

## An audit of cardiac arrests on a cardio-respiratory unit. Comparing practice to NCEPOD recommendations.

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### Introduction and Aims

In 2012, the NCEPOD report entitled "Time to Intervene?" reviewed the care of in-patients that underwent cardio-pulmonary resuscitation (CPR). The report identified the following: (i) a failure to recognise deteriorating patients; (ii) a failure to involve senior clinicians; (iii) a failure to make prompt and appropriate Do Not Attempt Resuscitation (DNAR) decisions. In the same year a trust-wide cardiac arrest audit identified the cardio-respiratory unit (CRU) as the ward with the highest number cardiac arrest calls. The aim of this audit was to review the care given to patients who arrested on the CRU with reference to the 3 aspects highlighted by the NCEPOD report.

### Method

We performed a retrospective case-note review of all the patients who had a cardiac arrest call on the CRU between January and December 2012. We compared the care given pre-arrest against local trust guidelines with specific focus on timing of last senior review (SpR or above), response to Modified Early Warning Score (MEWS) and DNAR decisions.

### Results

There were 28 arrest calls of which 24 (85%) were true arrests. There were 11 (46%) male and 13 (54%) female patients. The average age was 73 (range 47 to 91). The average length of stay was 6 days (range 1 to 16). 22 (92%) of arrests occurred out of hours. The CPR attempt was unsuccessful in 23 (96%) cases.

#### Senior Review

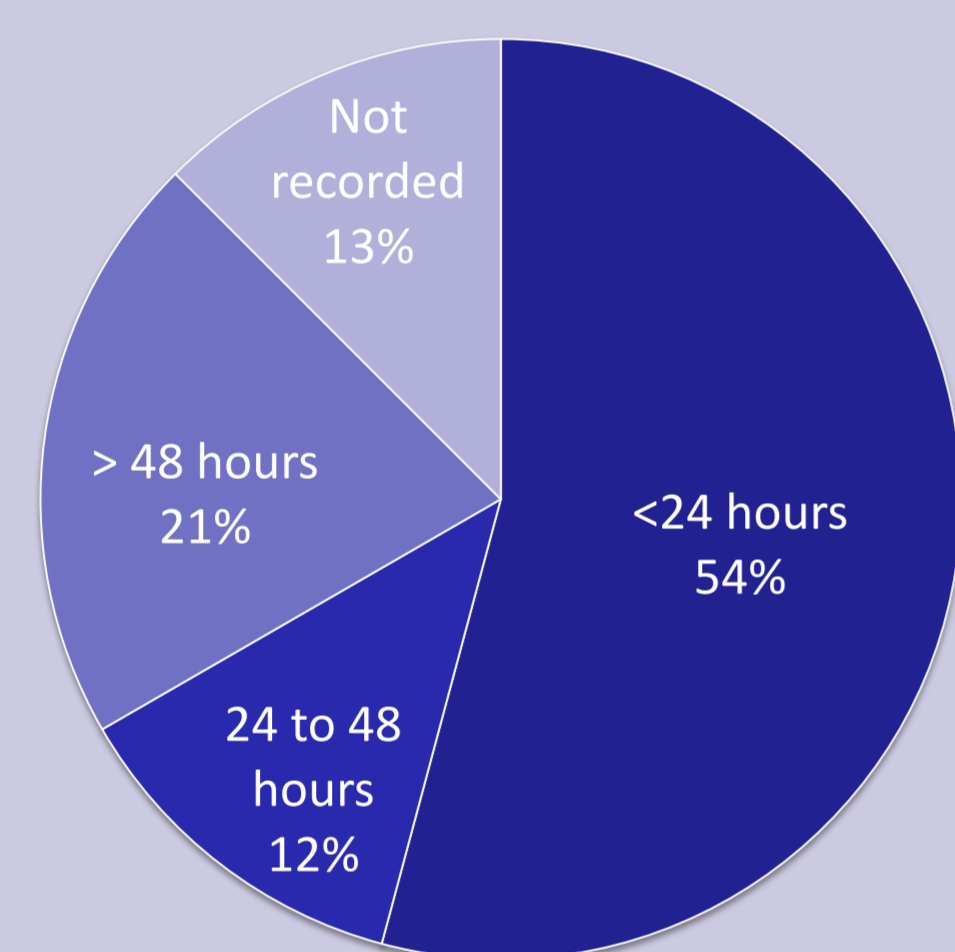
The average time from last senior review to arrest was 29 hours (range 4 to 67). 39% of patients did not have a senior review within the preceding 24 hours (*figure 1*).

