



NELA: Implementation of peri-operative care pathway for patients undergoing emergency laparotomy: an ongoing quality improvement project in a district general hospital

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Introduction

- High mortality (15%) following emergency laparotomy has been reported nationally ^{1,2,3}.
- Evidence of wide variation in the provision of perioperative care has been demonstrated with mortality rates ranging from 3.6% to 41.7% between hospitals in the UK⁴.
- The aim of this quality improvement project (QUIP) was to improve the diagnosis and management of high risk surgical patients undergoing emergency laparotomy and thereby reduce overall mortality.
- Kingston Hospital, as part of the Enhanced Peri-Operative Care for High risk patients (EPOCH) trial, implemented a number of key multidisciplinary team interventions to improve peri-operative care in this district general hospital.

Methods

- Prospective data was collected for 198 patients undergoing emergency laparotomy between January 2014 and July 2015.
- A multidisciplinary team of surgeons, anaesthetists, intensivists and radiologists agreed on a set of key interventions:
 - Pre-operative formal risk assessment (P-Possum) to identify high risk patients.
 - Direct consultant supervision (anaesthetic and surgical).
 - Critical care admission to HDU or ICU post operatively for emergency laparotomy patients with P-Possum score predicting a mortality over 5%.
 - Timely CT imaging, where one to two hours every morning are reserved for emergency surgical cases to improve referral to report time.
- 30 day mortality rates were statistically analysed using Chi-Square with Yates correction.
- Three Plan-Day-Study-Act (PDSA) cycles of this QUIP were conducted.

Results

Figure 1: PDSA Cycle Results

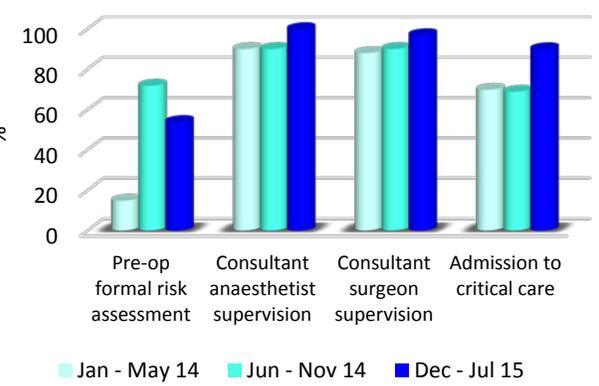
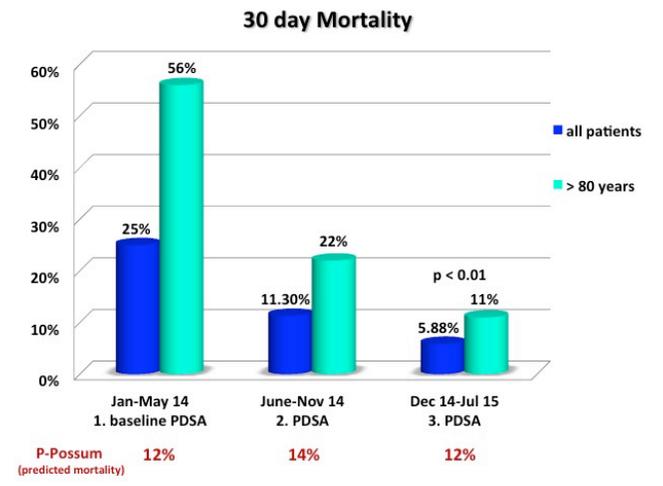


Figure 2: CT Timing request → report



Figure 3: Actual 30 day mortality and P-Possum predicted mortality



- The average age was 67.8 years and 23.2% were over 80.
- After three PDSA cycles, there was an increase in P-Possum risk assessment (55%), consultant supervision (anaesthetist 100%, surgeon 97%), increase ICU admission of 88%, and reduction in referral to report CTs to the desired time of less than two hours – figures 1 and 2.
- The overall 30 day mortality decreased to 5.88% for all patients and to 11% in patients over 80, which was below the P-Possum predicted mortality and highly statistically significant (p < 0.01) – figure 3.

Discussion

- Implementation of a clear multidisciplinary care pathway for patients undergoing emergency laparotomy has led to increased identification of high risk patients, consultant led care, critical care admission and timely CT assessment.
- It seems unlikely that a single intervention could have caused the significantly reduced mortality, but rather it may be the result of an aggregation of marginal gains, a better shared decision making of a multidisciplinary team and greater level of awareness of a critical ill patient.
- The action plan for the fourth PDSA cycle include:
 - New anaesthetic charts which include a P-Possum score to improve pre-op formal risk assessment.
 - Aim for consultant surgeon review within 12 hours of admission.
 - Appointment of Medicine for Care of the Older Person (MCOP) consultant.
 - Outsourcing of out of hours CT reporting to Australia to provide 24 hour cover.

References

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