Quality Improvement Project
Enhanced Recovery and Rehabilitation for Fracture Neck of Femur
Borders General Hospital
Implementing Enhanced Recovery in Orthopaedics

• Process
• Outcomes
• Food for thought
• Summarise your thoughts at the end of the meeting
• ? Reach a consensus
Implementing Enhanced Recovery in Orthopaedics

A Mehdi, A Todd, D Sommerville, J Antrobus, K Lakie, Nigel Leary

Borders General Hospital
Implementing Enhanced Recovery in Orthopaedics

- Big Challenge - LEAN Change Management Process
- Better Preassessment
- More activity/ less cancellations
- Medicalisation/ Intervention almost eliminated
- Excellent pain relief
- MLoS 3 days
- Better patient journey
- Massive Savings?
Enhanced Recovery and Rehabilitation for Fracture Neck of Femur

Borders General Hospital
Enhanced Recovery and Rehabilitation for Fracture Neck of Femur

- First in UK of its type – Primary/Secondary Care Collaboration
- Aimed at bettering English BPT standards
- Improved Patient and Carer Experience
- “Home to Home”
- Reducing length of stay and unit cost of treatment to sustain health provision
Enhanced Recovery and Rehabilitation for Fracture Neck of Femur

Standardised ED/Ward/A naesthetic/Surgical Protocol

Optimisation/Reduction of Medicalisation

Operation within 36 hours

Nutrition/Hydration/Bone Protection

Local anaesthetic infusion blocks

Preop and same day post op mobilisation (FWB)

Early discharge from ward: 5 days
LEAN PROCESS

• Data Gathering/Circle of Work

• Value Stream Mapping

• Kaizen
Admission

- No clear pathway from admission via ED to ward
- Inadequate medical resources to support clerking on ward
- Management of medically ill patient
- No joint orthopaedic/orthogeriatric admission process
Surgical Journey

- Generic Unitary Patient Record
- Anaesthetic review 10.00am daily
- Variation in surgical practice
- Not fit – no clear pathway
- Trauma lists not available
- Austin Moore’s Common
- No clear guidance on hydration and nutrition
- Information gathering from community incomplete
- Limited geriatric support for frail elderly patients
Rehabilitation

• Confusion over mobilisation status
• Delays to nutritional supplementation
• Delays to osteoporosis assessment
• Lack of clarity over management of common post op complications
  • Post op drowsiness from anaesthetic/analgesic drugs
  • Inadequate transfer of information between wards/hospitals/services
• Long Length of Stay
• Proportion patients no-longer fit to return home
Benchmarking 2008

Discharge from Acute Hospital

- 17% (26%)

Discharge from In-Patient Rehabilitation

- 44% (61%)
Hip Fracture Pathway

Problem Statement
No clear pathway from admission to discharge from ward 9 for patient’s following a #NOF resulting in
• Compromise in the quality of patient care/experience
• Delays in transfer from ED to ward 9
• Limited geriatric support for frail elderly patients
• Variability of time to surgery
• Delays in mobilisation
• Inadequate transfer information between wards/hospitals/ services
• Variation in length of hospital stay ward 9
• Lack of patient/carer information
• Proportion no-longer fit to return home

Goals
• Establish first enhanced recover pathway for #NOF patients in Scotland
• Set down standard of best practice as per the English model including participation in the National Hip Fracture Database
• Expedite admission, treatment and discharge through the hospital
• Plan for home on admission – considering pre-morbid baseline/risks
• Improve patient experience by reducing pain, immobility and side effects of treatment
• Facilitate joint working between care of the elderly physicians and orthoapedic surgeons
• Consistent approach to nutritional support
• Consistent approach to bone protection measures
• 100% up to sit bed/chair/toilet day 0
• Consensus around weight bearing status post op
• 5 day fit to move on – acute length of stay
• Robust person centred treatment plan to follow patient

Scope
• #NOF patients presenting in ED and admitted ward 9
• Nutritional support & bone protection
Enhanced Recovery and Rehabilitation for Fracture Neck of Femur

• Phase 1 – Streamlining discharge to home
  March 2011

• Phase 2 – Improving acute care
  June-July 2011
Discharge Planning & Ongoing Rehabilitation

- EDD set on admission
- DME role/MDT
- Templated Discharge Letters/Better Information Handover to community
- Link with Social Services / Community OT/Community Physiotherapy
- Patient information booklet
## Phase 1

