

# Multimodal strategies to improve surgical outcome

An evidence-based approach to the  
optimization of perioperative care

Dr. David E. Konkin

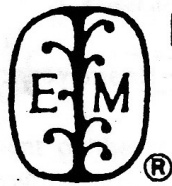
Dr. Laurence J. Turner



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# Multimodal strategies to improve surgical outcome



Excerpta Medica

*Attn*

The American  
Journal of Sur

The American Journal of Surgery 183 (2002) 630-641  
Review

## Multimodal strategies to improve surgical outcome

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# Multimodal strategies to improve surgical outcome



Lancet 362:1921-28, 2003

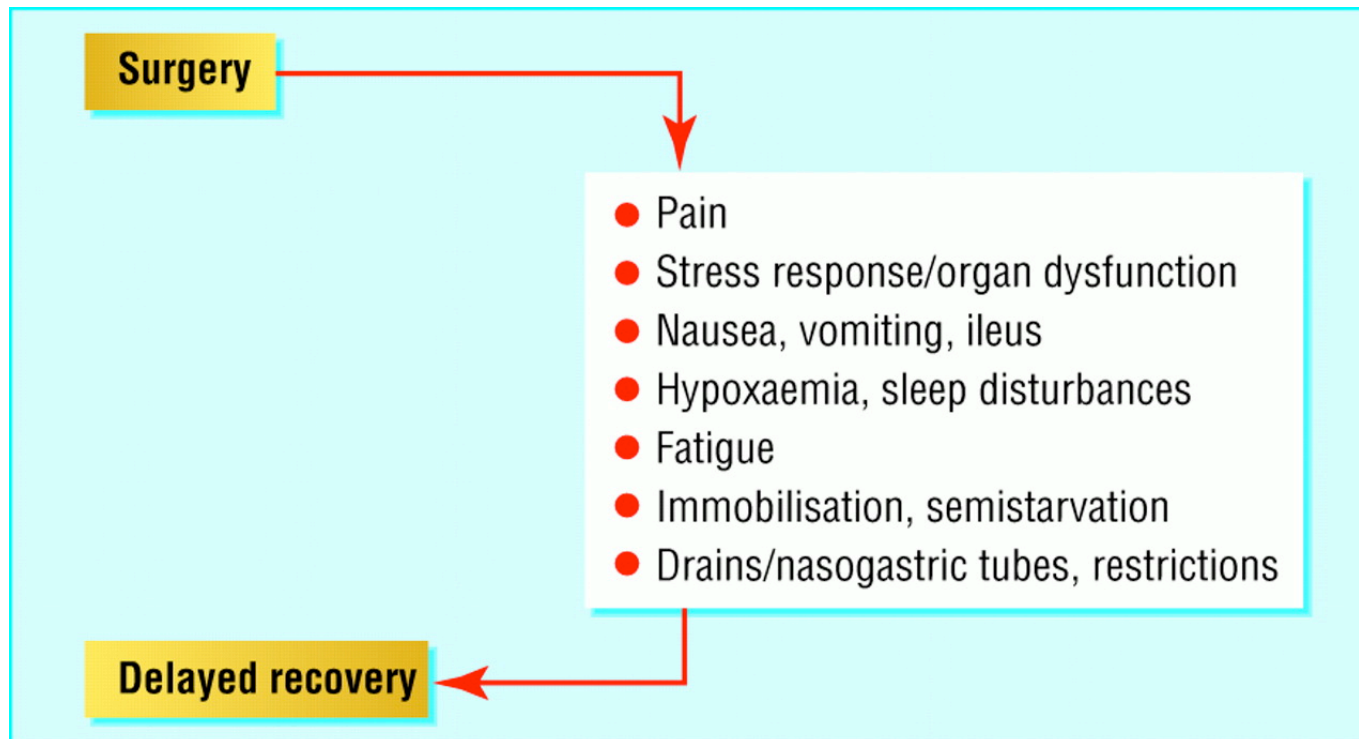
**Anaesthesia IV**

**Anaesthesia, surgery, and challenges in postoperative recovery**

*Henrik Kehlet, Jørgen B Dahl*

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# Factors contributing to perioperative morbidity



