Royal College of Anaesthetists

Raising the Standard, 4th edition RCoA QI compendium Linking it all together

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Linking it all together:

4.1 Risk assessment and preparation for emergency surgery

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Why do this quality improvement project?

Preoperative assessment of risk is an essential component of high-quality perioperative care, informing discussions of treatment options and identifying patients who may benefit from augmented care pathways. Delivery of multidisciplinary care using protocols is associated with improved survival after emergency laparotomy. Preoperative risk assessment is reported by national clinical audits and is required for English NHS trusts to receive best-practice tariff remuneration after emergency laparotomy.[1,2]

Background

Likelihood of adverse outcomes (including death, morbidity, reduced quality of life and increased dependency) may be estimated before surgery. Individualised estimates draw on population-level research. These assessments of 'risk' may not be routinely performed and are often poorly communicated both with patients and between healthcare professionals. By categorising risk, it may be possible to pre-emptively identify the minority of 'high-risk' patients in whom the majority of adverse events occur. The specifics of what clinicians do with this information are contested, but there is evidence that consistent delivery of emergency surgical care using protocols is associated with improved survival.[3,4]

A wide variety of methods exist for assessing perioperative risk. Prediction models (most based on logistic regression) are usually the most appropriate in the context of emergency surgery. Bespoke models calibrated for contemporary populations are often the most accurate.[5]

Death is often preceded by the development of morbidity after emergency surgery. Morbidity may also be associated with excess mortality for several years after surgery. Unfortunately, non-mortality outcomes appear to be harder to accurately predict.

The National Emergency Laparotomy Network (NELA) has reported a steady improvement in risk documentation before emergency laparotomy, but marked variation persists between and within hospitals.[1]

Best practice

Risk of death (and substa
be assessed using the mo
appropriate method. Esti
recorded and if risk varies
options, competing estim

Estimate(s) should be con
family in appropriate tern
more appropriate than qu
Risk estimates should info
decisions and consent fo
campaign 'Benefits Risks
if we do Nothing (BRAN)

'High-risk' individuals sho
briefs, multidisciplinary c
of perioperative pathway
persist over the days afte
practices should be conti
they recover from their a

Patients must be actively
making and supported by
healthcare professionals
about treatment and con
important to them, in line
7 Day Services.[7]

Suggested data to c

Teams should not be ove
a distinct advantage of th
all, of the data for the ma
laparotomies are already
In addition, the data are r
analysed, in particular a s
cases for whom risk of de
surgery. Lessons learned
extrapolated to managen
surgeries:

- type of emergency surg
- whether or not an asse
documented on conser
- the nature of the adver
- whether or not risk was
(or their relatives if appr

Quality improvement methodology

There are helpful resources particular to NELA on the website, including a link to quality improvement videos.

Quality improvement is best undertaken as a team, whereby all the relevant stakeholders, including patients, are represented. This assists in incorporating views and issues at an early stage and also in feeding back the results of change projects.

NELA data analysis should be able to reveal deficiencies in risk assessment for emergency laparotomy against national standards and comparison with peers. Understanding the local system is vital to identify where improvements can be made. A process map can be helpful in putting information about the system into diagrammatic form, incorporating the perspectives from the stakeholders.

Use a driver diagram to define the specific outcome, the what, by how much and by when aims, which should (in this context: reduction in mortality, complications and cost), identify the primary (pre-, intra- and postoperative care) and secondary drivers, which are often processes that lead to the desired outcome (eg in preoperative care, secondary drivers are frailty, nutrition and cognition assessment).

The Model for Improvement is useful to provide a structure to the change projects and the change ideas that are generated from the driver diagram can be incorporated into the plan-do-study-act (PDSA) cycle. Change projects should be focused and short, with rapid audit of the relevant data to assess the success or otherwise of an idea.

Collected data either for a single process (eg risk assessment) or as a care bundle displayed as 'run charts' and or statistical process control charts to assess implementation and improvement using PDSA methods.

