First Nations Molecular Point of Care Testing Program

TTANGO2

Program evaluation summary report for health services
2016 – 2024

UNSW SYDNEY
UNSW Kirby Institute
Flinders University
International Centre for Point-of-Care Testing

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Contents

Walking Together for Infectious Disease

The vision of this artwork represents “Walking Together” for a common need which is preventing infectious disease.

Walking hand in hand as community members, health service clinicians, and researchers learning, sharing, having open communication, building rapport with each other, and changing the way that point of care testing is done within communities for the benefit of eliminating infectious disease.

by Wiradjuri, Kamilaroi & Euahlayi Woman Mel Fernando

First Nations
Molecular Point of Care
Testing Program

Executive summary

TTANGO2/3 (Test, Treat ANd GO; 2016-2024) involved the scale-up and implementation of molecular point-of-care (POC) testing for chlamydia, gonorrhoea, and trichomonas, building upon findings from the TTANGO randomised control trial.[1] This program is now integrated into primary care and continues currently as part of the First Nations Molecular POC Testing Program: www.ttango.com.au

This report summarises the findings of a multidisciplinary evaluation funded by the NHMRC which assessed the scale-up and sustainability, clinical and public health impact, analytical quality (accuracy), acceptability and cost-effectiveness of the TTANGO2 program.

Key findings

Key findings and impacts from the evaluation are summarised below. Further information can be found in the publications and abstracts listed.[2-8]

1. **Scale up and sustainability**
   - STI POC testing for chlamydia, gonorrhoea and trichomonas has been successfully scaled up and sustained since 2016
2. **Clinical and public health impact**
   - STI POC testing reduces time to treatment compared with lab-based testing
   - More rapid, curative treatment leads to reductions in the number of infectious days in the community and therefore leads to fewer onward transmissions
   - Access to STI POC testing increases the overall uptake of STI testing at services
   - Modelling shows STI POC testing reduces the risk of complications such as pelvic inflammatory disease (PID) and preterm/ low birthweight babies
3. **Accuracy**
   - The GeneXpert chlamydia/ gonorrhoea and trichomonas tests are as accurate as currently available lab tests
4. **Acceptability**
   - STI POC testing is acceptable to healthcare workers and managers in regional and remote primary health services
5. **Cost effectiveness**
   - STI POC testing in regional and remote primary health services is cost-effective

Key outcomes and impacts

- Medicare rebate for molecular STI POC testing approved in May 2024 for services in remote and very remote areas (MM6-7) - an Australian-first for infectious disease POC testing
- Mandatory notifications for chlamydia/ gonorrhoea and trichomonas (NT) infections now include molecular POC test results via the program
- STI POC testing included in national/jurisdictional STI strategies and guidelines
- POC testing connectivity system developed to ensure real-time digital POC test results available for clinical management, surveillance and program implementation
- New learning management system (LMS) introduced in 2024, allowing greater flexibility for clinic staff to complete self-paced online modules

Conclusion

STI POC testing delivered through primary health services has been scaled up and increased equitable access to timely diagnosis and cure of STIs in regional and remote communities, leading to modelled reductions in the consequences of untreated infections such as PID and preterm/ low birthweight babies. This program represents the largest decentralised molecular STI POC testing network globally.