BMJ 2001;322:473-476

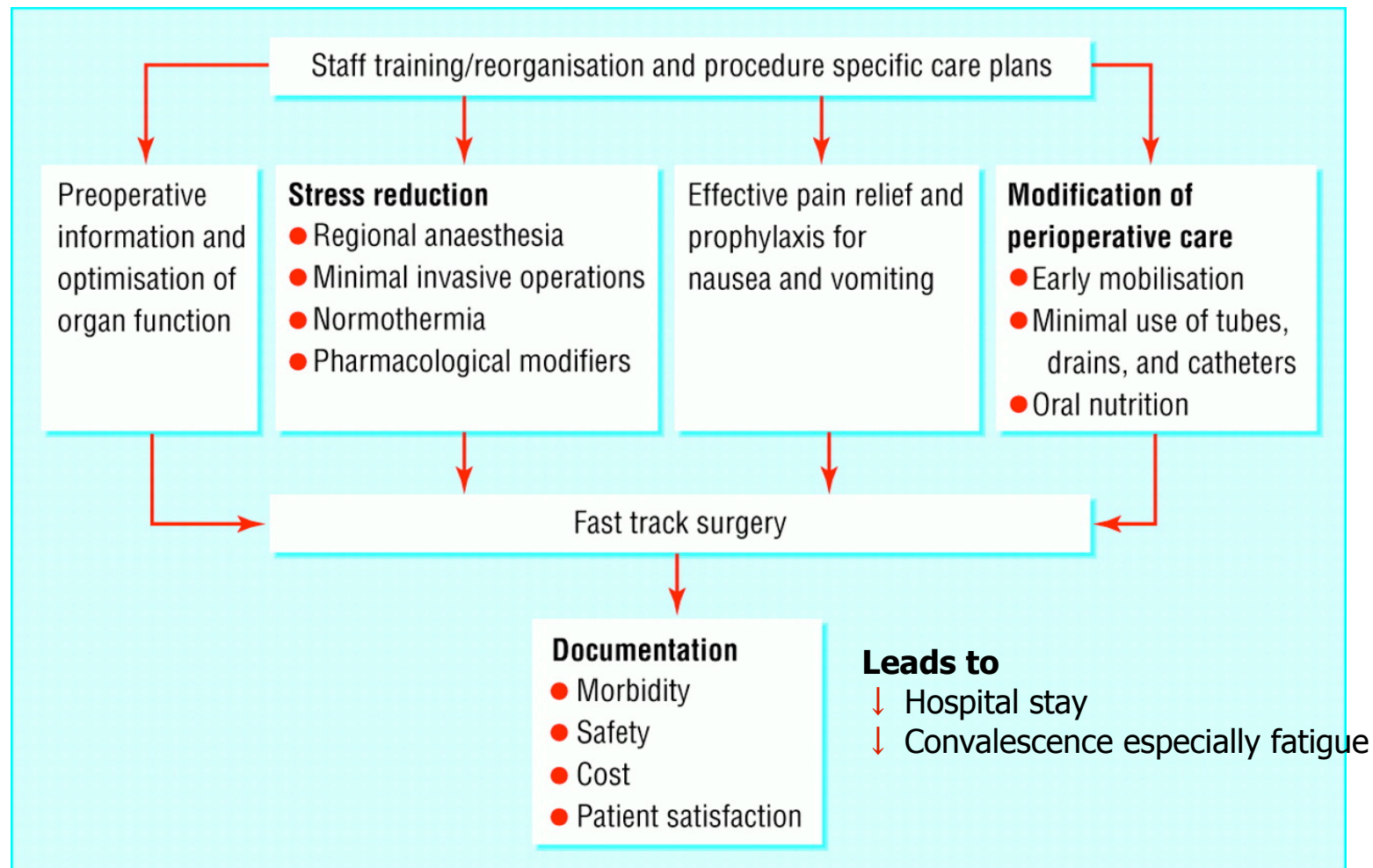
Kehlet, et al. (September, 2007). "Fast Track Surgery" Workshop Hvidovre University Hospital, Copenhagen, Denmark

# Interventions to improve surgical outcome



- Pre-op information / psychological preparation
- Assess and optimize medical condition
- Neuraxial blockade
- Maintain temperature and oxygenation
- Minimally invasive procedures
- Nausea and ileus prevention
- Opioid sparing analgesia
- Early feeding and ambulation
- Disturbance-free rest time
- Evidence-based post-op care (avoid drains, remove catheter)
- Monitor outcomes

# Kehlet's "Fast Track Surgery" Principles



BMJ 2001;322:473-476

\*\*\* Single modal treatment for a multimodal problem is futile\*\*\*

Kehlet, et al. (September, 2007). "Fast Track Surgery" Workshop Hvidovre University Hospital, Copenhagen, Denmark

# Organization for optimal care



- Assemble multi-disciplinary group
- Outline plan for specific procedures (start simple)
- Develop pain management programs
- Adjust care to evidence-based standards
- Develop patient information resources
- Develop nursing care plan (pathway)
- Document outcomes and patient feedback
- Review, revise and improve pathway



# Team members



- Pre-admission clinic staff
- Anaesthesiologist / pain management team
- Surgeon(s)
- Nursing staff (OR and ward)
- Nutritionist
- Physiotherapist
- Pharmacist





# Prof Henrik Kehlet



Workshop on Fast-track colonic surgery. Hvidovre Hospital, Copenhagen, Denmark. September 25-26, 2007

# AIM Statement



- Implement an evidenced-based rapid recovery program based on Reimer-Kent's "Postoperative Wellness Model" and Kehlet's "Fast Track Surgery" principles and designed to optimize surgical outcome and support a rapid surgical recovery, namely by:
  - Minimizing pain and suffering
  - Normalizing GI Function
  - Minimizing preoperative starvation
  - Feeding postoperatively ASAP
  - Minimizing inactivity
  - Discontinuing attached lines, tubes &/or drains ASAP
  - Promoting self-care
  - Optimizing respiratory function

To achieve these outcomes, practice needed to change

# Methods



- Retrospectively review
- Fast-track (2007/2008) = 77
- Historical controls (2005) = 111

# Demographics



	<u>Control</u>	<u>Fast-track</u>
N	111	77
Age	61.9	62.7
Male Gender	62.2%	46.0%
ASA Class	1.9	2.4
Comorbidities		
DM	20.7%	12.1%
COPD	18.0%	8.1%
Cardiac	26.1%	33.8%
Renal	7.2%	6.8%

