

# Third Patient Report of the National Emergency Laparotomy Audit (NELA)

December 2015 to November 2016

## EXECUTIVE SUMMARY



October 2017



# The third Patient Report of the National Emergency Laparotomy Audit (NELA)

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## Cover: Donna Armitage-Taylor and her daughter Stephanie Taylor

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An emergency laparotomy (emergency bowel surgery) is a surgical operation for patients, often with severe abdominal pain, to find the cause of the problem and treat it. General anaesthetic is used and usually an incision made to gain access to the abdomen. Emergency bowel surgery can be carried out to clear a bowel obstruction, close a bowel perforation and stop bleeding in the abdomen, or to treat complications of previous surgery. If left untreated, these conditions could be life-threatening. The National Emergency Laparotomy Audit was started in 2013 because studies showed this is one of the most risky types of emergency operation.

**1 30,000**

Almost **30,000** laparotomies are carried out each year across **England and Wales** and **24,897** of these were entered into the audit.



**2** A patient undergoing emergency bowel surgery often receives care from many parts of the hospital, often within a short period of time: **emergency department, radiology (X rays), operating theatres, critical care and ward care.**



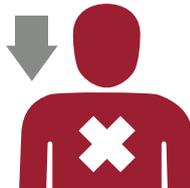
**3** Improvements in care have reduced patients' average hospital stay from **19.2 days** in 2013 to **16.6 days** in 2016.

**19.2 days**  
**16.6 days**



**4** Improvements in care have saved **NHS hospitals** an estimated **£30 million** annually.

**5** Since 2013, national **30-day mortality rate** has fallen from **11.8%** to **10.6%**.



**6** **~300 patient lives saved** each year compared with 2013.



**7** **Consultant care** is crucial. They provide care in theatre for **79%** of high risk patients.



**8** **600+**



**600+ doctors** worked with nursing and management colleagues to collect this data, and implement improvements.

**9** **76%** of hospitals meet the target for getting most of their most urgent patients to the operating theatre **within two hours.**



**10** **78%** of hospitals meet the accepted standard of admitting their **high risk patients** directly to critical care after surgery.



**11** **~50%** of patients are aged **over 70**. Only **3%** of hospitals provide **regular proactive assessments** from geriatricians for older patients after surgery.

**50%**  
**over 70**

This Report was prepared by members of the National Emergency Laparotomy Audit Project Team on behalf of the Royal College of Anaesthetists. The members of the Team were

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## Acknowledgements

The NELA Project Team and Board would like to express their thanks to all clinical and non-clinical staff at all NHS trusts and Welsh health boards who collected and submitted data. We recognise that many staff are collecting and entering data in their own time and without additional resources. We commend their dedication to improving patient care. In particular we would like to thank the NELA Leads for their hard work, leadership and continued enthusiasm ([www.nela.org.uk/NELALeadDb](http://www.nela.org.uk/NELALeadDb)); without this engagement, patients would not have benefited from improved care and NELA would not be the success it has become over the last three years.

The NELA Project Team and Board would also like to thank the members of the NELA Clinical Reference Group for helping to shape the dataset and Report.

# 1 FOREWORD



*(from left to right): Melissa Taylor (aged 11), Donna Armitage-Taylor, Stephanie Taylor (aged 6) and Darren Taylor*

I had spent the day before my emergency bowel surgery on the local beach with my family, enjoying the blustery weather and an unseasonal ice cream. Unbelievably, within 24 hours, I became acutely unwell and I was admitted to hospital with severe abdominal pain.

I had, like most patients, never heard of the National Emergency Laparotomy Audit. I had little idea of quality improvement, audit, data, or how many other patients would undergo similar surgery to me. I had no time to appreciate how many different professionals would be working together to help me. I had no idea that I would need to rely on a team of staff who had been driving improvements in the care of patients like me, using NELA data to improve outcomes. All we knew as a family was that I was very unwell and I needed some kind of operation, very quickly, to save my life.

As a patient, when you are in the position of needing this kind of high-risk emergency surgery you, and your family, depend on multidisciplinary teams to work closely and effectively together to ensure that you are cared for in the best possible manner.

Because of the often rapid onset of symptoms that lead to needing emergency bowel surgery, and because you may feel so unwell, you may not have the opportunity to choose where you have your surgery, who performs your anaesthetic, or even look into what will be involved. Unlike elective surgery, these choices are taken away from you and as a patient, you are wholly reliant upon the team at the hospital to function at as high a level as possible to ultimately save your life.

I was cared for by ED nurses, junior doctors, radiographers, consultant surgeons, consultant anaesthetists, ODPs, and theatre nurses. All of them had significant influence on ensuring that I, as a high-risk patient, had the best chance of survival. I now know that, not only did staff care for me to the absolute best of their clinical abilities, but also that they were supported in doing so by significant pieces of work designed to improve the way the hospital provides care to patients like me.

