Same-Day Discharge for Colorectal Surgery: ERAS 2.0

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McGill University Health Centre

Friday, April 21st

MSQC & ASPIRE Collaborative meeting, Ann Arbor, Michigan

Conflicts of Interest

- Abbott Nutrition (speaker: ERAS)
- Takeda (clinical research)

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Objectives: After this session, participants will

1

gain an overview of the pathway towards Same Day Discharge

2

understand the benefits of day surgery for colorectal resections for the patient, the hospital, and the healthcare system.

3

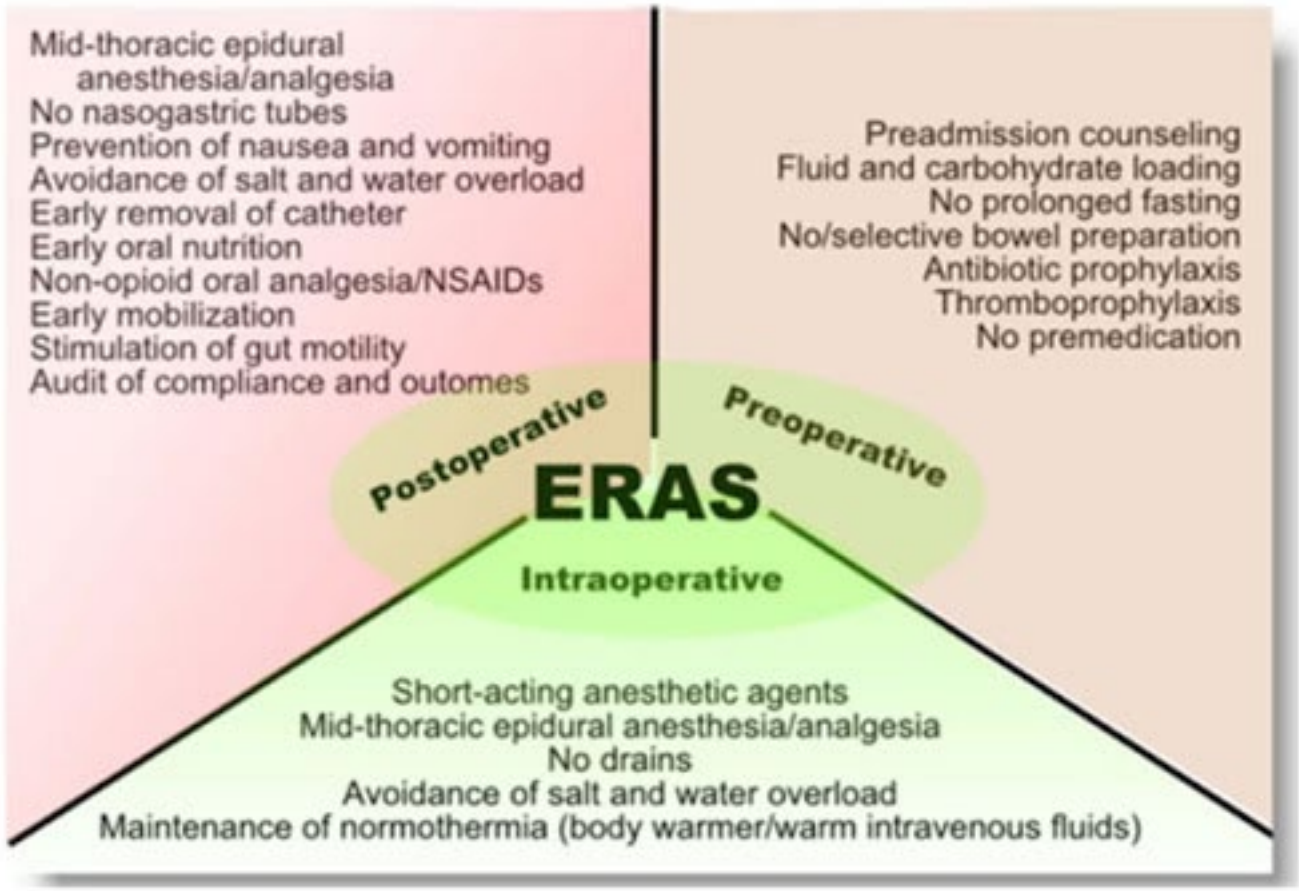
better understand how digital technology can facilitate patients' early discharge from the hospital.

Outline

- Quick intro to ERAS
- MUHC experience with SDD
- Lessons learned
- Prehab

Enhanced Recovery After Surgery

- Decreased length of stay
- Decreased complications
- Decreased healthcare resource utilization
- Increased patient satisfaction