# Procedure

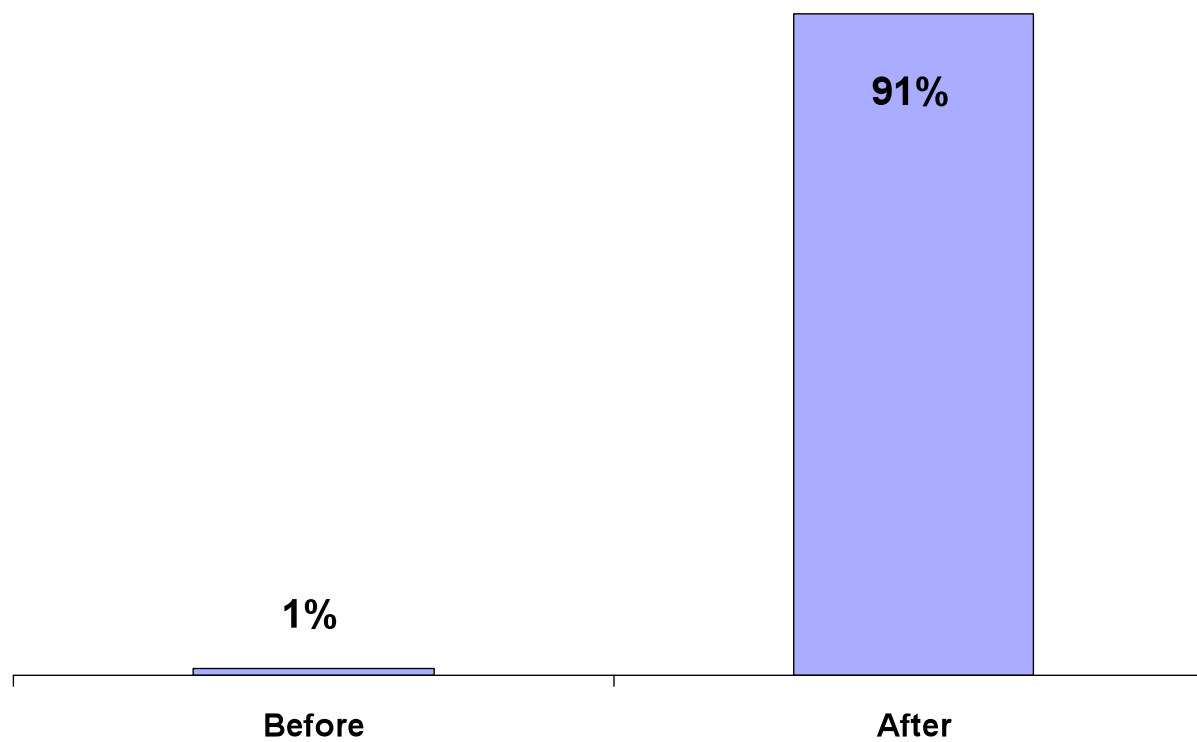


	<u>Control</u>	<u>Fast-track</u>
R hemicolectomy	15.3%	35.1%
Ant resection	53.2%	33.8%
APR	15.3%	10.8%
Takedown ileostomy	0	1.3%
Hartmann's reversal	0	2.7%
Colostomy	26.1%	18.9%
Video-assisted	10.8%	24.3%

