Enhanced Recovery after Surgery Partnership Programme

Leads: Dr Rachael Barlow and Dr Alan Willson

Programme Manager: Melissa Baker
NHS can feel like an uphill battle sometimes……….!
It’s a No Brainer........
Importance of Enhanced Recovery after Surgery Programme
To Patients.....

• Improved Recovery Times- Get back on with Life!
• Less time in hospital
• Improved Patient Satisfaction with NHS Wales
To Local Health Boards......

Enhanced Recovery after Surgery Programme

- Quality
  - Fewer complications and episodes of harm
  - Value for Money

- Capacity/Efficiency
  - Value for Money
  - Services reconfiguration

- Patient outcomes
  - Experience
  - Satisfaction
  - Fewer Complaints
  - Return to ‘normal’ quicker

- Reputation
  - Fewer
  - Return to ‘normal’ quicker
To Welsh Assembly Government....

- Design for Life
- Annual operating framework
- Waiting lists targets
- Service and Financial Framework
- Cancer Standards
- NICE guidelines
- Clinical Governance
- Quality Improvement
What ERAS is not......

ERAS programmes should not only be seen as a way of reducing LOHS

The aim of ERAS must be about improving quality of patient care and reducing complications and improving recovery

By default, these should manifest into shorter hospital stays.

(Kehlet, 2009)
Traditionally Post-Operative……

- Malnourished
- Dehydrated/’Drowned’
- Stressed
- Starved

"Tell me nurse — just how long has Mr Jenkins been on ‘Nil by Mouth’?"
Basic Principles of ERAS:

• Best possible condition for surgery
• Best possible management during and after his/her operation
• Experiences the best possible rehabilitation, returning them to their normal activities quicker.
After Enhanced Recovery After Surgery......

- "Traditional" care
- Enhanced recovery

Function vs Operation
Multi-modal Strategies to Improve Surgical Outcome

Anxiety/Fear
- Organ dysfunction

Hypothermia

Nausea, vomiting, ileus, semi-starvation

Hypoxemia

Bowel Preparation

Sleep disturbance

Drains, NG tubes, Catheters

Na / Fluid Balance?

Healthy Living advice
- Patient info
- Optimise nutrition

Normothermia

Opiate sparing analgesia

Laparoscopic surgery
- Nausea and ileus prevention
- Early enteral nutrition

Undisturbed sleep

Adapted Kehlet, 2000
Enhanced Recovery after Surgery (Colorectal)

Pioneered by Henri Kehlet and colleagues in Denmark in 2001

Demonstrated that by limiting pain, promoting gut function and early mobilisation, length of hospital stay was reduced
Evidence for ERAS

Systematic review of 6 trials (3 RCTs and 3 CTs)
(Wind et al, 2006 BJS)

N=512

Hospital stay was reduced with ERAS
Morbidity lower (rr 0.54 (CI 0.42-1.69)
No difference in readmission
No increase in mortality rate
Consensus Review of Optimal Peri-operative Care in Colorectal Surgery

(Lassen et al, 2009 Archives of Surgery)

1. Consensus is based on best evidence available
2. Protocols alone are not enough to make change

“The immediate challenge to improving the quality of surgical patients care is not discovering new knowledge, but rather how to integrate what we already know into practice”

(Urbach and Baxter, 2006)
Enhanced Recovery Stages
All Wales ERAS Collaborative

Improving surgical outcome

- Pre-habilitation
  - Primary Care
  - Pre-operative Clinic

- Peri-operative/Intra-operative
  - DOSA and Ward
  - Theatre/Recovery

- Post-operative
  - Ward and Discharge
Models of Care

Referral from Primary Care

Pre-operative

No preparation at present

2-5 days before
No physio, dietitian, anaesthetist

Admission

Haemoglobin levels
Managing pre-existing comorbidities

• 2-3 weeks before
• Optimised health condition
• Informed decision making
• Risk assessment
• Pt counselling
• Discharge planning (EDD)
• Nutrition
• Physio
• Consultant Anaesthetist

Day of surgery admission
Optimisation period
Carbohydrate Loading

Intra-operative

• ‘Key hole’ surgery
• No tubes
• Optimal Pain control
• No drips
• Patient warming

Post-operative

Mobilisation
Rapid hydration & nutrition
No catheters
Regular oral analgesia
Optimal Pain control

Follow Up

• Discharge as planned
• Nutrition
• Physio
• 24hr telephone F/U

Starved for 7-10 days
Morphine based pain control
Lie in bed

No therapy follow up
Readmission rate

No preparation at present

Often days before Anaesthetist day before Cancelled surgery Starved from midnight

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Day of surgery admission
Optimisation period
Carbohydrate Loading
‘Pre-habilitation’
Marathon des Sables
Continues for weeks after surgery
To run a Marathon.....