<table>
<thead>
<tr>
<th></th>
<th>After</th>
<th>Before</th>
</tr>
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<tbody>
<tr>
<td>DME Involvement</td>
<td>3 Days</td>
<td>3-7 Days</td>
</tr>
<tr>
<td>Physiotherapy</td>
<td>53% D1</td>
<td>D2</td>
</tr>
<tr>
<td>ALOS</td>
<td>12 Days (9)</td>
<td>14 Days</td>
</tr>
<tr>
<td>Home Discharge</td>
<td>62%</td>
<td>24%</td>
</tr>
<tr>
<td>Community /Care Home Transfer</td>
<td>10/15 Days</td>
<td>16/20 Days</td>
</tr>
</tbody>
</table>
Patient Journey

- Admission through ED
- Pre-optimisation for surgery
- Perioperative Care
- Early rehabilitation
- Discharge planning & ongoing rehabilitation
- Length of Stay
Actions taken at the Front Door

- Introduction of a Hip Fracture ICP
- Use of Repose mattress in ED
- Hydrate patients
- Traffic lights
- Protocol for analgesia
- Nerve block with Elastomeric infusion pump on admission
- Critical care outreach involvement
- FY1 cover from Feb 12
- DME cover not adequate for pre-op involvement

Before
- <2 hours 12.8%
- <3 hours 43.9%
- <4 hours 88.4%

Now
- <2 hours 9.5%
- <3 hours 57.1%
- <4 hours 100%
Changes to Surgical Journey

• ICP from admission to discharge

• **Surgical review day of admission**

• **Anaesthetic review day of admission**

• Theatre co-ordinator at trauma meetings

• Clarity over decision making
  – Fit for theatre – optimisation
  – Cemented Arthroplasty

• Clear fasting instructions

• Early information sharing – community

• **Intraoperative L.A Infiltration**

• Early referral to DME consultant
Focus on Early Rehabilitation

• **Full weight bearing default on pathway**
• Nutritional optimisation – needs further explored
• Optimum anaesthetic/ analgesia to facilitate day 0 mobilisation
• Osteoporosis assessment & treatment – triggers in pathway
• Surgical review POD 0-5
• Protocol for management of post op complications
• Changes to white board to improve communication
• Communication book - Orthopaedic Trainees
### Phase 1 – Streamlining discharge to home

<table>
<thead>
<tr>
<th></th>
<th>Now</th>
<th>Then</th>
<th>Before</th>
</tr>
</thead>
<tbody>
<tr>
<td>DME involvement (days)</td>
<td>2</td>
<td>2 (2)</td>
<td>2-7</td>
</tr>
<tr>
<td>Av LOS (median) (days)</td>
<td>11</td>
<td>11.9 (10)</td>
<td>14 (12)</td>
</tr>
<tr>
<td>Home discharge acute</td>
<td>26%</td>
<td>17%</td>
<td></td>
</tr>
<tr>
<td>Home (&gt;65)</td>
<td>22.4%</td>
<td>15.9%</td>
<td></td>
</tr>
<tr>
<td>Av LOS (median) home</td>
<td>12(10)</td>
<td>10(9)</td>
<td></td>
</tr>
<tr>
<td>Community transfer (days)</td>
<td>13 (12)</td>
<td>16 (14)</td>
<td></td>
</tr>
<tr>
<td>COTE Ward transfer (days)</td>
<td>13</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Care home transfer (days)</td>
<td>16 (15)</td>
<td>12.8 (11)</td>
<td></td>
</tr>
</tbody>
</table>
### Phase 2 – Improving acute care

<table>
<thead>
<tr>
<th></th>
<th>Now</th>
<th>Then</th>
<th>Before</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theatre in 36hrs</td>
<td>50%</td>
<td>44%</td>
<td>?</td>
</tr>
<tr>
<td>Nerve block</td>
<td>80%</td>
<td>95.2%</td>
<td>0</td>
</tr>
<tr>
<td>Patients up to sit</td>
<td>40%</td>
<td>66.7% day 1</td>
<td>?</td>
</tr>
<tr>
<td>WB status</td>
<td>Variable</td>
<td>FWB</td>
<td>?</td>
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Only 40% IC# had cemented hemiarthropasty
4 hours DME cover per week – limited pre-op input
Challenges Then

- Buy in
- Audit
- Orthogeriatric support
- Demedicalisation
- Weekend Physio/OT
- Trauma List/Surgical support
- Creation of capacity
Challenges Now

Outcomes not as expected
Challenges- Time in ED

Fig. 2: Time in ED

Percentage of patients

- <=2 hours
- 2-3 hours
- 3-4 hours
- >4 hours
- Data unavailable

Challenges - Analgesia in ED

Fig. 7: Analgesia administered by Scottish Ambulance Service or in ED

- Nerve block +/- any other analgesic
- IV/IM/SC opioids but no nerve block
- Oral opioids *
- Entonox only
- Non-opioids only
- Data unavailable

Percentage of patients
Challenges- IV Fluids in ED

Fig. 9: Were IV fluids commenced before the patient left ED?