Case example

Since starting to collect patient-level data in 2013, NELA has asked participants to indicate whether risk of death was documented before surgery and, if it was, to categorise risk and identify which method was used to estimate risk.

In the first year, only 56% of patients had risk of death documented before surgery and, at hospital level, risk was consistently (over 80% of patients) documented at only 14% of hospitals. Analysis revealed that, of those patients for whom risk had not been documented, more than half were at greater than 5% risk of 30-day mortality. Over subsequent years, NELA has provided clinicians with a host of quality improvement tools and hospital-level reports and has targeted recommendations to improve risk documentation. By the fourth year, risk had been documented in 74% of all patients and, of these patients, with probability of 30-day mortality being formally calculated in 61%. Mortality over the same time period has reduced.

Mapping

ACSA standards: 4.2.2.2, 4.2.3.1, 4.2.3.2, 1.5.1.1, 1.5.1.2, 1.5.1.3
Curriculum competences: GU IK 11, GU IK12, GU IS 02, GU IS 05, GU IS 06, GU HK 01, GU HK03, GU HS 01, GU HS02, GU HS03, GU HS 05
CPD matrix code: 3A03
GPAS 2020: 2.1.1-2.9.15, 3.1.1-3.9.5, 4.1.1-4.9.3, 5.1.1-5.9.18

References

1. NELA Project Team. Fourth Patient Audit Report of the National Emergency Laparotomy Audit. London: RCoA; 2018 [https://www.nela.org.uk/reports].
2. NELA Best Practice Tariff queries [https://www.niaa.org.uk/best-practice-tariff].
3. Eichenberger AS et al. A clinical pathway in a post-anaesthesia care unit to reduce length of stay, mortality and unplanned intensive care unit admission. Eur J Anaesthesiol 2011;28: 859–866.
4. Oliver CM et al. Organisational factors and mortality after an emergency laparotomy: multilevel analysis of 39903 National Emergency Laparotomy Audit patients. Br J Anaesth 2018;121:1346–1356.
5. Eugene N et al. Development and internal validation of a novel risk adjustment model for adult patients undergoing emergency laparotomy surgery: the National Emergency Laparotomy Audit risk model. Br J Anaesth 2018;121:739–748.
6. Choosing Wisely UK [www.choosingwisely.co.uk].
7. NHS England. Seven day services clinical standards, September 2017 [https://www.england.nhs.uk/publication/seven-day-services-clinical-standards].

