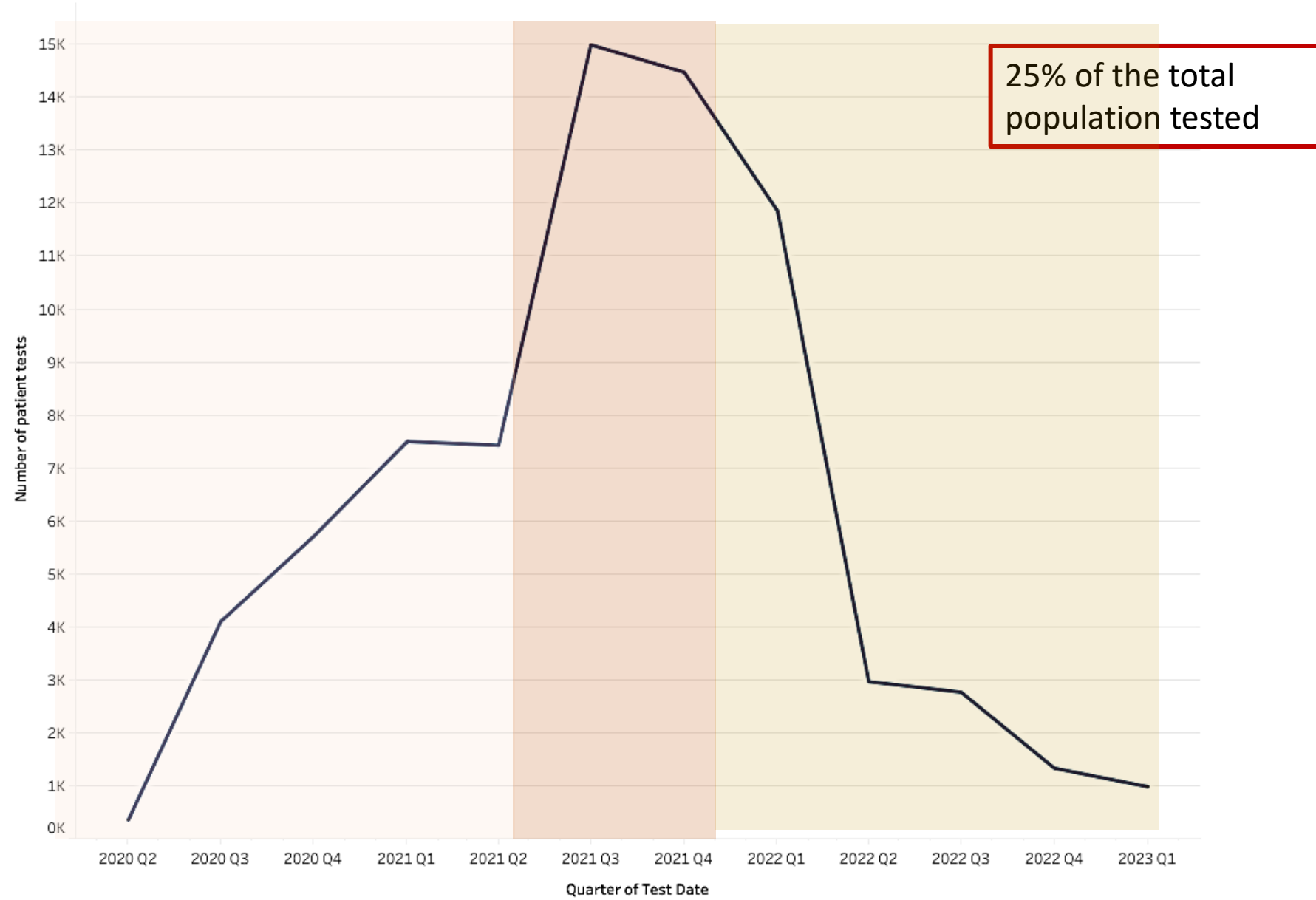
# The Aboriginal and Torres Strait Islander COVID-19 POC Testing Program





