

# Peri- and Post-Operative Management of the “High-Risk” Surgical Patient

## An Audit of Practice in a Large District General Hospital

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### Background

- The “high-risk” surgical population constitutes 80% of death seen after operative procedures and 15% of hospital mortality rates<sup>1</sup>.
- Despite multiple scoring systems being described, the classification of a “high risk” surgical patient is unclear and assessment of operative risk remains multi-factorial and usually subjective to the assessing anaesthetic doctor.
- In 2011 an NCEPOD report, “Knowing the Risk,”<sup>1</sup> reviewed data regarding peri-operative management of the high risk surgical population and subsequently produced recommendations in aim to improve outcomes in this patient population.
- Of particular focus, recommendations included:
  - Clear documentation of operative mortality risk
  - To use peri-operative cardiac output monitoring with CardioQ technology, as supported by NICE Medical Technology guidance 3.<sup>2</sup>
  - Provide higher level care, with Critical Care input, post-operatively.
- In 2013/2014 NHS England outlined oesophageal Doppler monitoring as one of six national high impact innovations, and outlined compliance would be necessary for NHS bodies to qualify for CQUIN income<sup>3</sup>.

### Aim

- To audit clinical anaesthetic practice at Whiston Hospital against those recommendations outlined in the NCEPOD 2011 report, “Knowing the risk,” regarding the management of high risk surgical patients.

### Methods

- A typical “high-risk” patient was defined as elderly (>65 years) undergoing emergency laparotomy.
- Review of Whiston Hospital’s “Emergency Theatre” records between January-March 2013 and January-March 2014, identified two cohorts of “high risk” operative patients, allowing yearly, interval comparison of clinical practice.
- Retrospective case note review allowed relevant data collection
- Data included demographic details, documentation of risk, peri-operative haemodynamic monitoring used, 30-day survival and involvement of Critical Care post-operatively.
- These data were collated and compared between 2013 and 2014, identifying any interval improvement, and with the national prospective data outlined in the NCEPOD report.

### Results and Conclusions

- 36 and 26 high risk patients were identified in the period January-March 2013 and January-March 2014, respectively.
- Through data collection, 3 patients from each cohort were excluded for either having incomplete data or being found not to fulfill the definition of high-risk.
- Final data set included 33 and 23 patients in 2013 and 2014 cohorts, respectively.
- All patients included in this audit were classed ASA 2 or above, with over 60% classed ASA 3 or greater (in both 2013 and 2014)
- 30 day mortality rate in high risk surgical patients at Whiston hospital has consistently been approximately 13%, over double that found in the NCEPOD prospective data.
- (Fig.1) 9% of patients had a documented mortality risk on anaesthetic documentation in 2013 data. This was found to be nil in 2014 cohort.
- (Fig.2) 51% and 61% of patients received invasive BP monitoring with arterial line in 2013 and 2014, respectively.
- (Fig.2) CardioQ monitoring was used in 3% of patients in 2013 and 26% of patients in 2014.
- (Fig.2) Central venous catheter use has shown to decline between 2013 (39%) and 2014 (21%).
- (Fig.3) 48% (2013) and 56% (2014) of high risk patients received higher level care, post-operatively, in HDU/ITU.
- (Fig.3) Over 60% of high risk patients had some form of critical care input (referral/discussion/admission) post-operatively.

### Discussion and Conclusions

- Clear documentation of operative mortality risk was found to be poor and can be drastically improved to maintain a good standard of practice as recommended in NCEPOD report.
- The use of cardiac output monitoring (CardioQ) has shown interval improvement between 2013 and 2014, possibly as a result of the clinical CQUIN introduction in April 2013. However, there is much scope for improvement to demonstrate better clinical practice as described in current recommendations. Educating anaesthetic staff with regards to the NCEPOD recommendations and CQUIN could be valuable in improving current practice.
- It appears to be common practice to use invasive BP monitoring in these high risk patients, and the use of arterial lines has shown incremental increase over the past year. The use of central venous catheters, however, seems to have declined.
- Involvement of critical care post operatively, through referral/review, appears to be well practiced, however, formal admission to HDU/ITU post-operatively still lags behind recommended practice. Resources limit the ability to admit all high risk patients routinely, however, there may be scope to develop a formal post-operative pathway with critical care input in those patients not formally admitted.