Scale up and sustainability

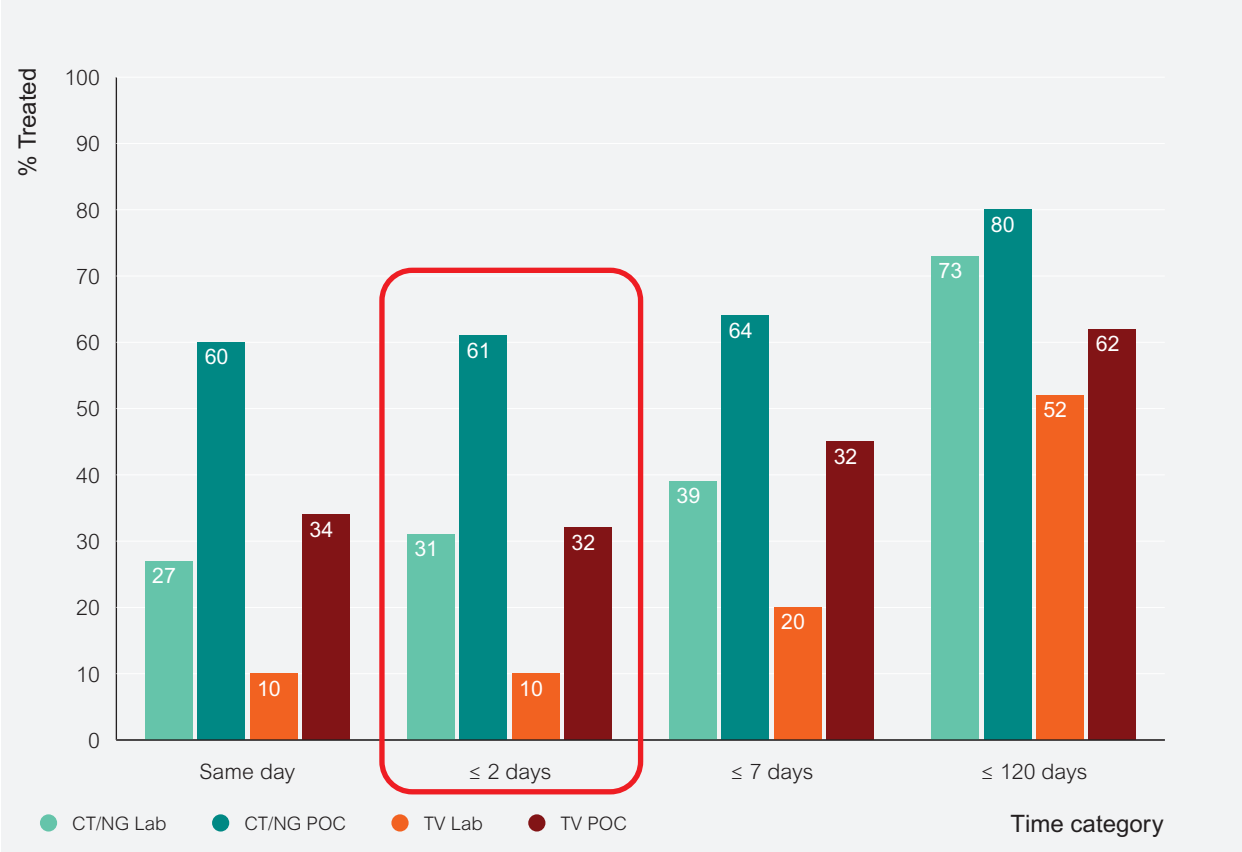
- Molecular STI POC testing for chlamydia, gonorrhoea and trichomonas has been **successfully scaled up and sustained since 2016** - expanding from 11 clinics in 2015 to 80 in 2024.
- From January 2016 to June 2024, **more than 1000 health professionals successfully completed TTANGO GeneXpert training**. Most new operators trained were nurses (72%), followed by Aboriginal Health Workers/ Practitioners (21%).
- **To date > 60,000 chlamydia/ gonorrhoea and trichomonas POC tests have been conducted** (>38,000 chlamydia/ gonorrhoea tests and >22,000 trichomonas tests). Note trichomonas POC testing was introduced in 2018.

Clinical and public health impact

1. STI POC testing reduced the time to treatment

- **2-3 times more patients were treated within 2 days compared with lab-based testing** (61% treated within 2 days of a positive chlamydia/ gonorrhoea POC test vs 31% following a positive lab test; trichomonas: 32% vs 10%). See Figure 1.
- The improved time to treatment was most pronounced among women.[2] This finding may be because infection in women is often asymptomatic, while men are more likely to present with symptoms and therefore treated presumptively (same day).
- Even after a week or at 4 months (120 days) more people are treated following a POC test than a lab test.