# The Aboriginal and Torres Strait Islander COVID-19 POC Testing Program

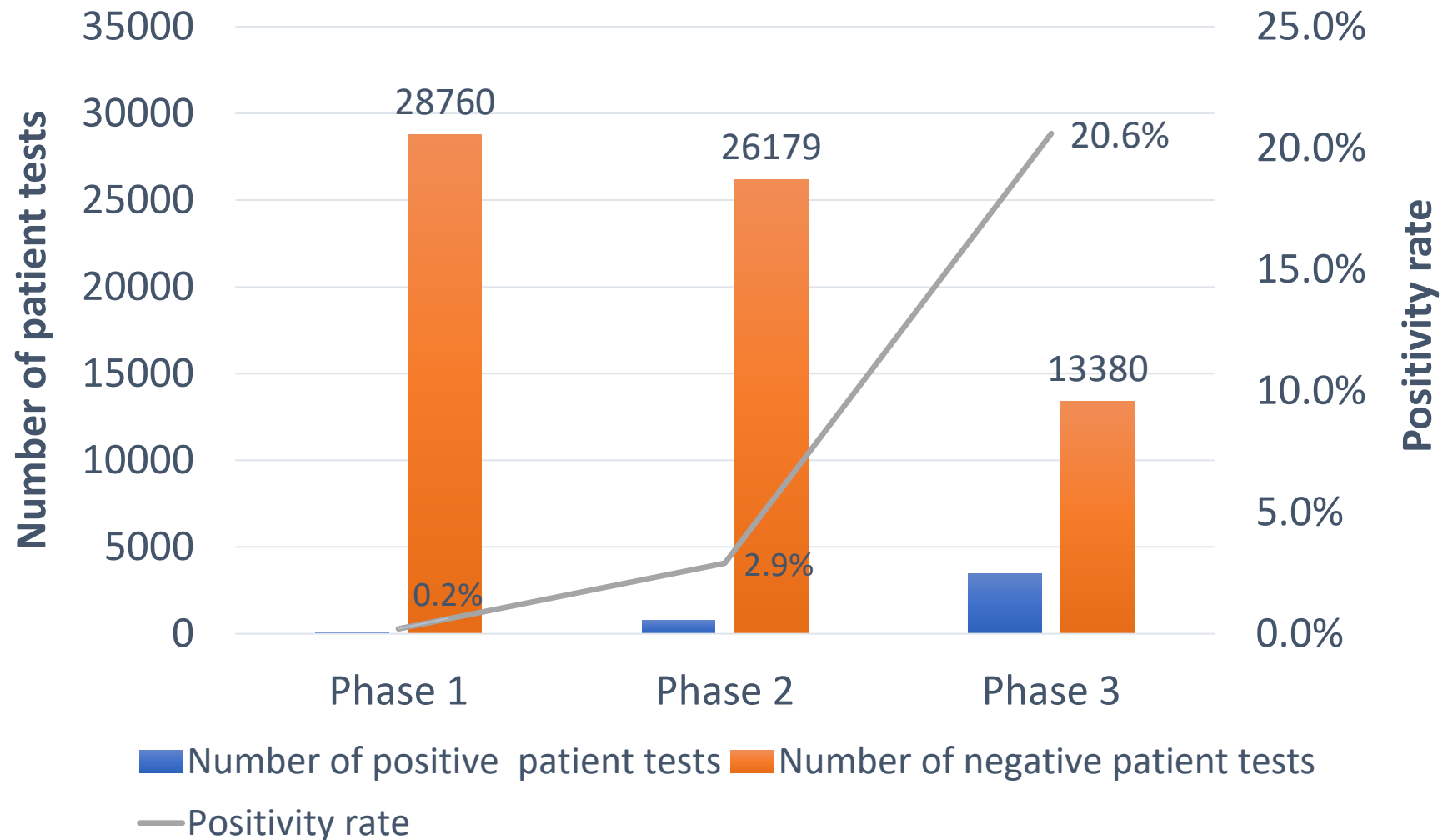
SARS-COV-2 POC patient tests by quarter





# The Aboriginal and Torres Strait Islander COVID-19 POC Testing Program

## COVID-19 POC patient test positivity (May 2020 – August 2022)



\* Positive and or presumptive positive qualitative PCR result



## Public health impact – using counterfactual modelling

- Program data + public health notifications = estimated **total unique positive cases over 40 days after the first cases was detected** within a community
- **Compared to modelling data (Hui et al) describing the number of cases predicted if there was a delay in the initiation of public health responses** (assuming a 6-day delay)