Without the work done by this local NELA multidisciplinary team, including non-clinical audit and quality improvement staff, I would not have had my CT scan reported rapidly, and would not have had a consultant anaesthetist and a consultant surgeon reviewing me together preoperatively, working together to get me to theatre so fast, and ensuring I was looked after on the ICU after my surgery. All of this contributed, undoubtedly, to saving my life.

So, what do audits mean for patients? The truth is, very little unless they translate into improved care for us and are presented in such a way that we can use them to understand the care that we should receive. The team who cared for me had been working together using the NELA data, sharing it in innovative ways, and acting upon it to improve the care that I and other patients received.

Simply collecting data on each of us who has an emergency laparotomy is not enough. Data needs to turn into actions, as this is what makes a difference in outcomes for patients. NELA data needs to be used in such a way that it empowers and enables the dedicated teams of staff who work throughout the day and night to do the very best for their patients and provide the highest quality of care for us.

NELA has collected data on thousands of patients who have had an emergency laparotomy in the last year, and presents that here in this Report. As you read this Report, **remember that every single number, percentage or dot on a graph, represents someone like me; a patient**, someone's mum, dad, daughter, brother, or friend. And every time this dot of data is used constructively it improves care for future patients.

**Donna Armitage-Taylor**  
Emergency Laparotomy Patient

## 2 EXECUTIVE SUMMARY

### Overview

- 1 The National Emergency Laparotomy Audit (NELA) is an ongoing national clinical audit of patients having emergency bowel surgery, which is a surgical procedure with high associated mortality. The quality of care and outcomes for patients can be improved through planning and delivering care based upon a comprehensive assessment of each patient's risk of death.
- 2 This is the Third Patient Report of the National Emergency Laparotomy Audit. It includes data from the second Organisational Audit performed in October 2016 and from the third annual cycle of patient-data collection.
- 3 The Organisational Audit provides information on how hospitals have organised their emergency general surgical service, and whether this service meets published standards for facilities and governance.
- 4 The Patient Audit collected information on 24,897 patients who had surgery between 1 December 2015 and 30 November 2016. This is an increase on last year, and represents around 82% of all patients who had emergency bowel surgery in England. All 187 hospitals in England and Wales that perform emergency laparotomies provided data for NELA and we have thus been able to provide a comprehensive 'state of the nation' report.
- 5 This Report includes hospital-level mortality data for patients undergoing emergency bowel surgery. It includes the results of an outlier analysis to assess whether any hospital had 30-day postoperative mortality rates that were higher than would be expected given their patient case mix.
- 6 The NELA data have allowed us to develop a bespoke emergency laparotomy risk assessment tool to predict the risk of 30-day mortality; this is based upon the data of the 45,000 patients whose information was submitted to the Audit in 2014 and 2015. This should provide a more accurate assessment compared to existing risk assessment tools which were developed for different patient cohorts and may not take into account patient factors specific to emergency laparotomy patients. The NELA risk prediction tool will be assessed further, in particular by validating it by using more recent data submitted to NELA. The tool is available for use on our website (<http://data.nela.org.uk/riskcalculator>) and as an 'app', and we encourage other groups and clinicians to also evaluate its performance in patients eligible for inclusion in NELA.
- 7 NELA allows hospitals to quality-assure their service by comparing care against published standards and reporting this at hospital level. At present, hospitals are considered to have provided good quality care (rated Green) if a standard has been met for more than 80% of patients. This 'bar' will be raised over time as the Audit develops and quality improves. Many of these standards and ratings are publicly reported on the [MyNHS](#) website and used by the [Care Quality Commission \(CQC\)](#) for hospital inspections.
- 8 NELA also makes data readily available to local clinicians, managers, and commissioners to support quality improvement activity, so that changes to the service can be monitored in an ongoing fashion to facilitate improvements in care. This includes publically available quarterly reports (<https://data.nela.org.uk/Reports/Hospital-reports.aspx>).
- 9 The Royal College of Anaesthetists has been awarded the contract to continue running NELA until 2020. Over the coming years, we will be making changes to the way NELA is delivered. These will include:
  - greater input by patients and service users into the way the Audit is run, and the way we report results
  - more emphasis on collecting data to support quality improvement
  - looking for ways to reduce the burden of data collection.
- 10 This Report provides recommendations for commissioners, providers, clinical teams, and patients, aimed at improving delivery of care to this high-risk group of patients.
- 11 This Report also includes an overview of additional purposes that NELA data are being used for over and above quality assurance and quality improvement. These include:
  - research activity which aims to better define what interventions are effective in emergency laparotomy care

- development of an NHS 'Best Practice Tariff', which is scheduled to be introduced in April 2019. Candidate process measures will be consulted upon, and include:
  - assessment of risk
  - timeliness of access to theatres
  - consultant presence in theatres
  - admission to critical care
  - input by specialists in the care of older people.

