

Ambulance checklists and feedback improve emergency care for stroke and heart attack patients

30 January 2014, by Ian Richards

The introduction of checklists and better feedback for ambulance crews as part of a national quality improvement project has significantly improved the standard of care for heart attack and stroke patients across England, a major new study has shown.

Between them, heart attack and stroke are the most common cause of death in the UK. There are more than a quarter of a million heart attacks ([acute myocardial infarction](#)) in the UK each year and two fifths result in sudden death. There are another 150,000 incidences of stroke annually.

Timely treatment given by ambulance clinicians before a patient reaches hospital is a major factor in their chances of survival and recovery. Paramedics are using standardised packages of assessment and treatment known as 'care bundles' for these and other emergency conditions. A care bundle is a series of actions that are clinically recognised to improve a patient's prognosis.

For heart attack, it involves: taking verbal pain scores; giving aspirin; administering a drug called glyceryl trinitrate (GTN); and offering pain relief. For stroke it includes: the FAST (face, arm, speech, time) assessment; a blood glucose reading; and a blood pressure reading.

Crucially, these care bundles should be followed in full whenever a heart attack or stroke is suspected. Until recently, there was widespread geographical variation between English regions in how consistently these steps were followed.

Researchers from the University of Lincoln, working with East Midlands Ambulance Service together with all English ambulance services, have led a national [quality improvement](#) programme, the Ambulance Services Cardiovascular Quality

Initiative (ASCQI), to attempt to address these regional disparities.

This type of project – known as a Quality Improvement Collaborative (QIC) - has been used in some healthcare sectors for more than 25 years. However, this was the world's first large-scale national QIC focussed on ambulance clinicians. It involved all 12 publicly funded English ambulance trusts, which between them employ more than 22,000 ambulance clinicians, and was funded by the Health Foundation.

It encouraged frontline staff, and their management, to introduce small procedural changes, such as checklists, aide memoires, and individual and group feedback. It also enabled sharing of information within and between different trusts.

The first full analysis of the project's results (published January 2014) in the international online academic journal *Implementation Science*, shows statistically significant improvements in all 11 ambulance trusts who completed the project.

The study examined the period between January 2010 and February 2012. Across England overall, the percentage of emergency cases where care bundles were delivered in full increased from 43% to 79% for heart attack and from 83% to 96% for stroke.

Detailed analysis suggested the introduction of checklists and other aide memories, coupled with better mechanisms for feedback for frontline staff, had the most profound impact.

Professor Niro Siriwardena, from the School of Health and Social Care at the University of Lincoln, who led the ASCQI project, said: "We know that

paramedics are good at making accurate diagnoses of heart attack and stroke. What we needed to understand better was how they actually manage emergency patients with suspected heart attack or stroke before they reach hospital. It is important that care bundles are followed in full for each case, even if an initial diagnosis is not clear-cut.

"Our analysis shows that this national quality improvement project - the first of its kind anywhere in the world - has led to significant increases in the use of care bundles by [ambulance](#) crews responding to [heart attack](#) and stroke patients. We found that frontline staff were willing to make small changes to the way they worked because they were able to see the benefits for patient care."

Future research will investigate the impact of these improvements on patient outcomes, such as survival, and whether similar changes could benefit emergency patients with other conditions, such as asthma.

More information: The effect of a national quality improvement collaborative on prehospital care for acute myocardial infarction and stroke in England. Aloysius Niroshan Siriwardena, Deborah Shaw, Nadya Essam, Fiona Jayne Togher, Zowie Davy, Anne Spaight and Michael Dewey. *Implementation Science* 2014, 9:17. [DOI: 10.1186/1748-5908-9-17](https://doi.org/10.1186/1748-5908-9-17)

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