



After conducting tests, doctors advised him to undergo an urgent operation to clear an obstruction in his small intestine.

He was operated upon by surgeon Amir Ali Syed at 11 am.

"We successfully operated on his intestinal obstruction and he is now out of danger. He is in the ICU and has been advised to stay in the hospital for at least three days," Syed told PTI.



Royal College
of Surgeons
ADVANCING SURGICAL CARE



The High-Risk General Surgical Patient: Raising the Standard

Approving Organisations

The recommendations of this document are supported by (October 2018):

- The Royal College of Surgeons of England
- Association of Surgeons of Great Britain and Ireland
- Association of Upper Gastrointestinal Surgeons
- Association of Coloproctology of Great Britain and Ireland
- Royal College of Anaesthetists
- Age Anaesthesia Association
- British Geriatrics Society
- Faculty of Intensive Care Medicine
- Intensive Care Society
- Clinical Radiology Faculty of The Royal College of Radiologists
- British Society of Interventional Radiology
- British Society of Gastrointestinal and Abdominal Radiology
- National Emergency Laparotomy Audit
- Emergency Laparoscopic and Laparotomy Scottish Audit
- National Acute Surgery Forum

The recommendations of this document pertaining to sepsis are supported by (October 2018):

- NHS England Cross System Sepsis Programme Board



NELA Risk Calculator



1. Adult patients admitted or transferred under the care of a general surgeon, for operative or non-operative management, should be managed in accordance with a unit protocol led by general surgery and agreed by emergency medicine, acute medicine, radiology, anaesthesia, critical care and, for patients aged over 65 years, care of the elderly. This protocol should include the following key components: administration of appropriate antimicrobials within one hour when indicated; availability of a radiologist's report within one hour when emergency abdominal computed tomography is performed; assessment of risk and provision of an appropriate response at key points within the patient pathway and of escalation pathways in the event of patient deterioration, in both perioperative and non-operative periods.



Head Injury Early Transfer **ICER** | High Dose and Early **ICER** | Head Injury Timing **ICER** | Spinal Injury **ICER**

Emergency Laparotomy? *ELPQuiC*

Emergency Laparotomy Pathway Quality Improvement Care-Bundle

ALL PATIENTS presenting with emergency abdominal conditions THAT MAY REQUIRE EMERGENCY LAPAROTOMY are to be started on the Emergency Laparotomy ER Pathway and comply to the care-bundle goals below.

- 1 Early Assessment and Resuscitation**
 - MEWS within 30 minutes of arrival in hospital
 - Outreach review if MEWS >3
 - MRCS surgical review within 30 minutes of referral
 - Measure arterial lactate
 - Prompt fluid resuscitation
- 2 Early Antibiotics**
 - Within 1 hour if there is evidence of SIRS/sepsis
 - Within 3 hours if there is suspicion of intra-peritoneal soiling
- 3 Prompt diagnosis and Early surgery**
 - CT scan – ‘Code Emergency Laparotomy’ prompts:
 - ‘Next Slot’ prioritisation, scan within 2 hours of booking, verbal report within 1 hour of scan
 - ‘Next Slot’ prioritisation on Emergency Theatre List
 - Knife-to-skin within 6 hours of decision to operate
 - Consultant surgeon and anaesthetist present in theatre
- 4 Goal Directed Fluid Therapy**
 - Goal Directed Fluid Therapy using cardiac output monitoring intra-operatively and for 6 hours post-operatively
- 5 Post-operative Intensive Care for all**
 - All patients to be cared for on intensive care
 - If no intensive care bed is available – alternative level 2 area (e.g. Post Anaesthetic Care Unit or appropriately staffed recovery area, for at least 6 hours)
 - Goal Directed Fluid Therapy for 6 hours post-operatively



NELA Risk Calculator

3. Patients should have their risk of morbidity and mortality assessed and recorded in the medical records by a senior surgeon (Specialty Trainee Year 3, ST3 and above) within four hours of admission/transfer, using appropriate risk prediction tools and clinical judgement. Frailty, the likelihood of perioperative neurocognitive disorders and surgical diagnosis should be taken into account during this assessment, as these may not be adequately reflected in existing risk prediction tools. The risk should be reassessed and recorded again after operative interventions and after any material deterioration. Any change should prompt an appropriate adjustment in patient care. The predicted mortality should be used as part of the global assessment of a patient and should help to inform the allocation of care resources. It should also be used to communicate reliably within the multidisciplinary team and in discussion with patients and their supporters.





