

## Cardiac Arrest Centres - the Fourth Link



Treatment of cardiac arrest out of hospital has improved over the last few years. Unlike other acute conditions such as trauma few countries have implemented a regional system of cardiac arrest centres.

In their review, Eldar Søreide, Department of Anaesthesiology and Intensive Care, Stavanger University Hospital, Norway and Michael Busch, Department of Clinical Medicine, University of Bergen, outline the trends in post-resuscitation care since international resuscitation guidelines first mentioned specialised cardiac arrest centres as an option to improve outcomes in 2005. Their paper is published in [Trends in Anaesthesia & Critical Care](#).

The services that specialised cardiac arrest centres should offer are:

1. general intensive care, including mechanical ventilation and target temperature management (TTM)
2. acute cardiac care including coronary angiography and percutaneous coronary intervention (PCI)
3. 24-hour radiology service with computed tomography (CT) availability
4. delayed, multi-modality and standardised neuroprognostication

A cardiac arrest centre should have the following components:

1. General critical care service, including
  - Airway control and controlled mechanical ventilation
  - Haemodynamic and renal support
  - Acid/base, electrolyte, and glucose control
  - Seizure control
  - Standardised post-resuscitation protocol
2. Targeted Temperature Management (TTM)
3. Echocardiography, 24-h percutaneous coronary intervention (PCI) and mechanical cardiac support, as well as disease specific interventions
4. Cardiac electrophysiology service
5. 24-hour radiology service for early identification of respiratory or neurological causes by cerebral computed tomography (CCT)
6. Multimodal neuro-prognostication service including neurophysiology services (electroencephalogram (EEG), short latency somatosensory evoked potentials (SSEP)), neuro-imaging (CCT, MRI) and biomarkers), as well as neurology/neurosurgical consultation when needed.
7. Physiotherapy and rehabilitation service including organization of follow-up care, neuropsychology service and social work.

So far, few countries have implemented regional resuscitation systems with integrated cardiac arrest centres, which is supported by the [2015 ILCOR recommendations](#). Adequate prehospital triage of OHCA patients to cardiac arrest centres is crucial, the authors recommend. They note that unreliable negative predictors of bad outcomes are widely used as criteria for not admitting patients to the ICU and thus very early prognostication and withholding of ICU care is a real concern. Prognostication based on clinical exam alone, or in combination with EEG only, is worrisome. At present, the risk of self-fulfilling prophecies appears to be prominent in hospitals admitting OHCA victims. Regionalised care in specialised cardiac arrest centres can provide multi-modality prognostication tools and expertise needed.

See Also: [Chain of Survival after Out-of-Hospital Cardiac Arrest](#)

The authors point out that implementation of cardiac arrest centres should be seen as a continuous quality improvement project. "Regionalised care with integrated cardiac arrest centres may be a viable solution to improve overall survival in OHCA victims. It could also help solve the major resuscitation science conundrum; why does survival differ so much from hospital to hospital, and between cities, regions and countries",

they suggest.

They conclude: "In order to optimize outcomes for this patient population suffering from a complex and still only partially understood post cardiac arrest syndrome, it is the authors' opinion that regional care with integrated cardiac arrest centres is a prerequisite ("sine qua non") in post-resuscitation care."

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