You would prepare for this.....

.........so why not prepare for surgery?
Models of Care - Primary Care

**Screen for Malnutrition**
If malnourished or at risk of malnutrition refer for nutritional advice/nutritional support

**Diabetes**
Meta-analysis of cancer patients undergoing major surgery - 50% more likely to die than non DM

*Barone et al, 2010 Diabetes Care

**Referral from Primary Care**

**Healthy Living advice**
- Smoking cessation
- Alcohol withdrawal
- Strength exercises/Fitness ‘script’

**Obesity and DM are risk factors for wound infections**

**Anaemia** correlates with post-op infection, no. of blood transfusions (p<0.001) and LOS (Myers et al, 2004)
- Low pre-op Hb increases the risk of death or serious morbidity esp. in patients with cardiac problems*
- Iron supplementation to anaemic pts corrected Hb by 1.2 g/l in 4 weeks Andrews et al 2003

*Carson et al, 1996, Lancet

*Determine co-morbidities/risk factors (diabetes, hypertension, cardiac and vascular disease)

**Milano et al, 1995, Am Heart Association**
Primary Care

• Detection of anaemia and prompt treatment if required
• Detection of new co-morbidities or maximising the treatment of pre-existing co-morbidities to improve physical and functional status.
• Nutritional screening using MUST or local validated risk assessment tool (e.g. WAASP)
• Healthy Living advice if required
• Timely and effective communication between Primary Care and Secondary Care interfaces.
Pre-operative Preparation

Look how far we have come.....
Junior Doctor clerking!

Elective admission for Left TKR on 24/1/06 under 

Anxiety, Angina, SOB, OE

HTN

Mild renal impairment

Pt well recently, but c/o continued pain in knee

Plan 1) Mark
   2) Consent
   3) Drug chart
   4) Os fluids done
What are we trying to achieve in Pre-operative Assessment

• Nursing assessment and empowerment
• Anaesthetic assessment
• Physiotherapy assessment
• Nutritional assessment
• Patient information giving/Shared Decision Making
• Date of Discharge and discharge planning (OT/social services)
• Start Integrated Care Pathway (ICP)
Peri-operative
What are we trying to accomplish 48 hours before surgery and immediately post-operative?

• Oral sip feeds for 3-5 days pre-operatively
• Carbohydrate Loading 12 hours and 2-4 hours pre-operatively
• Avoidance of bowel preparation where possible
• Day of surgery admission (DOSA)
• Optimal goal directed fluid management
• Daily weights recorded
• Promotion of minimally invasive surgical techniques
• Anaesthesia with quick onset and rapid recovery
• Opiate sparing analgesia techniques
• Routine nausea and vomiting prophylaxis
Randomized clinical trial assessing the effect of Doppler-optimized fluid management on outcome after elective colorectal resection

S. E. Noblett¹, C. P. Snowden², B. K. Shenton⁴ and A. F. Horgan³

Departments of ¹Surgery, ²Anaesthesia and ³Colorectal Surgery, Freeman Hospital and ⁴Department of Surgical and Reproductive Sciences, University of Newcastle upon Tyne, Newcastle upon Tyne, UK

• 108 pts undergoing colorectal resection.
• Fluid administered by algorithm in intervention

<table>
<thead>
<tr>
<th></th>
<th>Standard</th>
<th>Intervention</th>
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<tbody>
<tr>
<td>Hospital LoS - median</td>
<td>9 days</td>
<td>7 days</td>
</tr>
<tr>
<td>Inter/major postop complications</td>
<td>15%</td>
<td>2%</td>
</tr>
<tr>
<td>Unplanned admission to critical care</td>
<td>12%</td>
<td>0</td>
</tr>
<tr>
<td>Tolerated diet</td>
<td>Day 4</td>
<td>Day 2</td>
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</tbody>
</table>
Post-operative
All about returning to normal function

Gut function
Mobility
Psychological
Maximising Gut Function

- Preventing nil by mouth
- Early Enteral nutrition
- Optimal fluid balance
- Decrease opioid usage-mid-thoracic epidural?
- Prokinetics
- Optimal biochemistry
- Mobilisation
- ? Oral Magnesium  
  (Hansen et al, 2007)
Adequate post-op nutrition is dependent on.....