4. High-risk patients are defined by a predicted hospital mortality of $\geq 5\%$. Where any of the recognised appropriate risk prediction tools, frailty assessment or clinical judgement results in an assessment of predicted hospital mortality of $\geq 5\%$, the patient should be treated as high risk. In the absence of a recorded assessment of risk, the patient should be treated as high risk.



NELA Risk Calculator



**Surgical Risk
Calculator**



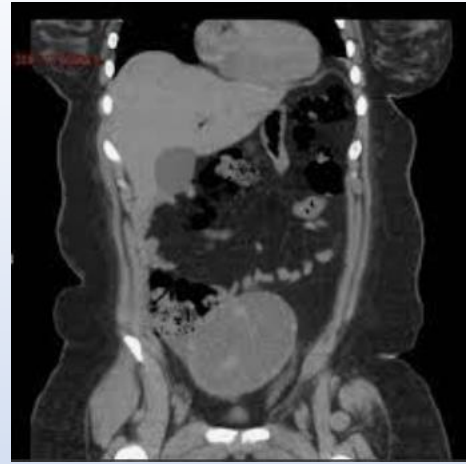
AMERICAN COLLEGE OF SURGEONS
Inspiring Quality: Highest Standards, Better Outcomes

National Early Warning Score (NEWS) 2

Standardising
the assessment
of acute-illness
severity in the NHS

Updated report of a working party
December 2017

5. All patients admitted or transferred under the care (or joint care) of a general surgeon should be screened and monitored for sepsis using the National Early Warning Score (NEWS) 2 score. For high-risk patients, the outcome of this screening should be documented, even if negative.



6. When general surgery patients undergo emergency abdominal CT for non-traumatic abdominal pain, the incidence of significant discrepancies should be less than 5%. For high-risk general surgery patients being considered for major surgery, there should be joint preoperative discussion between senior surgeon (ST3 and above) and senior radiologist (ST3 and above), either in person or by telephone, followed by postoperative comparison of imaging and operative findings. Best care includes preoperative discussion between a consultant surgeon and an in-house consultant radiologist.





7. Image-guided drainage by radiology should be available in all centres admitting elective and emergency general surgical patients, with procedures being performed by suitably experienced radiologists or dedicated interventional radiologists. Comprehensive interventional radiology services are required for more complex procedures, ideally on site or through a defined and effective network arrangement. The choice between operative and radiologically guided intervention for source control in patients with sepsis should be an active process that weighs respective risks and benefits and is informed by robust information about availability of those options.





8. Unit protocols for high-risk patients undergoing surgery should include the following key pathway components: a time-compliant operation that, for a patient with septic shock or sepsis requiring operative source control, is underway within a maximum of three hours or six hours, respectively, surgery conducted in the presence of a consultant surgeon and consultant anaesthetist, and immediate postoperative admission to critical care. Compliance with these standards should be continuously audited and breaches of these key components of this high-risk operative care bundle should be considered suboptimal care and should undergo structured review by the unit.

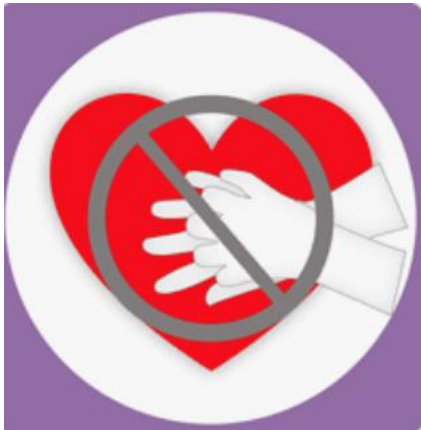


Original article

Nonoperative management for perforated peptic ulcer: Who can benefit?

Feng Cao ^a, Jia Li ^a, Ang Li, Yu Fang, Ya-jun Wang, Fei Li  

9. Unit protocols for high-risk non-operative patients should include the following key pathway components: consideration of admission to critical care with the decision and rationale recorded in the medical records by a senior doctor (ST3 and above) within four hours of admission or transfer; consideration of advance care planning and ceilings of care.





10. Commissioners and hospital service managers should incentivise delivery of care for high-risk general surgical patients that complies with these key pathway components.