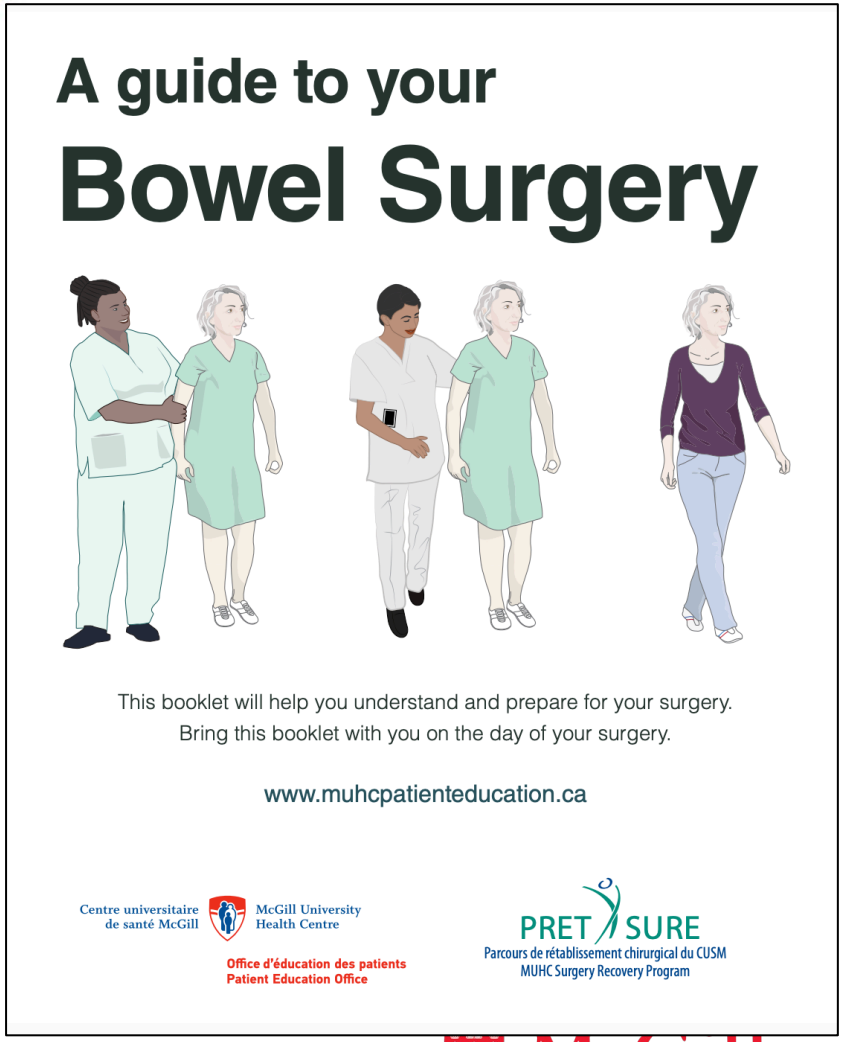


MUHC Experience

PRET SURE
Parcours de rétablissement chirurgical du CUSM
MUHC Surgery Recovery Program

- Colorectal ERAS since 2008
- Multiple iterations
- Multiple new pathways across specialties

- Target LOS 2-3d
- **66% discharged within target LOS**



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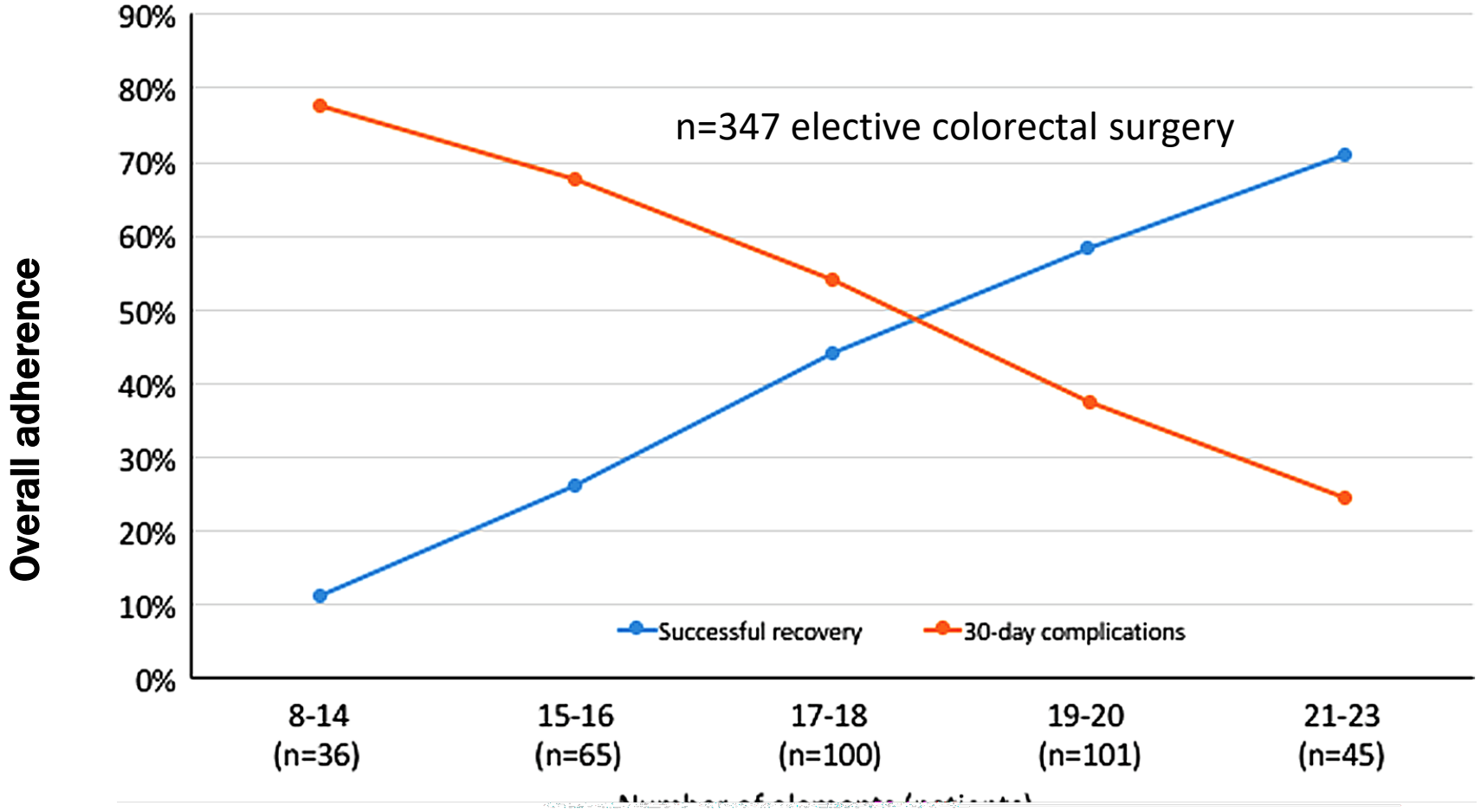
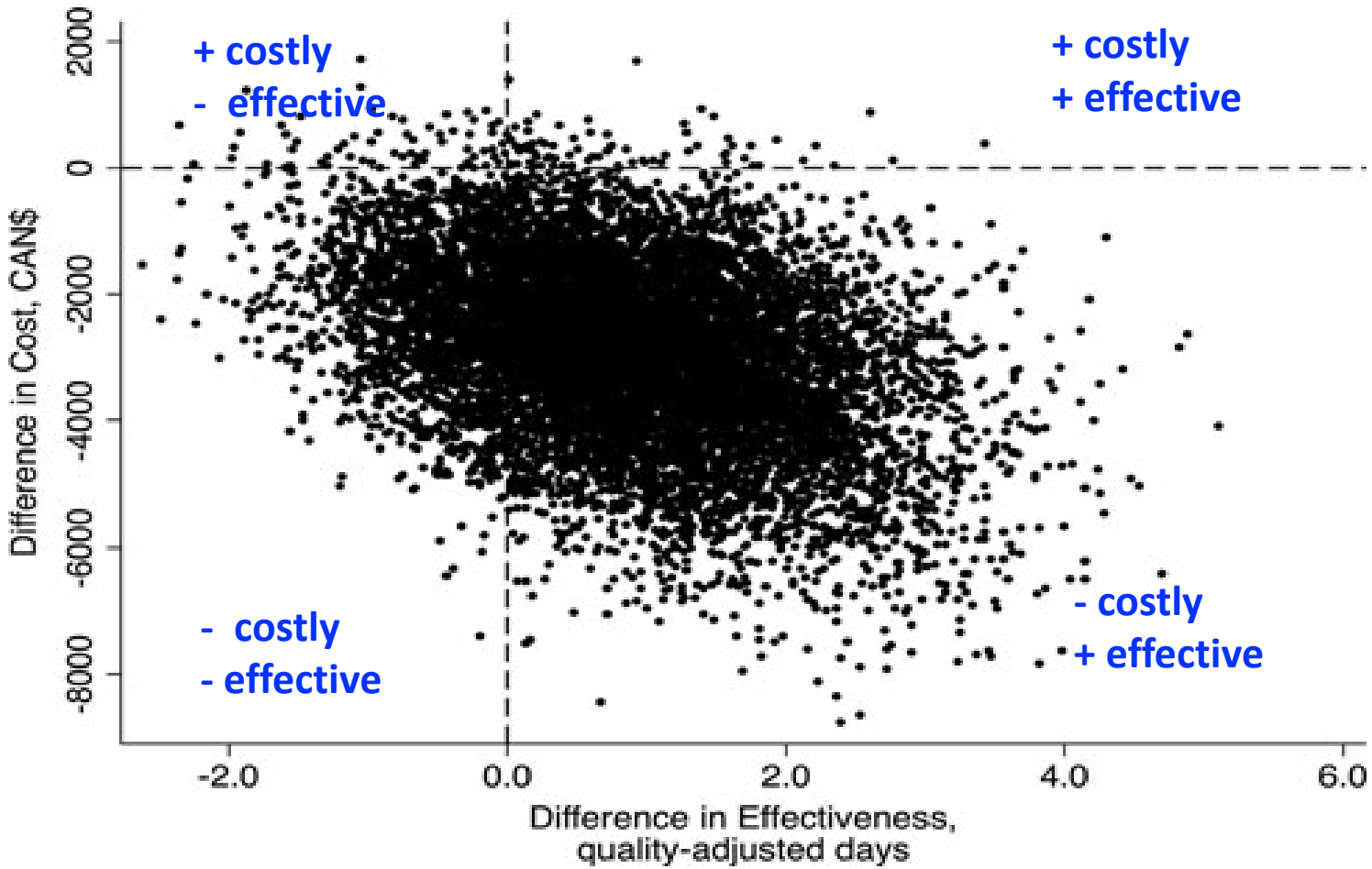
Adherence to enhanced recovery pathway elements is associated with successful recovery and reduction in 30-day complications