# Clear Fluids



**Goal: Avoid Clear Fluid Diet**

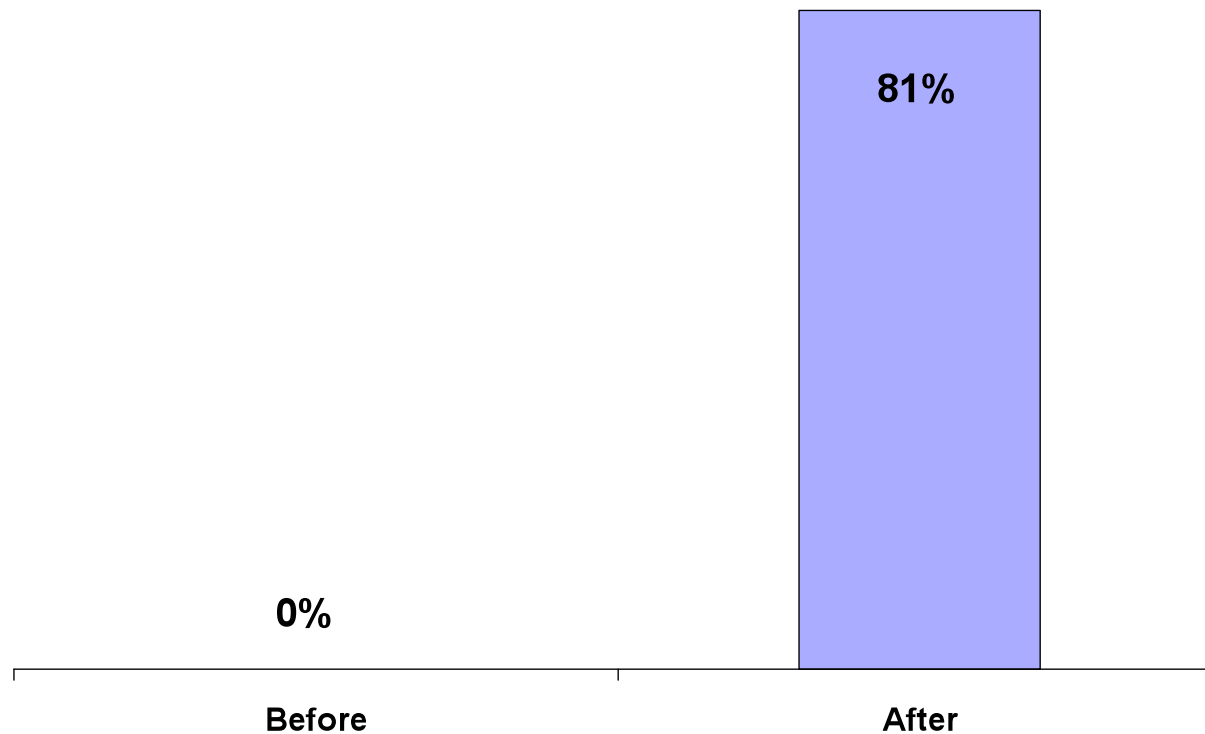




# Full Fluids



**Goal: Start Full Fluid Diet by POD#1 Breakfast**

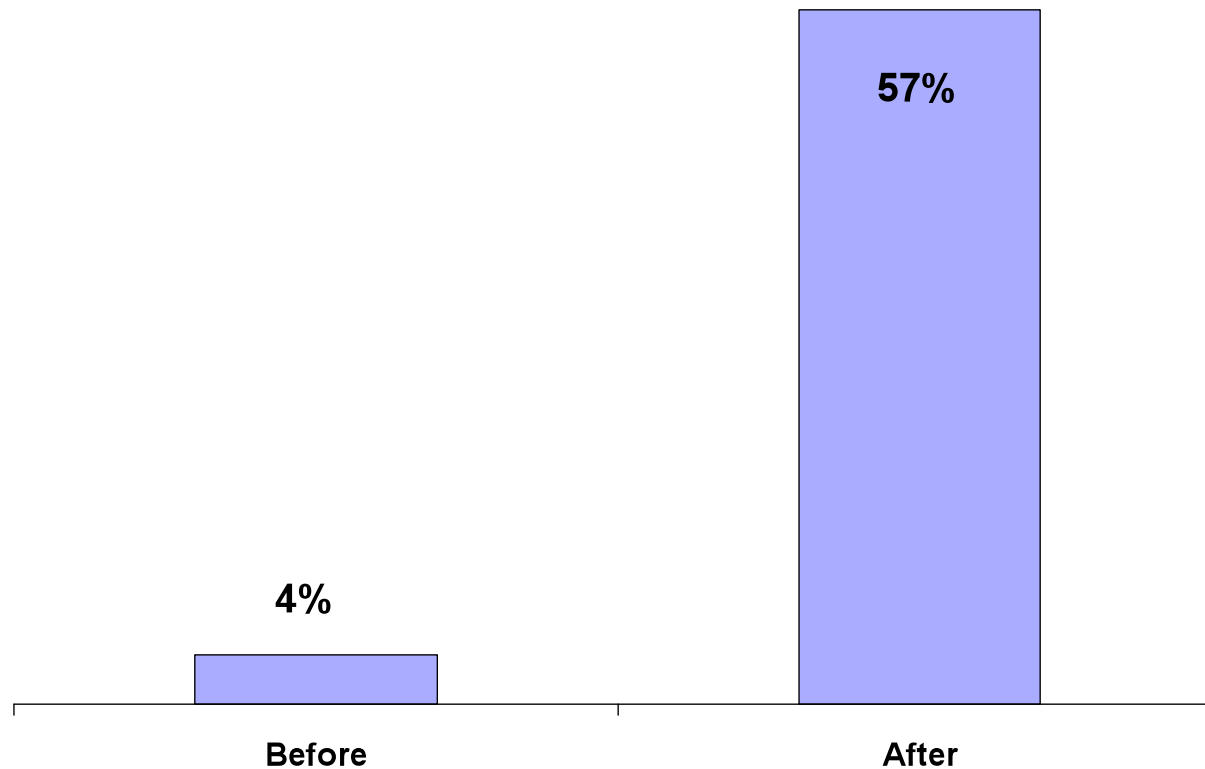


<b>Average:</b>	<b>4.2 +/- 3.7</b>	<b>1.9 +/- 5.8</b>	<b>p &lt; 0.01</b>
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# Regular Diet



**Goal: Start Regular Diet by POD#2**

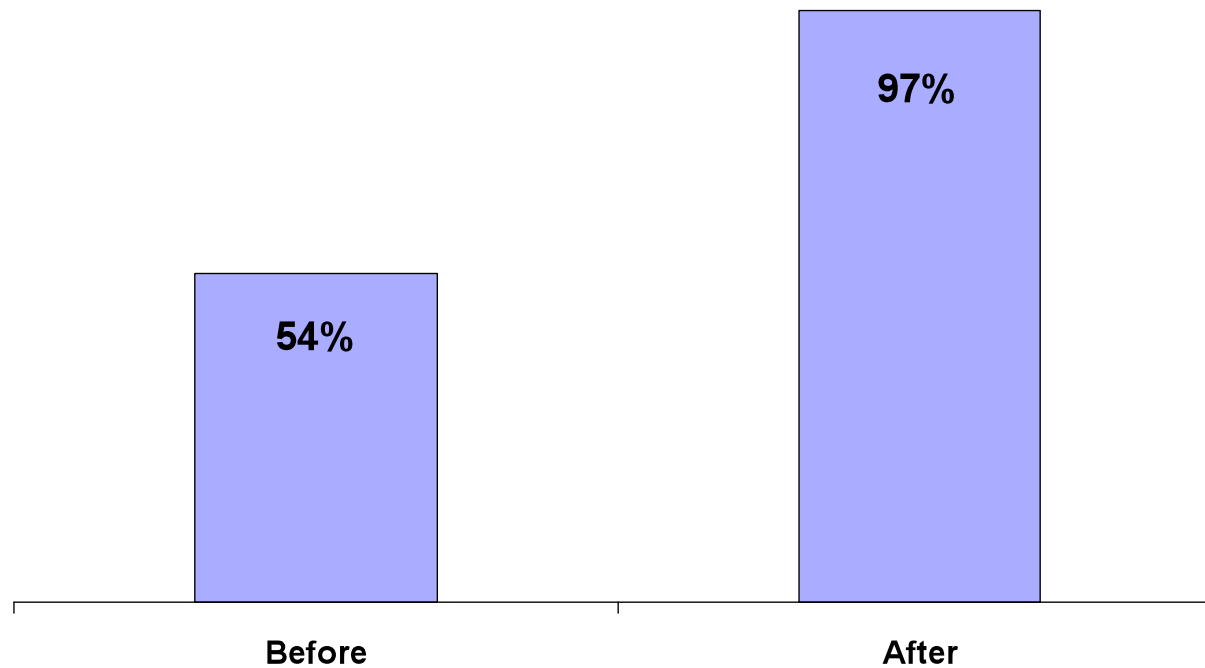


<b>Average:</b>	<b>5.5 +/- 3.7</b>	<b>3.9 +/- 6.0</b>	<b>p &lt; 0.01</b>
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**BM**