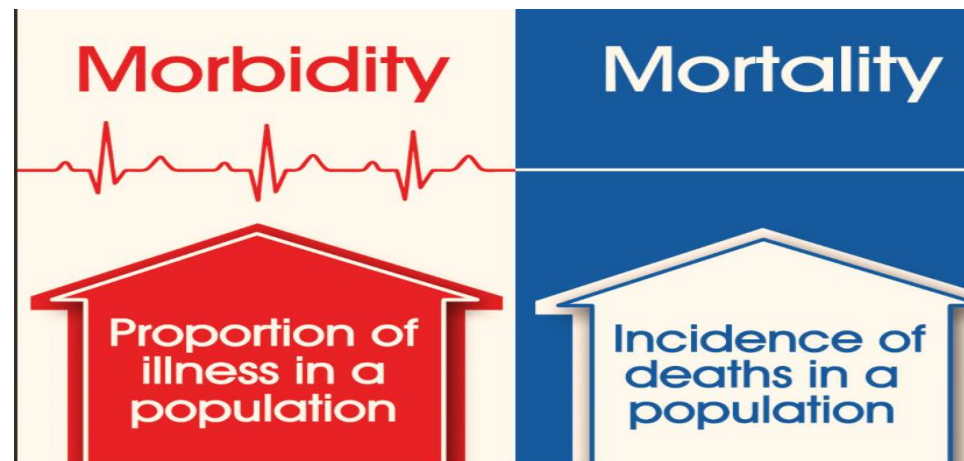
Standard Operating Procedures and Policies (SOPs)

11. Units should review the number and complexity of both high-risk general surgical patients and general surgical patients overall. Taking note of the detailed guidance given here and elsewhere, units should formally consider, at least annually, the resources required for safe general surgical care. They should put in place systems to track, detect and respond to an acutely increased risk of harm to general surgical patients caused by individual or collective patient demand on staff, equipment or estate that exceeds the capacity for safe care. This should include encouraging and empowering staff to raise concerns when they believe that emergency general surgical patients are endangered and should specify how and when escalation will trigger deployment of more staff and prioritised access to hospital facilities, including diagnostics, theatre and critical care. This should be supported by a standard operating policy.





12. Units should adopt a programme of continuous quality assurance and quality improvement for the care of high-risk general surgical patients that embeds a bundle of high impact interventions into daily practice. The programme should be multidisciplinary and should be led by a named clinician with time allocated in their job plan. Data should be collected on a range of outcomes, including risk-adjusted mortality, morbidity and patient-reported outcome and experience measures for both operative and non-operative care. Mortality and morbidity reviews should follow a structured format. Key performance indicators, including breaches of compliance with the high-risk operative care bundle should be reported monthly to the board and to relevant hospital departments as part of that process.





Early postoperative death in extreme-risk patients: A perspective on surgical futility

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- ACS NSQIP DATABASE
- 5 Emergency abdominal operations via laparotomy
- 94350 pts 2007-2015
- Risk >75% classed as 'extreme high risk'
- Futility stated if in this risk group and died within 48hrs



**Surgical Risk
Calculator**



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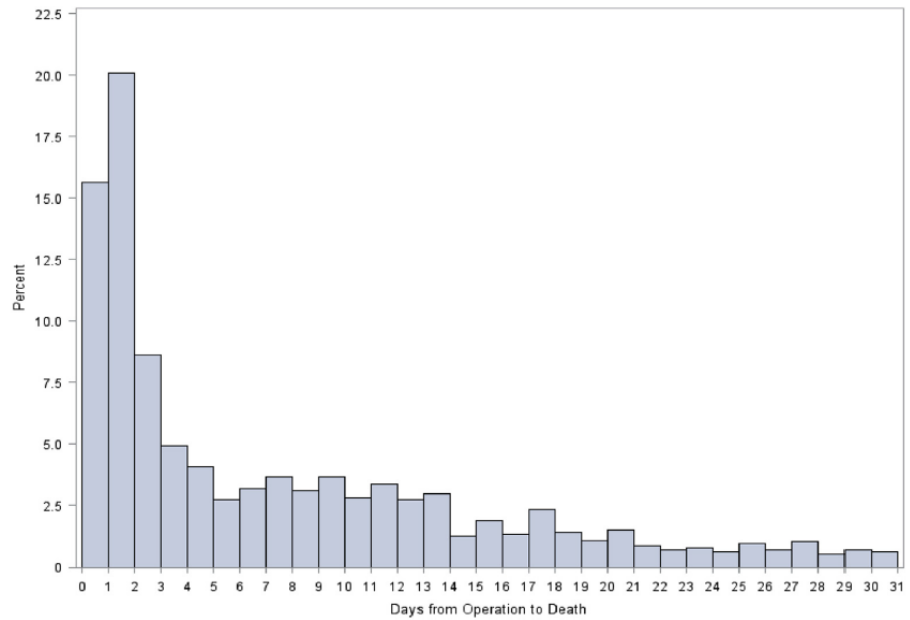


Fig 1. Distribution of days from operation to death among extreme risk patients.

