Enhanced Recovery Canada
What is Enhanced Recovery after surgery?
Chiara Singh
(chiara.singh@fraserhealth.ca)
Objectives

Attendees will:
1. Be able to define Enhanced Recovery after surgery and the role that physiotherapy plays in Enhanced Recovery
2. Have a greater understanding of the national project: *Enhanced Recovery Canada*
Background

State of Surgical Care

• Discrepancy between best practice cited in literature and clinical practice\textsuperscript{1,2}
• Takes average of 17 years for research evidence to reach clinical practice\textsuperscript{1}
• Significant work to translate findings from human medical research into valid and effective clinical practice\textsuperscript{1}
State of Surgical Care in Canada

Aging population + high rate of comorbidities\(^3\) results in Increased surgical demand\(^4\)

Limited resources\(^5\):
- Financial
- Personnel
- Time
due to Access to surgery is not improving\(^4\)

We need to optimize resource utilization!

\(^3\) Aging population + high rate of comorbidities
\(^4\) Increased surgical demand
\(^5\) Limited resources
Background of ERAS®

Traditional care:
• Provider-focused
• High variability
• Physician driven

VS.

ERAS® care:
• Patient-focused
• Standardized
• Evidence-based
• Interdisciplinary
What is ERAS®

- Enhanced Recovery After Surgery (ERAS®) is a program highlighting surgical best practices.

https://youtu.be/j55al6_zhv0?list=PLIWeobiw8PTEObsfjZ8qv9wWPspK9hhOoz

https://www.youtube.com/watch?v=O3J01xJdyLw
Background of ERAS®

• Enhanced Recovery After Surgery (ERAS®) is the implementation of patient-focused, standardized, evidence-based, interdisciplinary perioperative guidelines

• Guidelines integrate preoperative, intraoperative and postoperative care

• Implementation of Enhanced Recovery Programs reduces postoperative complications, reduces length of hospital stay, with no increase in hospital readmissions
ERAS® Society Growth in Sept 2016
100+ units in 20+ countries

More than one Implementation program
Implementation program running/announced
ERAS Center in place
ERAS center in training
ERAS center discussions

Manilla
Dubai
Singapore
Guadalajara
Bogota
Lisbon
Tokyo
Nanjing
Krakau
Cape Town
Buenos Aires
Sao Paolo
Montevideo
Santiago
Porto Allegro
Ankara
Teheran
Dubai
Auckland
Melbourne

Slide shared courtesy of Dr. Olle Ljungqvist
Presence of Enhanced Recovery Programs in Dec 2017

50+ sites in 5 provinces

St. John’s
Montreal
Toronto
London
Kingston
Sudbury
Hamilton
Ottawa
Calgary
Edmonton
Red Deer
Lethbridge
Vancouver
Kelowna
Prince George
Winnipeg
Montreal
St. John’s
CPSI and Enhanced Recovery Canada

- Canadian Patient Safety Institute (CPSI) with 24 partner organizations founded Enhanced Recovery Canada

- Enhanced Recovery Canada will:
  - Bundle evidence-informed guidelines to create Enhanced Recovery Canada Clinical Pathways
  - Facilitate the dissemination of Clinical Pathways across the country
  - Create networks and tools to support implementation of Clinical Pathways
CPSI and Enhanced Recovery Canada Partner organizations

[Logos of various partner organizations]

Putting patients first, improving patient safety.
Clinical Pathway Development Based on 6 Core Principles Applicable to all Surgeries

Patient Engagement

NUTRITION

Mobility

PERIOPERATIVE FLUID MANAGEMENT

PAIN RELIEF

best practices
Patient Engagement

• Preoperative education has been shown to:
  o Decrease patients’ anxiety and fears about surgery\(^7\)
  o Reduce postoperative complications\(^8\)
  o Lessen use of postoperative analgesia\(^9\)
  o Shorten hospital stay\(^10\)

• Patient engagement is integral to success of Enhanced Recovery Programs
  o Many Enhanced Recovery guidelines are reliant on patient adherence
Nutrition

• Prolonged fast is inappropriate in preparing patients for the stress of surgery\textsuperscript{12}

