

# High sensitivity blood test can aid emergency diagnosis of heart conditions

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Credit: Karolina Grabowska from Pexels

A high sensitivity blood test can improve diagnosis for one in five patients who have a heart muscle injury, according to new research.

A trial in A&E departments found that a new way of measuring [troponin](#)—a protein released into the blood after a heart injury—could reduce future heart attacks in at-risk patients by 10% after five years.

Those who benefited most, however, were patients with a heart muscle injury caused by other heart conditions, such as [heart failure](#), heart valve conditions and heart arrhythmias.

The research team, led by the University of Edinburgh, found that these patients saw a nearly 10% drop in future hospital admissions and deaths in the five years after getting the [new test](#), compared to those who had the older, less sensitive test. The study has been [published](#) in the *BMJ*.

## Enhanced test

The updated test measures very low levels of troponin in the blood much more accurately than older versions.

Troponin is released into the blood during a [heart attack](#) or when the heart is injured due to other [heart conditions](#). Different troponin blood tests have been used for years by doctors to help diagnose these conditions in people with chest pains and related symptoms.

To assess the benefits of the new test, the researchers studied the results of nearly 50,000 people who arrived at 10 emergency departments across Scotland with a suspected heart attack between 2013 and 2016.

They used routinely collected health record data and DataLoch, a data service, to follow all participants for five years.

## Subtle signs

The new test revealed that more than 10,000 patients had high troponin levels, indicating heart injury. With the high sensitivity picking up more subtle warning signs, around one in five of these patients were only spotted by the new test.

By identifying heart injury in patients who may otherwise have gone unnoticed and untreated, the researchers hope that more people could receive the specialist heart care they need to avoid more serious events in the future.

Having already rolled out the new test widely to emergency departments across the country, the UK is now ahead of the curve when it comes to heart attack and heart injury detection, researchers say.

"In the past, clinicians could have been falsely reassured by the results of the less sensitive troponin test, discharging patients that appeared to not have heart disease. This new high sensitivity test is the tool they needed, prompting them to look deeper and helping them to identify and treat both heart attacks and less obvious heart problems. In our trial, introducing this test led to an impressive reduction in the number of future heart attacks and deaths seen in this at-risk group," says Dr. Ken Lee, clinical lecturer in cardiology at the University of Edinburgh.

"Medical professionals in emergency departments need the most efficient and accurate tools to look after people. This particularly applies to those who arrive with a suspected heart attack. Such a time-sensitive and life-threatening condition requires the very best diagnostic tests. It is very encouraging to see that the new test trialed here is better at predicting long-term outcomes for these patients, whether they had a heart attack or a different kind of heart injury. This can lead to improved care for such patients," says Professor Sir Nilesh Samani, medical director at the British Heart Foundation.

**More information:** Kuan Ken Lee et al, Implementation of a high sensitivity cardiac troponin I assay and risk of myocardial infarction or death at five years: observational analysis of a stepped wedge, cluster randomised controlled trial, *BMJ* (2023). [DOI: 10.1136/bmj-2023-075009](https://doi.org/10.1136/bmj-2023-075009)

Provided by University of Edinburgh

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