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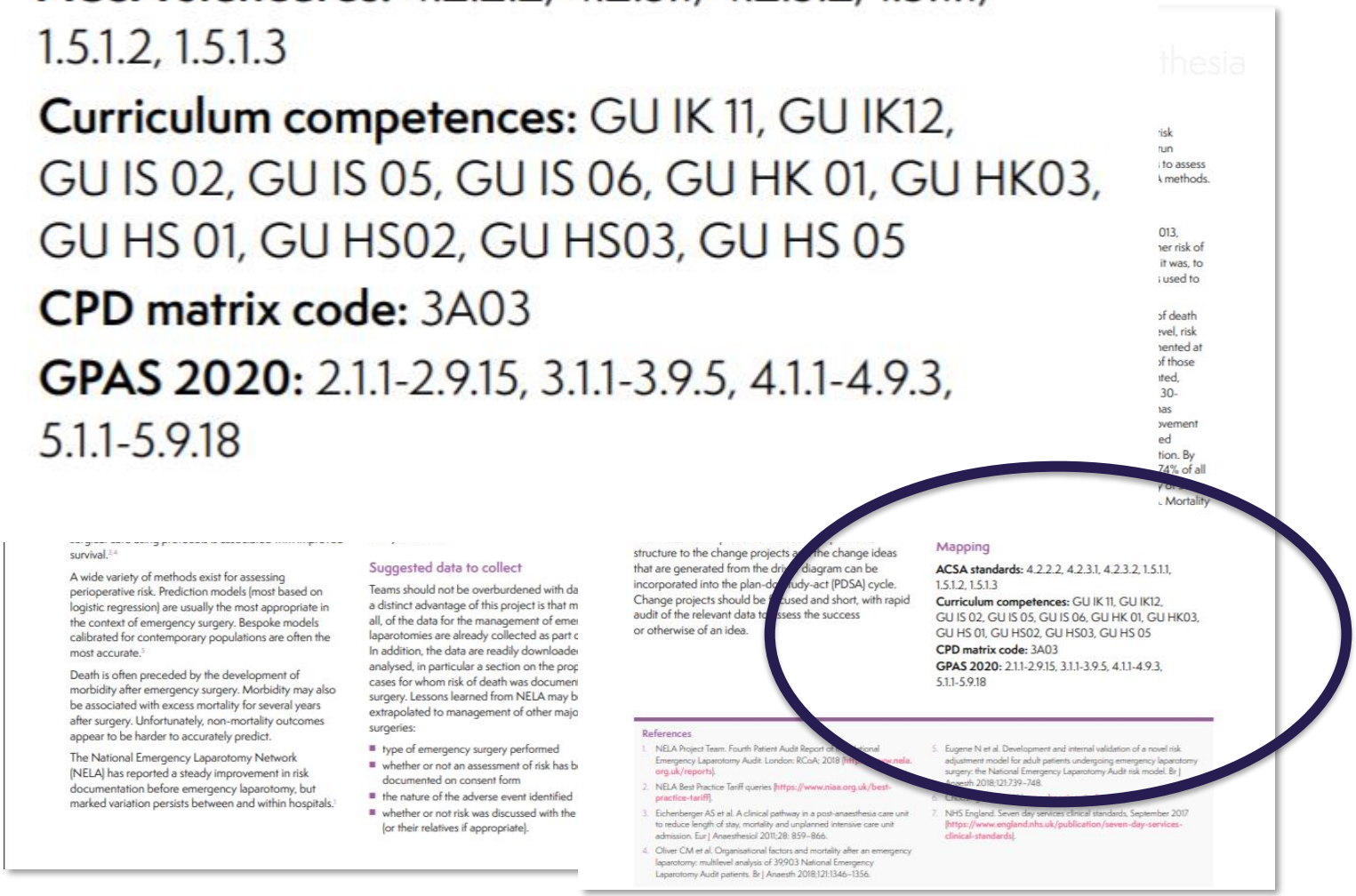

survival.[3,4]

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Suggested data to collect

Teams should not be overburdened with da
a distinct advantage of this project is that m
all, of the data for the management of emer
laparotomies are already collected as part c
In addition, the data are readily downloade
analysed, in particular a section on the prop
cases for whom risk of death was documen
surgery. Lessons learned from NELA may b
extrapolated to management of other majo
surgeries:

- type of emergency surgery performed
- whether or not an assessment of risk has b documented on consent form
- the nature of the adverse event identified
- whether or not risk was discussed with the (or their relatives if appropriate).

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STANDARD

4.2.3.1 Continuous measurements of the clinical outcomes of elective and emergency anaesthesia is undertaken and plans put in place to act on the findings.

EVIDENCE REQUIRED

Written evidence should be provided.

