Sustained reduction in length of stay for patients undergoing major upper gastrointestinal resections with introduction of an enhanced recovery package and a minimally invasive operative technique

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on behalf of
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Background

- 3,612 oesophagectomies and gastrectomies in England & Wales annually (1)
- Approximately 4% 30 day mortality
- 40% serious post-operative complication
- Traditionally conservative post-operative management
- Prolonged in-patient stay

Nottingham experience

- Second largest centre in UK
- 180 oesophagectomies and gastrectomies annually
- Conducted by upper GI and thoracic surgeons
- Local 30 day mortality comparable with national average (1)
- Inpatient stay of 15 days (comparable with other major centres)

- ERAS programme tailored to oesophagectomies conducted by upper GI surgeons implemented in August 2009
Nottingham Upper GI Surgeons
Oesophagectomy ERAS Programme

- Day of surgery
  - Respiratory exercises start and continue daily

- Day 1
  - Aim to leave HDU
  - Sitting out

- Day 2
  - 10m walk
  - 1st chest drain out

- Day 3
  - Two 20m walks

- Day 4
  - Three 30m walks

- Day 5
  - Two length of ward walks
  - 2nd chest drain out
  - Epidural/paravertebral analgesia off
  - Urinary catheter out
  - Oral fluids building to nutritional fluids

- Day 6
  - Three independent 30m walks

- Day 7
  - Home
Minimally invasive surgical technique

- September 2010
- Laparoscopic mobilisation of stomach and gastro-oesophageal junction
- Allowed change from epidural to paravertebral analgesia
### Results - Oesophagectomy

<table>
<thead>
<tr>
<th></th>
<th>Number of patients</th>
<th>Median length of stay - days (IQR)</th>
<th>p-value</th>
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</thead>
<tbody>
<tr>
<td><strong>Post-ERAS (Aug 2009 - July 2010)</strong></td>
<td>55</td>
<td>11 (8-15.5)</td>
<td>&lt;0.001</td>
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<tr>
<td><strong>Minimally invasive surgery (Aug 2010 - April 2011)</strong></td>
<td>34</td>
<td>8 (7-12)</td>
<td>&lt;0.001</td>
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<td><strong>Minimally invasive and completed ERAS programme</strong></td>
<td>19 (56%)</td>
<td>7 (7-8)</td>
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</table>
Conclusions

- Introduction of ERAS programme has reduced in-patient stay after major upper GI surgery

- Updating the ERAS programme as new surgical techniques have been introduced has continued to significantly reduce in-patient stay