

New risk tool developed for cardiac arrest patients

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Experts have developed a risk score to predict cardiac arrest patient outcomes.

The study published today in *European Heart Journal*, by a team of researchers from King's College London and King's College Hospital,

details a novel risk score for heart attack centres to predict [brain damage](#) in patients who have had an out of [hospital](#) cardiac arrest.

Out of hospital cardiac arrest is a major public health challenge and can lead to considerable morbidity and mortality. Patients have an extremely high risk of long-term brain damage after cardiac arrest, but this can be difficult to predict early on after admission.

The risk score, known as MIRACLE2, has been developed to help clinical decisions, improve selection of appropriate treatments and inform family discussion early after admission.

The study examined data on 400 patients who have had an out of hospital cardiac arrest and been treated at King's College Hospital and then identified characteristics of patients that developed [brain injury](#). The team then performed prediction modelling to create a score that could be readily applied by clinicians on arrival to a heart attack centre.

The MIRACLE2 predicted brain injury with high accuracy and when validating the performance of the score in nearly 500 patients from two other heart attack centres from Europe, the score performed equally well.

The risk score will now be validated in a larger number of patients and potentially across different healthcare settings, for example by ambulance staff in the community. Once the performance of the score has been checked in these settings, it could be incorporated into future clinical trials and potentially into national guidance.

Nilesh Pareek from King's College Hospital said: "MIRACLE2 is the first practical score which can provide objective risk stratification to support clinicians in making critical decisions for patients with OOHCA. This could be a major step forward in understanding which OOHCA

patients to select for invasive treatments, to guide the application of novel therapies and for standardising care across all healthcare settings."

Professor Ajay Shah, BHF Professor Cardiology at King's College London and Director of the King's BHF Centre of Research Excellence, said: "People who suffer a [cardiac arrest](#) in the community are among the most serious and complex emergency patients to manage, with a wide range of possible outcomes from complete recovery to possible long-term brain damage. The new [risk score](#) developed in our study should greatly aid ambulance teams and emergency heart doctors to make early decisions about the best treatment option for each patient."

Provided by King's College London

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