- Ayr
- Crosshouse
- BGH
- DGRI
- Fife
- Forth Valley
- Aberdeen
- Elgin
- GRI
- WIG
- Victoria
- SGH
- RAH
- Inverclyde
- Raigmore
- Haymores
- Monklands
- Wishaw
- RIE
- Ninewells
- Perth
- All sites 2012/13

Legend:
- IV fluids commenced
- Not commenced
- Notes not seen
Challenges- Assessment of Pressure Areas in ED

Fig. 10: Documented pressure area inspection during the ED attendance?
Challenges- Assessment of SEWS in ED
Challenges- Time to Surgery

Fig. 25: Time to theatre (calendar day) for all patients, including those initially unfit for surgery

Day of admission  | Day after admission  | 2 days post-admission
3-4 days post-admission  | 5-7 days post-admission  | > 1 week post-admission
Challenges - Fasting Times

Fig. 28: Period of fasting prior to induction of anaesthetic

- Ayr
- Crosshouse
- BGH
- DGRI
- Fife
- Forth Valley
- Aberdeen
- Elgin
- GRI
- WIG
- Victoria
- SGH
- RAH
- Inverclyde
- Raligmore
- Haltimores
- Monklands
- Wishaw
- RIE
- Ninewells
- Perth

End of surgical/anaesthetic day

- \( \leq 6 \text{ hours} \)
- \( 6-10 \text{ hours} \)
- \( >10 \text{ hours} \)
- Not known

Each bar indicates the percentage of patients in each category at different sites.
Success- Fasting Times

Fig. 29: When were clear oral fluids stopped prior to induction of anaesthetic?

Excludes patients treated conservatively.
Challenges- Uncemented Hemiarthroplasty
Challenges- Day of Mobilisation/OT
Successes - Geriatrician Input/Bone Protection

Fig. 41: Time until seen by geriatrician

Fig. 43: Bone protection medication assessment

- Continues from pre-admission
- Commenced during inpatient stay
- Awaits DXA or OP assessment
- Assessed - nil required
Challenges - Discharge/LoS

Fig 39: Days from operation to start of discharge planning

There may have been no
## Blood Transfusion

<table>
<thead>
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<tbody>
<tr>
<td>Mean Pre-Op Hb (g/l)</td>
<td>12.11</td>
<td>12.18</td>
</tr>
<tr>
<td>Mean Post-Op Hb (g/l)</td>
<td>9.99</td>
<td>10.25</td>
</tr>
<tr>
<td>Mean Hb Drop (g/l)</td>
<td>2.12</td>
<td>1.93</td>
</tr>
<tr>
<td>Transfusions (%)</td>
<td>17 (17%)</td>
<td>15 (17%)</td>
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## Mortality

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2011</th>
<th>2010</th>
<th>2009</th>
</tr>
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<tbody>
<tr>
<td><strong>Number of patients</strong></td>
<td>142 patients</td>
<td>192 patients</td>
<td>178 patients</td>
<td>163 patients</td>
</tr>
<tr>
<td><strong>Mortality – 30 days</strong></td>
<td>16 deaths (11%)</td>
<td>17 deaths (9%)</td>
<td>13 deaths (7%)</td>
<td>11 deaths (7%)</td>
</tr>
<tr>
<td><strong>Mortality – 6 months</strong></td>
<td>27 deaths (19%)</td>
<td>43 deaths (22%)</td>
<td>38 deaths (21%)</td>
<td>33 deaths (20%)</td>
</tr>
</tbody>
</table>
Challenges Now

Benefits not as expected

• Buy in – variable compliance with protocol-infiltration/Anaesthetics/Analgesia
• AUDIT
• Orthogeriatric support
• Heat Targets
• Financial Benefits?
• No incentives
YES WE CAN

Obama’08
HELP for HEROES
Support for our Wounded
The Future

- Better Audit/Documentation
- Clinical/Audit Coordinator
- Implementation of Action Plan
- Acute Length of Stay – 5 Days
- Tariff/Financial Incentives