• \textit{Canadian Anesthesiologists’ Society} Preoperative Fasting Guidelines\textsuperscript{11}:
  o Fast from intake of a light meal or nonhuman milk 6 hours before elective procedures
  o Patients should be encouraged to drink clear fluids up to 2 hours before anesthesia administration
Nutrition

• Carbohydrate loading before surgery:
  o Cochrane Review found that intake of a carbohydrate beverage prior to surgery may lead to small reduction in length of hospital admission in non-diabetic patients\textsuperscript{13}
  o It is \textit{safe} for diabetic patients to drink carbohydrate-rich drinks up to 2 hours before surgery\textsuperscript{12}
  o Limited evidence to \textit{recommend} carbohydrate loading in diabetic patients\textsuperscript{14}
Nutrition

• Up to 45% of surgery patients were at risk for malnutrition or were malnourished and these patients had a higher likelihood of longer length of stay and mortality.\textsuperscript{15}

• The Canadian Malnutrition Task Force\textsuperscript{16}:
  o Nutrition risk \textit{screening} should be undertaken in all hospitalized patients with a validated nutrition screening tool
  o Nutrition \textit{assessment} should be undertaken in those screened at risk
Nutrition

- **Postoperative feeding**\(^{17,18,19,20}\):
  - Introduction of fluids/solids on POD 0/1 results in small decrease in length of stay compared to traditional method of “nil per os” until bowel function resumes
  - Does not increase the rate of wound infection, infectious complications or anastomosis dehiscence
  - Ileus prevention and multimodal anti-emetic approach facilitate adequate intake
  - Oral nutrition supplements POD 0 is encouraged to reduce time to tolerating meals\(^{36}\)
Perioperative Fluid Management

• Hypovolemia must be avoided because it may lead to adverse events (minor organ dysfunction, multi-organ failure, death)\textsuperscript{25}

• Liberal administration of fluid may impair pulmonary, cardiac and gastrointestinal function and lead to postoperative complications and prolonged recovery\textsuperscript{24,25}

• Goal-directed fluid therapy (GDFT) should be utilized on selected patients to optimize cardiac performance or stroke volume\textsuperscript{26,27}
  ○ GDFT reduces postoperative morbidity for high risk patients
Multimodal Pain Management

• Multimodal pain management is recommended for the treatment of postoperative pain\textsuperscript{28}:
  o Use variety of analgesic medication to target different mechanisms of action in the peripheral and/or central nervous system
  o Avoid opioids when possible
  o Transition to oral medications as soon as possible

• Opioid sparing, multimodal pain management\textsuperscript{5}:
  o Reduces stress
  o Reduces insulin resistance
  o Facilitates mobility
Surgical Best Practices: Appropriate Use and Removal of Lines/Tubes

• NG Tubes:
  o Cochrane Review recommends to avoid prophylactic use of NG tubes for decompression after GI surgery\textsuperscript{29}

• IV Fluids:
  o Removal of IV lines encourages increased mobility and ambulation\textsuperscript{5}
Surgical Best Practices: Appropriate Use and Removal of Lines/Tubes

- Urinary Catheters\textsuperscript{30, 31}:
  - UTIs are the most common type of hospital acquired infection
  - Biggest risk factor for developing a UTI is indwelling catheter
  - Urinary catheters should be avoided unless absolutely necessary
  - If used, urinary catheter should be removed within 24 hours (except if patient had rectal or urologic surgery)
Surgical Best Practices: Surgical Site Infection Prevention & VTE Prophylaxis

- Surgical site infection prevention\(^{33}\):
  - Perioperative antimicrobial coverage
  - Appropriate hair removal
  - Perioperative normothermia
  - Maintenance of perioperative glucose control
  - Preoperative mechanical bowel preparation + oral antibiotics\(^{34}\), etc.