Hui et al. *BMC Infect Dis* (2021) 21:929  
<https://doi.org/10.1186/s12879-021-06607-5>

BMC Infectious Diseases

RESEARCH ARTICLE

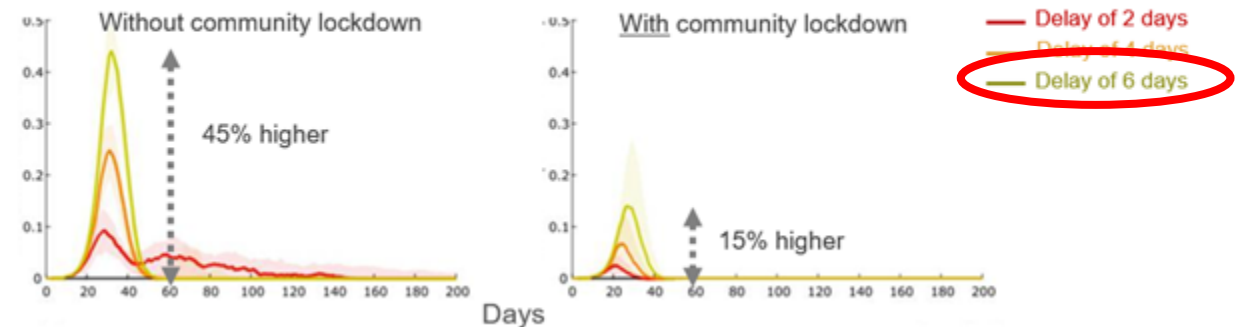
Open Access

### Modelling testing and response strategies for COVID-19 outbreaks in remote Australian Aboriginal communities

Ben B. Hui<sup>1†</sup>, Damien Brown<sup>2,3†</sup>, Rebecca H. Chisholm<sup>4,3</sup>, Nicholas Geard<sup>5,2</sup>, Jodie McVernon<sup>6,3†</sup> and David G. Regan<sup>1†</sup>



#### Strategies including test & household quarantine



## 2. Public health impact – using counterfactual modelling (Hui et al)

Resident population from participating services = 148,199

Predicted % of the population infected within 40 days  
(Hui et al) with a 6 day delay