**Goal: 1<sup>st</sup> Bowel Movement by POD#3**

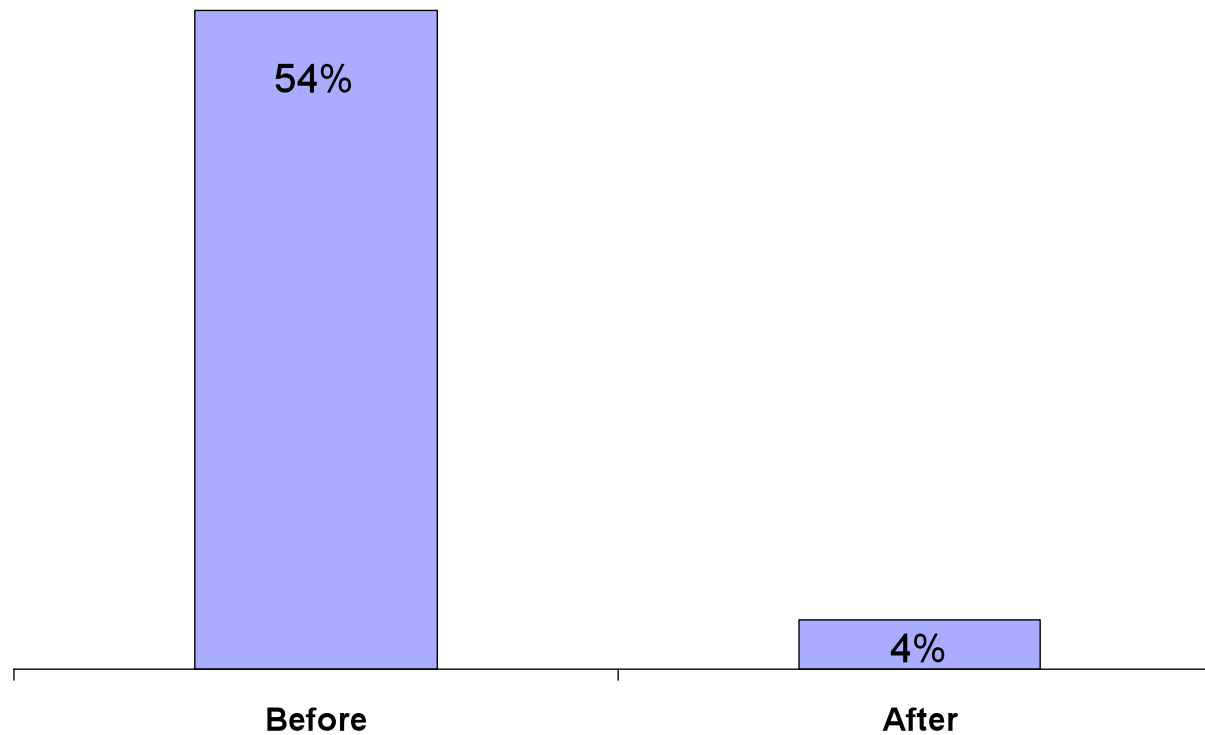


<b>Average:</b>	<b>3.3 +/- 2.2</b>	<b>2.2 +/- 1.4</b>	<b>p &lt; 0.01</b>
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# T3 use