#### Responding to abnormal observations

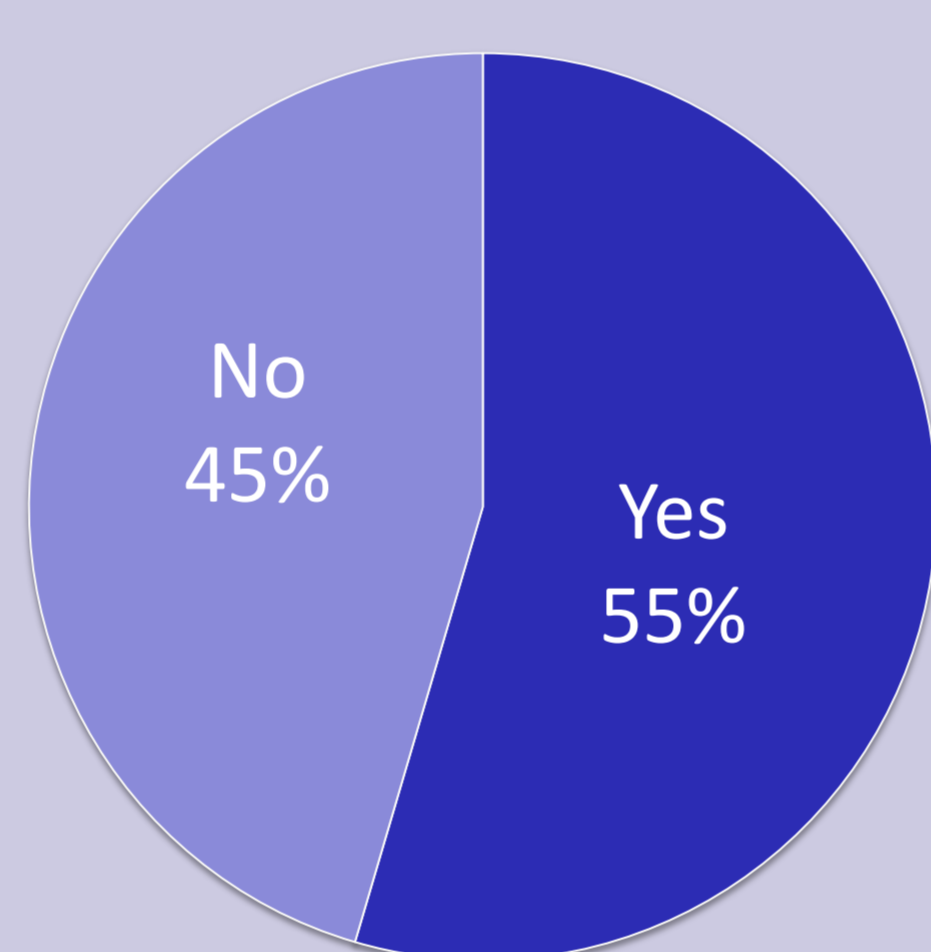
50% of patients had a MEWS of 3 or more prior to arresting of which 45% were not escalated appropriately (*figure 2*).

#### DNAR decisions

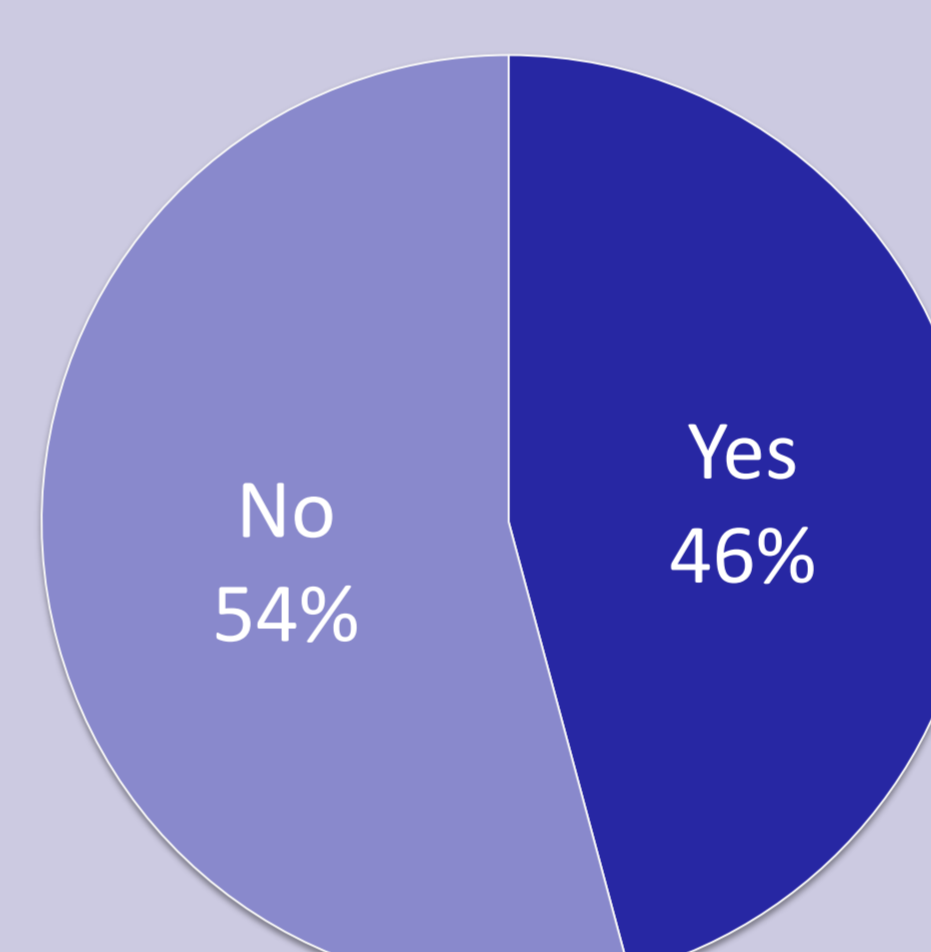
In 54% of patients that arrested, CPR was deemed inappropriate on case review in view of the patient's pre-morbid condition (*figure 3*).