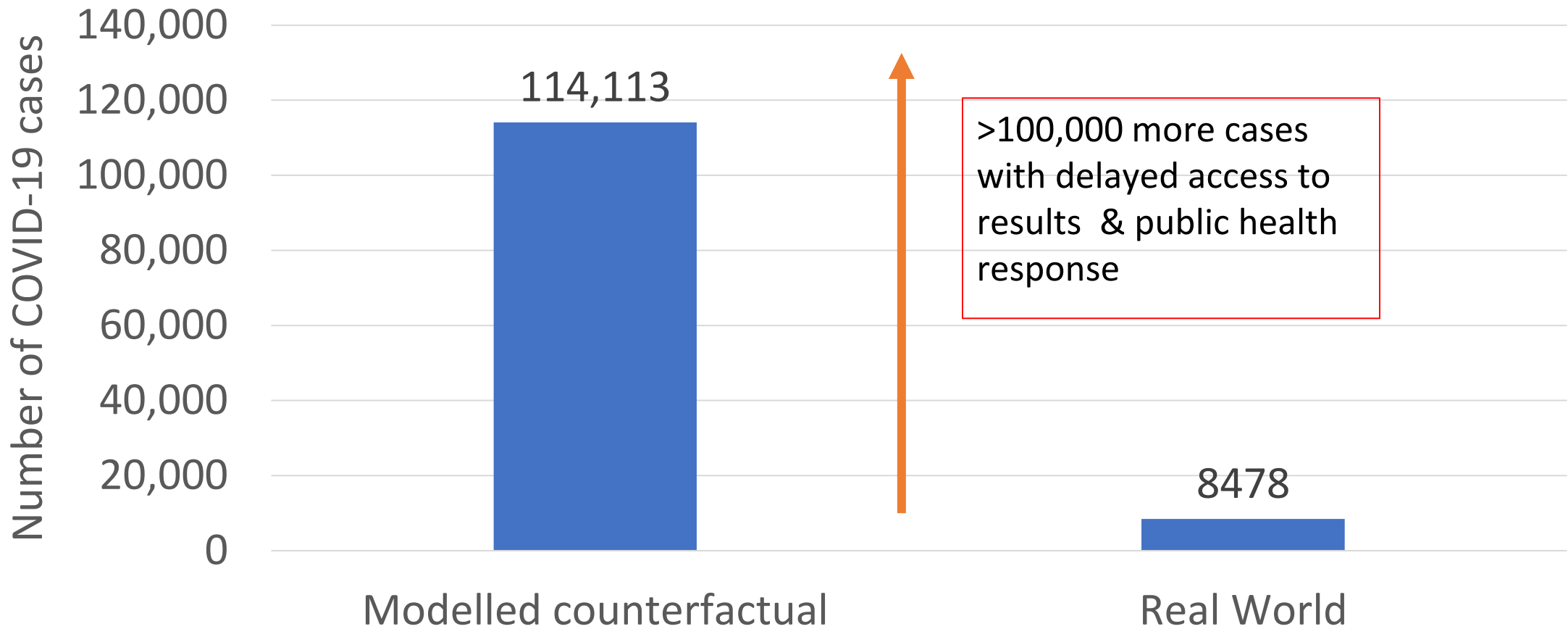
90% adherence to public  
health measures =  
77% of pop'n infected

80% adherence to public  
health measures =  
84% of pop'n infected



# The Aboriginal and Torres Strait Islander COVID-19 POC Testing Program

Number of COVID-19 cases within 40 days of an outbreak:  
modelled 90% adherence to public health measures