**Goal: No Acetaminophen with codeine**

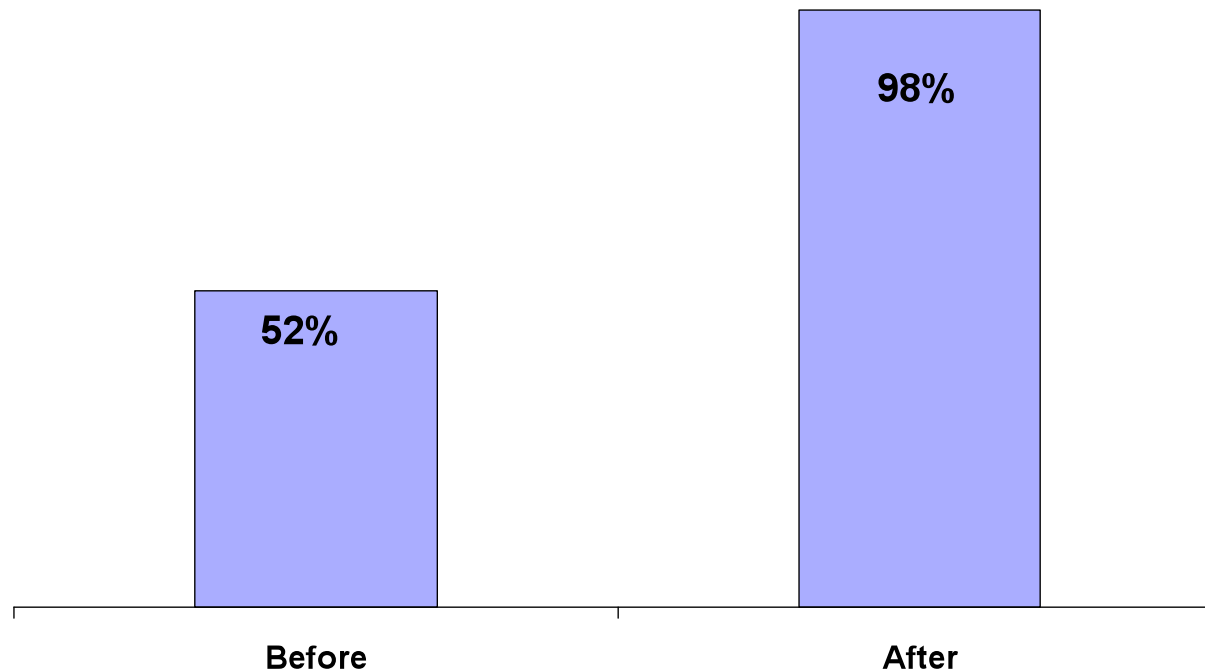


# Regular Acetaminophen



## Goal: Acetaminophen Around-the-Clock

POD# 1 – 7 – If no liver disease

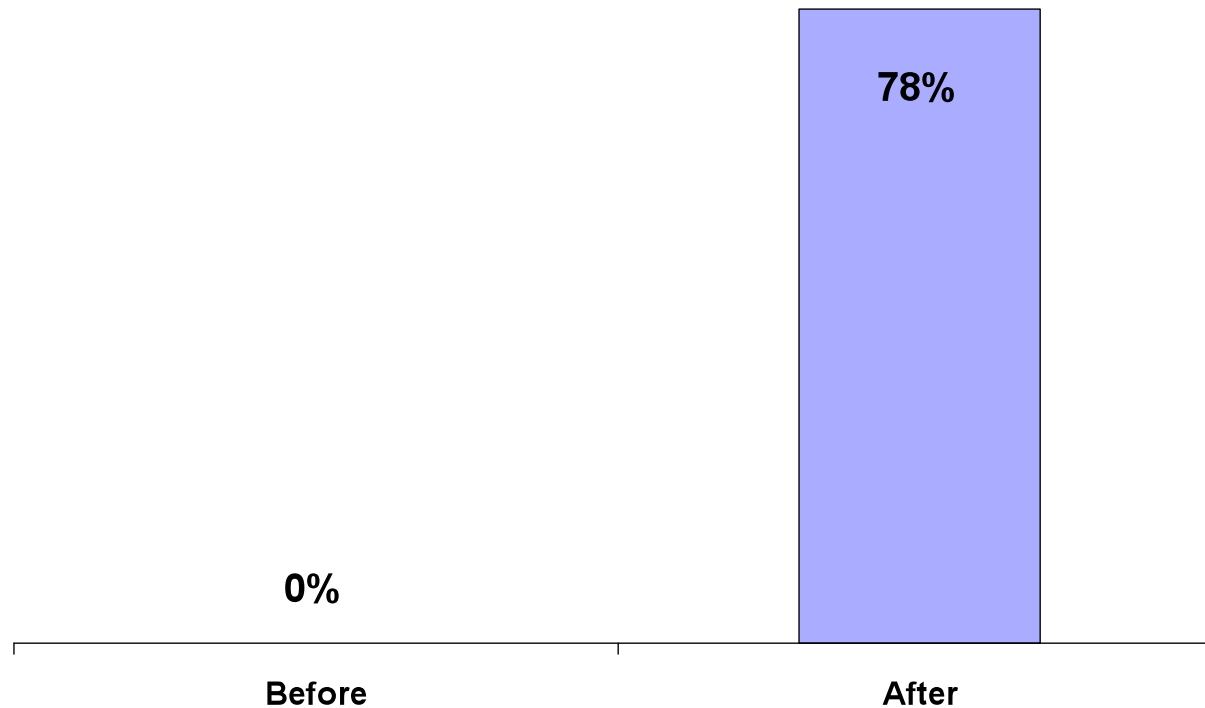


# Regular NSAIDs



## Goal: NSAIDs Around-the-Clock

POD# 1 – 5 – If no PUD, eGFR > 60

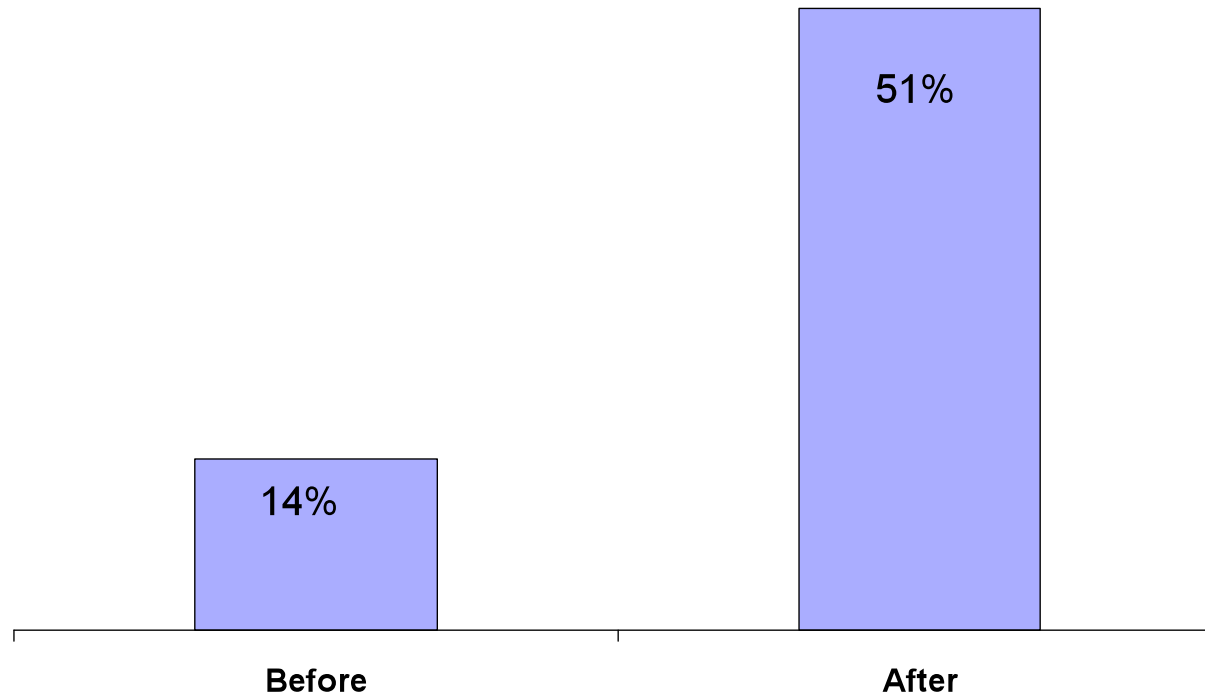




# Epidural



**Goal: Remove Epidural by POD# 2**  
If pain controlled with oral analgesics