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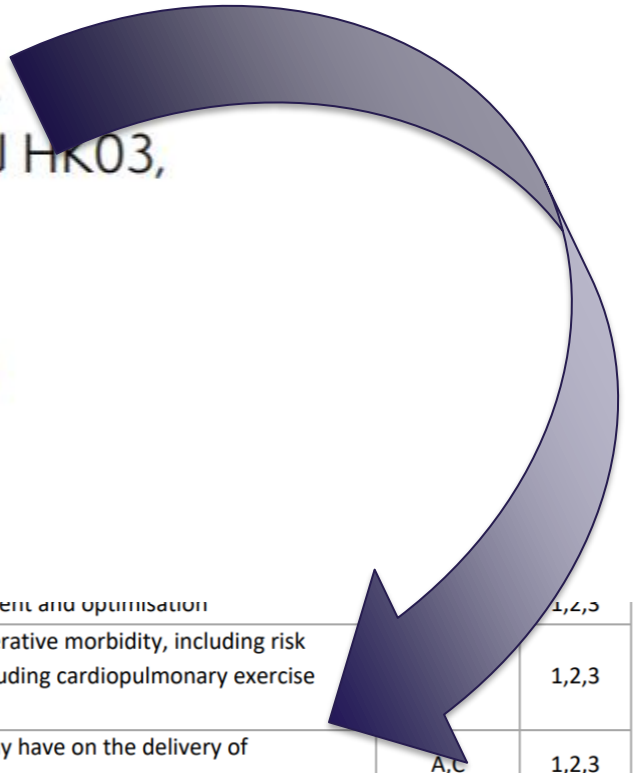

GU_IK_10	Recalls / describes the rationale and principles of perioperative haemodynamic management and optimisation		1,2,3
GU_IK_11	Recalls / describes the principles of preoperative evaluation of patients at risk of post-operative morbidity, including risk stratification tools, for example scoring systems and measures of functional capacity [including cardiopulmonary exercise testing]		1,2,3
GU_IK_12	Discusses the importance of the timing of non-elective surgery and the effect that this may have on the delivery of 'emergency surgery'	A,C	1,2,3

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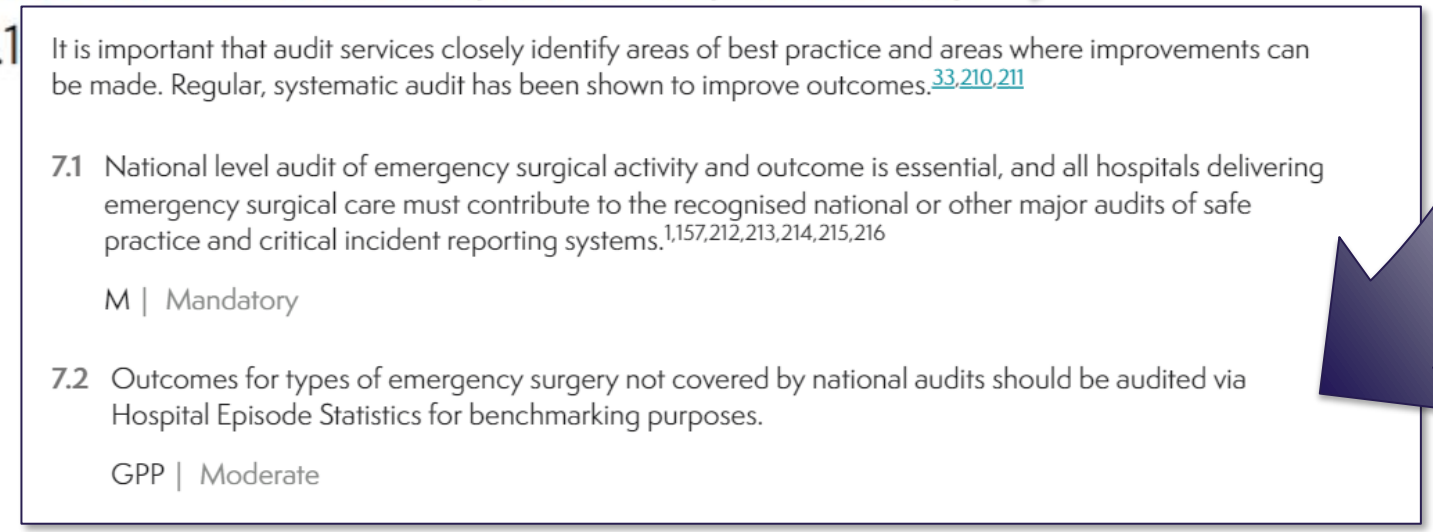

It is important that audit services closely identify areas of best practice and areas where improvements can be made. Regular, systematic audit has been shown to improve outcomes.[33,210,211]

7.1 National level audit of emergency surgical activity and outcome is essential, and all hospitals delivering emergency surgical care must contribute to the recognised national or other major audits of safe practice and critical incident reporting systems.[1,157,212,213,214,215,216]

M | Mandatory

7.2 Outcomes for types of emergency surgery not covered by national audits should be audited via Hospital Episode Statistics for benchmarking purposes.

