Embedding a local innovation:

‘The Emergency Laparotomy Collaborative’

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Emergency Laparotomy Network Audit.

Data collection 3 months in 2011
37 hospitals submitted data. 1853 patients
Average 30 day mortality rate 14.9%
Mortality range 3.7-41%
Wide variation in:
  Consultant Anaesthetist /Surgeon involvement
  ICU admission
  Goal directed resuscitation

Where we started.
Emergency Laparotomy Quality Improvement Care Bundle

- All emergency admissions to surgical assessment area have an EWS completed. Outreach to review all patients with an EWS of 4 or more.
- Broad spectrum antibiotics to be given to all patients with suspicion of peritoneal soiling or sepsis, septic shock.
- Once decision is made to carry out laparotomy patient takes next available slot on emergency list (or within 6 hours of decision made).
- Start resuscitation using goal directed techniques as soon as possible (within 6 hours of admission).
- Admit all patients after emergency laparotomy to ICU.
Emergency Laparotomy Pathway Quality Improvement Care Bundle

Four general hospitals in England
Baseline data for 299 patients
Eight month prospective data collection (427 patients)
Use of ‘statistical process control’ to identify changes
Meet every 4-6 weeks for results/learning
Summary

30 day outcomes
- Pooled data risk adjusted mortality 15.6 to 9.6% (38% reduction)
- 6.0 additional lives saved per 100 patients treated
- NNT 16.4

In hospital outcomes
- Pooled data risk adjusted mortality 17.4 to 10.1% (42%)
- 8.1 additional lives saved per 100 patients treated
- NNT 12.4

BJS 2015
Use of a pathway quality improvement care bundle to reduce mortality after emergency laparotomy

S. Huddart, C. J. Peden, M. Swart, B. McCormick, M. Dickinson, M. A. Mohammed and N. Quiney on behalf of the ELPQuiC Collaborator Group

Open Access. BJS Jan 2015.
Next steps.
The start of the Emergency Laparotomy Collaborative (ELC).
8-10 million population
28 hospitals
4000 emergency laparotomies per annum
Two year program
Model for Improvement
Using NELA data
Emergency Laparotomy Quality Improvement Care Bundle

Early assessment with lactate or EWS.
Broad spectrum antibiotics to be given to all patients with suspicion of peritoneal soiling or with septic shock.
Urgent access to theatre within 2-6hrs.
Start resuscitation using goal directed techniques as soon as possible within 6 hours of admission.
Admit all patients after emergency laparotomy to ICU.
ELC Quality Improvement training

Key Milestones

September 2015: ELC Launch
- Site Work
- Creating Engagement
- Situational Awareness

October 2015:
- Regional AHNS meetings
- Sharing data, progress
- Systems thinking
- Using data for improvement

November 2015:
- Regional AHNS meetings
- Sharing data, progress
- Systems thinking
- Using data for improvement

March - May 2016:
- Own site work
- Improving care processes
- Improvements to secondary drivers

March 2016: Cross Collaborative meeting II
- The Model for Improvement
- Driver diagrams
- Data clinic

December - February 2016:
- Own site work
- Data collection
- Identify change goals
- Continue to engage stakeholders

June 2016 AHNS meetings
- Review progress
- Learn from each other
- Adapt change efforts

June - September 2016:
- Own site work
- Continue to improve care processes

September 2016 Cross Collaborative meeting III
- Developing communities of practice
- Other analysis methods
- Further meetings in 2017
Review of evidence.

GDFT
Sepsis
GDFT
Sepsis
ICU admission
Consultant Involvement
We need new tools to improve care
Virtual site visit

Sharing success and collaborative learning.
Coaching: pitching, leadership and negotiation.

DIFFUSION OF INNOVATION

THE CHASM

EARLY ADOPTERS

1.5

INNOVATORS

34

EARLY MAJORITY

34

LATE MAJORITY

16

% LAGGARDS
Results
Crude Mortality rate (all hospitals)
Crude Mortality rate (all hospitals)

9.8%  9.0%  8.3%
Risk Adjusted Mortality (All hospitals)
Length Of Stay

20.1 days

18.9 days
Results: metrics.
Preop lactate

Preop antibiotics

GDFT

ICU Admission
Consultant Anaesthetist

Consultant Surgeon
<table>
<thead>
<tr>
<th>Metric</th>
<th>Baseline Mean (UCL/LCL)</th>
<th>Months 1-12 ELC Mean (UCL/LCL)</th>
<th>Months 13-24 ELC Mean (IQR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement Lactate</td>
<td>63.9 (71.4/56.4)</td>
<td>71.2 (78.0/64.4)</td>
<td>74.9 (81.7/68.2)</td>
</tr>
<tr>
<td>Antibiotics Before Theatre</td>
<td>57.1 (64.8/49.4)</td>
<td>56.6 (64.1/49.1)</td>
<td>52.3 (60.1/44.6)</td>
</tr>
<tr>
<td>Arrival in less than 6hrs of booking in theatres</td>
<td>77.2 (88.2/66.1)</td>
<td>79.4 (89.5/69.4)</td>
<td>80.8 (91.0/70.5)</td>
</tr>
<tr>
<td>Use of GDT</td>
<td>42.3 (50.0/34.6)</td>
<td>44.5 (52.0/37.0)</td>
<td>56.3 (64.0/48.6)</td>
</tr>
<tr>
<td>Post-Operative admission to ICU</td>
<td>62.9 (70.5/55.4)</td>
<td>69.8 (76.7/62.9)</td>
<td>70.4 (77.5/63.4)</td>
</tr>
<tr>
<td>Consultant Surgeon Involvement in theatre</td>
<td>87.0 (92.2/81.7)</td>
<td>91.4 (95.6/87.2)</td>
<td>94.2 (97.8/90.6)</td>
</tr>
<tr>
<td>Consultant Anaesthetist Involvement in theatre</td>
<td>74.8 (81.6/68.0)</td>
<td>85.8 (91.1/80.6)</td>
<td>85.8 (91.2/80.3)</td>
</tr>
</tbody>
</table>
Emergency Laparotomy Collaborative:
Why did it work?
Emergency Laparotomy Collaborative: Learning

Made a ‘safe space’
  Data sharing
  No CQC or GMC

Keep it simple
  Care bundle
  Evidence (mostly agreed)

Taught new skills and thinking
  Systems analysis
  Time series charts
  Negotiation skills
Emergency Laparotomy Collaborative: Learning

Encouraged collaborative learning and developed a community

Data sharing
Virtual site visit
Encouraged innovation “MDT”
“How I get my patients into ICU’
Video competition
Emergency Laparotomy Collaborative: Next steps

Adopted nationally by AHSNs
NHS Wales starting similar program
Enhanced Recovery After Surgery (ERAS) guidelines
Thank you.

Dr Geeta Aggarwal
Tim Stephens
Dr Sam Huddart
Prof Carol Peden
And many others

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