Enhanced Recovery Programme

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Generic Principles ERPP

Glasgow

East beats meets West

Edinburgh
What is it?

An Approach to Elective Surgery that reduces the length of stay while maintaining quality allowing patients to get home quickly and back to normal activities ASAP.
Idiot Principles

- Optimising pre op health
- Pre-habilitation
- Admission DOS
- Carbohydrate loading & hydration pre op
- Avoid opiates post op
- Mobilisation DOS
- Discharge once goals met
WHY?

• Every unit has an established pathway
• Similar but different
• Cross fertilisation to improve patient care, LoS and maintain quality
• Maximize bed usage
• “CUT COSTS”
Generic elements of enhanced recovery

**Referral from Primary Care**
- Optimised health / medical condition
- Informed decision making
- Pre-operative health & risk assessment
- Pt information and expectation managed
- DX planning (EDD)

**Pre-Operative**
- Optimising pre-operative haemoglobin levels
- Managing pre-existing co-morbidities e.g. diabetes
- Minimally invasive surgery
- Use of transverse incisions (abdominal)
- No NG tube (bowel surgery)
- Use of regional/ LA with sedation
- Epidural management (including thoracic)
- Optimised fluid management individualised goal directed fluid therapy

**Admission**
- Optimised fluid hydration
- CHO loading
- Reduced starvation
- No / reduced oral bowel preparation (bowel surgery)
- dx on planned day
- Therapy support (stoma, physio)
- 24hr telephone follow up

**Intra-Operative**
- Planned mobilisation
- Rapid hydration & nourishment
- Appropriate IV therapy
- No wound drains
- No NG (bowel surgery)
- Catheters removed early
- Regular oral analgesia
- Paracetamol and NSAIDS
- Avoidance of systemic opiate-based analgesia where possible or administered topically

**Post-Operative**
- Optimising pre-operative haemoglobin levels
- Managing pre-existing co-morbidities e.g. diabetes
- Rapid hydration & nourishment
- Appropriate IV therapy
- No wound drains
- No NG (bowel surgery)
- Catheters removed early
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**Follow Up**
- Optimising pre-operative haemoglobin levels
- Managing pre-existing co-morbidities e.g. diabetes
- Rapid hydration & nourishment
- Appropriate IV therapy
- No wound drains
- No NG (bowel surgery)
- Catheters removed early
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PROMS
Patient Reported Outcome Measures
NHS Lothian

- Data from Arthroplasty Patient
- Satisfaction Data since 2006
- Age 60-80
- Hips more satisfied than Knees
- Women more satisfied than Men
- Average Length of Stay 5.8 days
Satisfaction & LOS

- Excellent: < 4 Days - 169, 5-7 Days - 452, 8-10 Days - 66, >10 Days - 39
- Very Good: < 4 Days - 66, 5-7 Days - 545, 8-10 Days - 79, >10 Days - 43
- Good: < 4 Days - 79, 5-7 Days - 221, 8-10 Days - 53, >10 Days - 40
- Fair: < 4 Days - 50, 5-7 Days - 18, 8-10 Days - 36, >10 Days - 9
- Poor: < 4 Days - 14, 5-7 Days - 9, 8-10 Days - 38, >10 Days - 6
LOS & Hospital Experience

- Very Satisfied: 31, 25, 27
- Satisfied: 11, 9, 13
- Uncertain: 4, 4, 5
- Dissatisfied: 2, 2, 1

Categories:
- <4 Days
- 5-7 Days
- 8-10 Days
- >10 Days
LOS Hips

Mean Length of Stay Hips

No of Days

<table>
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<tr>
<th>Year</th>
<th>Scotland</th>
<th>Lothian</th>
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<tbody>
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<td>2001/02</td>
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<tr>
<td>2007/08</td>
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LOS Knees

Mean Length of Stay Knees

No of Days

97/98  99/00  2001/02  2003/04  2005/06  2007/08

Scotland  Lothian
Attitude Adjustment

![I Chart of PCSDiff12](image)

