

CADTH RAPID RESPONSE REPORT: SUMMARY OF ABSTRACTS

Troponin I Point of Care Testing for Patients with Suspected Acute Coronary Syndrome or Myocardial Infarction: Clinical Utility, Cost-Effectiveness and Guidelines

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Questions or requests for information about this report can be directed to requests@cadth.ca

Research Questions

1. What is the clinical utility of troponin I point of care testing for patients with chest pains, suspected acute coronary syndrome or myocardial infarction?
2. What is the cost-effectiveness of troponin I point of care testing for patients with chest pains, suspected acute coronary syndrome or myocardial infarction?
3. What are the evidence-based guidelines regarding the use of troponin I point of care testing in non-emergency department settings?

Key Findings

No relevant literature was identified regarding the clinical utility or cost-effectiveness of troponin I point of care testing for patients with chest pains, suspected acute coronary syndrome or myocardial infarction. In addition, no evidence-based guidelines were identified regarding the use of troponin I point of care testing in non-emergency department settings.

Methods

A limited literature search was conducted by an information specialist on key resources including Medline, Embase, the Cochrane Library, the University of York Centre for Reviews and Dissemination (CRD) databases, the websites of Canadian and major international health technology agencies, as well as a focused internet search. The search strategy was comprised of both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. The main search concepts were Troponin I and point-of-care testing. No filters were applied to limit the retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2015 and March 17, 2020. Internet links were provided, where available.

Selection Criteria

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

Table 1: Selection Criteria

Population	Patients with chest pains or suspected acute coronary syndrome (ACS) or myocardial infarction (MI) presenting to the emergency department or other acute care settings (rural hospitals, remote area medical clinics, nursing posts)
Intervention	Q1-3: Cardiac T troponin I point of care (PoC) testing (e.g., iSTAT)
Comparators	Q1-2: Central laboratory testing Q3: Not applicable
Outcomes	Q1: Clinical utility (e.g., reduce hospital stay, hospital admission, morbidity, mortality) Q2: Cost-effectiveness (e.g., cost per health benefit) Q3: Recommendations regarding the appropriate use of PoC troponin testing in various settings
Study Designs	Health technology assessments, systematic reviews, randomized controlled trials, non-randomized studies, economic evaluations, evidence-based guidelines

Results

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports and systematic reviews are presented first. These are followed by randomized controlled trials, non-randomized studies, economic evaluations, and evidence-based guidelines.

No relevant literature was identified regarding the clinical utility or cost-effectiveness of troponin I point of care testing for patients with chest pains, suspected acute coronary syndrome or myocardial infarction. In addition, no evidence-based guidelines were identified regarding the use of troponin I point of care testing in non-emergency department settings.

References of potential interest are provided in the appendix.

Overall Summary of Findings

No literature was identified; therefore, no summary can be provided.

References Summarized

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-analyses

No literature identified.

Randomized Controlled Trials

No literature identified.

Non-Randomized Studies

No literature identified.

Economic Evaluations

No literature identified.

Guidelines and Recommendations

No literature identified.

Appendix — Further Information

Previous CADTH Reports

1. Point-of-Care Testing: Summary of Evidence — January 2019 Update. Ottawa (ON): CADTH; 2019. <https://www.cadth.ca/tools/point-care-testing-summary-evidence-january-2019-update>
2. Point-of-Care Troponin Testing in Patients with Symptoms Suggestive of Acute Coronary Syndrome. (*CADTH Optimal Use Report*). Ottawa (ON): CADTH; 2015. <https://www.cadth.ca/point-care-troponin-testing-patients-symptoms-suggestive-acute-coronary-syndrome>
3. Point-of-care versus Central Laboratory Troponin Testing for Diagnosis of Acute Coronary Syndrome in Acute Care Settings: A Review of the Clinical and Economic Evidence. (*CADTH Rapid Response Report: summary with critical appraisal*). Ottawa (ON): CADTH; 2012. <https://www.cadth.ca/point-care-versus-central-laboratory-troponin-testing-diagnosis-acute-coronary-syndrome-acute-care>
4. Clinical and Cost-Effectiveness of Point-of-Care Troponin Testing Devices in a Remote Health Care Setting. (*CADTH Health Technology Inquiry Service report*). Ottawa (ON): CADTH; 2007. <https://www.cadth.ca/clinical-and-cost-effectiveness-point-care-troponin-testing-devices-remote-health-care-setting>

Randomized Controlled Trials

Central Laboratory Testing Not Specified as Comparator

5. Ezekowitz JA, Welsh RC, Weiss D, et al. Providing Rapid Out of Hospital Acute Cardiovascular Treatment 4 (PROACT-4). *J Am Heart Assoc*. 2015 Dec 01;4(12):01. [PubMed: PM26627881](https://pubmed.ncbi.nlm.nih.gov/26627881/)

Non-Randomized Studies

Unclear Abstract

6. Aldous S, Pickering J, Young J, et al. Rapid rule-out of myocardial infarction with a novel high precision point-of-care troponin assay appears safe and effective. *Eur Heart J*. 2019 October;40 (Supplement 1):1626. https://academic.oup.com/eurheartj/article-abstract/40/Supplement_1/ehz748.0992/5596601?redirectedFrom=fulltext

Alternate Outcome

7. van Dongen DN, Fokkert MJ, Tolsma RT, et al. Accuracy of pre-hospital HEART score risk classification using point of care versus high sensitive troponin in suspected NSTEMI-ACS. *Am J Emerg Med*. 2019 Oct 08. [PubMed: PM31699426](https://pubmed.ncbi.nlm.nih.gov/31699426/)

Mixed Intervention

8. Singer AJ, Taylor M, LeBlanc D, et al. Early Point-of-Care Testing at Triage Reduces Care Time in Stable Adult Emergency Department Patients. *J Emerg Med*. 2018 08;55(2):172-178.
[PubMed: PM29887410](#)
9. Meek R, Braitberg G, Cullen L, Than M, Graudins A, Glynn D. Outcome at 30 days for low-risk chest pain patients assessed using an accelerated diagnostic pathway in the emergency department. *Emerg Med Australas*. 2016 Jun;28(3):279-286.
[PubMed: PM26998819](#)