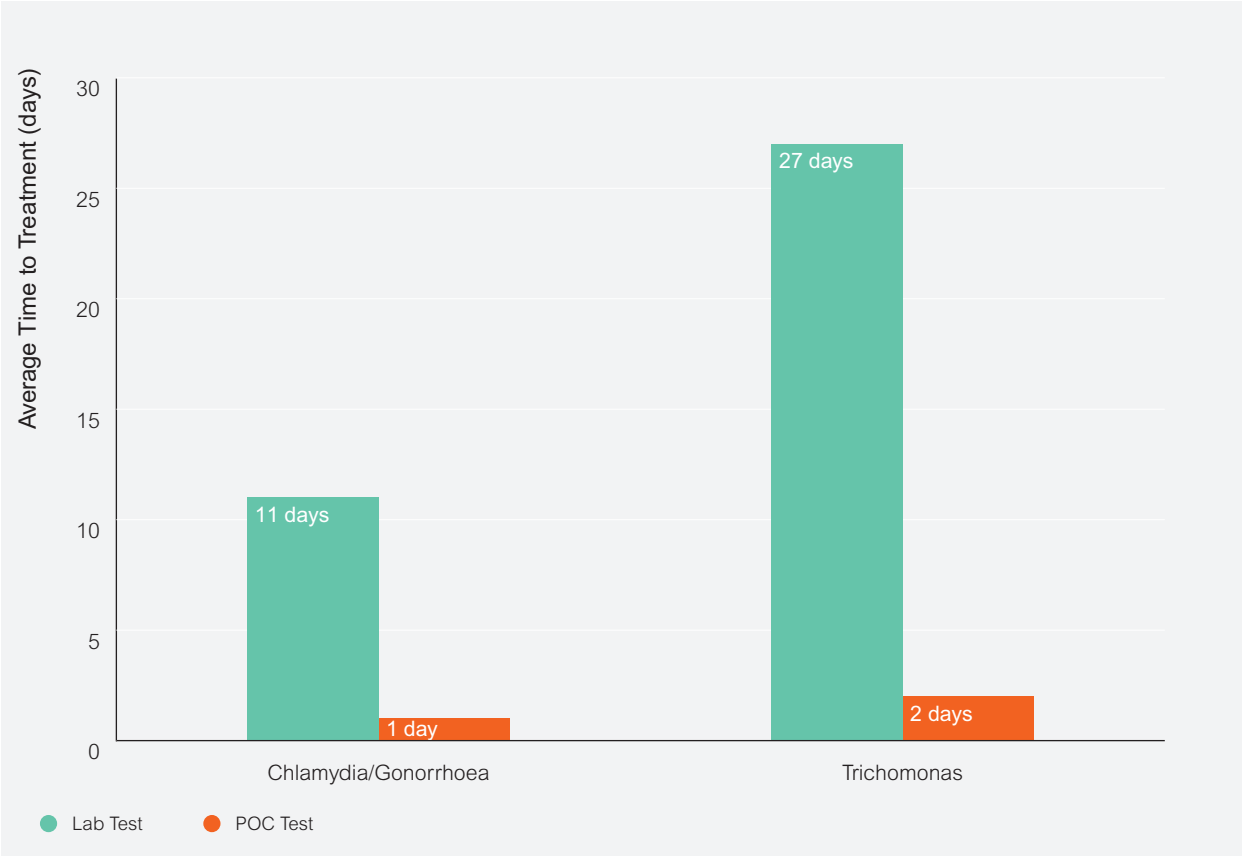
Figure 1. Time to treatment following a positive STI test (2016-2024)



2. **More rapid, curative treatment leads to reductions in the number of infectious days in the community and therefore leads to fewer onward transmissions**

Between 2016 and 2024, 8,800 infections were detected via POC tests (6960 chlamydia/ gonorrhoea and 1936 trichomonas). Patients with positive POC tests were treated earlier than those with positive lab tests. The average time to treatment was reduced by 10 days (from 11 days to 1 day) following a positive chlamydia/ gonorrhoea POC test compared to a positive lab test, and by 25 days (27 days versus 2 days) for trichomonas. See Figure 2.

Figure 2. Time to treatment following a positive STI test



When a person is informed of their results and provided treatment quickly, they have less time to pass on the infection to others. In total **118,000 infectious days were averted during this period.** See Table 1.

Table 1. Infectious days averted between 2016 and 2024

	Lab test Median TTT (days)	POCT Median TTT (days)	Difference Median TTT (days)	No. positive POCT	Infectious days averted
Chlamydia/ gonorrhoea	11	1	10	6960	69,600
Trichomonas	27	2	25	1936	48,400
				TOTAL	118,000