- Monthly Mean: \( \bar{X} = -9.65 \) for Jan-04 to Jul-03, \( \bar{X} = -11.66 \) for Jan-05 to Jul-04
- Upper Control Limit (UCL): -3.93 for Jan-03 to Jul-03, -8.19 for Jan-05 to Jul-04
- Lower Control Limit (LCL): -15.37 for Jan-03 to Jul-03, -15.13 for Jan-05 to Jul-04

Month range: Jan-03 to Jan-08
What’s Difficult

- Getting Started
- Getting Together
- Including Stakeholders
- Engaging the Community
- Implementing Decisions
- Business Planning
- Equity for Profession’s Involved
The CALEDonian Technique™

The Enhanced Recovery Program at the Golden Jubilee National Hospital

David McDonald
CALEDonian Coordinator
MORE THAN ONE WAY TO SKIN A CAT!!
The CALEDonian Technique™

• One method – BUT not the only one
• A basis for discussion and development
CALEDOnian

- CLINICAL
- ATTITUDES
- LEADING TO
- EARLY
- DISCHARGE
- onian ?????
AMALGAMATION

- TVC Programme of Pre-op education (USA)
- Improved Peri-op care – “DANISH” Technique
- Strengthened programme of early mobilisation
“DENMARK” TECHNIQUE

HVIDOVRE HOSPITAL, COPENHAGEN

- 5 DAY WARD
- SURGERY MON – WED
- NURSING PRESENCE
- ALL DISCHARGED BY FRIDAY
- SAME DISCHARGE CRITERIA AS ELSEWHERE
The CALEDonian Technique™

PRINCIPLES
• Pre-op patient education
• Positive staff
• Local anaesthetic intra-articular infiltration and post op via indwelling catheter
• Standardised post-op analgesia
• Same day mobilisation
PRE-OP EDUCATION

PRINCIPLES

• Group sessions
• Subliminal “BONDING”
• Change patient perceptions – “60,000 MILE SERVICE”
• Expectations
• Active participants
• Early mobilisation
• Home once discharge criteria met
Staff

Principles

• Education
• Positive Attitude
• Danish Response to Dissenters
  “Sack Them”
STAFF ATTITUDES

PRINCIPLES

• Can long standing attitudes be changed?
• YES, If the change is worth it?

• Nursing intensity changed
• Reduced monitoring
• Stop IV fluids
• PILOT STUDY
PILOT STUDY

• Nursing staff and medical staff bought into the system

• Patients became key drivers
ON ADMISSION

EMPHASISE -

• Active participants
• Early mobility
• The importance of MDT and Pain team
• Start discharge plans
TECHNIQUE

• Large bore needle
• Ropivacaine 200ml (0.2%)
• Adrenaline removed
TECHNIQUE

AFTER PREPARATION OF FEMUR/TIBIA

• 50ml Ropivacaine into popliteal fossa/ posterior capsule
TECHNIQUE

AFTER INSERTION OF COMPONENTS

• 30 ml into suprapatella region
• Down to bone
CALEDONIAN TECHNIQUE

- Small bore catheter inserted remote from surgical wound
- Passed to postero-medial corner
- Allows large volume ‘fill’ from posterior to anterior
- More consistent anaesthesia
TECHNIQUE

DURING CLOSURE

• 130ml into muscle and cutaneous layers
TOP-UPS

• 40ML 0.2% ropivacaine four hours post surgery
• Again at 2300
• PRN basis during the night
• Last dose given the following morning before removal of catheter
POST-OP DAY 1 AND ONWARDS

- Maintain independence
- Reduced vital sign observations
- Review by pain team
- Commence OT
- Routine bloods/x-ray
- Activate discharge plans
6 HOURS POST-OP
REDUCING LOS

ONLY RELEVANT IF:

• OUTCOME IS UNALTERED
• SATISFACTION THE SAME OR BETTER
• NO CHANGE IN COMPLICATIONS OR READMISSIONS
• DISCHARGE CRITERIA MET SOONER
2008/9 TOTAL KNEE REPLACEMENT AUDIT