Pecorelli et al. Surg Endosc. 2016

Cost-effectiveness of Enhanced Recovery versus Conventional Perioperative Management for Colorectal Surgery



Each point represents 1 bootstrap estimate

Lee et al. Ann Surg. 2015 Dec;262(6):1026-33

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ERPs : beyond reducing length of hospital stay and complications?

	Conventional care (n=95) vs ERP (n=95)
Lost days from work	35(20) vs 26(18)*
Caregiver lost days from work	5(12) vs 1.3(2.6)*
Postoperative CLSC visits, n	3.7(9) vs 1.4 (4.6)*
Institutional cost saving	-$1,150 (-3487 to 905)
Health care system cost saving	-$1,602(-4,050 to 517)
Society cost saving	-$2,985(-5,753 to -373)*

ERPs- specific costs (design, implementation and audit): 153 $ per patient

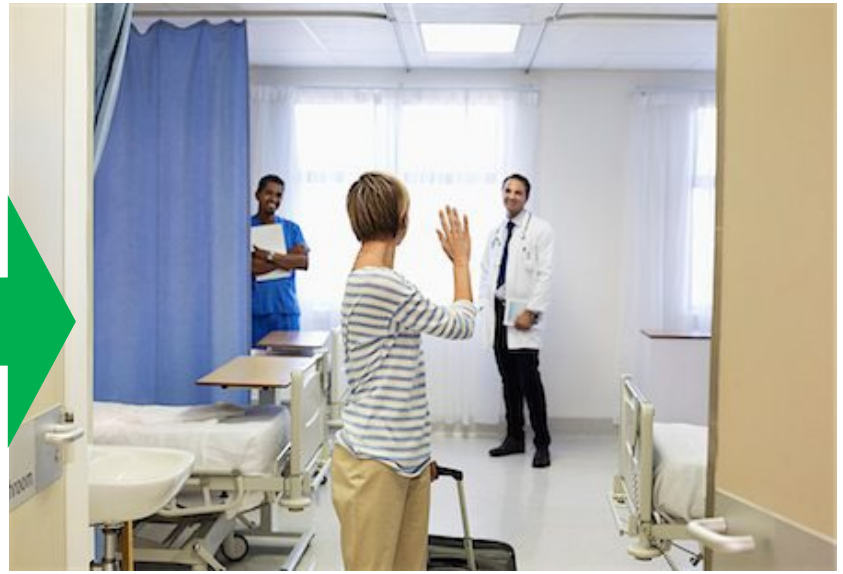
Lee et al. Ann Surg. 2015 Dec;262(6):1026-33

How can we do better?