- VTE prevention\(^{33}\):
  - Appropriate standardized screening for VTE prophylaxis
  - Implementation of standardized order sets for prophylaxis administration
  - Audit, etc.
Mobility

• Postsurgical immobility promotes\textsuperscript{21}:
  o Insulin resistance
  o Muscle atrophy
  o Poor functional capacity

• Stress of surgery can result in\textsuperscript{22}:
  o Loss of lean body mass muscle mass
  o Fatigue
  o Delayed recovery of functional capacity
Mobility

• Generalized mobility recommendations based on literature showing detrimental effects of bedrest after surgery

• Orthopedic literature found strong evidence to support mobilization within 24 hours of surgery\(^{23}\)

• First mobilization on POD 0/1 after orthopedic surgery led to\(^{23}\):
  o Fewer complications (ie. DVT & PE)
  o Reduced hospital stay
ERC Mobility and Physical Activity Pathway for Colorectal Surgery

• Working group made up of Physiotherapists, Kinesiologist, surgeons, anesthetists
• Tasked with coming up with a pathway
• Very little evidence, could not make recommendations based on literature alone
• Took on a Delphi to gain a consensus about postoperative mobilization and physical activity that enhance the recovery of colorectal patients in Canadian hospitals
Consensus Research

• Definition: general agreement; the judgment arrived by a majority
  http://www.merriam-webster.com/dictionary/consensus

• Provides a way to organize subjective judgments and provide guidance to clinical decision-making when there is no existing research-based evidence

• Traditional methods of consensus have several limitations:
  (1) Discussion dominated by some individuals
  (2) Participants feel pressure to agree with the majority
  (3) Embarrassment to change personal views
  (4) High cost $$$

• Several ‘modern’ consensus methods have been described to overcome these limitations

The Delphi technique

• Method of systematically surveying experts to reach consensus
• Completion of a series of questionnaires
• Experts anonymous to one another
• Provides several advantages:
  (1) No influence of personal status in the discussion
  (2) No pressure to agree with the majority
  (3) Allows alteration of views without embarrassment
  (4) Combine the opinion of experts geographically dispersed (Lower $$$)
Delphi Process

**Round 1**
3 open ended questions sent to a group of 47 experts

**Round 2**
Experts rated agreement on the definitions and statement using a 5-point Likert scale

**Round 3**
Experts viewed the group results and could change their ranks in light of colleagues’ responses

Consensus defined when criteria and endpoints rated as agree or strongly agree by at least **75% of the experts in Round 3**

Thematic analysis done on the 26 responses and a series of definitions and statements developed

Summary of 30 group responses incorporated into the questionnaire
h) Family members should be educated about how they can facilitate and encourage early mobilization.

Agreement: 100%
Mean Likert scale score: 3.7 (Strongly Agree)
Range of Likert scale scores: 3 - 4 (Agree - Strongly Agree)

Consensus statements used to draft the ERC mobility pathway
ERC Mobility Pathway

• Pathway has been submitted for graphical representation
• One more round of review post graphics
• Will be presented at the ERC forum November 17:
Enhanced Recovery Flowchart

Preoperative
- Patient education
- Nutritional screening
- Clear fluids encouraged up to 2 hours before surgery

Intraoperative
- Minimize drains and tubes
- Minimally Invasive Surgery when appropriate

Postoperative
- Appropriate removal of drains and tubes
- Introduction of fluids and solids on POD 0/1
- Mobility on POD 0/1 as appropriate

Patient Engagement

Multimodal Pain Management

Perioperative Fluid Management

Infection Prevention & VTE Prophylaxis
Economic Benefit

- Alberta Health Services conducted economic analysis for Enhanced Recovery Pathway in elective colorectal surgery. Demonstrated reductions in$^{32}$:
  - Emergency department visits
  - General Practitioner visits
  - Length of stay (statistically significant)

- Return on Investment:
  - Every $1 invested in ERAS® would bring $3.8 in return (range $2.4-$5.1)
Economic Benefit

• McGill University Health Centre conducted economic analysis comparing Enhanced Recovery Program vs. conventional management for elective colorectal surgery\(^3^5\)

• Enhanced Recovery Program demonstrated:
  o Shorter hospitalization
  o Decreased resource utilization
  o Lower societal costs (productivity losses, caregiver burden)
Enhanced Recovery Programs Require an Interdisciplinary Approach