## Findings

### The organisation of emergency general surgical services

- 12 There have been positive changes in the infrastructure that hospitals provide for patients having emergency bowel surgery since NELA began reporting. These include:
- 142 hospitals have 24/7 emergency operating theatre capacity, and an increased number of hospitals have devised procedures to facilitate the provision of surgery to emergency laparotomy patients in a timely manner
  - improved logistics for providing and reporting urgent CT scans
  - improved consistency in the assessment of risk for patients undergoing emergency laparotomy
  - an increase in the use of protocols that utilise this assessment of risk to ensure that high-risk patients receive appropriate care, such as intraoperative care provided by consultant anaesthetists and surgeons, and postoperative admission to critical care
  - increased acknowledgement that working patterns should support the provision of this care.

### Quality assurance of patient care

- 13 There have been **improvements in care** over the last three years of patient-data collection.
- 14 30-day postoperative mortality has improved from 11.8% to 10.6%, representing around 300 lives saved each year.
- 15 Standards of care have improved: more hospitals are now RAG-rated Green for meeting published standards. Out of the nine key standards, the average number of standards met in each hospital has risen since the start of the Audit from 3.5 to 4.7<sup>†</sup>. Particular improvement has been seen in:
- reporting on CT scans before surgery
  - risk assessment before surgery
  - consultant presence in theatre for high-risk patients.

There remain some important areas where improvement is necessary if outcomes are to improve further:

- active preoperative input by both consultant anaesthetists and consultant surgeons remains inconsistent and this needs to be addressed
  - arrival in theatre within an appropriate timeframe, especially for the most urgent patients
  - the number of highest-risk patients (P-POSSUM risk of death >10%) admitted directly to critical care after surgery
  - providing appropriate care for patients aged 70 years or over who may benefit from the clinical expertise of a geriatrician or care of the older person team.
- 16 **Variation in care still exists in several areas:**
- between hospitals – some hospitals are meeting more standards of care than others
  - within hospitals – NELA's aim is to drive the provision of consistent high-quality care for all patients. Data show that some hospitals are achieving this for more than 80% of patients. However, many hospitals are not meeting standards consistently. This means that one patient may receive good care, but the next one may not, despite being admitted to the same hospital under the same clinical team
  - At different times of the day – there remains a 'time-of-day' effect, where good care is delivered during daytime, but care is less likely to meet all standards at night-time.

<sup>†</sup>Calculated by dividing the total number of processes with a Green RAG-rating (819) by the total number of hospitals for which full data was available (175).

- 17 Patients should expect to receive, and should receive, the same standards of care for emergency laparotomy regardless of where and when they present for care. Commissioners and providers of care need to ensure that services are organised so that emergency patients are prioritised appropriately and have access to the right care, at the right time, from the right people. Hospitals that support clinical teams in undertaking local quality improvement work are likely to achieve higher standards of care.