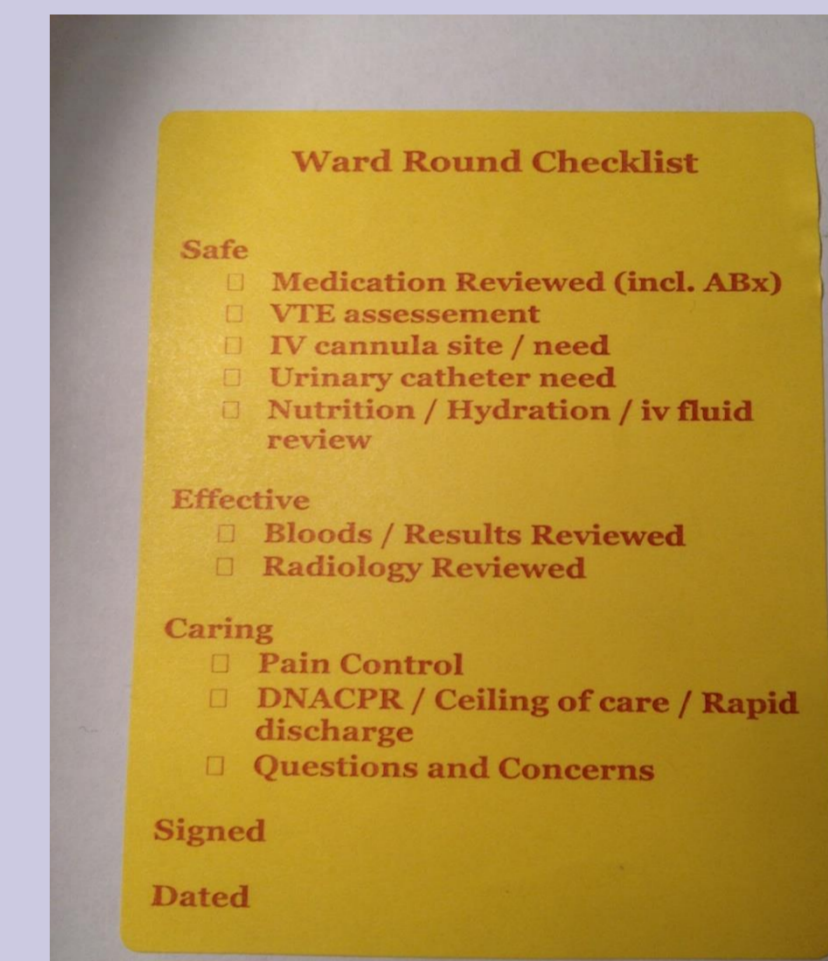
**Figure 1.** Percentage of patients receiving a senior review within 24 hrs, 24-48 hrs or over 48 hours prior to arresting



**Figure 2.** Percentage of patients with a MEWS  $\geq$  3 who were escalated appropriately



**Figure 3.** Percentage of patients in which CPR was deemed appropriate



**Figure 4.** Ward round checklist

### Conclusions and Actions

This audit has shown that the high number of cardiac arrests on the CRU in 2012 may have been influenced by:

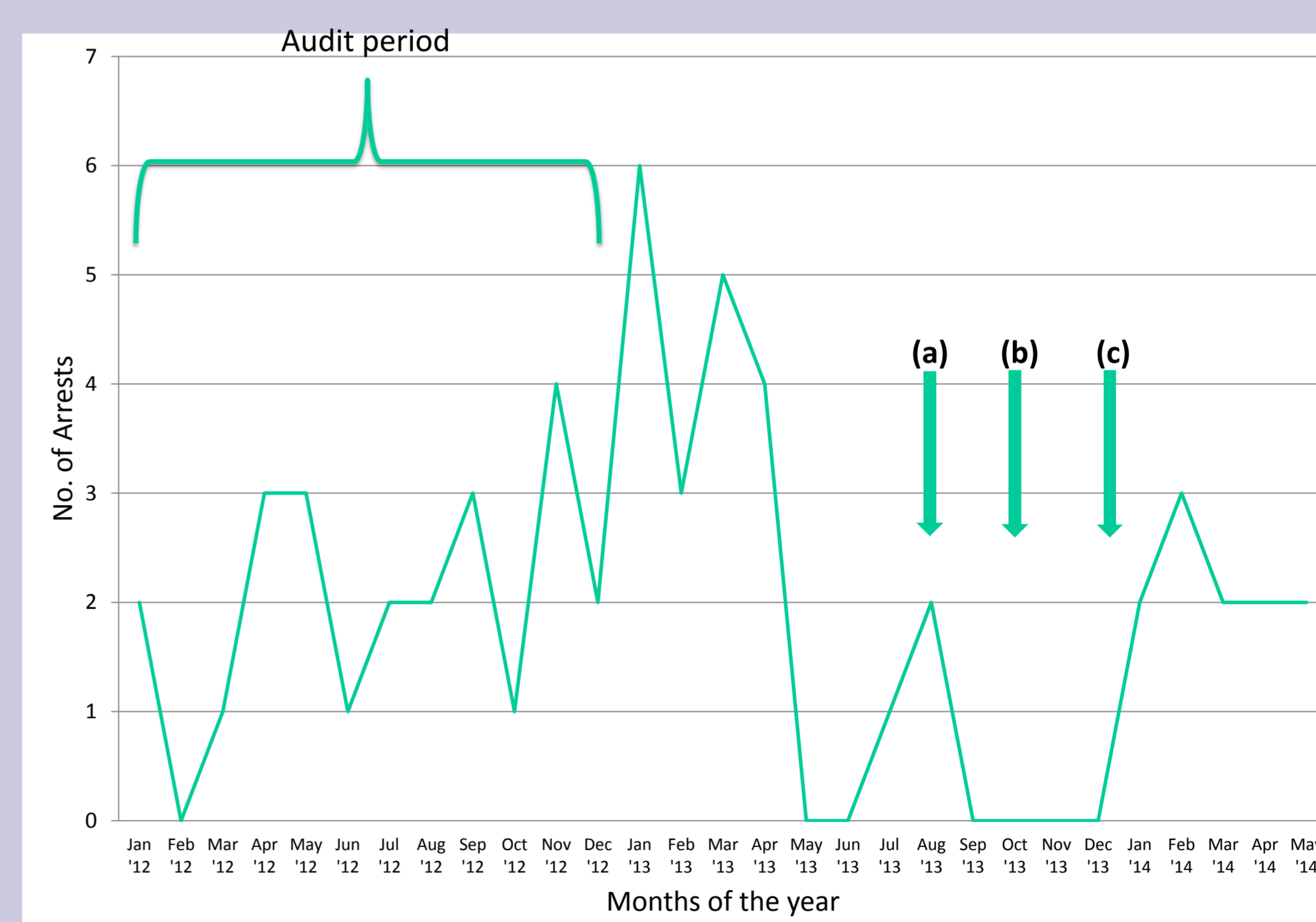
- 1) A lack of senior reviews** – over 1/3 of patients did not receive a senior review in the preceding 24 hours prior to arresting
- 2) Inconsistent response to abnormal observations** – 45% of patients were not escalated appropriately.
- 3) Failure to make appropriate DNAR decisions** – over half the patients were deemed to have received CPR inappropriately.

Following the audit a number of actions were implemented. This has resulted in a reduction in the number of cardiac arrests on the CRU. This is demonstrated in *figure 5*. The actions included

- 1) Introduction of a ward round checklist** including a prompt to regularly review ceiling of care – *Figure 4* and *figure 5 (a)*
- 2) Introduction of a multi-disciplinary monthly mortality meeting** at which all the patients who died on the CRU are discussed with particular focus on ceiling of care and end of life decisions – *Figure 5 (b)*
- 3) Introduction of weekend respiratory consultant reviews** on the CRU – *Figure 5(c)*

### References

Time to Intervene? A review of patients who underwent cardiopulmonary resuscitation as a result of an in-hospital cardiorespiratory arrest. A report by the National Confidential Enquiry into Patient Outcome and Death (2012).



**Figure 5.** Run chart of cardiac arrest calls on the CRU by month. (a) (b) (c) indicate times at which actions were implemented – see "actions" section.