Fig.1: Percentage documented mortality risk for high risk surgical patients

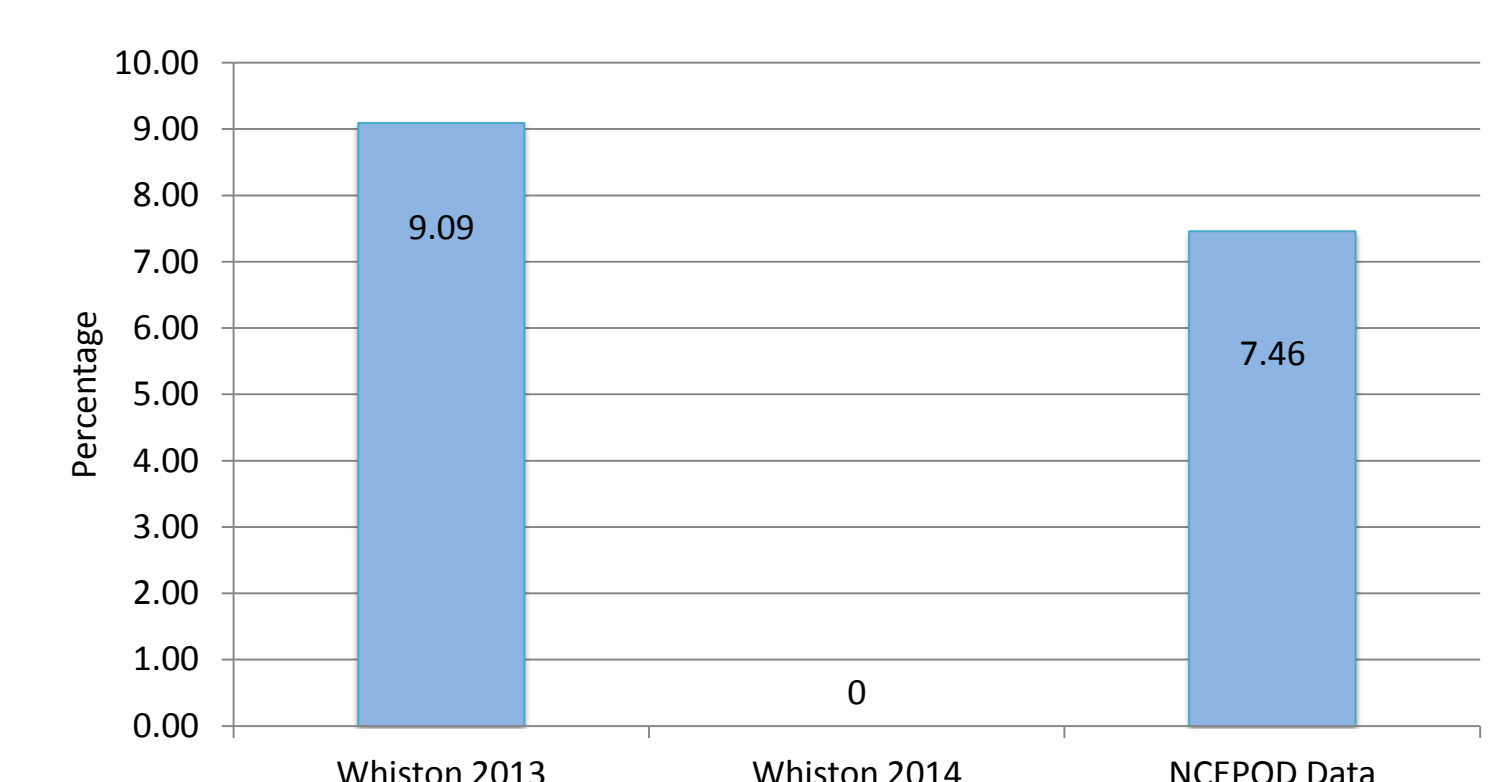


Fig.2: Percentage of high risk surgical patients receiving perioperative cardiovascular monitoring