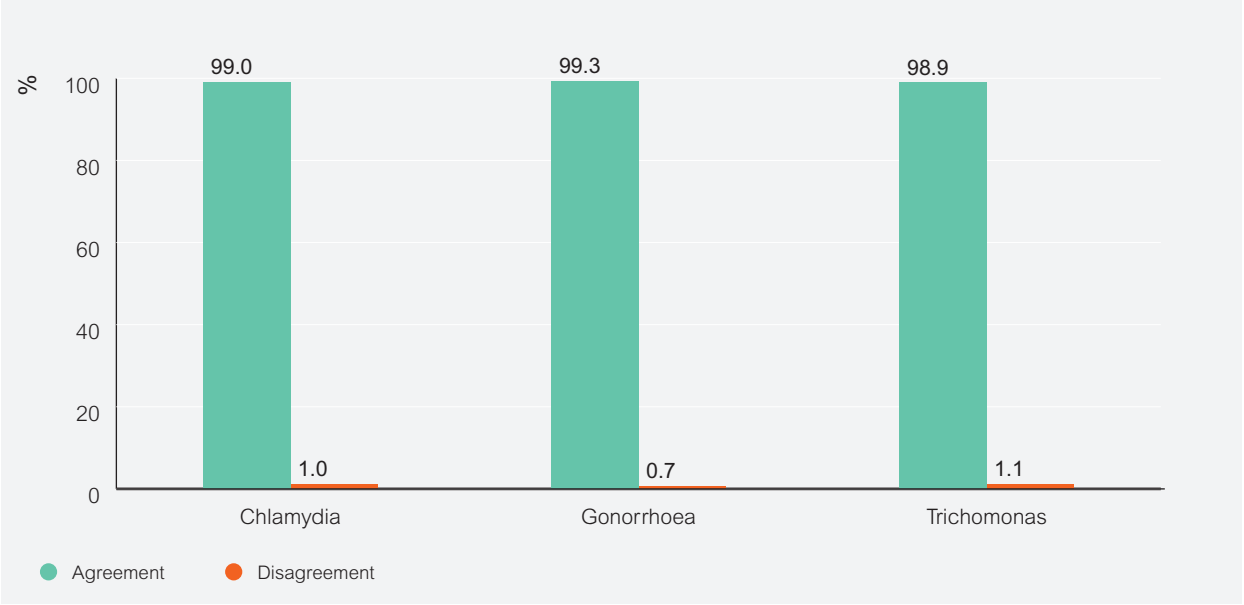
3. **Access to STI POC testing increases the overall uptake of STI testing at services**
   - Following the introduction of STI POC testing there was an overall increase in the number of chlamydia, gonorrhoea and trichomonas tests (including both POC and lab tests) conducted by participating health services, resulting in more of these infections being detected and treated, and this increase was sustained over time.[5]
   - Sustained higher testing rates among young people could lead to a reduction in the prevalence of these infections.
   - HIV and syphilis testing was not reduced after the introduction of POC testing for chlamydia/ gonorrhoea and trichomonas.[5]
4. **A model was developed to estimate the long term effect of molecular STI POC testing on the risk of developing complications of infection such as pelvic inflammatory disease (PID) and preterm/ low birthweight babies. The model predicted a reduction in PID by 30% and preterm/ low birthweight babies by 19% over a 10 year period.**

Accuracy

The accuracy of molecular STI POC testing remains very high with the same results obtained from the lab and POC tests for over 99% of specimens and very low unsuccessful test rate (<2%).[2] This means we can be very confident that the results are accurate.

- Among 4110 chlamydia/ gonorrhoea tests and 2371 trichomonas tests, the same result was obtained on the POC test as the lab test 99·0% of the time for chlamydia, 99·3% for gonorrhoea and 98.9% for trichomonas.
- There were only 40/4071 (1%) chlamydia results, 28/4082 (0.7%) gonorrhoea results and 27/2344 (1.1%) trichomonas results where the lab test gave a different result to the POC test. These were most likely due to low levels of infection which were not picked up by the lab test. See Figure 3.

Figure 3. Agreement of lab and POC results (green) and disagreement of results (red) for chlamydia, gonorrhoea and trichomonas (2016-2024).