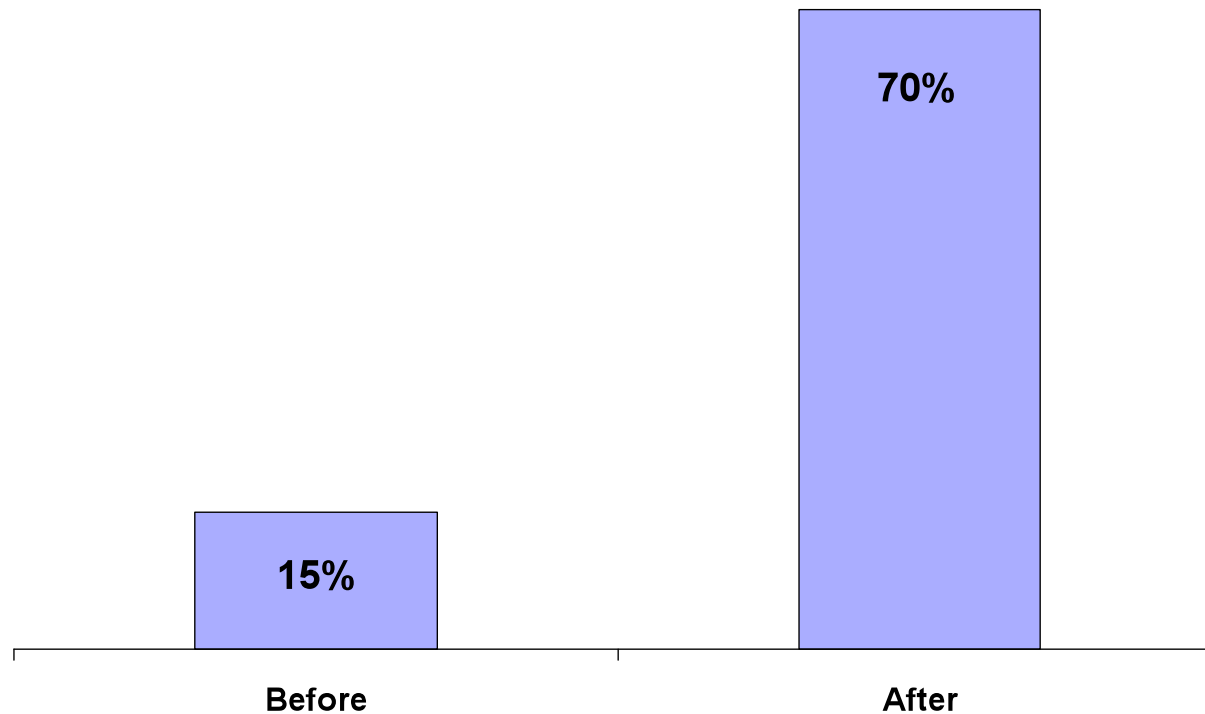


<b>Average:</b>	<b>4.4 +/- 4.0</b>	<b>2.2 +/- 1.0</b>	<b>p &lt; 0.01</b>
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# Urinary Catheter



**Goal: Remove Urinary Catheter by POD#2**

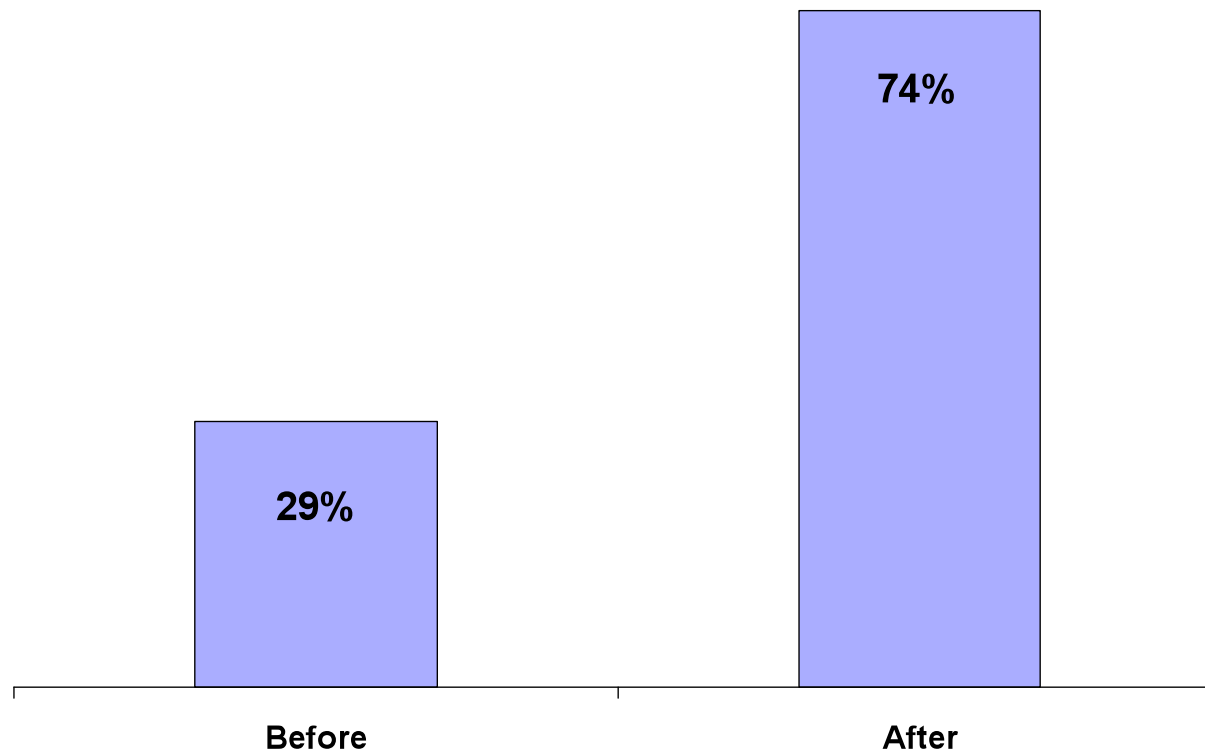


<b>Average:</b>	<b>5.1 +/- 4.3</b>	<b>2.5 +/- 2.3</b>	<b>p &lt; 0.01</b>
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# Ambulation