## Quality improvement

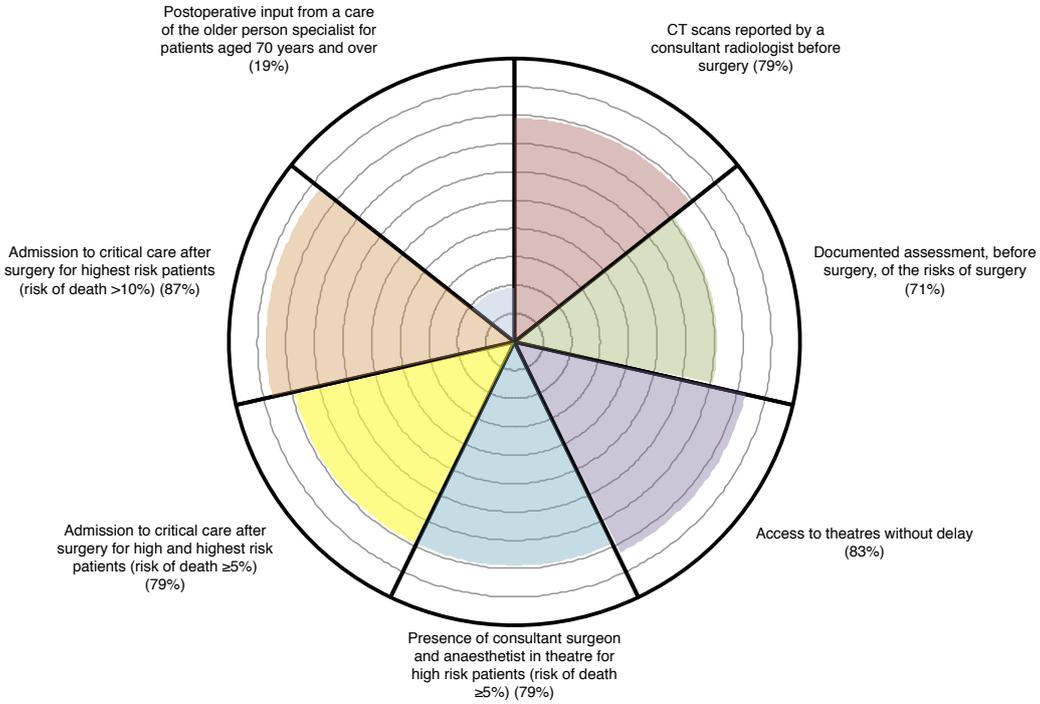
- 18 Delivery of high-quality care requires input and engagement both at organisational level from senior leadership teams, and from the frontline multidisciplinary clinical teams.
- 19 Hospitals that have improved and achieved sustained improvement have utilised robust improvement methodology by working with multidisciplinary teams, including anaesthetists, surgeons, theatre teams, and nurses, and with emergency departments and critical care units. Importantly, the effectiveness of these teams is potentiated further by involving non-clinical audit staff. These teams have been supported in these endeavours by senior management and the executive team.
- 20 There is unlikely to be one 'best way' of organising delivery of care. Each hospital will need to organise services according to the needs and pressures faced: different issues will exist in each hospital. NELA provides tools and data to empower local teams to develop and 'own' the solutions most effective in their individual environments.
- 21 NELA makes a range of resources available to support and facilitate continued quality improvement, and will continue to develop these. These resources include:
- publicly available [quarterly reports](#) for individual hospitals
  - realtime reporting of data via quality improvement [dashboards](#)
  - short films providing '[how to](#)' guides on delivering quality improvement
  - regional quality improvement workshops to facilitate greater local networking
  - action-planning templates to address areas in need of improvement
  - sharing of best practice
  - a database of [local NELA leads](#)
  - exception reporting and alerting hospitals that fall below expected standards
  - working together with other major quality improvement and research projects to study how best to improve care for laparotomy patients.

### NINE KEY STANDARDS CURRENTLY SUBJECT TO RAG-RATING

- CT scan reported before surgery.
- Risk of death documented preoperatively.
- Arrival in theatre within a timescale appropriate to urgency.
- Preoperative review by a consultant surgeon and a consultant anaesthetist when P-POSSUM risk of death  $\geq 5\%$ .
- Consultant surgeon and consultant anaesthetist both present in theatre when P-POSSUM risk of death  $\geq 5\%$ .
- Consultant surgeon present in theatre when P-POSSUM risk of death  $\geq 5\%$ .
- Consultant anaesthetist present in theatre when P-POSSUM risk of death  $\geq 5\%$ .
- Admission directly to critical care after surgery when P-POSSUM risk of death  $>10\%$ .
- Assessment by a care for the older person specialist for patients aged 70 years and over.