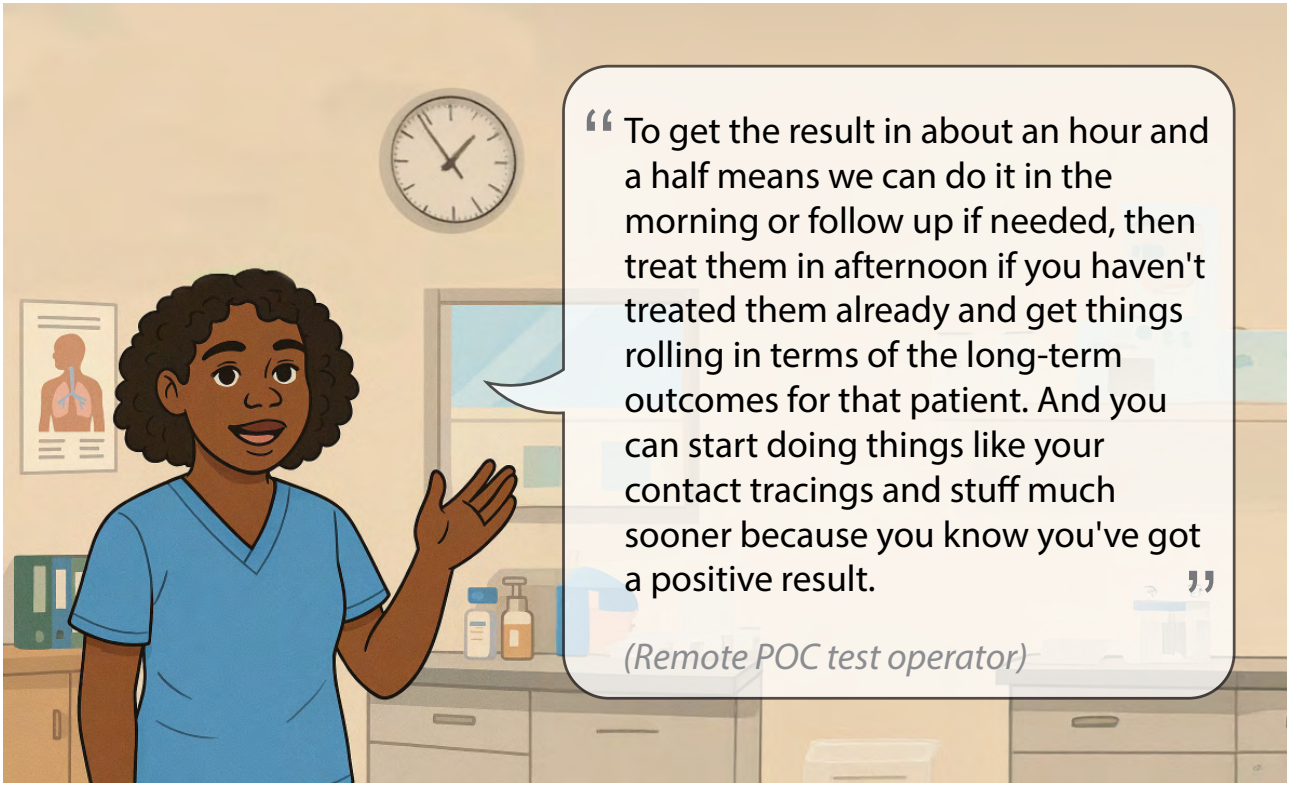


Acceptability

Semi-structured in-depth interviews were conducted with 46 clinical staff, including nurses, Aboriginal health practitioners and managers from remote primary health services involved in the TTANGO2 program.

Key findings:

- **Acceptability of STI POC testing technology remains high among healthcare workers and managers** and is mainly influenced by operator confidence to conduct POC tests, and how healthcare workers/ managers viewed the effectiveness of POC testing technology and the additional workload burden associated with POC testing.[3]
- Healthcare workers described that being able to test for all three STIs at the point of care gave them the satisfaction of providing a "one stop shop" for STI management. The integration of trichomonas POC testing alongside chlamydia/gonorrhoea POC testing was viewed as enhancing patient care, improving test and treat pathways, reducing unnecessary treatments, and better streamlining workflow.[6]
- Integrating STI POC testing into routine health care can help normalise STI testing and boost uptake.[8]
- Barriers to integration included additional workload and retention of trained staff to conduct POC testing. Patient reach (including strategies for patient engagement) was considered important for STI testing scale up.[3]



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Cost effectiveness

The evaluation compared the cost-effectiveness of STI POC testing to standard care (lab testing) and was calculated over a 10-year time period.[7]

Finding:

- **Molecular STI POC testing in regional and remote primary health services is cost-effective**, mainly due to reduced staff time to follow-up patients for treatment and reduced risk of complications of infection for women and babies.

medicare

The program and cost-effectiveness evaluations, as well as letters of support from participating services and other stakeholders, were instrumental in the approval of a new Medicare item for STI POC testing in 2024.

This item is available to health services in remote and very remote regions (MM6-7) that are enrolled in the First Nations Molecular POC Testing Program and the operator is deemed competent to perform POC testing. It is the first MBS item in Australia for an infectious disease POC test and includes reimbursement for staff time.

