Is there a place for fast track surgery/ERAS in Caesarean delivery?

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- 5000 Deliveries in 2016
  - 915 Caesarean sections (18 %), 1/3 elective
What is “Fast Track Surgery”/ERAS?

Fast track surgery:
- Speed up recovery
- Early mobilisation
- Facilitate earlier discharge
- Financial savings

ERAS = Enhanced recovery after surgery:
- Optimise patient care
- Improve patient outcomes
- *Potential financial benefits*
Multidisciplinary interventions needed for major improvement in surgical outcome

Wilmore & Kehlet BMJ 2001
Results learned from ERAS programmes

Laparoscopic, arthroscopic, colorectal.....

• Reduced morbidity
• Reduced length of hospital stay
• Re-admission rate not increased
• Earlier return to normal activities
• Improved patient experience and satisfaction

Kitching, Anaesth Crit Care Pain Med 2009
Niranjan, Update Anaesth 2010
Enhanced recovery in obstetrics - a new frontier?

Lucas IJOA 2013, Editorial

- Young and fit
- Less co-morbidity
- Motivated for early discharge

- Average hospital stay after delivery:
  - Vaginal: 1-2 days
  - Caesarean: 3-4 days
  - ER CS: ?

- NICE recommendation: 1 day after uncomplicated CS

NICE Clinical Guideline 132. 2012
Strategies for Enhanced Recovery after CS

Lucas, IJOA 2013. Editorial

### Before Delivery
- Information
- Education: Analgesia, thromboprophylaxis, breastfeeding

### Day of Delivery
- Minimise starvation and thirst
- Intrathecal opioids
- Prophylactic antibiotics
- Intraoperative warming
- PONV and thrombo-prophylaxis

### After Delivery
- Regular analgesia (multimodal)
- Early oral intake
- Early removal of catheter and iv cannula
- Early mobilisation
# Programmes for Enhanced Recovery after CS

## UK
- Vickers 2013 IJOA Abstract
- Abell 2013 IJOA Abstract
- Damluji 2014 BMJ Abstract
- Halder 2014 BMJ Abstract
- Wrench 2015 IJOA Article
- Coates 2016 IJOA Article

## France
- Deniau 2016 Anaest Crit Care Pain Med
- Cattin 2017 Gynecol Obstet Fertil Senol
Enhanced recovery programmes for elective CS

May 2012
- 10 % discharge on day 1

July 2012
- First meeting: Obstetricians, anaesthetists, midwives, paediatricians, community, breastfeeding coordinator

Sept 2012
- Implementation of ER programme for all elective CS:
  - Early oral intake & mobilisation, removal of urinary catheter 4-6 h

Dec 2012
- 80 % discharge on day 1
- No increase in maternal or neonatal re-admissions
King’s-EROS vs ERAS
Abell IJOA 2013

Primary focus on quality:
• Safety of mother and baby
• Satisfaction
• Ensure safe return to familiar surroundings
• Post-hospital follow-up and safety net:
  – Close links between hospital and community care

Not/ less focus on
• Length of stay/economy
King’s-EROS programmes for elective CS
Abell, EUR J Anaesthesiol 2014

- 3 Months, 60 women
  - Early oral intake
  - Early mobilisation
  - Early removal of urinary catheter < 6 h

<table>
<thead>
<tr>
<th></th>
<th>Pre-EROS n = 60</th>
<th>EROS (n = 45)</th>
<th>Post EROS All patients (60)</th>
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<tr>
<td>Hospital stay (days)</td>
<td>3.2</td>
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<td>7-day re-admission %</td>
<td>8.3</td>
<td>3.3</td>
<td>?</td>
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<tr>
<td>Patient satisfaction %</td>
<td>?</td>
<td>97.8</td>
<td>?</td>
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</tbody>
</table>
Enhanced recovery programmes for elective CS:

*Damluji BMJ 2014*

- 3 months, 52 women
  - Pre-op carbohydrate drink
  - Early oral intake and mobilisation
  - Early catheter removal < 6 h

