

## Source D: Heart, News & Analysis by Spectator Health Reporter (2nd September 2016)

Women have a 50 per cent higher chance of being incorrectly diagnosed following a heart attack, according to research by the University of Leeds (however, see our expert analysis below).

The study, published in the [European Heart Journal Acute Cardiovascular Care](#), looked at 600,000 cardiac arrest patients treated between April 2004 and March 2013.

It found that 29.9 per cent of patients' initial diagnoses differed from their final diagnoses.

The paper suggested that women who had a final diagnosis of STEMI (a total blockage of the main artery) had a 59 per cent greater chance of a misdiagnosis than men.

NSTEMI diagnoses (a partial blockage of one or more arteries) for women were 41 per cent more likely to be incorrect.

The findings are important, researchers say, because initial diagnosis shapes short-term — and sometimes long-term — treatment, and people who are misdiagnosed have a 70 per cent increased risk of death after 30 days.

Dr Chris Gale, who worked on the study, said: 'This research clearly shows that women are at a higher risk of being misdiagnosed following a heart attack than men.'

'When people with heart attack receive the wrong initial diagnosis, there are potentially important clinical repercussions, including an increased risk of death. We need to work harder to shift the perception that heart attacks only affect a certain type of person.'

'Typically, when we think of a person with a heart attack, we envisage a middle-aged man who is overweight, has diabetes and smokes. This is not always the case; heart attacks affect the wider spectrum of the population, including women.'

### [Instant analysis](#)

This paper looked at admissions to hospital and sought to clarify the change in diagnosis between initial presentation and discharge. It sought to assess whether the inaccuracy in the initial diagnosis had an impact on the patient's prognosis.

It looked at data from all UK hospitals between April 2004 and March 2013 to find the incidence of the two types of heart attack, STEMI and NSTEMI.

The argument is that inaccuracy in diagnosing NSTEMI and STEMI means people do not receive gold-standard interventions in a timely fashion and therefore do a lot worse clinically.

The position of the paper is that preliminary diagnosis should be more accurate as this can alter future prognosis and mortality risk; mainly, it would be suggested, as intervention is delayed.

However, there are significant loopholes here. The information gleaned is historical (2004 to 2013) and yet is being used to explain current practice and even as a reason to change procedures.

From my experience working in an accident and emergency department I would suggest that since 2004 there has been a significant shift in treatment practice and also technological advancement across the board. This increases the accuracy with which a lot of these diagnoses have been made.

Diagnosing an STEMI and NSTEMI ordinarily requires an ECG, or serial ECGs, over an observed hospital stay, taking cardiac biomarkers in the blood and looking at symptoms and medical history at presentation.

The diagnosis of an NSTEMI often hinges on a history and positive cardiac biomarkers. But only about 96 and 95 per cent of the patients with either NSTEMI or STEMI diagnosis had a positive cardiac enzyme assessment in the study.

Therefore, there is an error rate within the test that contributes to initial inaccurate diagnoses.

Enzyme assessment has changed significantly. Initially the test would have involved creatine kinase before progressing to troponin T and then troponin I. When troponin T was in usage, there was a grey area of interpretation that now no longer exists.

In the department in which I have worked it is standard procedure that chest pains of unclear cause are serially observed with evolutionary chronological ECGs and interval troponin analysis at one, three and six hours, or even longer if observation is required — therefore mitigating a lot of the uncertainty that this study seems to present.

Prehospital ECG is now performed almost as a matter of course. This is a recommendation for NSTEMI and STEMI within the paper but is already broadly acted upon.

This paper is calling for changes that have largely already occurred. Its major shortcoming was using a cohort so broad, over such a long time, that the difference observed was already being acted upon over time, thereby invalidating the results by obsolescence.

I would very much like to see a more narrow cohort analysis of these 'misdiagnoses' brought into the current day.

[RM](#)

[Research score: 2/5](#)

<https://health.spectator.co.uk/headline-grabbing-study-about-misdiagnosis-of-heart-attacks-is-probably-already-out-of-date/>