C3: Four of the Best from the IHI Scientific Symposium
The Emergency Laparotomy Collaborative:
Scaling up an Improvement Bundle for High Risk Surgical Patients

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on behalf of the
Emergency Laparotomy Collaborative (ELC)
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Disclosures:
• I am a Fellow and Faculty for the Institute for Healthcare Improvement (IHI)
• I hold shares in Fidelity Health
• I am a founder of the National Emergency Laparotomy Network and Board member and QI advisor to the National Emergency Laparotomy Audit UK

Session Objective:
Understand how QI is being used in nontraditional settings.
The Emergency Laparotomy Collaborative (ELC)

“Scaling up” ELPQuiC:

Funded by the Health Foundation UK
Part of the “Scaling Up” program
28 major hospitals - pop. 9M
3 Academic Health Science Networks (AHSNs)
2 year program (from September 2015)
Thanks to all the colleagues involved:
Geeta Aggarwal, Nial Quiney,
Tim Stephens, Anne Pullyblank

And all the ELC teams!

Non Trauma Emergency Laparotomy

• High risk procedure
• High volume problem
• Commonest causes adhesions, perforation, ischemia, malignancy, abscess
• Mortality high:
  • BJA 2012 Saunders et al Network study (UK)
  • 14.9 % 30 day mortality
  • J Am Coll Surg 2012 Al- Temimi et al (USA)
    NSQIP database 37,500 patients
  • 14% 30 day mortality
  • BJA 2014 Vester-Andersen et al (Denmark)
  • 18.9% 30 day mortality

UK National Emergency Laparotomy Audit (NELA)

- Established 2012 in response to high death rates
- “To enable improvement of quality of care for patients undergoing emergency laparotomy through the provision of high quality comparative data from all providers”
- Patient data collection from December 2013
- Patient outcomes have improved,
  - at time of start of ELC 30d mortality 11.1% 2014-15
- Background of increased focus on the problem and large scale QI studies such as EPOCH and the Emergency Laparotomy Collaborative (ELC)

Mortality: the discrepancy between major emergency intra-abdominal surgery and major elective intra-abdominal surgery

NELA data 2015 and 2016

Compare with:

- Elective colorectal resection 2.7%
- Esophagectomy 3.1%
- Gastrectomy 4.2%
- Liver met. Resection 1%
What was ELPQuiC?
Emergency Laparotomy Pathway Quality Improvement Care Bundle

Royal Surrey County, RUH Bath
Royal Devon and Exeter, South Devon

- An care bundle approach to Emergency Laparotomy
- A standardized pathway with key metrics
- A multidisciplinary team approach

ELPQuiC Metrics Improved
Decision to theatre less than 6 hours
Use of a pathway quality improvement care bundle to reduce mortality after emergency laparotomy (ELPQuIC)
S Huddart, CJ Peden, M Swart et al
Br J Surg Jan 2015

Improvement in process delivery particularly ICU admission and goal directed fluid therapy
25% reduction in crude mortality
Significant reduction in risk adjusted mortality p <0.0001
Scaling up ELPQuiC

Standardized pathway

- Clear goals
- Clear timelines
- Defined metrics
- Data uploaded to the National Emergency Laparotomy Audit (NELA)
- Multi-disciplinary involvement

Time-line Format based on IHI Breakthrough Series Collaborative with extra QI input
Scaling up ELPQuiC to ELC

- Increased Focus on Sepsis and Care of the Elderly
- Plenary meetings: Enhanced recovery approach, quality improvement (QI)
- Later Plenary meetings: Coaching on change management and leadership
- Local QI meetings: Driver diagrams, variation, Webinars: ‘Show and tell’
- Virtual Site Visits
- Posters and pamphlets, educational videos and publications

Care of older persons physicians (COOP) for emergency laparotomy

- 4 ELC hospitals 8-12 weeks baseline data for patients > 70 years
- 6 months of proactive care by Care of Older Persons Physician
- Follow up by research nurse at 2, 4 and 6 months:
- EQ-5D-5L and community services use
Continuous multi-level team support and feedback

- QI syllabus
- Run charts showing progress
- Comparative dashboard

Constant use of measurement and feedback
Results

- 5793 patients had an emergency laparotomy at a participating hospital between 1st October 2015 and 31st December 2016
- Crude mortality rate improved from 9.8% at the start of the collaborative to 8.7% (11% decrease from baseline)
- National data for same period 10.6%
- Length of Stay decreased by 1.3 days across collaborative
- Process measures improved
  - Increase in patients admitted to ICU
  - 14.5% increase in consultant led care

Learning Together

- Innovations shared
- E.g. Virtual Peer Review
- Evaluation form summaries 2016
  “Reenergizing, Thought provoking
  Excellent sharing of information
  Useful update and networking
  Stimulating, Supportive, Relevant”
- ‘Sharing and learning from each other’, ‘being able to ask questions of others’
- Learning from “failures and successes”
- Showing the way to ‘improve and approach any obstacles’
Further evaluation:

• Statistical risk adjusted analyses
• Ethnographic evaluation
• Economic evaluation
• Care of the elderly sub-group

Trend to decreased length of stay in patients seen by care of the older person physicians (COOP), and less extremely long stay outlier patients

Assessments such as complex medication review were performed earlier in the COOP patients.

Less complications seen with COOP care.


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Joy in Work!
In summary:

- A collaborative of 28 hospitals worked together for 2 years to improve outcomes from emergency laparotomy
- A care bundle approach was used with a standardized pathway
- Metrics were clearly defined, reported and fed back to teams on a regular basis
- Performance in key process measures improved
- Analysis of first 15 months - unadjusted mortality improved to 8.7% and better than national data
- Length of stay decreased
- Coaching built knowledge in teams on QI, leadership, use of data, and change management
- Teams thrived and a sense of joy was created!