Traditional care

Does this guy really need to stay???

Enhanced Recovery



Outpatient surgery

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Has this been done before?

- <2% of all colectomies in ACS-NSQIP discharged within 23h (out of >100k cases) Saadat et al. *World J Surg* 2020

- ~4% of ileostomy reversals in ACS-NSQIP discharged within 23h (out of ~25k cases) Taylor et al. *J Gastrointest Surg* 2019

Short-term Outcomes of Ambulatory Colectomy for 157 Consecutive Patients

Gignoux et al. *Ann Surg* 2019

Inclusion criteria

- Laparoscopic colectomy
- “Good” general condition
- No serious comorbidities
- “Full patient understanding”

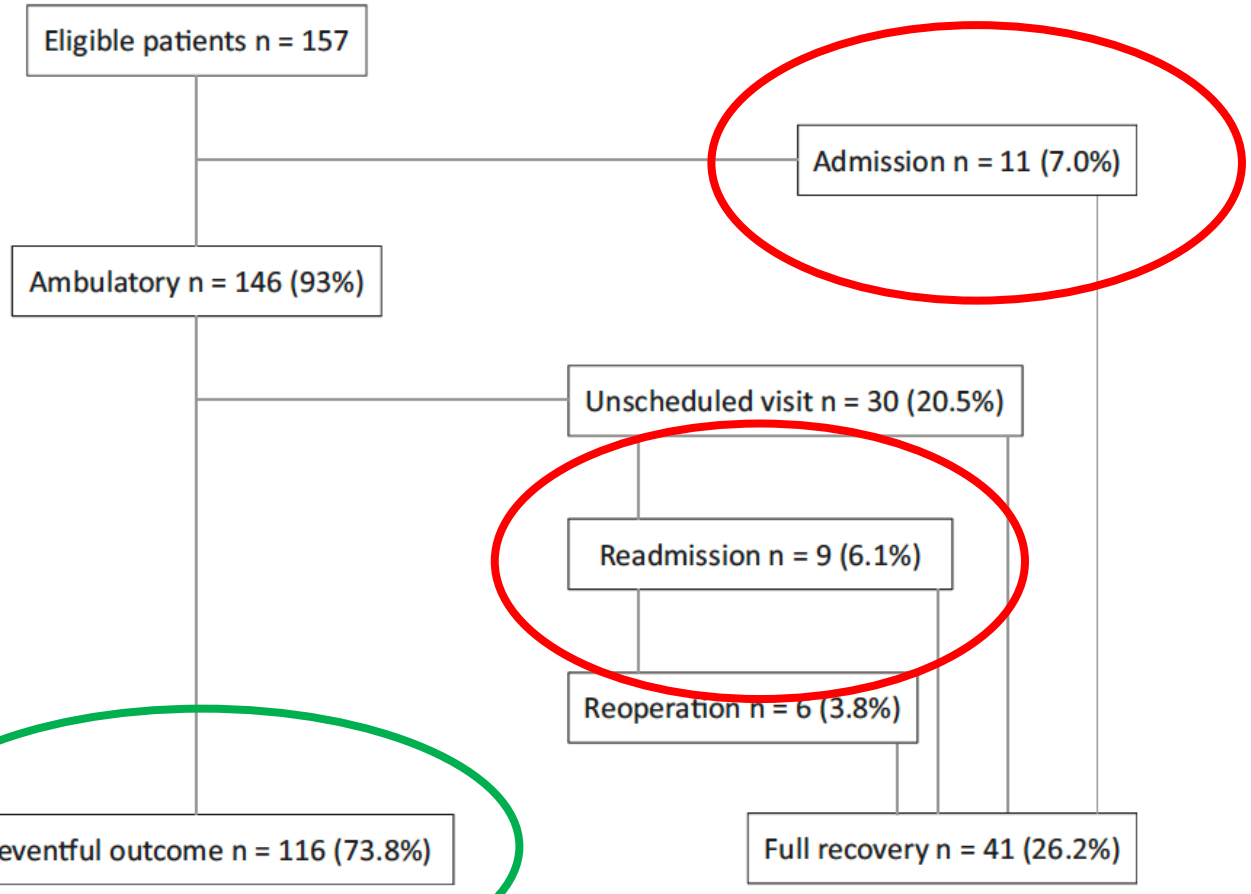
Exclusion criteria

- Low rectal
- Right colectomy
- Large T4 tumours
- Prev perforated diverticulitis
- Prev midline laparotomy

- Home visit by a nurse BID x 5 days then DIE x5 days
- Another daily check-up phone call x5 days
- CRP on POD 1, 3, 7

Short-term Outcomes of Ambulatory Colectomy for 157 Consecutive Patients

Gignoux et al. *Ann Surg* 2019



"Ambulatory" protocol required significant outpatient resources

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Retrospective review

- February 2019-August 2021
- 69 patients, 1 readmission (1.4%)
- LAR x 32, Right hemicolectomy x 11
- All robot-assisted, no conversions

Curfman KR, et al, Ambulatory colectomy: A pilot protocol for same day discharge in minimally invasive colorectal surgery. Am J Surg. 2022 Aug;224(2):757-760

MUHC Outpatient Colectomy Protocol

Inclusion Criteria	Exclusion Criteria
- Adult patients - Elective laparoscopic colectomy for neoplasm or benign indications - Planned Pfannenstiel extraction incision - No contraindications to TAP block (incl. allergies to dexamethasone or bupivacaine) or opioid-sparing analgesia (i.e. NSAIDs or acetaminophen) - Owns and is capable of using a 'smart' mobile device running iOS or Android - Lives within proximity of the Montreal General Hospital (50 km or 30 min drive) - Adequate support system at home	- ~~Inflammatory bowel disease~~ - Locally advanced malignancy requiring multi-visceral resection - Chronic opioid use - Significant comorbidities (incl. poorly controlled or insulin-dependent diabetes requiring postoperative tight glycemic control, and chronic renal failure preventing NSAID use) - Creation of a new stoma - ~~Previous midline laparotomy~~ - Cannot speak English or French - Cognitive impairment - Lives more than 50 km or 30 min drive away - No support system at home - No 'smart' mobile device - Intra-operative complications

