



International Centre for Point-of-Care Testing

Flinders University



The Northern Territory (NT) Point-of-Care Testing (POCT) Program commenced in 2008, when a collapse in NT air services caused pathology sample transport to become problematic for the delivery of urgent pathology results to remote patients.

To solve this problem, the NT Government purchased twenty i-STAT POC devices to perform a range of acute pathology tests at the patient's bedside, including cardiac troponin I, blood gases, electrolytes, haemoglobin and INR (a blood clotting marker). The

NT Department of Health then sought support from the Flinders University International Centre for Point-of-Care Testing (ICPOCT) for the provision of training, support, and a quality management framework to ensure POC tests were conducted safely and results were of appropriate analytical quality. Funded by NT Health, the NT POCT Program is now governed through a collaboration between the ICPOCT, NT Health and the Aboriginal Medical Services Alliance Northern Territory (AMSANT).

As the program evolved, more remote health services purchased the i-STAT to become part of the Program. By 2015, more than 1,000 i-STAT tests were being conducted each month across the Territory, but across only 34 remote health clinics. After a coroner's case found that a death may have

been avoided if an i-STAT device was present, the NT Government purchased i-STAT devices to service every remote NT community, doubling the program to a total of 72 devices. This event triggered an economic evaluation of the program, which through funding from the Emergency Medicine Foundation, demonstrated cost savings of more than \$20 million dollars per annum through the avoidance of unnecessary medical retrievals. This study also highlighted the program's significant cultural impact, whereby 38 per cent of patients with non-cardiac chest pain had an evacuation ruled out by POCT, enabling them to remain on Country. Now in 2021, more than 3000 tests are performed across the network every month.

Further expansion came about through strong engagement with the remote

health services, where staff from the NT POCT Program were alerted to a critical need for a POC test for white blood cell (WBC) counts. The NT's Top End region has a high prevalence of sepsis and WBC counts are an important diagnostic tool, but blood samples degraded during long transit times to pathology laboratories and WBC counts could not be performed. To solve this problem, the NT POCT program evaluated a new POCT device, the HemoCue® WBC DIFF, which provides a WBC count in under five-minutes. This study found the WBC DIFF device was robust and easy to use in the remote NT and led to two larger studies investigating clinical and economic effectiveness.⁴ These studies demonstrated the WBC DIFF device positively influenced decision making, enhanced patient safety for a range of presentations including undifferentiated sepsis, appendicitis and meningitis, and produced positive economic benefits through reducing numbers of unnecessary aeromedical evacuations. In 2020, these studies have culminated in funding for the rollout of WBC DIFF devices to 20 Top End remote health services and there are many indications that the device network will be extended to more remote health services in the near future.

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Flinders University International Centre for Point-of-Care Testing was a joint winner of the 2021 EA Excellence Award for Outstanding Engagement for Research Impact.