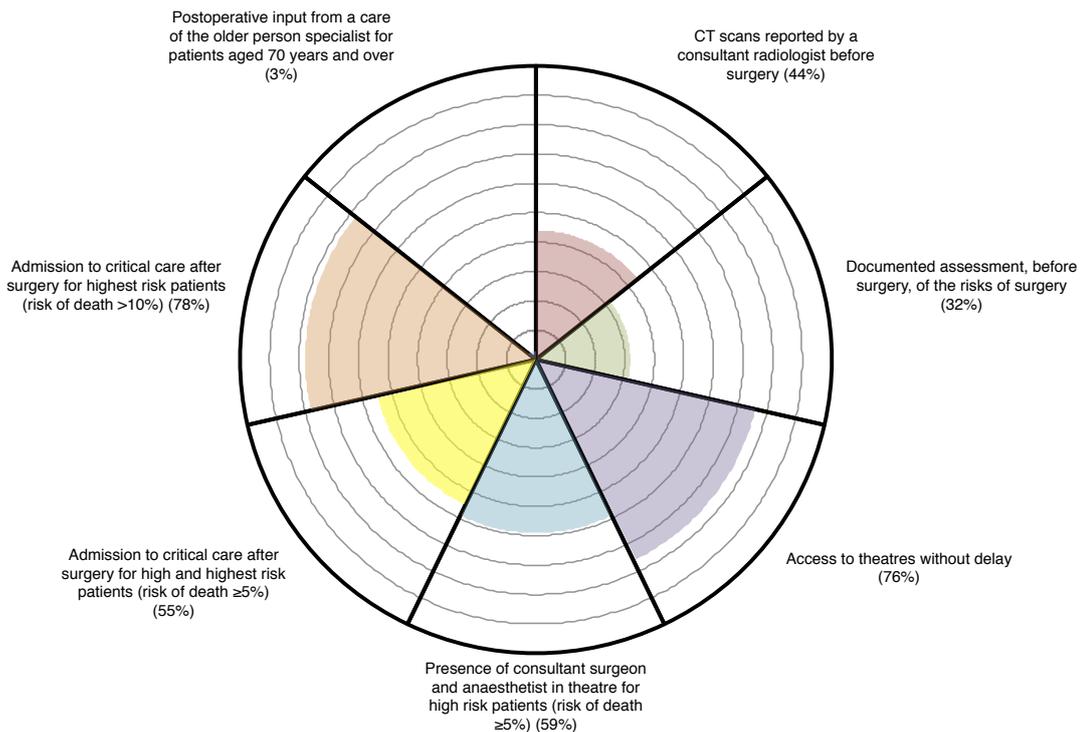
**Figure 1**

Proportion of all patients in Year 3 (who had surgery between December 2015 and November 2016) meeting the required standard



**Figure 2**

Proportion of hospitals in Year 3 rated 'Green' for each process measure ('Green' equates to the standard being met for at least 80% of patients)



**Table 1**

**Comparison of the number of hospitals rated Green (standard achieved for  $\geq 80\%$  of patients) in the First, Second and Third NELA Patient Reports for each key standard\***

\*Note: The shaded row was not a key standard, but is under consideration for future years

Key standard	Number (%) of hospitals rated Green		
	First NELA Patient Report	Second NELA Patient Report	Third NELA Patient Report
	Dec 2013 – Nov 2014 n = 193	Dec 2014 – Nov 2015 n = 188	Dec 2015 – Nov 2016 n = 187
CT scan reported before surgery	45 (25%)	65 (36%)	79 (44%)
Risk of death documented preoperatively	24 (13%)	39 (22%)	57 (32%)
Arrival in theatre within a timescale appropriate to urgency	97 (55%)	119 (67%)	133 (76%)
Preoperative review by a consultant surgeon and anaesthetist when P-POSSUM risk of death $\geq 5\%$	29 (16%)	30 (17%)	20 (11%)
Consultant surgeon and consultant anaesthetist both present in theatre when P-POSSUM risk of death $\geq 5\%$	61 (34%)	76 (43%)	104 (59%)
Consultant surgeon present in theatre when P-POSSUM risk of death $\geq 5\%$	146 (82%)	152 (86%)	157 (89%)
Consultant anaesthetist present in theatre when P-POSSUM risk of death $\geq 5\%$	86 (48%)	104 (59%)	129 (73%)
*Admission directly to critical care after surgery when P-POSSUM risk of death $\geq 5\%$	76 (43%)	92 (52%)	96 (55%)
Admission directly to critical care after surgery when P-POSSUM risk of death $>10\%$	117 (66%)	129 (75%)	135 (78%)
Assessment by a specialist in care of the older person for patients aged 70 years and over	2 (1%)	3 (2%)	5 (3%)

**Table 2**

**Summary of standards, process measures, Years 1, 2 and 3 performance, performance over time and hospital level performance**

Key standard	Process measure	First NELA Patient Report Dec 13 – Nov 14	Second NELA Patient Report Dec 14 – Nov 15	Third NELA Patient Report Dec 15 – Nov 16	Trend over time Vertical axis: % of all patients receiving that standard of care. Dashed line: minimum standard (where applicable).	Hospital-level performance over time Horizontal axis: range of hospitals. Vertical axis: proportion of patients in each hospital who received that standard of care. Dashed line: minimum standard for acceptable care.
All emergency admissions must be seen and have a thorough clinical assessment by a suitable consultant as soon as possible but at the latest within 14 hours from the time of arrival at hospital.	Proportion of all patients who were reviewed within 14 hours of hospital admission by a consultant surgeon.	54%	55%	55%		Hospital level data not currently reported due to data quality.
Hospitals which admit patients as emergencies must have access to both conventional radiology and CT scanning 24 hours per day, with immediate reporting.	Proportion of patients who received a CT scan which was reported by a consultant radiologist before surgery.	73%	77%	79%		
An assessment of mortality risk should be made explicit to the patient and recorded clearly on the consent form and in the medical record.	Proportion of patients in whom a risk assessment was documented preoperatively.	56%	64%	71%		