Main outcome: ER visit within 72h (standard ERP target LOS 3d)

Stopping criteria: >35% ER visits within 72h

- 35% baseline incidence of complications

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Outpatient Colectomy – Discharge Criteria

- Tolerating PO intake (at least 300cc of clear fluids)
  - No nausea/vomiting
  - Minimal anti-emetics
- Pain is adequately controlled on PO analgesia
- Able to pee
- Able to ambulate

MUHC Experience

- 1st patient Feb 13, 2020
  - 69M
  - Laparoscopic right colectomy for malignancy
  - 4cm Pfannenstiel extraction incision, TAP block
  - OR time: 93 minutes
  - PACU time: 7h 15min
    - Fentanyl 25 mcg IV x3 (=22.5 MME)
    - Ketorolac 30mg IV

- ~1 patient per week

MUHC SDD Colectomy Protocol

Inclusion Criteria	Exclusion Criteria
- Adult patients - Elective laparoscopic colectomy for neoplasm or benign indications - Planned Pfannenstiel extraction incision - No contraindications to TAP block (incl. allergies to dexamethasone or bupivacaine) or opioid-sparing analgesia (i.e. NSAIDs or acetaminophen) - Owns and is capable of using a 'smart' mobile device running iOS or Android - Lives within proximity of the Montreal General Hospital (50 km or 30 min drive) - Adequate support system at home	- Inflammatory bowel disease - Locally advanced malignancy requiring multi-visceral resection - Chronic opioid use - Significant comorbidities (incl. poorly controlled or insulin-dependent diabetes requiring postoperative tight glycemic control, and chronic renal failure preventing NSAID use) - Creation of a new stoma - Previous midline laparotomy - Cannot speak English or French - Cognitive impairment - Lives more than 50 km or 30 min drive away - No support system at home - No 'smart' mobile device - Intra-operative complications

General Surgery
Day Surgery Colorectal Care Pathway
Postoperative Medical Orders

ALLERGIES _____

Poids / Weight _____ **kg** **Taille** / Height _____**cm** **Indice de masse corporelle /** BMI _____

Initiales du prescripteur pour chaque ordonnance Prescriber's initials for each order	ORDONNANCE DU PRESCRIPTEUR/ **PRESCRIBER'S ORDERS**	**Initiales de l'infirmier(ère) notées** Nurse's initials noted
	Discharge the patient home as per PACU discharge criteria and the surgical team's approval. The patient must: • tolerate liquids without the need for anti-emetics, • report reasonable pain control at rest and with movement on oral analgesia, • be able to ambulate, • have vital signs that are within their normal range.	
	Prior to discharge: • Surgical team member must assess patient prior to discharge home. • Review exit/discharge prescription and postoperative instructions with patient/companion including: wound care and showering, fever, pain control, activity, dalteparin administration, diet and follow up appointment in 3-4 weeks.	
	<u>Additionnal orders not included in Day surgery care pathway:</u>	

General Surgery
Day Surgery Colorectal Surgery Care Pathway
External Postoperative Prescription

Date __ _____ **Service**_____
(AAYY/MM/JD)

Téléphone/Telephone:

☐	Hôpital Royal Victoria	(514) 934-1934 poste _____	☐	Hôpital Général de Montréal	(514) 934-1934	poste	_____
☐	Institut thoracique de Montréal	(514) 934-1934 poste _____	☐	Institut Neurologique de Montréal	(514) 398-6644	poste	_____
☐	Hôpital de Montréal pour enfants	(514) 412-4400 poste _____	☐	Hôpital Queen Elizabeth	(514) ____-_____	poste	_____
☐	Hôpital de Lachine	(514) 637-2351 poste _____					

No. du télécopieur du service / Service's fax number (514) _____-_____

Poids / Weight _____(kg) **Allergies**_____ **Indice de masse corporelle** / BMI _____

Médicament(s) * Posologie * Quantité * Durée / Medication * Dosage * Quantity * Duration	**Nombre de renouvellement(s)** Number of renewal(s)
☐ Acetaminophen 1g PO q 6h x 72 hours then PRN dispense 50 tablets of 500 mg tablets	NR
☐ Celecoxib 100 mg PO BID x 72 hours then PRN dispense 28 tabs **Exceptions:** elevated creatinine, peptic ulcer disease- current or remote, allergy or intolerance to NSAIDs or ASA, ~~Crohn's disease~~	NR
☐ Oxycodone 5 - 7.5 mg PO q 4h PRN dispense 10 tabs	NR
☐ Dalteparin 5000 units subcutaneously daily for 28 days after surgery continue until : _____(AAYY/MM/JD)	NR
**********Return any unused medication to your pharmacy**********	

_____ _____ _____
Signature du médecin / Physician's signature **Nom en lettres moulées** / Print name **N° permis**/ License N°