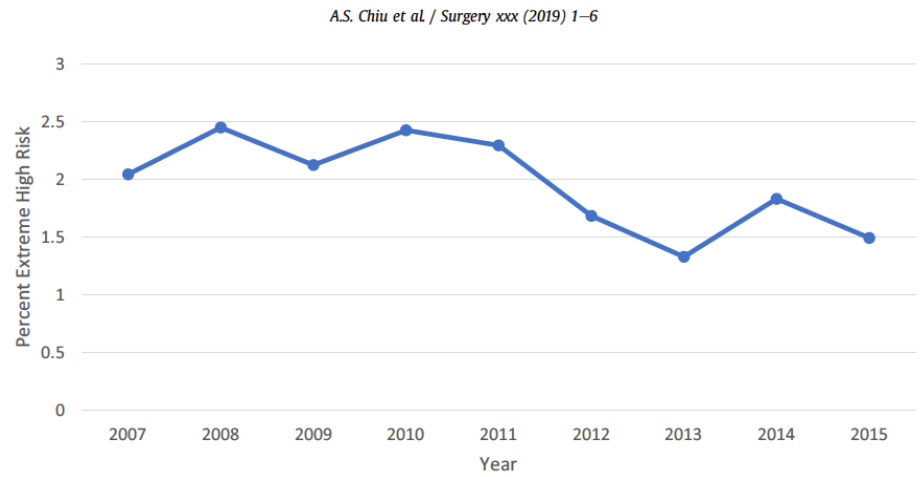


Fig 2. Percent of operative patients who are extreme risk by year.

Table II
Outcomes among extreme and nonextreme risk patients

Outcome	Nonextreme risk patients		Extreme risk patients		Total		P value
	N	%	N	%	N	%	
30-day mortality	11,108	11.8	1,278	71.2	12,386	13.1	<.01
48-hour mortality	3,470	3.8	567	31.6	4,037	4.3	<.01
Any complication within 30 days	44,046	47.6	1492	83.2	45,538	48.3	<.01
Specific complications							
Wound	14,342	15.5	177	9.9	14,519	15.4	<.01
Cardiac	3,565	3.9	255	14.2	3,820	4.1	<.01
Deep vein thrombosis	548	0.6	17	1.0	565	0.6	.05
Pulmonary Embolus	1,064	1.2	11	0.6	1,075	1.1	.03
Respiratory	20,226	21.9	1,014	56.5	21,240	22.5	<.01
Bleeding	14,813	16.0	824	45.9	15,637	16.6	<.01
Neurologic	880	1.0	58	3.2	938	1.0	<.01
Renal	3,676	4.0	255	14.2	3,931	4.2	<.01
Urinary tract infection	3,498	3.8	79	3.9	3,568	3.8	.79
Sepsis	18,805	20.3	667	37.2	19,472	20.5	<.01
Discharge destination*							
Died during hospitalization	6,107	10.2	703	67.9	6,810	11.2	
Home	38,168	63.7	57	5.5	38,225	62.7	
Returned to facility admitted from	1,010	1.7	18	1.7	1,028	1.7	
Rehab/acute care/skilled care	14,263	23.8	250	24.1	14,513	23.8	
Unknown/missing	418	0.7	8	0.8	426	0.7	

* Only available from 2011 onward.

Questions for the future



How do we define extreme risk in era of 5% high risk ?



How can we better predict futility, and what is it ?



How does frailty contribute ?



How does shared decision making work if each surgeon's ideas of extreme risk/futility are different ?



What happens to extreme risk if you manage non-operatively ?

Research

JAMA Surgery | **Original Investigation**

Evaluation of the Collaborative Use of an Evidence-Based Care Bundle in Emergency Laparotomy

Geeta Aggarwal, MBBS; Carol J. Peden, MD; Mohammed A. Mohammed, PhD; Anne Pullyblank, MD; Ben Williams; Timothy Stephens, MSc; Suzanne Kellett, MBBS; James Kirkby-Bott, MBBS; Nial Quiney, MBBS; for the Emergency Laparotomy Collaborative

England based QIP. Care bundle.

28 NHS hospitals, South Coast

EmLap NELA Oct 2015—Sept 2017 (>9000 pts)

Baseline for year before (>5000pts)

Box. How to Save Lives in Emergency Laparotomy

Screen patient

NEWS/SIRS/arterial lactate level

Assess whether patient has signs of sepsis

Treat with antibiotics within 1 h

Move patient to operating room

Move to operating room within 6 h of decision to operate

Consultant surgeon and anesthesiologist

In operating room

Monitor cardiac output

Goal-directed fluid therapy

ICU for all patients

Abbreviations: ICU, intensive care unit; NEWS, National Early Warning Score; SIRS, Systemic Inflammatory Response Syndrome.