Key standard	Process measure	First NELA Patient Report Dec 13 – Nov 14	Second NELA Patient Report Dec 14 – Nov 15	Third NELA Patient Report Dec 15 – Nov 16	Trend over time Vertical axis: % of all patients receiving that standard of care. Dashed line: minimum standard (where applicable).	Hospital-level performance over time Horizontal axis: range of hospitals. Vertical axis: proportion of patients in each hospital who received that standard of care. Dashed line: minimum standard for acceptable care.
Each higher risk case (predicted mortality $\geq 5\%$ ) should have the active input of consultant surgeon and consultant anaesthetist.	Proportion of patients with preoperative P-POSSUM risk of death $\geq 5\%$ for whom a consultant surgeon was present in theatre.	87%	89%	91%		
	Proportion of patients with preoperative P-POSSUM risk of death $\geq 5\%$ for whom a consultant anaesthetist was present in theatre.	77%	82%	86%		
	Proportion of patients with preoperative P-POSSUM risk of death $\geq 5\%$ for whom both consultants were present in theatre.	70%	74%	79%		

Key standard	Process measure	First NELA Patient Report Dec 13 – Nov 14	Second NELA Patient Report Dec 14 – Nov 15	Third NELA Patient Report Dec 15 – Nov 16	Trend over time Vertical axis: % of all patients receiving that standard of care. Dashed line: minimum standard (where applicable).	Hospital-level performance over time Horizontal axis: range of hospitals. Vertical axis: proportion of patients in each hospital who received that standard of care. Dashed line: minimum standard for acceptable care.
Trusts should ensure emergency theatre access matches need and ensure prioritisation of access is given to emergency surgical patients ahead of elective patients whenever necessary as significant delays are common and affect outcomes.	Proportion of patients arriving in theatre within a time appropriate for the urgency of surgery.	78%	82%	83%		
Note: due to limited evidence base, there are no relevant standards against which this process measure is reported.	Proportion of patients receiving goal directed fluid therapy.	52%	54%	54%		Hospital level data not reported due to clinical equipoise and lack of relevant standard.

Key standard	Process measure	First NELA Patient Report Dec 13 – Nov 14	Second NELA Patient Report Dec 14 – Nov 15	Third NELA Patient Report Dec 15 – Nov 16	Trend over time Vertical axis: % of all patients receiving that standard of care. Dashed line: minimum standard (where applicable).	Hospital-level performance over time Horizontal axis: range of hospitals. Vertical axis: proportion of patients in each hospital who received that standard of care. Dashed line: minimum standard for acceptable care.
All high risk patients should be considered for critical care and as a minimum, patients with an estimated risk of death of >10% should be admitted to a critical care location.	Proportion of patients with a postoperative P-POSSUM risk of death >10% who were directly admitted to critical care postoperatively.	83%	85%	87%		
	Proportion of patients with a postoperative P-POSSUM risk of death ≥5% who were directly admitted to critical care postoperatively.	76%	78%	79%		Hospital level data not reported. Not currently a defined standard.
Each patient aged over the age of 70 should have multidisciplinary input that includes early involvement of Medicine for the Care of Older People.	Proportion of patients aged 70 years or over who were assessed by a care of the older person specialist.	15%	17%	19%		

# 3 RECOMMENDATIONS

The recommendations from the Second Patient Report remain equally relevant this year. These have been built upon in this year's Report to reflect new patient and organisational data and further opportunities to improve patient care and outcomes.

Improvements over the last two years have predominantly been seen in areas involving a change in individual clinicians' and teams' behaviour, and for this they must be congratulated. However, collaborative effort from all individuals at all organisational levels, in particular consultant surgeons and consultant anaesthetists, supported by executive teams, is still required to bring about the change necessary to prioritise emergency care.

Clinicians, hospital managers and commissioners should work together in three main areas:

## 1 Setting ambitions

NELA results should be reported at board level, and appropriate organisational quality improvement (QI) objectives defined and monitored. There should be a clear commitment at board level to meet published standards of care. This should be backed up with appropriate time and resources to support clinical teams in collecting contemporaneous and accurate NELA data, and for quality improvement activities based on these.

It is clear that there has been significant organisational change across the NHS since 2013. There is no 'best way' of organising emergency laparotomy services associated with achieving better standards: each hospital must tailor services to meet local challenges. NELA data allow commissioners, providers and clinicians to assess and monitor the impact of organisational change, to determine if standards of care are being met, and to plan future changes to further develop and sustain improvements.

## 2 Understanding and reducing variation in care quality

Process measures are sensitive indicators of performance, and serve to highlight where specific actions are required to bring about improvements in care. Clinicians, hospital managers, and commissioners should examine their local data and results, determine why standards are met for some of their patients but not others, and seek to achieve more consistent delivery of high-quality care. They should use NELA data to monitor care over time to assess the impact of any changes. Over time, the RAG-rating boundary percentages will be increased in order to encourage delivery of ever-better care. The development of a Best Practice Tariff (to be introduced in April 2019) should help deliver improved care.

