

Clinical and operational benefits of INR POCT in Indigenous Communities in the Remote Northern Territory of Australia.

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Abstract:

In the Northern Territory (NT) of Australia's Indigenous population, the prevalence of rheumatic heart disease is higher than any other location in the world. Warfarin is a common anticoagulant used to treat this condition and to minimise risk of stroke. International Normalised Ratio (INR) testing is used routinely to monitor the efficacy of warfarin therapy and to ensure a patient's INR remains within a tight therapeutic range.

In remote areas of Australia, the ability to closely monitor a patient's INR status in a timely manner is significantly challenged due to (i) the large distances (range 100 to 700 kilometres) involved in transporting patient blood samples from the remote community to the nearest hospital laboratory for INR measurement, (ii) the time delay in reporting the INR result back to the community and (iii) the difficulty in recalling the patient for a follow-up visit to obtain their INR result and change their dose of warfarin.

Since 2008, the i-STAT device has been used to measure INR for patients on warfarin therapy in 34 remote health centres participating in the NT Point-of-Care Testing (POCT) Program. This program is administered through a partnership between Flinders University International Centre for Point-of-Care Testing (iPOCT) and the NT Government's Department of Health. A training program to support i-STAT INR POC testing is delivered by Flinders iPOCT and offers flexible options for training including on-site workshops, an interactive teleconference program (GoToMeeting) and web-based (intranet) e-learning.

Since the program's inception, more than 13,000 INR POC tests have been performed on over 900 patients. Two hundred and twelve (298) patients have had 5 or more INR POC tests performed and 212 of these have had more than 10 serial INR tests. The volume of patient INR testing has increased every year of the program, from 853 in 2008 to 3264 in 2013 (representing a 283% increase in testing since the program's inception). The number of Remote Area Nurses trained as POCT device operators is now greater than 600. The between-site imprecision (CV%) from Quality Control INR testing conducted monthly in each participating remote health centre has averaged a CV of 6.3% over the past 5 years (range 4.6% to 7.6%). The benefits of INR POCT will be illustrated with a series of 5 patient cases which show improved clinical outcomes (including increased time in therapeutic range and stabilisation of dangerously fluctuating INR levels) and operational benefits (increased patient empowerment to manage their warfarin therapy whilst remaining in their community with family).