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| <b>Title</b>     | High-sensitivity cardiac troponin for the rapid diagnosis of acute coronary syndrome in the emergency department: a clinical and cost-effectiveness evaluation   |
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| <b>Reference</b> | CADTH Optimal Use Report. Volume 2, Issue 1A, March 2013.<br>ISSN: 1927-0127 Available From: <a href="http://www.cadth.ca/media/pdf/OP0511_Troponin_ScienceReport_e.pdf">http://www.cadth.ca/media/pdf/OP0511_Troponin_ScienceReport_e.pdf</a>   |

### Aim

To evaluate the test performance and the clinical and cost-effectiveness of high-sensitivity cardiac troponin T (hs-cTnT) and high-sensitivity cardiac troponin I (hs-cTnI) for the early diagnosis of acute coronary syndrome (ACS) in the emergency department (ED).

### Conclusions and results

High-sensitivity cTn tests are not statistically better than cTn tests at diagnosing acute myocardial infarction (AMI) in patients presenting at EDs with chest pain. There was insufficient information to estimate the relative diagnostic accuracy of hs-cTnT and hs-cTnI, but an indirect meta-analysis showed that hs-cTnI can be overall more specific and more accurate than hs-cTnT, even though it is less clinically sensitive. The review also suggested that hs-cTnT can be a better predictor of death and other major cardiovascular adverse events, when compared with cTn tests. In evaluating the cost-effectiveness of cTnI, hs-cTnI and hs-cTnT, the economic analysis found hs-cTnT to be the most cost-effective, if willingness to pay was \$119,377 per QALY or more; otherwise, cTnI would be most cost-effective.

### Recommendations

Available in a separate report available from: [http://www.cadth.ca/media/pdf/OP0511\\_Troponin\\_RecsReport\\_e.pdf](http://www.cadth.ca/media/pdf/OP0511_Troponin_RecsReport_e.pdf)

### Methods

Selected databases and relevant websites were searched from 1946 to 2013 for English or French language studies that met predefined inclusion criteria. Other sources and expert consultations were also used to identify studies for a clinical and economic review of the literature. Studies meeting the criteria for inclusion were assessed for quality and data were abstracted by two independent reviewers.

The results are summarized and discussed in this report. Due to the lack of economic evaluations identified, a primary, cost-utility analysis was used to compare laboratory testing strategies in terms of the incremental cost per QALY gained from the perspective of a publicly funded health care system, over a lifetime horizon.

### Further research/reviews required

Well-designed prospective studies, using standard definitions for the diagnosis of AMI and ACS, are required to determine the most beneficial cTn test and select the best diagnostic thresholds for different cTn tests.

### Written by

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