## 3 Reducing mortality and improving outcomes

Clinicians, hospital managers, and commissioners must examine their hospital's 30-day postoperative mortality and length-of-stay figures. By reviewing variation between hospitals in how care is delivered to patients and by benchmarking against standards, hospitals can identify opportunities for improvement that may contribute to improved outcomes. The National Quality Board (NQB) has recently published the first edition of [National Guidance on Learning from Deaths for Trusts](#). The National Mortality Case Record Review Programme<sup>1</sup> is also providing support to improve the capacity and capability of in-hospital mortality reviews. These guidelines and documents should be adhered to when examining patient deaths.

The following more granular recommendations are grouped by audience and aimed at addressing the key themes identified in this NELA Patient Report. Specific recommendations are also highlighted in the relevant chapters.

## Commissioners

- 1 Commissioners should ensure that there is adequate commissioning of:
  - capacity to provide consultant-delivered care, multidisciplinary specialist input, and reliable access to other services, such as CT scanning and reporting, throughout the whole patient journey, regardless of the time of the day or the day of the week (Chapters 9.2, 9.3, 9.4 and 11.1)
  - theatre capacity to prevent delays for patients requiring emergency bowel surgery, particularly those requiring surgery within two hours (Chapter 10.2)
  - critical-care capacity to match high-risk caseload, such that all high-risk emergency laparotomy patients can be cared for on a critical care unit after surgery (Chapter 10.3) – expected critical care capacity can be modelled from NELA data
  - care of older people services to provide input for older patients (Chapter 11.2)
  - formal networks to support smaller hospitals in providing acute diagnostic and interventional radiology and endoscopy services.

## Hospital chief executives and medical directors

In order to deliver high-quality care that meets standards to high-risk emergency patients, attention should be directed at organisational change in the following areas, working towards

- 2 Ensuring that care is delivered by consultant anaesthetists and consultant surgeons for high risk emergency laparotomy patients 24 hours per day, seven days per week. Rotas, job plans and staffing levels for surgeons and anaesthetists should reflect this. (Chapters 9.2, 9.3, 9.4).
- 3 Ensuring that older patients undergoing emergency laparotomy receive care from geriatricians to the same extent as older patients undergoing hip-fracture repair, where it has been shown to improve outcomes. Consideration should be given to how to fund an increased input from geriatricians and care of the older person teams.
- 4 Developing policies and supporting training in the use of individual patient risk assessment to guide allocation of resources (e.g. critical care) appropriate to the patient's needs (Chapters 9.1, 10.3). Policies constitute a clear statement of intent to deliver care that meets standards, and are associated with delivery of better care.
- 5 Providing emergency theatre capacity that is sufficient to enable patients to receive emergency surgical treatment, particularly those who need surgery within two hours. Prioritisation of time-sensitive emergency surgery can be facilitated by policies for the deferral of elective activity (Chapters 10.1, 10.2).
- 6 Adhering to national standards for postoperative critical care admission. This may require an increase in critical care capacity so that emergency and elective care can continue in parallel (Chapter 10.3).
- 7 Supporting and facilitating local NELA Leads and perioperative teams to improve care, by ensuring adequate time and resources to support accurate data collection, review adverse patient outcomes and to feed this back to clinical teams and hospital management (including at Board level). Such resources include access to individuals with audit and quality improvement skills throughout the organisation, allocated (job-planned) time to support data collection and analysis, and protected time for presentation of data in departmental meetings.
- 8 Ensuring that clinical coding of procedures is accurate, and embedding links between clinical-coding departments and clinicians to improve this (Chapter 11.3).

## Clinical directors and multidisciplinary leadership teams

These recommendations are for every specialty involved in the care of patients undergoing emergency laparotomy.

- 9 In order to reduce unwarranted variation in care and minimise delays, hospitals should implement appropriate pathways for the care of emergency general surgical patients, starting at the time of admission to hospital or referral by another team. Where pathways of care do already exist, multidisciplinary teams (MDTs) should examine these in the light of audit data to determine their efficacy, and identify where and why standards are still not met. Care pathways help ensure that patients are admitted under the most appropriate specialty, aid communication within the MDT, and allow prioritisation of emergency resources; they aim to ensure that all processes of care are provided for each patient. Standardised pathways of care also facilitate audit and thereby highlight key areas for improvement. Pathways should cover the following areas:

