

High-sensitivity troponin assays for early rule-out of acute myocardial infarction in people with acute chest pain: a systematic review and economic evaluation

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Plain English summary

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Heat disease is a leading cause of death in the UK, with myocardial infarction (heart attack) accounting for approximately 4% of all deaths recorded in 2018. Many people attend hospital with chest pain and suspected myocardial infarction, and chest pain has been reported as the most common cause of hospital admissions in the UK, accounting for approximately 5% of all emergency admissions in 2017–18. It is important to diagnose people who are suspected of having a myocardial infarction as early as possible to ensure quick and effective treatment. However, only around 20% of emergency admissions for chest pain will actually have an myocardial infarction and there are many other possible causes of chest pain (e.g. gastro-oesophageal disorders, muscle pain, anxiety or stable ischaemic heart disease). Current practice for ruling out myocardial infarction includes blood tests taken when the patient is first seen in the emergency department and repeated after 3–6 hours or 10–12 hours, depending on the test used. Tests that can quickly tell which patients do not have myocardial infarction could therefore avoid unnecessary hospital admissions and anxiety for many people.

We aimed to assess the clinical effectiveness and cost-effectiveness of high-sensitivity troponin tests, used as single tests or repeated over a short time, for the early rule out of myocardial infarction in people who present to hospital with chest pain.

We found that high-sensitivity troponin tests can safely rule out myocardial infarction within the 4-hour NHS emergency department target. Health economic analyses indicated that high-sensitivity tests may be considered value for money compared with standard troponin tests, which require repeat testing at 10–12 hours.

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