- Fluid balance
- Nutrition Status
- Anaesthesia and analgesia
- Biochem
- Stress and complications
Post-operative Fluid Management

In 1999, the UK National Confidential Enquiry into peri-operative deaths (Callum et al 1999) concluded that fluid imbalance post-operatively increased the risk of morbidity and mortality.
Variability in post-operative fluid and electrolyte prescription

Retrospective audit found that post-operative patients had variable fluid balances with some patients receiving as much as 5 litres of fluid and 740 mmol of sodium per day

(Stoneham et al, 1999)
British Consensus Guidelines on Intravenous Fluid Therapy for Adult Surgical Patients.

- To establish consensus for good perioperative fluid prescribing.
- 28 recommendations.
- Represents best evidence available.

Mobilisation

• See video 1000 Lives from 1min49.
All Wales ERAS Collaborative: What are we trying to accomplish post-operatively?

- Appropriate analgesia
- Early oral or enteral nutrition within 12 hours of leaving the operating theatre
- Optimal fluid balance
- Optimise Gut function
- Early mobilisation within 6 hours of leaving operating theatre if practical*
- Post Operative Morbidity scores (POMs) completed daily on each post-operative day
Summary of Key issues

1. Pre-operative assessment and optimisation
2. Counselling of patient
3. Maximising Functional Status
   1. Nutritional Support
   2. Physiotherapy
   3. CPX testing
   4. Carbohydrate Loading
4. Intra-operative goal directed fluid management
5. Anaesthesia and Analgesia
6. Promoting ‘normality’
   1. Early feeding and walking
   2. No drains and drips as routine after initial post-op period
WHAT MAKES CHANGE HAPPEN?

Will

Idea

got this

got this

Execution

X difficulty
"the immediate challenge to improving the quality of surgical care is not discovering new knowledge, but rather how to integrate what we already know into practice."

Urbach and Baxter (2005)
Welsh Support for ERAS

Welsh Pain Board
Community Health Councils
Welsh Anaesthetists Group
National Leadership Innovation Agency
Welsh Dietetics Board
Royal College of Surgeons
Cardiff University
Royal College of Nursing
Welsh Association of Gastroenterology and Endoscopy
All Wales Chief Executives
WAG - Medical Director and Director of Operations
Cancer Services Co-ordinating Group
Critical Care Network
EXECUTION

• **Local Engagement in LHBs**
  – Executive Lead
  – Programme Lead
  – Infrastructure

• ‘**How to Guide’**

• **Outcome measures**
  – Clinical Outcomes
  – Process measures

• **Collaborative learning**

• **Urgency**- Invest to save scheme
Structure and Support for ERAS in Wales
Leadership for ERAS across Wales

Welsh Assembly Government
Dr Chris Jones
Chair

All Wales Programme
Dr Rachael Barlow
Ms Melissa Baker

1000 Lives + Campaign
Dr Alan Willson
Director NLIAH

Aneurin Bevan
Judith Paget
Mr Williams
Mr Swanker

Betsi Cawalder
Jill Newman
Neil Windsor
Mel Baker

Cardiff and Vale
Fiona Jenkins
Richard Davies
Rachael Barlow

Cwm Taf
Sue Morgan
Alan Woodward

ABM
Bruce Ferguson
Heather Slowey
Barry Appleton
Mark Davies

Hywel Dda
Stuart Moncur
Brian Yates
Steering Committee Members

**Aneurin Bevan**
Gethin Williams -surgeon
Carole Berger - Nursing
Helen Shannon - Therapies

**Cardiff and Vale**
Richard Davies – Anaesthetics
Wyn Lewis/Mike Davies -surgeons
Kavita Gnanaoliva - Finance

**Cwm Taf**
Alan Wooward – surgeon
Collette Kiernan- Therapies
Sue Morgan- Senior Management

**ABM**
Heather Slowey- Anaesthetics
Barry Appleton/Mark Davies/Umesh Khott -surgeons

**Hywel Dda**
Stuart Moncur- Senior Management
Brian Yates -Anaesthetics
Rachael Lewis - Therapies
Marilez Preez - Therapies
Iris Williams - Nursing

**Betsi Cawalder**
Graham Alexander- Senior Management
Neil Agnew/ Emma Hosking- Anaesthetics
Neil Windsor- ERAS Lead
Mel Baker
Ongoing initiatives

• Patient reported outcomes
• Public Health
• NHS Direct
• Macmillan
• Social Services
• Housing
• Research and Publishing results
• “A new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it”

Max Planck (1858 - 1947)
Any questions.....?