

## National Emergency Laparotomy Audit (NELA)

# NELA RISK-PREDICTION TOOL



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The National Emergency Laparotomy Audit (NELA) is about to launch a perioperative risk calculator which we have developed specifically for emergency laparotomy patients. The NELA risk calculator aims to standardise the risk calculation for emergency laparotomy patients and support clinical decision making.

Over the last three years, the National Emergency Laparotomy Audit has collected data on over 60,000 patients having this type of surgery in England and Wales. Although NELA is primarily an audit, we are also committed to improving the outcomes for all emergency laparotomy patients by promoting adoption of the standards of care that, when combined, reduce mortality. Our ambition at NELA is to not only provide accessible data that can be used at local hospital level to drive improvement in care for patients, but also to provide the tools to enable this. To this end, we have provided quality-improvement tool kits, videos and workshops, and supported collaborative working across the country to share best practice.

NELA collects data based on the standards set by National Confidential Enquiry into Patient Outcome and Death (NCEPOD), NHS seven-day services and the Royal College of Surgeons of England regarding risk stratification. One of the overarching messages is that an individualised risk assessment

is a mandatory part of preoperative assessment, and this should be clearly documented on the consent form and within the patient notes.

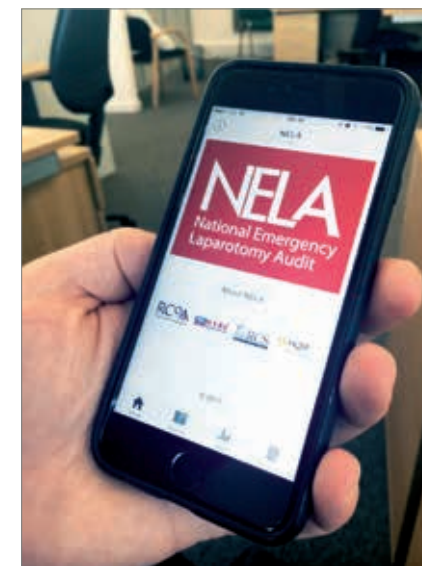
Since the risks of complex emergency surgery vary between individuals and according to the actual surgery being performed, the ability to stratify risk and calculate a percentage chance of death helps guide doctors and patients in deciding which course of management might be most appropriate. This is even more important when assessing a patient who is potentially at high or highest risk for an emergency surgical procedure, because not only does the clinical team need to have a common language to be able to make good treatment (or palliative) decisions together, but they then need to be able to have this discussion with the patient and their families and explain clearly potential risks to them and why potential ceilings of care are being set.

NELA data has shown an improvement in the use of risk scoring over the last three years, but we still have some way to go to achieving our target of 100%

compliance with requirements for risk assessment and documentation in the patient records. There are a number of possible reasons for this, including the possibility that people do not have faith in or knowledge of existing risk-scoring systems.

The Portsmouth-Physiological and Operative Severity Score for the enUmeration of Mortality and Morbidity (P-POSSUM) calculator is currently available to use on our website. However, we know that P-POSSUM tends to overestimate a patient's risk of death once this rises above 15%, and it is not specific for emergency laparotomy surgery. Therefore, the NELA team has used the data you have provided to improve the prediction of perioperative risk by developing a risk-prediction tool specifically for emergency laparotomy patients.

The NELA calculator will estimate an individual's risk of death within 30 days of emergency laparotomy surgery. Its development has been led by the experts at the Clinical Effectiveness Unit at the



Royal College of Surgeons of England, who are our collaborators on the NELA project team. It has been developed using multi-variable analysis taking into account specific patient characteristics, risk factors and surgical procedures. The development process used data gathered from over 38,000 patients in the first two years of NELA; therefore the calculator is specific to UK patients undergoing emergency laparotomy, although it may have generalisability to similar patient populations in other parts of the world.

We have aimed to make it simple to use for everyday clinical work, and to support this we will be launching the 'NELA Mobile App' later this year, which will make it easily available. We hope that this will make it easier, more effective and more efficient for all of us to use risk prediction as part of the care we provide for emergency laparotomy patients.

We know that the NELA calculator is more accurate than P-POSSUM in the cohort of patients for whom we already have data, and therefore we expect it to provide a more accurate estimate of outcome, even at the extremes of risk (such as >15% predicted risk of death). However, when using the NELA calculator, as with all risk-prediction tools, including the P-POSSUM, Southampton Oxford Retrieval Team (SORT), American College of Surgeons National Surgical Quality Improvement Programme (ACS NSQIP) calculator or exercise testing, it is important to remember that none is 100% reliable or accurate. It is therefore important to use risk calculators as guides in conjunction with clinical judgement. Other factors such as frailty and specific comorbidities of individual

patients will also need to be considered alongside the NELA calculator. However, we hope that this addition to existing risk-prediction systems will support wider adoption of individualised risk assessment in practice, and therefore anticipated improvements in patient care and outcome.

NELA thanks the following individuals and organisations for supporting the development of the NELA calculator:

- Clinical Effectiveness Unit at the Royal College of Surgeons – development and internal validation of the NELA risk model
- NELA Project team – clinical input into model development
- NetSolving Ltd – Development of NELA web tool and calculator
- J-P Lomas, Consultant Anaesthetist, Royal Bolton Hospital and RCoA Council Member – Development of NELA model app,

For further information, please see: [www.nela.org.uk](http://www.nela.org.uk).