

Troponin Point-of-Care Testing in Smaller Hospital and Health Centre Emergency Departments in NL Nitika Pant Pai, Michel Grignon, Stephen Bornstein, Pablo Navarro, Sarah Mackey

The Issue

- Health system administrators in NL prioritize equitable access to health services but are challenged to maintain around-the-clock labs for all emergency departments in the province.
- Delays in medical testing and patient management decisions based on incomplete information are problematic for clinicians and potentially dangerous for patients.

The Question

“What do the scientific literature and local knowledge tell us about the clinical effectiveness, feasibility and acceptability of cardiac troponin point-of-care testing for emergency departments in smaller hospitals and health centres in Newfoundland and Labrador?”

The Results

- Point-of-care testing (POCT) is a quickly-developing technology. Cardiac troponin POCT has rapidly improved detection threshold sensitivity and accuracy in recent years. One independent study has demonstrated that, as a screening test, cardiac troponin POCT is comparable to, and as reliable as, central lab testing. A new class of ‘high-sensitivity’ troponin POCT has been shown to be even more sensitive and more accurate.
- Compared to central lab testing, patients screened with cardiac troponin POCT have similar rates of adverse events and faster test turnaround times, but do not necessarily improve on any other emergency department (ED) process outcome variables such as time to clinical decision making or time to discharge.
- Cardiac troponin testing methods are not the determining factor for ED process outcomes. Instead, site-specific variables such as the organization of the facilities themselves, local protocols, existing and implemented guidelines for related conditions and symptoms, existing POCT programs and staffing variables, appear to be the major contributors to the variability of evidence for ED process outcomes.
- At present, cardiac troponin POCT is more expensive than central lab testing in an overall context, in terms of individual test costs, quality control, implementation and training. However, some economic benefits have been reported in the review literature, particularly those accruing from a decreased test turnaround time and improved throughput of patients in the ED.

The Local Context

- In areas of the province served by smaller hospitals without 24/7 lab service, demographics and risk factor profiles of patients may make POCT more clinically effective and cost effective than what is reported in the review literature. Factors that contribute to this improved effectiveness include better access to testing, faster turnaround time, and reduced number of ambulance transfers or call-backs.
- Cardiac troponin POCT is at risk of being less effective if used inappropriately (e.g. as a diagnostic test instead of a screening test or by not being requested when appropriate). This risk is compounded if the cardiac troponin POCT is not accepted by clinical and/or lab technician staff.
- Recent increases in turnover rates among lab technician staff, as well as recent and broad policy changes in point-of-care testing in general, could pose a risk to establishing the organizational and procedural conditions needed to support cardiac troponin POCT, as well as other types of POCT.
- The most effective implementation of cardiac troponin and other POCT will depend, in part, on effective monitoring and data collection, consolidation and analysis. Any challenges to integrating and analysing data from multiple hospitals could reduce the effectiveness of any POCT program.
- The public is likely to be accepting of an ED cardiac troponin POCT, but it will be important to maintain that trust as well resolving any potential difficulties arising from within the healthcare system itself.

Read the full report here: <http://www.nlcahr.mun.ca/CHRSP/>