<table>
<thead>
<tr>
<th>Post ER</th>
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<th>Delay of discharge</th>
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<tbody>
<tr>
<td>Discharge day 1</td>
<td>62 %</td>
<td>Neonatal reasons</td>
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<tr>
<td>Re-admission</td>
<td>3.8 %</td>
<td>Medical</td>
</tr>
<tr>
<td>Patient satisfaction</td>
<td>96%</td>
<td>Social or domestic</td>
</tr>
</tbody>
</table>

Pre ER: Discharge day 5
Enhanced recovery programme for elective CS

Halder et al. BMJ 2014

- 30 + 30 women
  - Early oral intake
  - Early mobilisation & removal of catheter
  - Regular analgesia

<table>
<thead>
<tr>
<th></th>
<th>Pre ER</th>
<th>Post ER</th>
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<td>Oral intake resumption</td>
<td>Median (range)</td>
<td>Median (range)</td>
</tr>
<tr>
<td>(mins)</td>
<td>60 (30-210)</td>
<td>30 (12-60)*</td>
</tr>
<tr>
<td>Hospital discharge (days)</td>
<td>3 (3-4)</td>
<td>2 (1-3)*</td>
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<tr>
<td>Satisfaction data</td>
<td>23/30 (76.7%)</td>
<td>29/30 (96.7%)*</td>
</tr>
<tr>
<td>Estimated saving/patient/day</td>
<td></td>
<td><strong>£ 300</strong></td>
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</tbody>
</table>

p < 0.05
Enhanced recovery programme for elective CS: A tertiary centre experience
Wrench et al. IJOA 2015

- 2 Years follow up
  - Pre-op carbohydrate drink
  - Minimal surgical technique
  - Regular analgesia
  - Early oral intake: < 1 h
  - Mobilisation & removal of urinary catheter: 24 h (next morning)

<table>
<thead>
<tr>
<th></th>
<th>Pre ER</th>
<th>Post ER</th>
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<td>Discharge day 1</td>
<td>4 %</td>
<td>25 %</td>
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<tr>
<td>Re-admission</td>
<td>5.6 %</td>
<td>4.4 %</td>
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</table>

- Longer stay: Earlier gestation, multiple birth, longer surgery
- Early discharge: Previous CS
## Enhanced recovery after elective caesarean:

*Corso et al: A rapid umbrella review of systematic reviews. BMC 2017*

<table>
<thead>
<tr>
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<td>Patient advice and information</td>
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<td>Clear fluids</td>
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<td>Carbohydrate drink</td>
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<tr>
<td></td>
<td>Fluid balance</td>
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<td>✓</td>
<td>✓</td>
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<td>Hemoglobin optimization</td>
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<td></td>
<td>Initiate breastfeeding teaching</td>
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<td>-</td>
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<td></td>
<td>Reduced fasting times</td>
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<td>-</td>
<td>-</td>
<td>✓</td>
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<td><strong>Intra</strong></td>
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<td>-</td>
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<td></td>
<td>Prophylactic antibiotics</td>
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<td>Minimally invasive surgical technique</td>
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<td><strong>Post</strong></td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Early mobilization</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Early removal of catheter</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Regular analgesia</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>-</td>
<td></td>
<td>3</td>
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<tr>
<td></td>
<td>Prevention of post operative nausea and vomiting</td>
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<td>✓</td>
<td>-</td>
<td>-</td>
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<td>1</td>
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<td>Debriefing of patient</td>
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<td>✓</td>
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<tr>
<td></td>
<td>Early skin to skin contact (support to establish breastfeeding)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>-</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Community support (midwife visits, physiotherapists etc)</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Opportunity to go home on day one</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td></td>
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</tbody>
</table>
Enhanced recovery after elective caesarean:
Corso et al: A rapid umbrella review of systematic reviews. BMC 2017

Conclusion of reviews:

• Three components reduced hospital stay by 0.5 -1.5 day:
  • Minimal invasive Joel-Cohen surgical technique
  • Early catheter removal
  • Antibiotic prophylaxis