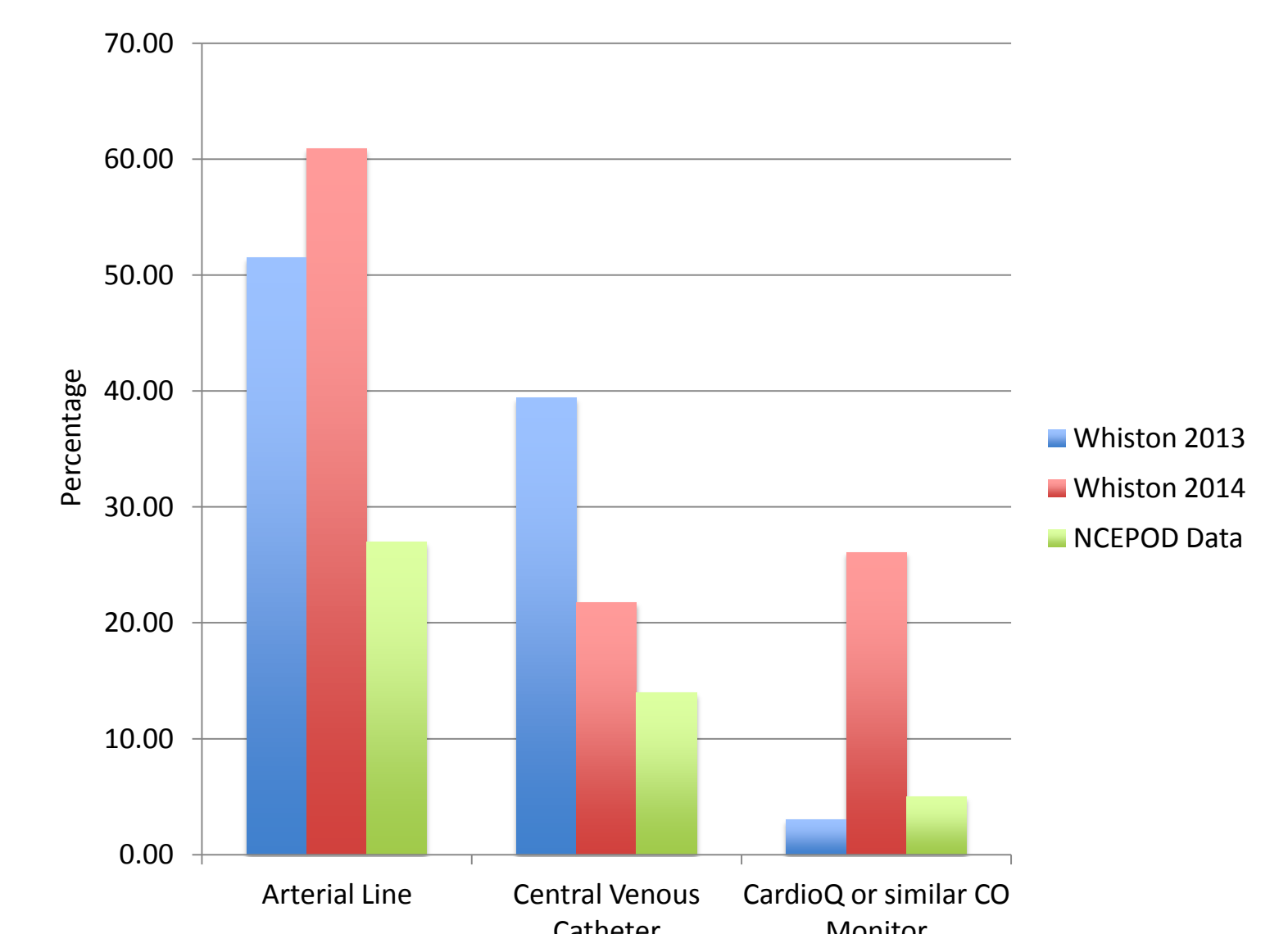
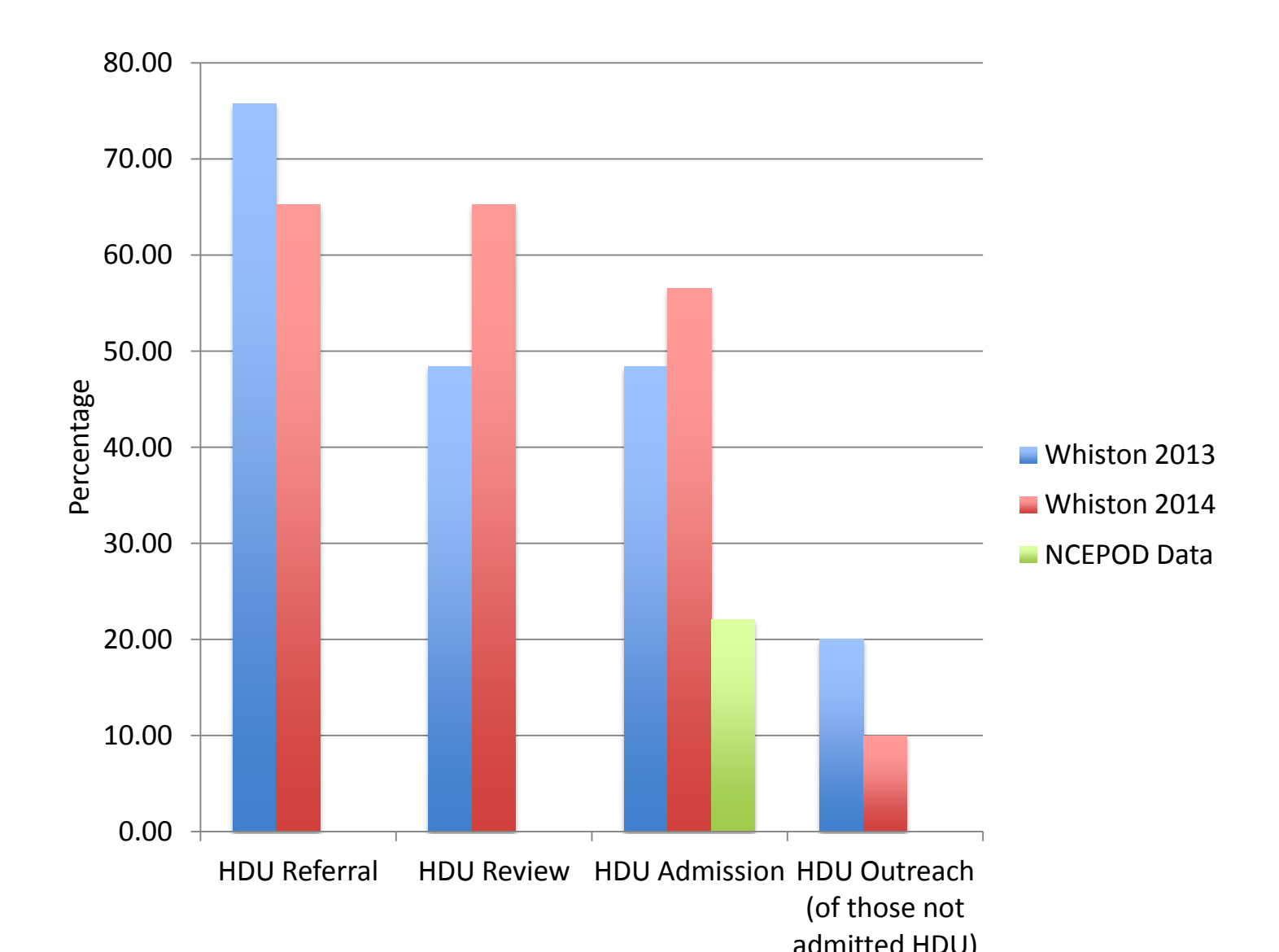


Fig.3: Involvement of Critical Care/HDU post-operatively in high risk surgical patients. Shown as percentage.



### References

- 1) Knowing the Risk. A review of peri-operative care of surgical patients. NCEPOD, 2011.
- 2) CardioQ-ODM oesophageal Doppler monitor. NICE Medical Technology Guidance 3, March 2011.
- 3) Commissioning for Quality and Innovation (CQUIN) 2013/1014 Guidance. NHS England, 2013.