Adapted from the Emergency Laparotomy Collaborative.

Figure 1. Change in Crude Mortality

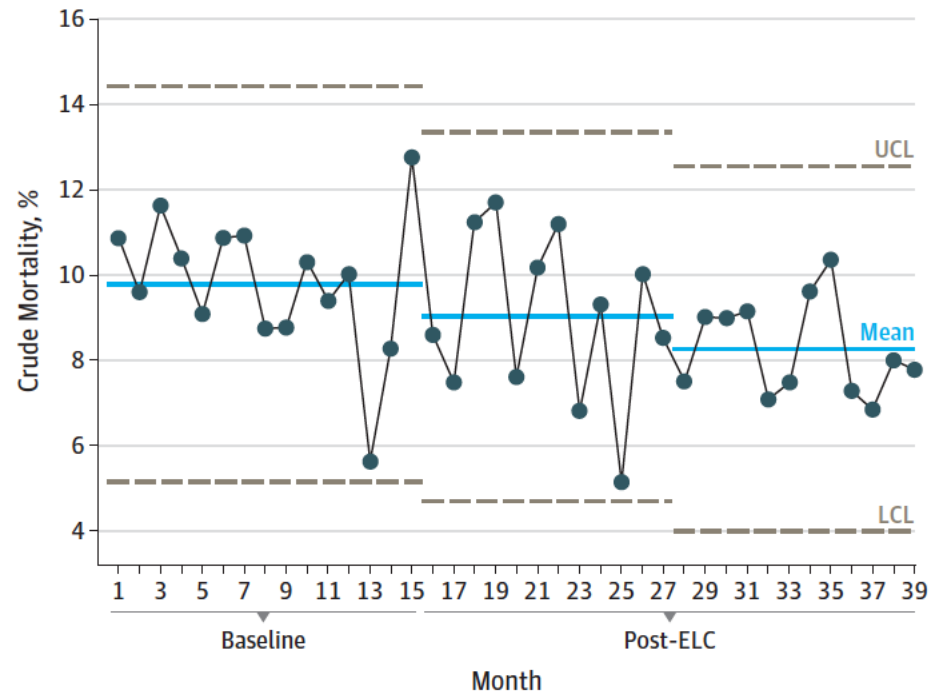
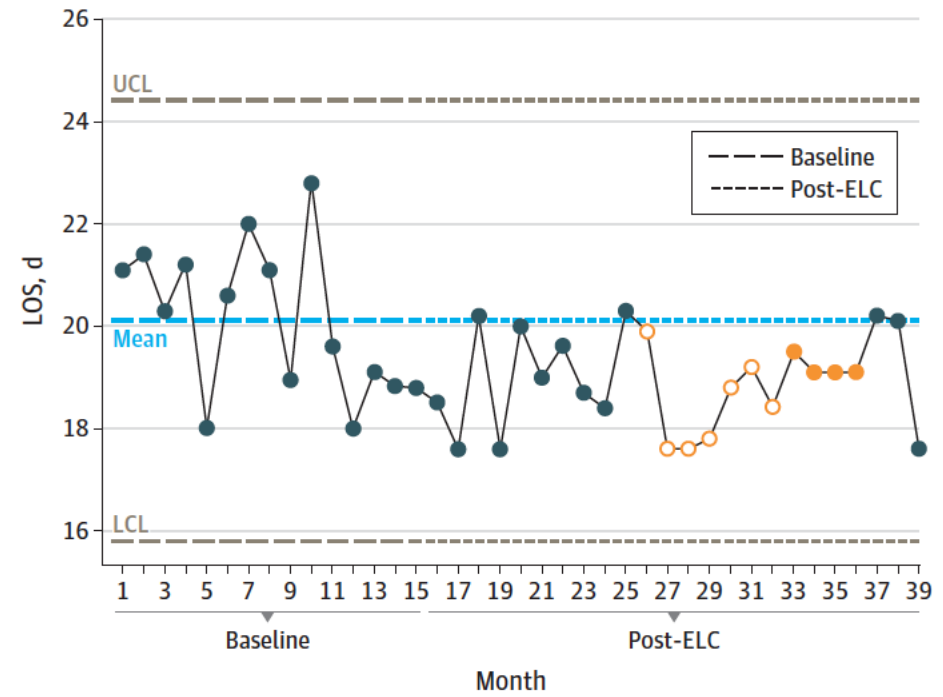
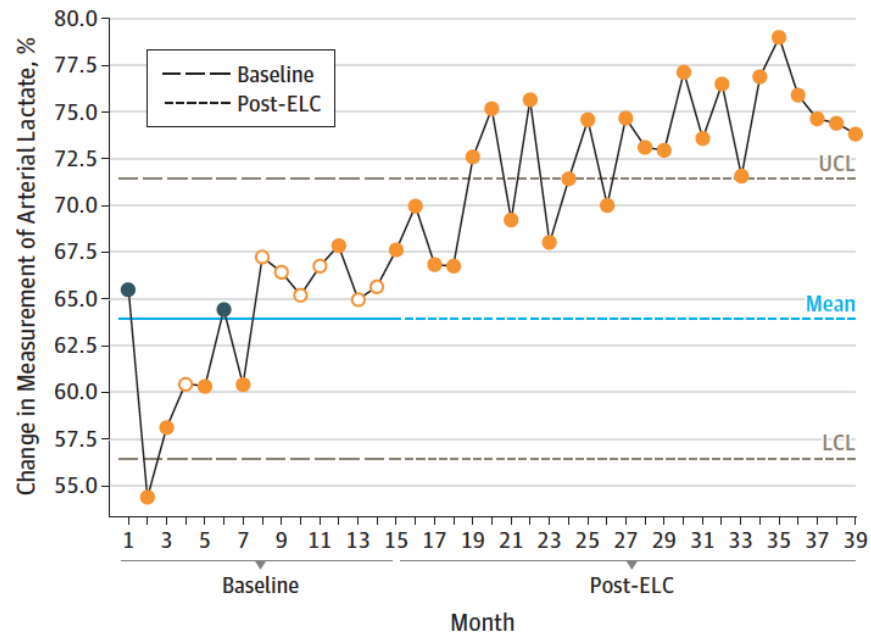
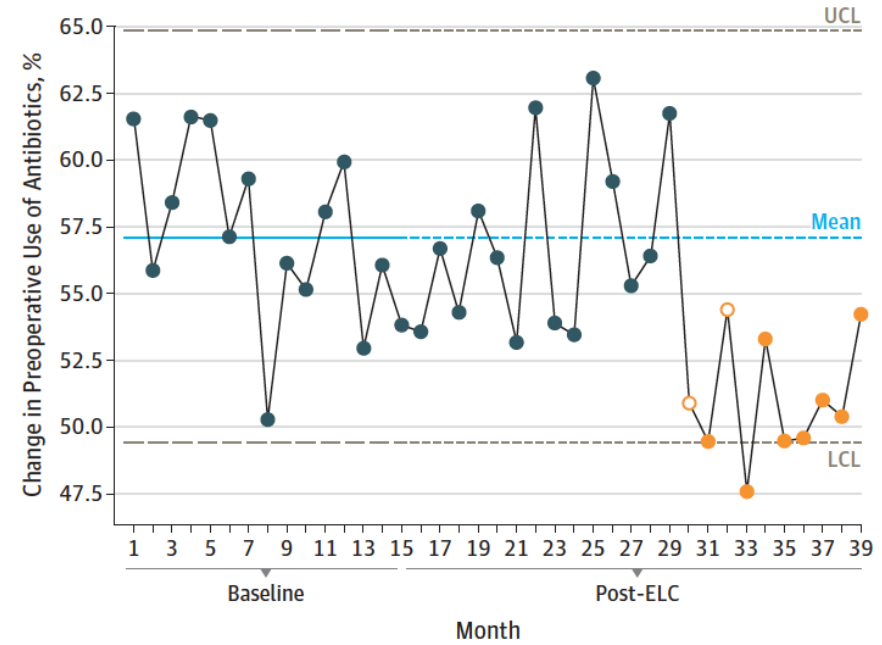
