

# New study shows 'slow-onset' heart attack symptoms directly contribute to delay in accessing emergency treatment

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A major new Irish study carried out by researchers at the School of Nursing and Midwifery, Trinity College Dublin and recently published in the leading international peer reviewed journal, the *Journal of Emergency Medicine* has revealed that a majority of heart attack sufferers do not experience the classic 'Hollywood' style fast-onset heart attack expected by most patients and that current expectations and perceptions about heart attack symptoms are a major contributing factor in pre-hospital treatment delays in patients experiencing heart attacks.

The study, which was funded by the Health Research Board and which involved almost 900 patients across 5 Irish hospitals, examined the type of [symptoms](#) experienced by patients who suffered heart attacks and the length of time it took for them to get to hospital.

The researchers found that 65% of patients experienced what is known as slow-onset acute coronary syndrome (ACS) where symptoms were slower, milder and more intermittent while only 35% experienced the more classically perceived fast-onset ACS characterised by sudden intense and severe onset of symptoms such as chest pain, tightness and discomfort.

Whether a patient suffered slow-onset or fast-onset symptoms directly influenced the length of time it took patients to get to an emergency department or treatment by paramedics. Patients who experienced slow-

onset ACS took on average of 1.5 hours longer to arrive at the Emergency Department of a hospital than those with fast-onset symptoms. A significant proportion of these patients first phoned (44%) or visited (42%) their local GP whereas patients with fast-onset symptoms were more likely to phone the emergency services. Only a third of those with slow-onset symptoms travelled to hospital by ambulance compared to half of those with fast-onset symptoms.

Delays in treatment of a [heart attack](#) can have a significant impact on a patient's outcome both in terms of mortality and potential damage to the heart muscle. Patients who are experiencing a heart attack should receive life-saving medical treatment within two hours and ideally within one hour of symptom onset. In addition, advanced paramedics responding to a cardiac situation can begin life or heart saving treatment immediately. The quicker treatment is received the greater the benefits for the patient. The slow-onset heart attack patients in this study, the majority group, had an average of a three and half hour pre-hospital delay compared with a two hour delay for the fast-onset patient cohort. The former delay is considerably outside the recommended and optimum time for treatment.

Commenting on the significance of this research for patients and patient education, lead author Dr Sharon O'Donnell, Director of Undergraduate Teaching & Learning at the School of Nursing and Midwifery, Trinity College Dublin said: "For many years we have tried to reduce pre-hospital treatment delays in patients experiencing heart attacks. Most people expect a heart attack to be associated with sudden, severe and continuous chest pain. However, the most surprising finding for us was that for the majority of people in our study, their heart attack started off with mild or intermittent symptoms such as chest and left arm discomfort, shortness of breath and fatigue."

She continued: "We need to educate people about the fact that most heart attacks start this way, with the 'slow-onset' of heart attack

symptoms, which may later intensify. Future educational campaigns must dispel the myth that heart attacks always occur in a dramatic fashion. If someone experiences any worrying symptoms which are unresolved with rest or usual cardiac medication, then they should call an ambulance and go to hospital immediately."

Dr O'Donnell also spoke about the implications of this study for clinicians saying: "Clinicians also need to be aware that most heart attacks have a slow-onset. As well as assessing for the well known 'Hollywood Heart Attack' onset of symptom, clinicians need to be equally vigilant for the milder and slower onset of heart attack symptoms. Most importantly, the finding that 51% of STEMI were slow-onset heart attacks is of particular clinical significance. Patients with STEMI reap the most benefits from early reperfusion therapy and hence it is extremely important that this group of [patients](#) are assessed and treated as quickly as possible."

"This is a very valuable study", said Enda Connolly, Chief Executive of the Health Research Board. "We are delighted to fund quality research which provides new evidence to help guide and inform clinicians, and which helps them to enhance diagnosis, improve clinical care and ultimately lead to better patient outcomes."

**More information:** Sharon O'Donnell, Gabrielle McKee, Mary Mooney, Frances O'Brien, Debra K. Moser. "Slow-onset and Fast-onset Symptom Presentations In Acute Coronary Syndrome (ACS): New Perspectives on Prehospital Delay in Patients with ACS." *Journal of Emergency Medicine* 14 October 2013 [DOI: 10.1016/j.jemermed.2013.08.038](https://doi.org/10.1016/j.jemermed.2013.08.038)

Provided by Trinity College Dublin

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