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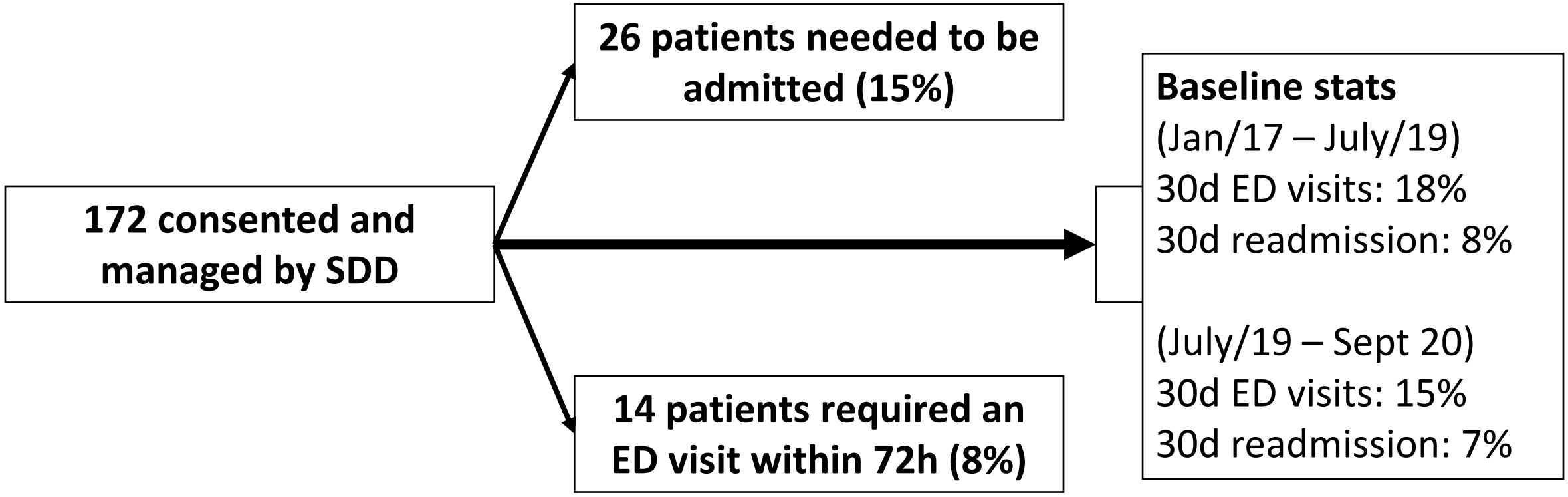
MUHC SDD

361 patients
laparoscopic

ented and
d by SDD

	N=172
Mean age, years (SD)	58.1 (15.5)
Male gender	50%
Mean body mass index, kg/m^2 (SD)	26.7 (5.7)
Charlson Comorbidity Index	
0-1	21%
2-4	59%
5+	20%
ASA physical status	
1	16%
2	58%
3+	26%
Diagnosis	
Neoplasm	55%
Inflammatory bowel disease	8%
Diverticular disease	5%
Stoma closure	28%
Other	4%
Procedure	
Right colectomy	33%
Left/sigmoid colectomy	24%
Low anterior resection	15%
Stoma closure	28%
Mean procedure time, min (SD)	131 (65)
Median PACU time, min [IQR]	270 [190-365]
Median morphine mg equivalents, mg [IQR]	17.5 [7.5-36]

MUHC SDD


172 consented and managed by SDD
26 patients needed to be admitted (15%)
14 patients required an ED visit within 72h (8%)
Baseline stats
(Jan/17 – July/19)
30d ED visits: 18%
30d readmission: 8%
(July/19 – Sept 20)
30d ED visits: 15%
30d readmission: 7%

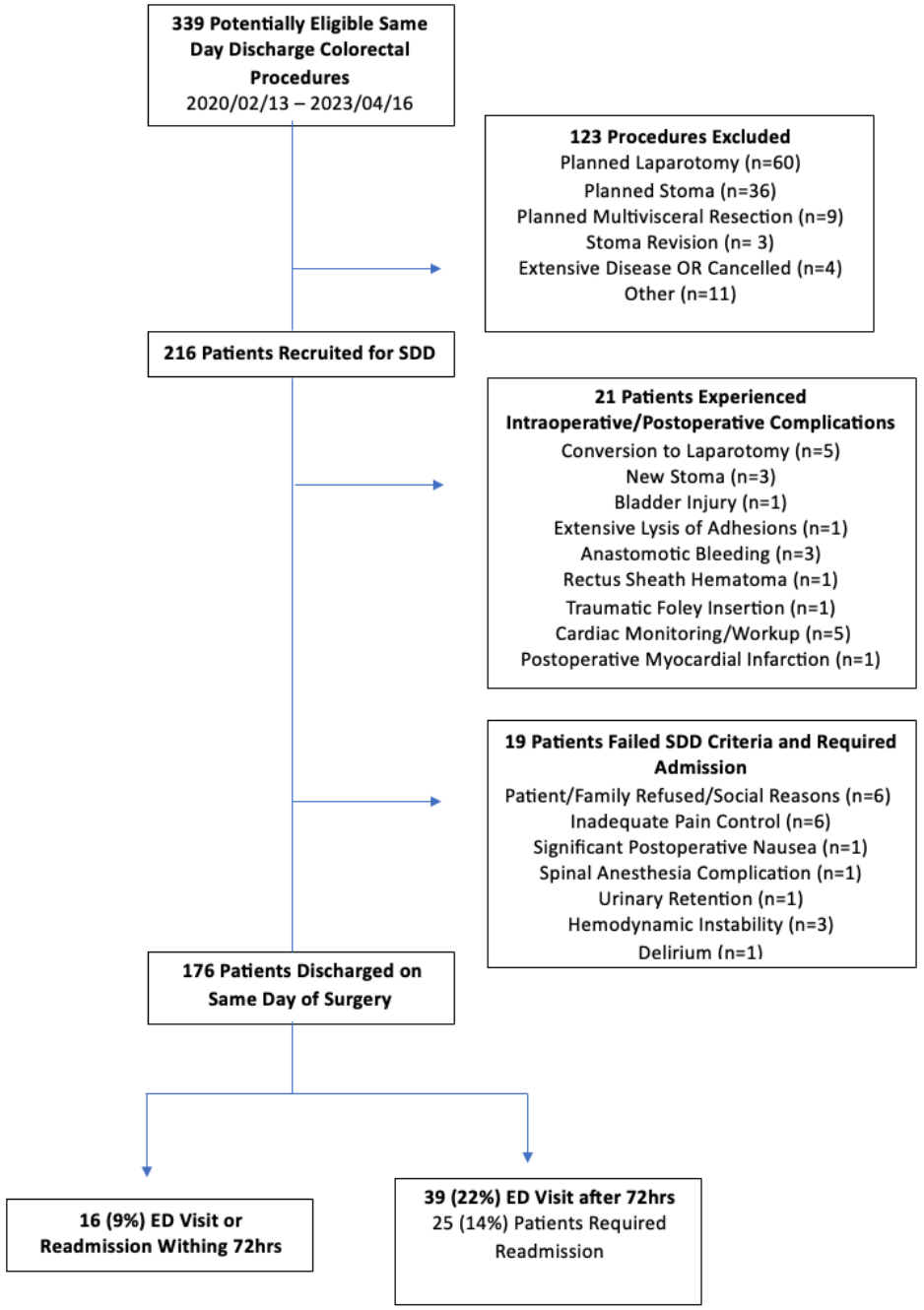
Reasons for failure to discharge on POD0	**n=26**
Patient/family refusal	6
Inadequate pain control	4
Persistent nausea	1
Intraoperative/early postoperative complications	15
Anastomotic bleeding	4
Cardiac monitoring/complications	3
Conversion to open surgery	2
Genitourinary complications	2
Rectus sheath hematoma	1
Unplanned stoma	1
Prolonged operating time	1
Spinal anesthesia complications	1
Unplanned visits within first 72 hours	**n=14**
Anastomotic bleeding	4
Urinary retention	3
Gastrointestinal dysfunction	3
Wound dehiscence	1
Inadequate pain control	1
Anastomotic leak	1
Fever without etiology	1