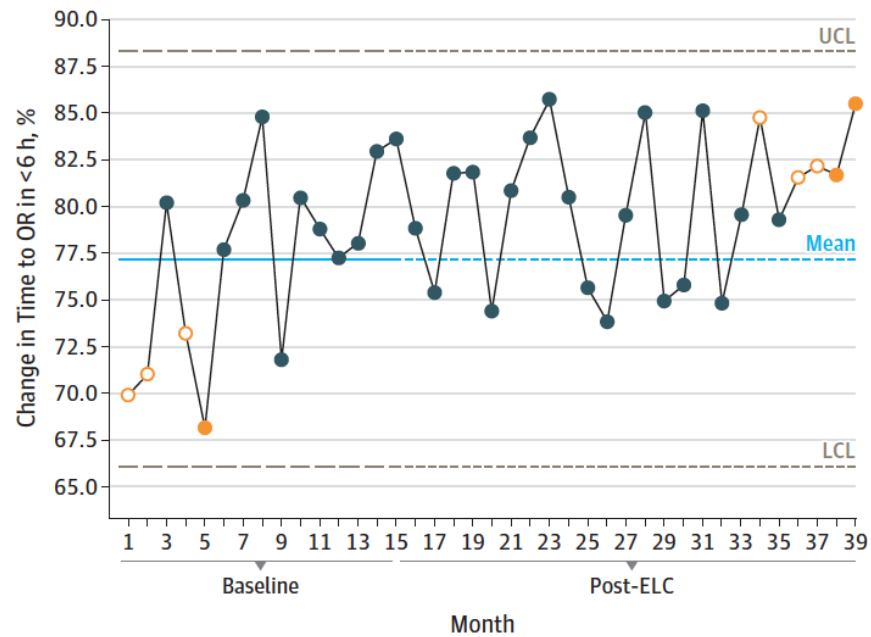
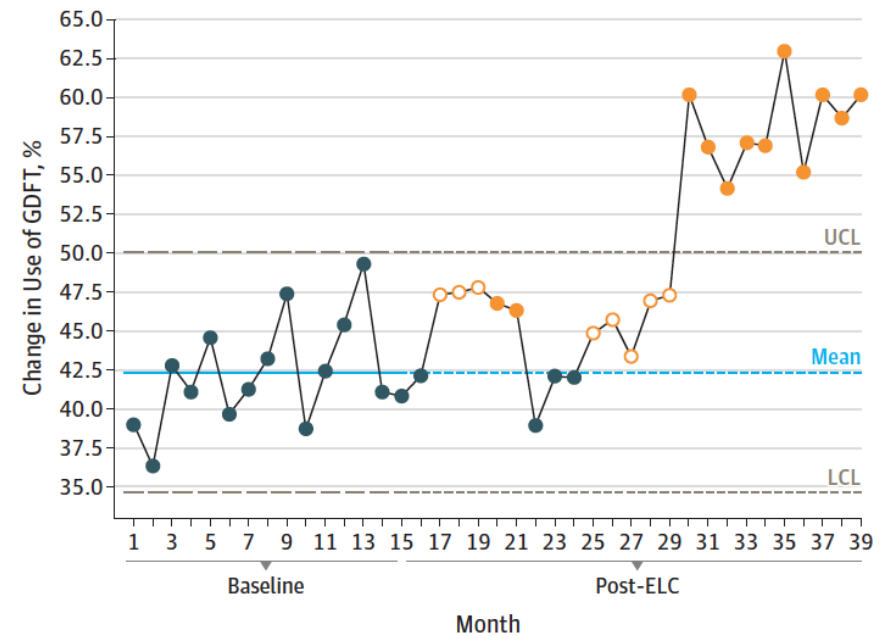
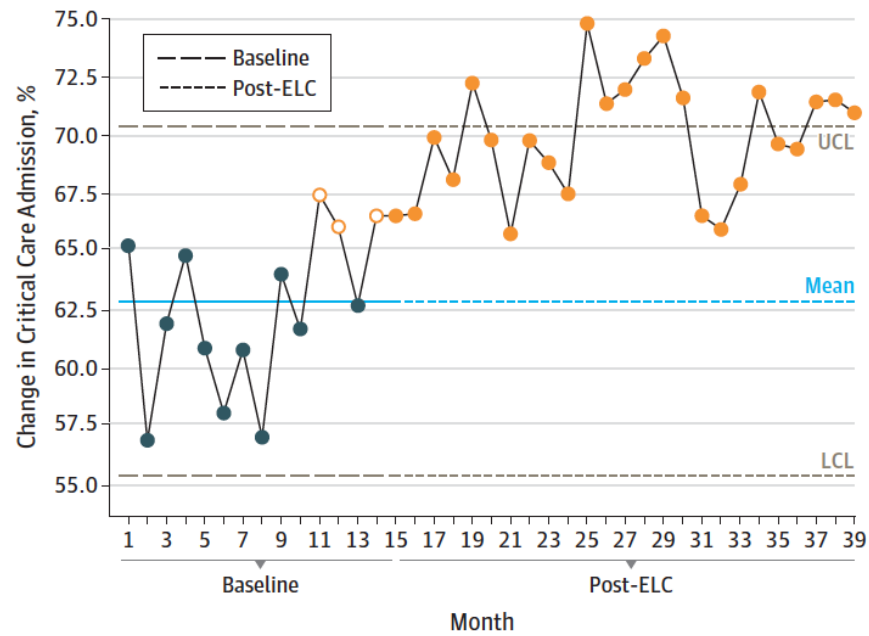
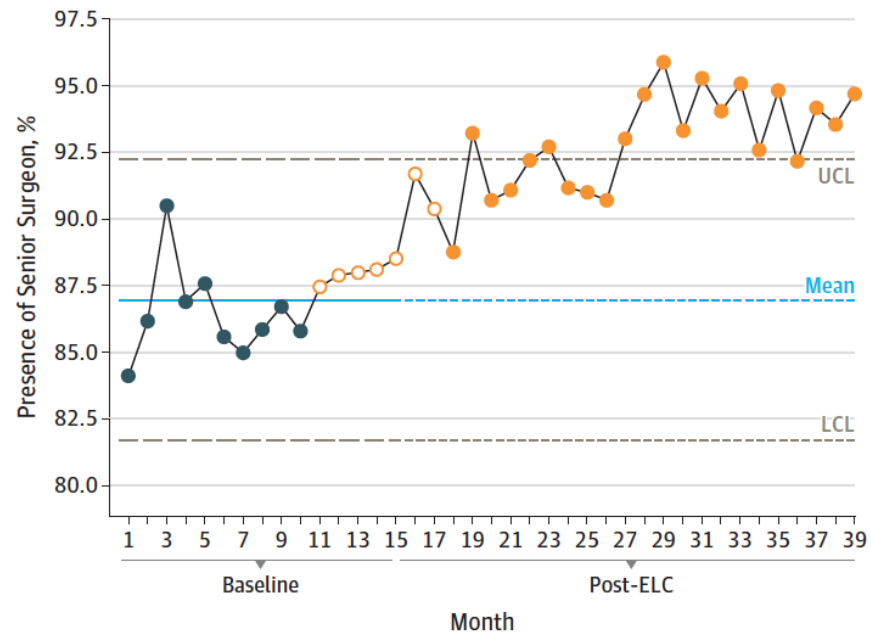
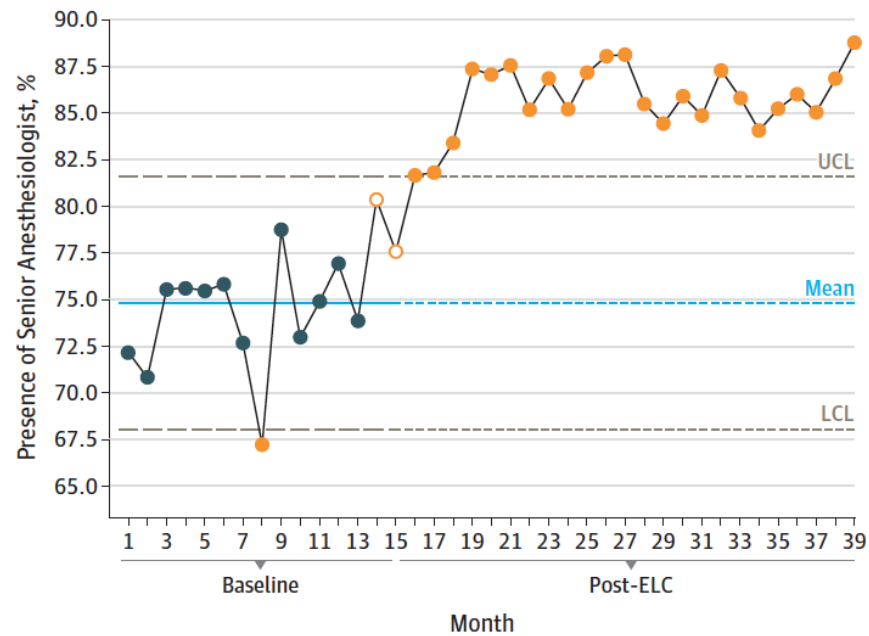


Figure 2. Change in Length of Stay (LOS)



A Preoperative measurement of lactate level**B** Preoperative antibiotics use**C** OR access**D** GDFT use

A ICU admission**B** Senior surgeon involvement**C** Senior anesthesiologist involvement



Discussion points

- National backdrop of improvements at this time, NELA
- Confounders
- What happened at uninvolved hospitals ?
- Many of the best performing units in NELA not in ELC
- Bundles can be successfully implemented

The End