If you are interested in being able to offer STI POC testing at your service, please contact the Program's Help Desk on 08 8201 7555 for more information.

Acknowledgements

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This report was prepared in consultation with the First Nations Point of Care Lore and Governance Group, peak ACCHOs and health service representatives.

Ethical approvals

Ethics approvals for TTANGO2 were received from all relevant committees including West Australian Aboriginal Health Information and Ethics Committee (reference#- 644, approved 21/07/2015); Western Australia Country Health Service Research Ethics Committee (reference#-2015/13, approved 8/10/2015); Far North Queensland Human Research Ethics Committee (Reference#: HREC/15/QCH/66—986, approved 7/8/2015); Townsville Hospital and Health Service Human Research Ethics Committee (Reference# HREC/18/QTHS/49, approved 23/2/18); Aboriginal Health Research Ethics Committee SA (Reference# 04-15-626, approved 11/8/2015); Kimberley Aboriginal Health Forum Research Sub-committee (reference# 2015—011, approved 12/7/15); Central Australian Human Research Ethics Committee (reference# 16-373, approved 16/5/16); Human Research Ethics Committee of the Northern Territory Department of Health and Menzies School of Health Research (reference# 2016-2610, approved 2/8/16).

Relevant Publications

1. Guy RJ, Ward J, Causer LM, et al. Molecular point-of-care testing for chlamydia and gonorrhoea in Indigenous Australians attending remote primary health services (TTANGO): a cluster-randomised, controlled, crossover trial. *The Lancet Infectious diseases* 2018; **18**(10): 1117-26.

2. Causer LM, Ward J, Smith K, et al. Clinical effectiveness and analytical quality of a national point-of-care testing network for sexually transmitted infections integrated into rural and remote primary care clinics in Australia, 2016-2022: an observational program evaluation. *Lancet Reg Health West Pac* 2024; **48**: 101110.

3. Lafferty L, Smith K, Causer L, et al. Scaling up sexually transmissible infections point-of-care testing in remote Aboriginal and Torres Strait Islander communities: healthcare workers' perceptions of the barriers and facilitators. *Implement Sci Commun* 2021; **2**(1): 127.

4. Saha A, Andrewartha K, Badman SG, et al. Flexible and Innovative Connectivity Solution to Support National Decentralized Infectious Diseases Point-of-Care Testing Programs in Primary Health Services: Descriptive Evaluation Study. *J Med Internet Res* 2023; **25**: e46701.

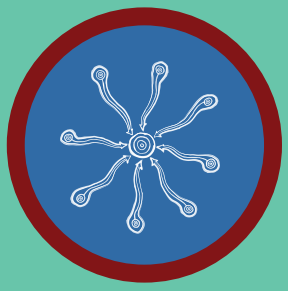
5. Tangey A, Smith K, Wand H, et al. Impact of the introduction of molecular point-of-care testing for sexually transmitted infections on testing uptake and infections detected in remote and regional Aboriginal and Torres Strait Islander communities in Australia. . 25th IUSTI World Congress 2024.

6. Tangey A, Causer L, Guy R, et al. Acceptability among healthcare workers and clinic managers on the uptake of molecular point-of-care testing for Trichomonas vaginalis. POC23 – The 1st Australasian Conference on point-of-care testing for infectious disease; 2023.

7. Watts C, Causer L, Donovan B, Hui B, Tangey A, Smith K. The cost-effectiveness of molecular point of care testing for chlamydia, gonorrhoea and trichomonas in regional and remote primary care health services in Australia. 25th IUSTI World Congress; 2024.

8. Monaghan R, Causer L, Ward J, et al. Understanding the role of patient communication protocols in sexually transmissible infections point-of-care testing among Aboriginal and Torres Strait Islander peoples in remote communities: a qualitative study. *Sex Health* 2025; **22**.

Trial - TTANGO RCT
12 clinics: 2013 – 2015



Translation - TTANGO2
31 clinics: 2016 – 2019

Scale-up - TTANGO3
75+ clinics: 2020 – 2023

FIRST NATIONS MOLECULAR POC TESTING PROGRAM
100+ Clinics: 2024 –

2010 2015 2020 2024

Artist acknowledgements:
TTANGO logo (2nd bar) was created by Sidney Williams.
TTANGO painting (3rd bar) was by Nina Turner.

For more information

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