5 Tasks for Everyone
Patients

1. Smoking cessation
2. Reduce alcohol consumption
3. Increase physical activity
4. Follow preoperative instructions, including current fasting guidelines
5. Participate in postoperative recovery
Preoperative Staff

1. Increase patients’ awareness of Enhanced Recovery Programs and the importance of patients’ participation
2. Educate patients on current fasting, nutrition and preoperative guidelines
3. Nutrition screening/assessment
4. Functional status assessment
5. Set patient expectations around length of stay and discuss a discharge plan
Anesthesiologist

1. No preoperative long-active sedatives
2. Opioid-sparing, multimodal pain management (Regional anesthesia, NSAIDs, Lidocaine, Ketamine, etc.)
3. Appropriate prophylactic antibiotic therapy
4. Maintain normothermia
5. Perioperative fluid management to avoid sodium/fluid overload
Surgeon

1. Mechanical bowel preparation + oral antibiotics
2. Avoid routine insertion of tubes and drains
3. Use long acting local anesthetics
4. Minimally invasive surgical technique
5. Initiate diet POD 0/1, as tolerated by patient; include routine postoperative nausea and vomiting prophylaxis
Nursing and Allied Health

1. Reduce IV fluid administration, encourage oral fluids
2. Encourage oral nutrition and gum chewing
3. Mobilize patient POD 0 and consistently throughout admission
4. Administer and monitor use of opioid-sparing, multimodal pain medications
5. Clinically appropriate insertion and timely removal of urinary catheters
Implementation of Enhanced Recovery Programs

Plan
- Identify champions (Front-line staff, physicians, administrators)
- Assess current care practices and address readiness for change
- Create multidisciplinary team
- Plan roll-out

Implement
- Create/integrate standardized content into clinical practice documents (Education resources, order sets, clinical pathways, forms, etc.)
- Implement Enhanced Recovery Pathways
- Utilize project management and change management principles

Sustain
- Audit/reporting
- Gather/provide feedback to staff, clinicians, patients and leaders
- Revise pathways and facilitate continuous quality improvement
Enhanced Recovery After Surgery (ERAS®) is the implementation of patient-focused, standardized, evidence-based, interdisciplinary perioperative guidelines.

Implementation of Enhanced Recovery Programs reduces postoperative complications and reduces length of hospital stay, with no increase in hospital readmissions.

Economic impact assessments recognize investments in Enhanced Recovery Programs provide strong financial return.

Success and sustainability requires:
- Champions
- Front-line engagement
- Audit of clinical practice
- Regular reporting and continuous improvements
Resources

Canadian Patient Safety Institute

Enhanced Recovery BC
http://enhancedrecoverybc.ca/

McGill University Health Center Patient Education Office

Best Practices in Surgery (University of Toronto Hospitals)
http://bestpracticeinsurgery.ca/

ERAS® Society
http://erassociety.org/
QUESTIONS?
2013 – 2018 STRATEGIC GOALS
CPSI will build upon our strengths, evaluate our processes, and refine our organization to focus efforts on four strategic goals, as summarized in the figure below and in Appendix 1:

**VISION**

*Safe Healthcare for All Canadians*

- Improve the safety of patient care in Canada
- Successfully integrate, implement and sustain patient safety and quality efforts
- Support networks, increase capacity and invest in frontline providers and the delivery system
- Support the healthcare system at all levels and across the continuum

**STRATEGIC PLAN PRIORITIES**

- Knowledge Mobilization & Innovation
  - CPSI will inspire and sustain patient safety knowledge within the system and through innovation, enable transformational change

- Building Capability (Knowledge & Skills)
  - CPSI will build and influence patient safety capability at organizational and system levels

- Expanding Reach
  - CPSI will engage all audiences across the health system in the national patient safety agenda

**2013 – 2018 STRATEGIC PLAN**

- **Year One**
  - 2013/14
  - “Laying the Foundation”

- **Year Two**
  - 2014/15
  - “Implementing”

- **Year Three**
  - 2015/16
  - “Sustaining, spreading and measuring system impact”

- **Year Four**
  - 2016/17
  - “Refresh”

- **Year Five**
  - 2017/18
  - “Repeat the Cycle”
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References

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