**Commissioner’s Guide to the NCEPOD Report - ‘Time Matters’**

**A review of the quality of care provided to patients who were admitted to hospital following an out-of-hospital cardiac arrest**

**Introduction**

The incidence of out-of-hospital cardiac arrest (OHCA) in the UK is approximately 60,000 per year and UK ambulance services attempt resuscitation in an estimated 30,000 people per year. There is considerable variation in both the rate of return of spontaneous circulation (ROSC) at hospital handover (13-27%) and the rate of survival to hospital discharge (2.2%-12%). On average, fewer than one in ten people in the UK survive an OHCA**.**

The four links in the OHCA ‘Chain of Survival’ are:

1. Early recognition of cardiac arrest and call for help

2. Early bystander cardiopulmonary resuscitation (CPR)

3. Early defibrillation

4. Early advanced life support and standardised post-resuscitation care

Since 2013, the Out-of-Hospital Cardiac Arrest Outcomes (OHCAO) Registry has been collecting comprehensive data annually covering the first three links in the ‘Chain of Survival’. The fourth link in the ‘Chain of Survival’ requires trained individuals to provide advanced life support and includes the subsequent in-hospital care of OHCA once ROSC has been achieved. The lack of an ICD-10 code for OHCA makes it difficult to identify this group of patients retrospectively on routine national data collections.

The NCEPOD study focuses on the fourth link and addresses the following aspects of care:

* Percutaneous coronary intervention (PCI) for acute coronary syndromes
* Targeted temperature management
* For patients who are comatose, neurological prognosis using a multi-modal approach, and decisions regarding neurological prognosis being deferred until at least 72 hours after ROSC.
* Assessment by a heart rhythm specialist
* The availability of rehabilitation support

**Patient population**

Adult patients (aged 16 years and older) who arrived in hospital after sustaining an OHCA and achieved subsequent sustained return of spontaneous circulation (ROSC) for more than 20 minutes.

**Clinical issues**

* 53.9% of patients were hyperoxaemic on their arrival to the emergency department with an oxygen saturation of >98%
* 26.9% of patients were taken to the cardiac catheter laboratory during their admission
  + The case reviewers considered that there was a delay in the patient going to the catheter laboratory in 24.8%
* Clinicians reported that only 49.1% of patients admitted to critical care had TTM
  + Case reviewers rated the temperature management as ‘good’ in only 18.7% patients and as ‘poor’ or ‘unacceptable’ in 57.5%
* Formal prognostication took place in only 48.0% of patients
  + Case reviewers considered that the timing of neuroprognostication was not appropriate for 19.8% patients
* Documentation of the rehabilitation offered to patients was poor. Furthermore not all patients received appropriate rehabilitation
  + Cardiac rehabilitation was offered, where this was applicable, to 59.0% of survivors within three months of discharge
  + 29.4% of survivors were assessed for neurological rehabilitation
  + 20.0% of survivors were offered psychological review

**Organisational issues**

* At only 36.5% of hospitals was an electronic system in place for advanced care directives that included DNACPR decisions
* A policy for targeted temperature management was available at 77.8% hospitals
* In hospitals from which an answer was received, neurorehabilitation was not available in 18.2% hospitals and psychological support was not available in 51.2%

**Key features of a service**

1. ***Bystander Cardiopulmonary Resuscitation (CPR)***

Ongoing strategies are needed at a population level to ensure that people who sustain an OHCA are treated rapidly with high quality resuscitation, including defibrillation, through a co-ordinated network of accessible and identifiable public access devices.

2. **Advance treatment plans**

When advance treatment plans are in place, they should be documented using a standard process (such as the ReSPECT form) to ensure that people receive treatments based on what matters to them and what is realistic. Effective communication between all parts of the healthcare system, including, primary care, community services, ambulance services and acute hospitals is then needed to ensure that appropriate decisions are made, irrespective of time or location..

3. **Prediction of survival**

No single factor is accurate enough for clinical decision-making at the time of admission to hospital following an OHCA. Time is needed to ensure an accurate assessment of prognosis can be made. Neurological prognosis is particularly difficult to assess, and this should be delayed for at least 72 hours after return of spontaneous circulation.

4. **Targeted temperature management**

Elevated temperature is common following an OHCA and is associated with a worse prognosis, but this can be improved by accurate, active temperature control. The current approach in clinical practice appears to be inconsistent and a more active approach is needed.

5. **Rehabilitation**

Physical, neurological, cardiac and emotional impairment following an OHCA can all affect quality of survival, and patients benefit from targeted rehabilitation and support. In some areas of the UK there is no provision of these services. These gaps should be closed by local clinical teams and commissioners working together.

**Supporting national guidance and reports**

* Resuscitation Council UK. Guideline: Prehospital resuscitation. 2015 <https://www.resus.org.uk/resuscitation-guidelines/prehospital-resuscitation/#post>
* Resuscitation Council UK. Guideline: Post-resuscitation care. 2015 [www.resus.org.uk/library/2015-resuscitation-guidelines/guidelines-post-resuscitation-care#1-the-guidelines](http://www.resus.org.uk/library/2015-resuscitation-guidelines/guidelines-post-resuscitation-care#1-the-guidelines)
* Rehabilitation after critical illness in adults. 2009 <https://www.nice.org.uk/guidance/CG83/chapter/1-Guidance#23-months-after-discharge-from-critical-care>