GPP | Moderate

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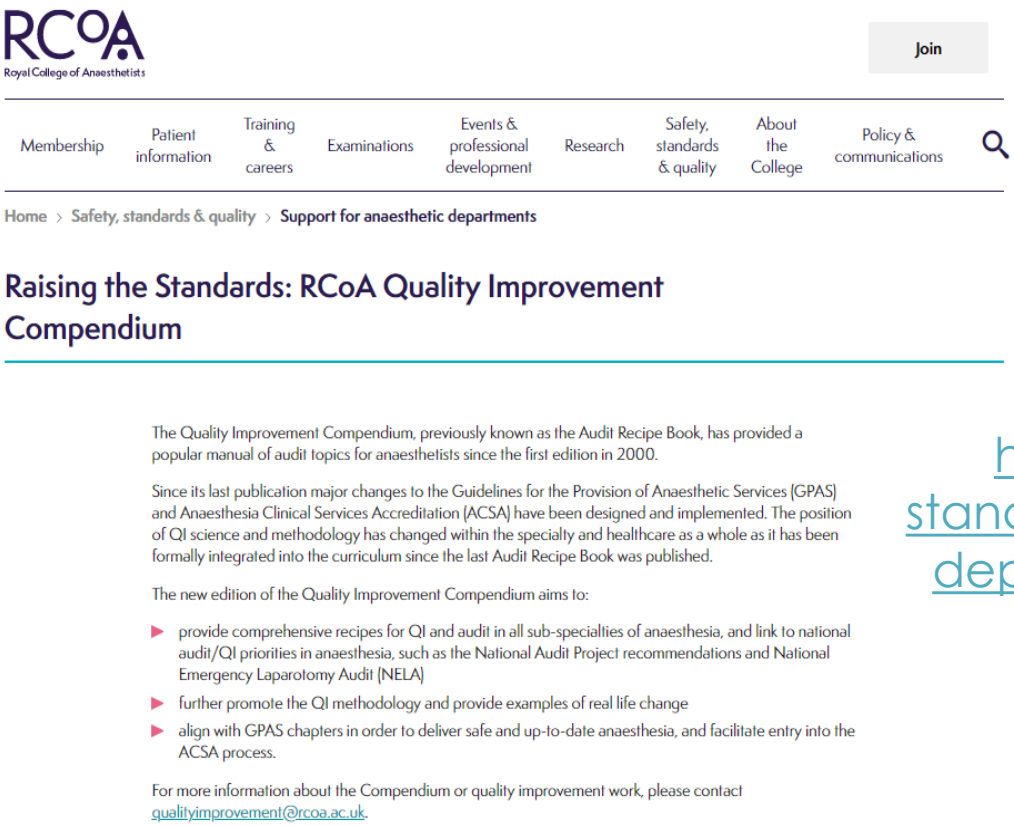
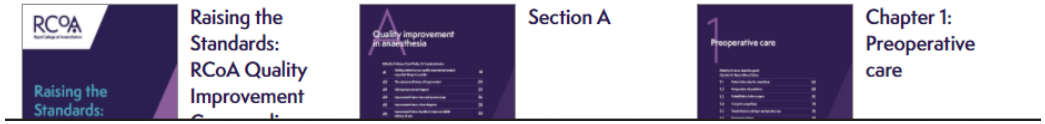
Free to download from RCoA website
But please reference!



https://www.rcoa.ac.uk/safety-standards-quality/support-anaesthetic-departments/raising-standards-rcoa-quality-improvement



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Questions?

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