- referral of patients for general surgical review if they have been admitted under non-surgical specialties
  - identification of patients with signs of sepsis, and ensuring the prompt prescription and administration of antibiotics – there may be advantages to integrating this into the wider sepsis work ongoing within the NHS
  - identification and escalation of patients who would benefit from the early involvement of both consultant surgeons and consultant anaesthetists, to ensure that consistently high-quality care is delivered by expert teams, and to drive the delivery of timely care for patients
  - rapid request, conduct, and reporting of CT scans
  - routine documented assessment of the risk of complications and death from surgery
  - presence intraoperatively of a consultant surgeon and a consultant anaesthetist for high-risk patients with a predicted mortality  $\geq 5\%$
  - consideration of admission to critical care for all high-risk patients with a predicted mortality  $\geq 5\%$
  - identification of patients who would benefit from input from geriatricians in their perioperative care.
- 10 Risk assessment is a useful guide to clinical decision making, and risk should be calculated for every emergency laparotomy patient. **NELA strongly advises that care must not be provided purely on the basis of a predicted risk score, but that the risk score should be utilised as part of the global assessment of a patient.** It also aids identification and communication of the required pathway of care amongst the multidisciplinary team (Chapter 9.1), and informs discussion with patients and their families.
- 11 Multidisciplinary teams should hold regular joint meetings to continuously review essential processes of care (for instance, using the NELA Quality Improvement Dashboard) and perioperative morbidity (including unplanned returns to theatre and admissions to critical care) and mortality following emergency laparotomy. This should include formal collaboration with hospital mortality review panels in order to bring about greater understanding of where improvement is needed (Chapters 11.3, 12). Review of mortality following emergency laparotomy should follow NHS England's guidance for trusts, [National Guidance on Learning from Deaths](#).
- 12 Continuous quality improvement informed by local data should involve monitoring the impact of care-pathway and process changes with time-series data (run charts). The NELA web tool provides automated dashboards that can be used for this purpose. Multidisciplinary teams should ensure that they include members with a good understanding of quality improvement principles such as the 'Model for Improvement'.<sup>2</sup> Consideration should also be given to good data-feedback practices (Chapter 12).

## NELA Leads

Without the commitment and enthusiasm of hospital NELA teams and Leads, NELA would not have achieved the high levels of case ascertainment, data completeness and innovative quality improvement initiatives that have improved care for patients undergoing emergency laparotomy. We are grateful to all who have worked to achieve this.

At some hospitals, data entry for many cases was started but not completed. In addition, fields relating to the timing of key points in the patient pathway (e.g. time of consultant surgeon review, decision to operate) were poorly completed by many hospitals (Chapter 5). This may reflect the difficulties associated with completing datasets while also delivering clinical care.

However, collection and feedback of high-quality data are vital to bring about improvements. There are strategies that can be used to collect NELA data so that they become a useful part of the care pathway for patients (Chapter 12). The key to achieving this is to use the NELA data to help teams deliver the high-quality care that they strive to provide, and to feed back results regularly and visually to teams to keep it relevant and useful.

- 13 NELA is producing a job description for NELA leads that sets out expected roles and behaviours. This job description should be used to ensure NELA work is supported locally. [The job description is available here.](#)
- 14 NELA Leads should review their local data to ensure case-submission and data completeness.
- 15 NELA Leads should consider designing care pathways that contain NELA data questions as prompts for clinicians to deliver good care to patients.
- 16 NELA Leads should actively promote completion of P-POSSUM data fields to ensure that risk estimation is accurate and useful. In addition to aiding discussion with patients and their families, completeness of data fields also improves accuracy of risk-adjusted hospital mortality rates (Chapter 6.1).

## Professional stakeholder organisations

- 17 Professional stakeholders, such as Royal Colleges and specialist societies, should collaborate to:
- improve clarity and remove ambiguity in the wording of standards of care; this would be particularly welcome for standards for admission to critical care (Chapter 10.3)
  - bring together standards in a single, unified document
  - highlight the issues to their members to ensure appropriate engagement
  - ensure that there are joint education and training programmes across specialties and disciplines to develop an equipped workforce.

## Patients, families and public

This Report highlights the standards of care that patients should expect if undergoing emergency bowel surgery. Patients and public can view their local hospital's reports on [MyNHS](#) or the [NELA website](#) to understand more about the quality of care being delivered.

- 18 Patients and families should ask to have the 'risk' of their surgery clearly explained to them by their clinical teams to help them understand the possible outcomes of their emergency bowel surgery.
- 19 Patients who are identified as high risk should expect consultant-delivered intraoperative care.
- 20 Patients and their families should expect to receive daily reviews by their surgical teams and to have a clear explanation of the surgery, the timing of their surgery, and the rationale behind clinical decisions made.
- 21 Patients should expect to be cared for in an appropriately staffed area that can provide the appropriate level of expertise and monitoring after high-risk emergency laparotomy surgery.

A summary of the recommendations from each Chapter is in [Appendix 15.4](#).

**National Emergency Laparotomy Audit (NELA)**

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