• INCLUSION
  – 1081 Primary TKR
  – Performed under spinal/wound catheter

• EXCLUSION
  – UKA/Revision/bilateral
  – Performed by external surgeons
Demographics

- Age: 69
- Female: Male - 439:642
- Av BMI: 32.5

<table>
<thead>
<tr>
<th>ASA grade</th>
<th>% of Patients</th>
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<tr>
<td>1</td>
<td>2.8 %</td>
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<tr>
<td>2</td>
<td>77.9 %</td>
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<tr>
<td>3</td>
<td>18.6 %</td>
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<tr>
<td>4</td>
<td>0.7 %</td>
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RESULTS

AVERAGE LOS IN SCOTLAND FOR THR AND TKR 2008 WAS 7.5 DAYS (SAP 2009)

• GJNH MEDIAN LOS = 4 DAYS

• 34% patients up on day of surgery
• 94% Independently mobile within 24 hr
RESULTS

• 6.9% urinary catheterisation rate

• 79% report no nausea and vomiting

• Average knee flexion on d/c = 84°

• All but one patient were d/c to home

• Median day of d/c from physio = 4

• 29% Patients required Outpatient physiotherapy
Complications

• 5 Patients had a confirmed DVT = 0.5%
• 6 Patients had a P.E = 0.6%
• 6 Patients required a transfusion = 0.6%
• 14 Superficial Infections = 1.5%
• 7 Deep Infections = 0.65%
• 2 MUA = 0.2%
• 2 Revision Surgery = 0.2%
## Transfusion Rates

<table>
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<th>2006/07</th>
<th>2007/08</th>
<th>2008/09</th>
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<tbody>
<tr>
<td>Number TKAs</td>
<td>647</td>
<td>841</td>
<td>1081</td>
</tr>
<tr>
<td>Patients transfused</td>
<td>27</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>%</td>
<td>4.2</td>
<td>1.2</td>
<td>0.6</td>
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<tr>
<td>Chi -square</td>
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<td>p &lt; 0.001</td>
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FOLLOW UP DATA AT 6 WEEKS

• Pre op Oxford = 42
• Post op Oxford = 27
• Median RoM = 93°

• Only 6% of patients had reduction of >10° at follow up
Conclusion

- 93% patients mobilised within 24 hours of surgery
- Post operative day of discharge reduced to day 4
- Satisfactory pain scores with minimal PONV
- Marked reduction in post operative catheterisation
- Minimal complications
- Patient satisfaction and function improving at 6 weeks.
ISSUES TO OVERCOME

• Physiotherapy cover till 6pm
• Routine weekend cover
• Education
• CHANGING DOCTOR’S ROLE TO ALLOW DISCHARGE TO OCCUR WITHIN PROTOCOLS
WHERE WE NEED TO GO?

• DEVELOP SAME DAY ADMISSION
• STREAMLINE PRE-ASSESSMENT CLINICS
• FURTHER DEVELOP MDT
• OVERCOME FOLLOW UP PROBLEMS
Generic elements of enhanced recovery

**Referral from Primary Care**
- Meeting with Primary Care GP Leads to initiate implementation of this approach

**Pre-Operative**
- Optimised health / medical condition
- Informed decision making
- Pre-operative health & risk assessment
- Pt information and expectation managed
- DX planning (EDD) Delayed discharge team now part of the ERPP at RIE

**Intra-Operative**
- Spinal Anaesthetic
- Use of regional/ LA with sedation
- Move towards Local wound infiltration with minimal sedation
- Optimised fluid management individualised goal directed fluid therapy
- Anaesthetic Consultant leading this change

**Post-Operative**
- DX on planned day
- Increase therapy support (knee class)
- 24hr tele follow up

**Follow Up**
- Planned mobilisation on day of surgery
- Cryo-cuff for knees
- Rapid hydration & nourishment
- Stop IV fluids in recovery
- No wound drains
- No Catheters
- Regular oral analgesia
- Avoidance of systemic opiate-based analgesia or administered topically

**Follow Up**
- Meeting with Primary Care GP Leads to initiate implementation of this approach

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