

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

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Introduction: Molecular point-of-care (POC) testing for infectious diseases has been available in regional and remote primary health services in Australia as part of a decentralised program since 2016 for sexually transmissible infections (STIs) and since 2020 for COVID-19. In partnership with stakeholders and industry, we designed, implemented and optimised a novel connectivity system to meet clinical management, program quality assurance, and mandatory public health needs.

Methods: We utilised proprietary software and e-messaging technology to integrate POC testing into Aboriginal primary health services, and interface with end-user databases including clinical management systems. Test result messages were tailored to meet end-user needs and system requirements. We analysed program data to assess POC test numbers and time to receipt of patient results over time.

Results: From January 2016 to April 2020, we operationalised the system in 31 health services across 4 jurisdictions integrating with 5 different patient management systems supporting delivery of 41,760 STI test results. In 2019, the median transmission time was 3.2 (IQR 2.2-4.6) hours, including test runtime (1-1.5 hrs). From May 2020 to August 2022, we optimised the system for rapid scale up of COVID-19 (105 services; 6 jurisdictions; 71,823 tests) and additional STI POC testing (19,175 tests). Expanded functionality included electronic mandatory results notifications to jurisdictional departments of health and more timely result delivery (2022: median transmission time 2.3 [IQR 1.4-3.1] hours).

Conclusions: This novel connectivity system has proven to be secure, practical and scalable. It represents the first such system in Australia, established independent of traditional pathology providers, supporting a highly decentralised infectious diseases POC testing across a network of geographically dispersed primary health services. The optimised system delivering real-time results has proven critical for clinical, public health and program needs. Its design is suitable for onboarding of other POC tests and testing platforms in the future.

Disclosure of interest statement: Dr Braund is a shareholder and director of Clinical Universe. Dr Badman was employed at the Kirby Institute, UNSW when contributing to the work outlined in this abstract. Since January 2022, he has been the Director of Medical and Scientific Affairs for Cepheid (ANZ/APAC).