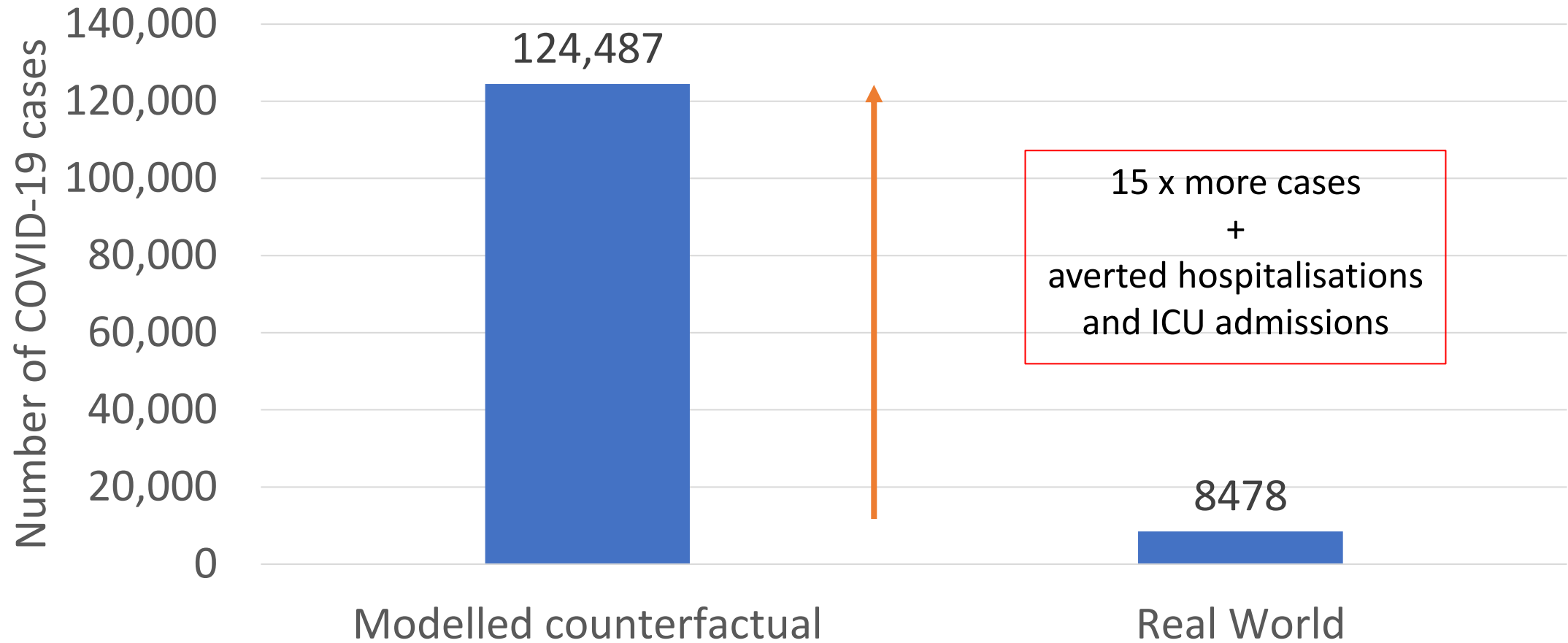






# The Aboriginal and Torres Strait Islander COVID-19 POC Testing Program

Number of COVID-19 cases within 40 days of an outbreak:  
modelled 80% adherence to public health measures





# Summary 1

## Limitations:

- Modelled on early variants (Wuhan), therefore the rate of transmission used in the modelled estimates may be an underestimate of true transmission rates.
- Vaccination not included – however this will be done in future analysis
- Model assumed contacts isolated alone, and cases were isolated immediately – this may have varied across services due to access to quarantine facilities.
- This is a preliminary analysis focusing only on the first 40 days after an outbreak started in communities and is not reflective of the whole pandemic



## Summary 2

- Rapid expansion, most sites located within remote areas of Australia where access to rapid test results is limited
- Reached ~25% of the total population (Aboriginal and Torres Strait Islander peoples)
- Targeted testing during the outbreak in remote areas (lower test numbers, higher positivity)
- Based on modelled predictions, between 100,000 and 120,000 infections were averted due to rapid access to test results via the molecular POC test, compared to a 6-day delay.
- Therefore, not only were infections averted, but likely subsequent hospitalisations and deaths were also averted.





# Acknowledgements

- Indigenous Health Branch, Australia Government Department of Health
- COVID-19 POC Clinical Advisory Group
- The National Aboriginal and Torres Strait Islander COVID-19 Advisory Group
- Participating Aboriginal community controlled and government health services

- National, state and local Aboriginal Community Controlled Health Organisations and members who contributed to jurisdictional meetings:

- National Aboriginal Community Controlled Health Organisation
- Aboriginal Health Council of WA
- Ngaanyatjarra Health Service, WA
- Kimberley Aboriginal Medical Services, WA
- Aboriginal Health Council of SA
- Nganampa Health Council, SA
- Victorian Aboriginal Community Controlled Health Organisation
- Aboriginal Health and Medical Research Council of NSW
- Aboriginal Medical Services Alliance Northern Territory
- Central Australian Aboriginal Congress, Alice Springs, NT
- Queensland Aboriginal and Islander Health Council, QLD
- Apunipima Cape York Health Council, QLD