Overall 30-day ED visits: 19%
Overall 30-day readmissions: 11%

Baseline stats
(Jan/17 – July/19)
30d ED visits: 18%
30d readmission: 8%

(July/19 – Sept 20)
30d ED visits: 15%
30d readmission: 7%

Update



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Update

Successful SDD	**90% (n=160)**
Reason for ED Visit 72Hr Ileus (n=5) Bleeding per rectum (n=4) Urinary Retention (n=3) SBO (n=1) Pain (n=1) Seroma (n=1) Fever (n=1)	
Types of Procedures for SDD RHC/Ileocecectomy 32% (n=70) Sigmoidectomy 23.6% (n=51) Low Anterior Resection 13.8% (n=30) Stoma Reversal 30% (n=65)	

Essential Elements / Lessons Learned

1. Patient selection
2. Post-discharge follow-up
3. Pain control
4. GI ”dys”function

Patient Selection

15% extraperitoneal rectal anastomosis

Phone, email, or app

Inclusion Criteria	Exclusion Criteria
- Adult patients - Elective laparoscopic colectomy for neoplasm or benign indications - Planned Pfannenstiel extraction incision - No contraindications to TAP block (incl. allergies to dexamethasone or bupivacaine) or opioid-sparing analgesia (i.e. NSAIDs or acetaminophen) - Owns and is capable of using a 'smart' mobile device running iOS or Android - Lives within proximity of the Montreal General Hospital (50 km or 30 min drive) - Adequate support system at home	- ~~Inflammatory bowel disease~~ - Locally advanced malignancy requiring multi-visceral resection - Chronic opioid use - ~~Significant comorbidities~~ (incl. poorly controlled or insulin-dependent diabetes requiring postoperative tight glycemic control, and chronic renal failure preventing NSAID use) - Creation of a new stoma - ~~Previous midline laparotomy~~ - Cannot speak English or French - Cognitive impairment - Lives more than 50 km or 30 min drive away - No support system at home - ~~No 'smart' mobile device~~ - Intra-operative complications

* High health literacy / engagement

>25% are ASA 3+

The Four Levels of Patient Activation

Source: Insignia Health

Questions

Please circle the answer that best represents your response.

1. How often do you have someone help you read hospital materials?

a. Always
b. Often
c. Sometimes
d. Occasionally
e. Never

2. How often do you have problems learning about your medical condition because of difficulty understanding written information?

a. Always
b. Often
c. Sometimes
d. Occasionally
e. Never

3. How often do you have a problem understanding what is told to you about your medical condition?

a. Always
b. Often
c. Sometimes
d. Occasionally
e. Never

4. How confident are you filling out medical forms by yourself?

a. Not at all
b. A little bit
c. Somewhat
d. Quite a bit
e. Extremely

BRIEF Health Literacy Screen

Score range 4-20

Limited health literacy: 4-12
Marginal health literacy: 13-16
Adequate: 17-20

JAMA Surgery | Original Investigation

Association Between Patient Activation and Health Care Utilization After Thoracic and Abdominal Surgery

Dumitra et al. *JAMA Surg* 2021

Variable	No. (%)			
		PAM		
	Total (N = 653)	Low (n = 152)	High (n = 501)	*P* value
Any unplanned health care utilization	164 (25)	64 (42)	100 (20)	<.001[a]
ED visits	106 (16)	33 (22)	73 (15)	.03[a]
Readmission	71 (11)	16 (11)	55 (11)	.89
Outpatient clinic visit	77 (12)	41 (27)	36 (7)	<.001[a]
Return to work within 30 d (n = 259)[b]	108 (42)	18 (29)	90 (45)	.02[a]
Lost time from work, median (IQR), d	19 (15-22)	18 (15-21)	19 (15-22)	.68
Hospital LOS, median (IQR)	3 (1-5)	3.5 (2-6)	3 (1-5)	.04[a]
Postoperative complications	223 (34)	63 (41)	160 (32)	.03[a]*
Clavien-Dindo grade				
None	430 (67)	89 (59)	341 (68)	.14
I	107 (16)	28 (18)	79 (16)	
II	64 (10)	18 (12)	46 (9)	
≥III	52 (8)	17 (11)	35 (7)	
Comprehensive complication index				
Median (IQR)	0 (0-9)	0 (0-15)	0 (0-9)	.02[a]
Mean (SD)	7.7 (14.6)	9.6 (15.7)	7.1 (13.2)	.06
Timing of complication (n = 223)[c]				
In hospital (initial admission) alone	129 (58)	33 (52)	96 (60)	.29
Postdischarge alone	67 (30)	17 (27)	50 (31)	.54
Both	27 (12)	13 (21)	14 (9)	.01[a]
Mortality	5 (1)	1 (1)	4 (1)	.67

Low activation (PA levels 1 & 2)

- More unplanned visits
  - aOR 3.15 (95% CI 2.05-4.86)
- More time off work
- Longer LOS
- More complications