**Goal: Walk Unassisted by POD#2**

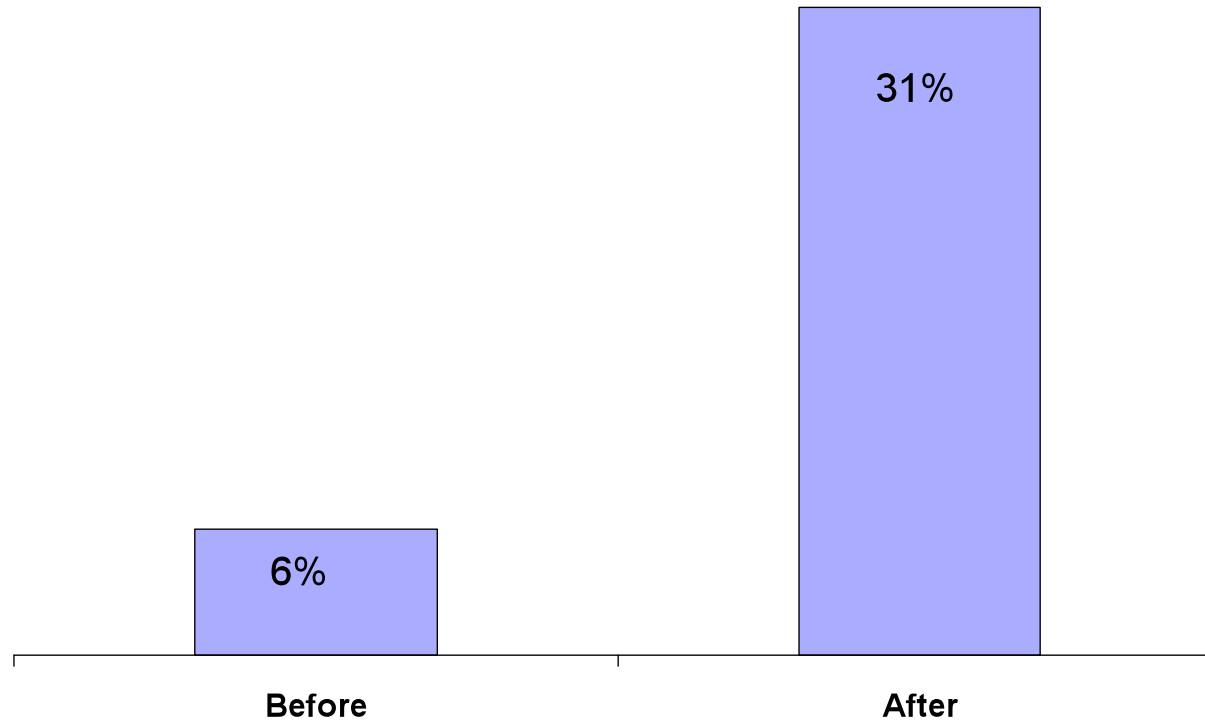


<b>Average:</b>	<b>4.4 +/- 4.4</b>	<b>2.2 +/- 2.3</b>	<b>p &lt; 0.01</b>
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# Discharge



**Goal: Discharge by POD# 4**  
If all discharge criteria met

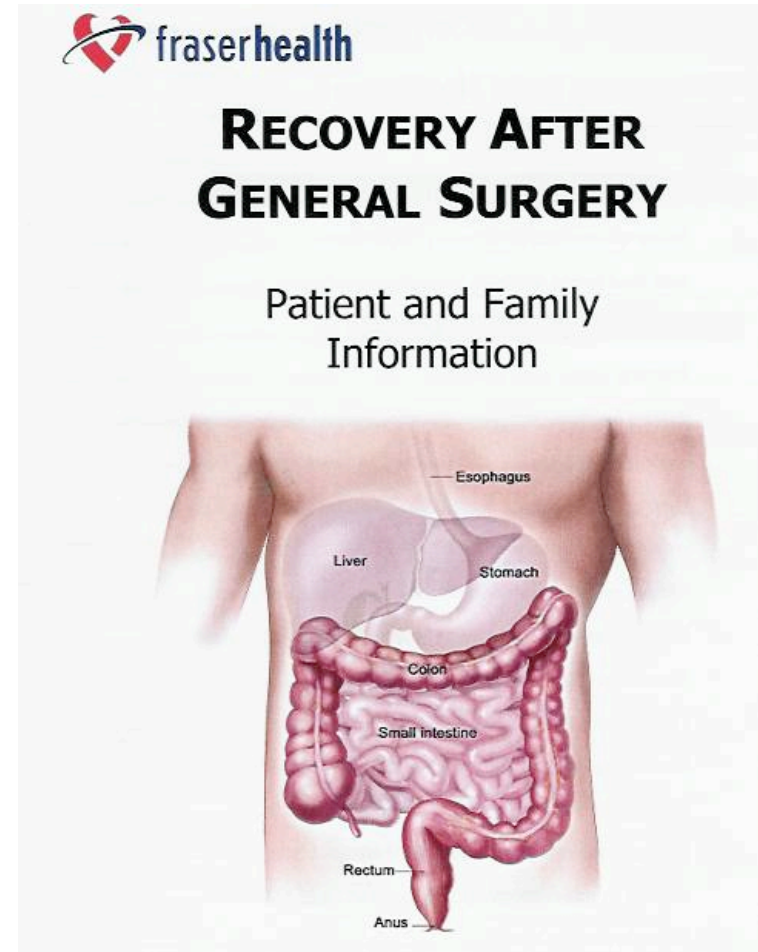


<b>Average:</b>	<b>12.8 +/- 13.4</b>	<b>7.8 +/- 7.5</b>	<b>p &lt; 0.01</b>
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# Conclusion



- Rapid surgical recovery is attainable
- Optimizing perioperative care with multimodal strategies to improve surgical care
- Improve quality of care



# Barriers to implementation



British J Surgery 95; 807, June 2008

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## Leading Article

### **Evidence-based perioperative care is lost in translation**

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#### **ABSTRACT**



No Abstract.

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# Barriers to implementation



- Lack of understanding of purpose
- Lack of knowledge
- Traditions
- Resources
- Lack of administrative support
- “the practical reality of the bedside”

# Future Directions



- Implementation → Maintenance
- Further data collection, including follow-up
- Distribution of knowledge
- Further spread
  - RCH General Surgery
    - new “default” standard of care in regardless of procedure type
  - Fraser Health Authority
  - Province-wide

# Acknowledgements



- J Reimer-Kent
- Dr.'s NP Blair, M Bojm, R Granger, A Kamatakahara, R Van Heest

