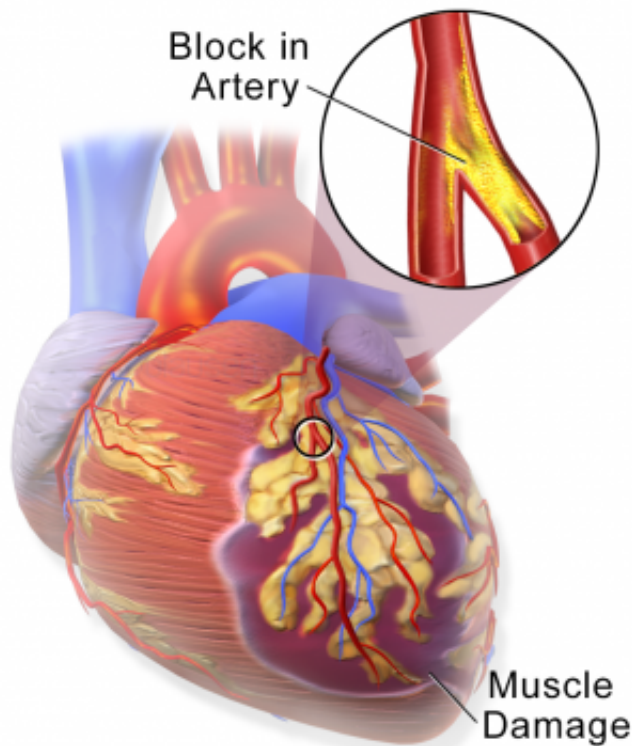


Early warning signs might have been missed in one in six heart attack deaths in England

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Heart Attack

Myocardial Infarction or Heart Attack. Credit: Blausen Medical Communications/Wikipedia/CC-A 3.0

The authors, from Imperial College London, say more research is urgently needed to establish whether it is possible to predict the risk of fatal heart attacks in patients for whom this condition was not recorded

as the main reason for hospital admission.

The research is published today in *The Lancet Public Health*.

Heart disease is one of the leading killers in the UK. According to the British Heart Foundation, heart attacks lead to one hospital visit every three minutes.

They are caused by a decrease in blood flow to the heart, usually as a result of [coronary heart disease](#). Symptoms may include sudden chest pain or a 'crushing' sensation that might spread down either arm. Patients might also experience nausea or shortness of breath. However, some heart attacks have more subtle symptoms and may therefore be missed or overlooked.

In this study, the researchers examined records of all 446,744 NHS hospital stays in England between 2006 and 2010 that recorded heart attacks, as well as the hospitalisation history of all 135,950 [heart attack deaths](#).

The records included whether or not patients who died of a heart attack had been admitted to hospital in the past four weeks and if so, whether signs of heart attack were recorded as the main cause of admission (primary diagnosis), additional to the main reason (secondary diagnosis), or not recorded at all.

Of the 135,950 patients who died from heart attack, around half died without a hospital admission in the prior four weeks, and around half died within four weeks of having been in hospital.

21,677 (16 per cent, or one in six) of the patients who died from heart attack had been hospitalised during the four weeks prior, but heart attack symptoms were not mentioned on their hospital records (see figure 2 of

paper.)

The authors say there are certain symptoms, such as fainting, shortness of breath and chest pain, that were apparent up to a month before death in some of these patients, but doctors may not have been alert to the possibility that these signalled an upcoming fatal heart attack, possibly because there was no obvious damage to the heart at the time.

These results suggest that possible signs of upcoming fatal heart attack may have been missed. The authors' next step is to look into why this pattern emerged, and to try to prevent more heart attack deaths.

The researchers also found that of all patients admitted with a heart attack, those whose heart attack was recorded as secondary to the main condition were two to three times more likely to die than patients whose records stated heart attack as the main condition.

Lead author Dr Perviz Asaria, from the School of Public Health at Imperial, said: "Doctors are very good at treating heart attacks when they are the main cause of admission, but we don't do very well treating secondary heart attacks or at picking up subtle signs which might point to a heart attack death in the near future."

"Unfortunately in the four weeks following a [hospital](#) stay, nearly as many heart attack deaths occur in people for whom heart attack is not recorded as a primary cause, as occur after an admission for heart attack."

The authors say that more detailed investigation must be done to identify reasons for these results so that more deaths from [heart attack](#) can be prevented.

Co-author Professor Majid Ezzati, from the School of Public Health at

Imperial, said: "We cannot yet say why these signs are being missed, which is why more detailed research must be conducted to make recommendations for change. This might include updated guidance for healthcare professionals, changes in clinical culture, or allowing doctors more time to examine [patients](#) and look at their previous records."

"What we are now asking is, if symptoms are being missed where they could have been discovered using the available information, how should care now be organised and what changes need to be made to prevent unnecessary deaths."

More information: "Acute myocardial infarction hospital admissions and deaths in England: a national follow-back and follow-forward record-linkage study" by Perviz Asaria, Paul Elliott, Margaret Douglass, Ziad Obermeyer, Michael Soljak, Azeem Majeed, Majid Ezzati. Published in *The Lancet Public Health*, 28 February 2017.

Provided by Imperial College London

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