## **State health departments and other government services**

- WA Health
- WA Country Health Service
- SA Health
- Department of Health & Human Services, Victoria.
- NSW Health
- QLD Health
- NT Health

## • **Industry**

- Cepheid Inc
- Medical Communication Associates, Adelaide
- HealthLink
- Logical Freight Solutions
- TNT Express

## • **Other centres**

- University of Queensland Centre for Clinical Research
- University of Queensland Poche Centre for Indigenous Health
- Immunovirology and Pathogenesis Program, The Kirby Institute, UNSW Sydney
- St Vincent's Centre for Applied Medical Research
- Longhorn Vaccines and Diagnostics LLC

## • **Pathology providers**

- PathWest
- Pathology Queensland
- Forensic and Scientific Services
- SA Pathology
- Territory Pathology
- NSW Pathology
- Victorian Infectious Disease Reference Laboratory
- The Royal College of Pathologists of Australasia Quality Assurance Program
- NSW State Reference Laboratory for HIV & Molecular Diagnostics Medicine Laboratory, SydPath, St Vincent's Hospital Sydney

# Program evolution....

## ➤ Evaluation:

- Expansion of public health impact analysis - hospitalisations
- Cost effectiveness
- Social science – success stories and innovation

## ➤ First Nations Molecular POC testing program:

- Transition from single assay SARS-CoV-2 testing to multiplex (Flu A, B and RSV)
- Scale up to include more services

## ➤ MRFF funding Rapid Applied Research Translation – co-led by NACCHO

- Sustainability of critical support systems (workforce, training, funding)
- Demonstration projects for other infectious diseases (HPV, GAS etc)





# Other presentations....

**Session G: Innovating systems to ensure quality.** Tuesday, March 14 – 4:30 – 5:30 PM

- *An innovative connectivity solution for national decentralised infectious diseases testing programs in regional and remote primary health services in Australia.*

Presenting Author: Amit Saha, Lecturer, The Kirby Institute

**Session J: Community-led and community-based responses** Wednesday, March 15 - 11:00 AM - 12:40 PM

- *COVID-19 POC testing in remote Aboriginal and Torres Strait Islander Communities: informing a community-led response in an uncertain environment.*

Presenting Author: Annie Tangey, PHD Student, The Kirby Institute

- *“It’s positive- now what?”: Developing systems to enable real-time public health action in a large decentralised remote and regional COVID-19 point of care testing program.*

Speaker: Andrea Kindinger, Senior Project Officer, The Kirby Institute

Look out for this Poster from the Program:

- Quality assurance testing for SARS-CoV-2 RNA detection in the Aboriginal and Torres Strait Islander COVID-19 Point-of-Care Testing Program (Kelly Andrewartha, Flinders University International Centre For Point-of-Care Testing, SA, Australia)

# Results 1 - Demographics

	Total	Phase 1	Phase 2	Phase 3
<b>Ethnicity</b>				
Aboriginal and/or Torres Strait Islander	67.1%	65.3%	64.2%	75.3%
Other	32.9%	34.7%	35.8%	24.7%
<b>Age Group</b>				
0-17	13320 (19.8%)	5823 (21.8%)	4594 (17.6%)	2903 (20.1%)
18-29	12474 (18.5%)	4687 (17.6%)	4845 (18.5%)	2942 (20.4%)
30-49	21848 (32.5%)	8342 (31.3%)	8771 (33.5%)	4735 (32.8%)
50-69	17164 (25.5%)	6809 (25.5%)	7002 (26.8%)	3353 (23.2%)
70-99	2468 (3.7%)	1003 (3.8%)	944 (3.6%)	521 (3.6%)
<b>Gender</b>				
Female	56.4%	58.2%	52.3%	60.6%
Male	43.6%	41.8%	47.7%	39.5%