• Further research needed to develop and evaluate pathways
Consensus of enhanced recovery components for CS

Coates et al IJOA 2016

Aim:
• Consensus on enhanced recovery components for CS
  • Inbuilt quality improvement for CS

Method:
• Survey: Current practice in 30 academic maternity units
• Consensus workshop:
  • 3 patient representatives
  • 7 clinicians: obstetrics, anaesthesia, midwifery, neonatology

Results
• Consensus on 15 clinical and 5 organisational components
Enhanced recovery pathway for elective CS
Consensus workshop
Coates et al IJOA 2016

Table 1 Clinical and organisational components included in the enhanced recovery pathway

<table>
<thead>
<tr>
<th>Operative phase</th>
<th>Clinical components</th>
<th>Organisational components</th>
</tr>
</thead>
</table>
| Preoperative    | 1. Patient education  
2. Fluid restriction timing  
3. Food restriction timing                     | 1. Consultant delivered care                     |
| Intraoperative  | 4. Immediate skin to skin contact  
5. Avoidance of maternal hypothermia  
6. Breast feeding in theatre  
7. Subcuticular wound closure                  | 2. WHO checklist                                 |
| Postoperative   | 8. Regular analgesia  
9. Bladder care plan  
10. IVI discontinuation in recovery  
11. Early mobilisation                           | 3. Early discharge package  
4. Post-discharge support  
5. Access to food overnight                     |
|                 | 12. Postoperative surgical team review  
13. Fluids and food given in recovery           |                                                 |
|                 | 14. Infant temperature monitoring  
15. Breastfeeding education                     |                                                 |

IVI: intravenous infusion; WHO: World Health Organisation
Scandinavian practice: A rapid Survey 2017

<table>
<thead>
<tr>
<th>ER Component</th>
<th>DK (3)</th>
<th>N (3)</th>
<th>Fin (1)</th>
<th>S (3)</th>
<th>Ice (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular pain relief</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>IT fenta/sufenta</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>IT morfin</td>
<td></td>
<td></td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Oral opioids</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Early oral intake</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Removal of catheter</td>
<td>6-12 h</td>
<td>12-24</td>
<td>6-12</td>
<td>6-24 h</td>
<td>12-24</td>
</tr>
<tr>
<td>Hospital stay (days)</td>
<td>1-3</td>
<td>3-4</td>
<td>3</td>
<td>2-3</td>
<td>3</td>
</tr>
</tbody>
</table>
Strategies for ER after CS in AUH 10 years experience

Before Delivery
- Information
- Education: Analgesia, thromboprophylaxis
- Teaching: Breastfeeding
- Carbohydrate drink 2 h before CS

Delivery
- IT sufentanil 2.5 µg (no morphine)
- Prophylactic antibiotics
- PONV prophylaxis
- NSAID
## Strategies for ER after CS in AUH

**After Delivery Recovery Unit**
- Paracetamol & oxycodon < 1 h
- A light meal and drinks < 1 h
- VAS score teaching < 1 h
- Breastfeeding support

**Maternity Unit**
- Early removal of iv cannula 4-6 h
- Early removal of catheter 4-6 h
- Early mobilisation 4-6 h
- Oral PCA: NSAID, paracetamol, morphine
- Magnesia
- Breastfeeding support
Strategies for ER after CS in AUH

After Discharge

- Outpatient clinic:
  Open telephone line
  Open access to the clinic 7:00-23:00

- Home visit of health visitor (nurse)
Strategies for ER after CS in AUH

10 years experience

- Post-operative use of opioids significantly reduced
- Patient satisfaction increased
- Enhanced recovery principles adapted to all CS patients
- Re-admission not increased
- Neonatal problems are not hindering maternal ER
Key points

• Enhanced recovery programmes are easy to implement in obstetric patients

• ER programmes improve maternal satisfaction

• ER may reduce hospital stay, cost and morbidity
THANK YOU!