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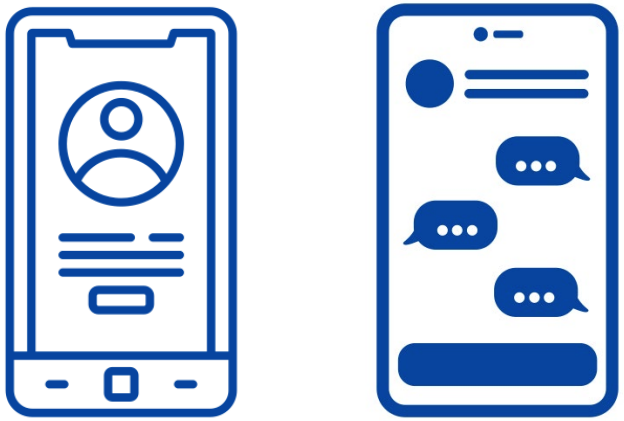
Patient activation

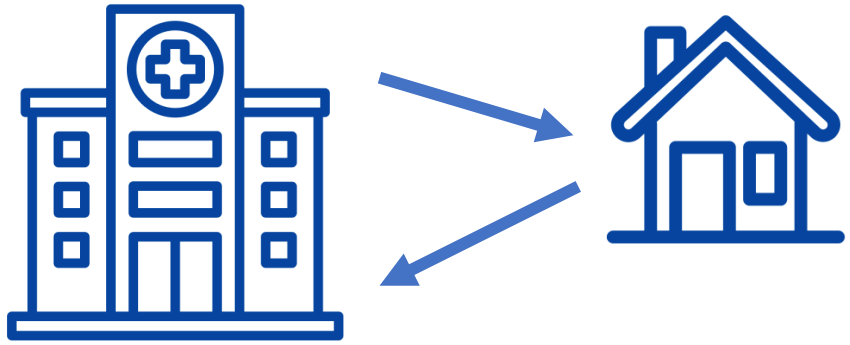


Application Usage

No difference in app usage between high (87%) and low engagement (94%)

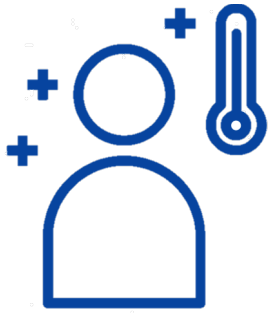
Number of communications similar between groups

Results – SDD Cohort



30-Day Emergency Department Visits

Patients with low engagement had increased 30-day ED visits 38% compared to 7% for those with high engagement (p-value 0.04)



30-Day Complication Rates

30-Day Complication rates higher in patients with low engagement 38% compared to 7% for those with high engagement (p-value 0.04)

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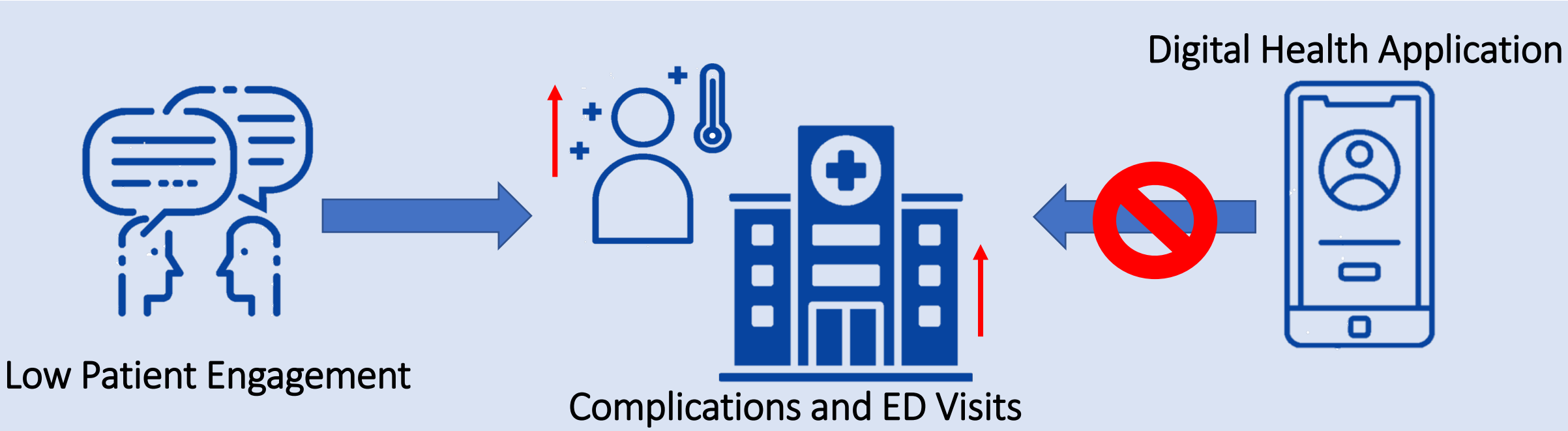
Patient activation

- Patient engagement had no impact on success of digital health app follow-up after elective colorectal surgery
- Low patient engagement associated with ↑ 30-day ED visits + complications in a subset of SDD patients



The association of health literacy and postoperative complications after colorectal surgery: A cohort study

Lauren M. Theiss, Tara Wood, Marshall C. McLeod, Connie Shao, Isabel Dos Santos Marques, Swara Bajpai, Elizabeth Lopez, Anh M. Duong, Robert Hollis, Melanie S. Morris, Daniel I. Chu *

Am J Surg 2021

Unadjusted outcomes stratified by patient health literacy level, n (%).

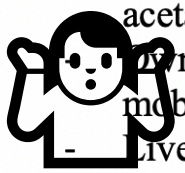
Variable	Overall n = 552	Limited n = 46	Non-Limited n = 506	*P* value
Median LOS, days (IQR)	4.0 (3.0–6.0)	5.0 (3.0–8.0)	3.5 (2.0–6.0)	**0.006**
Readmission	83 (15.2)	5 (11.4)	78 (15.5)	0.47
Mortality	1 (0.2)	0 (0.0)	1 (0.2)	0.77
Any complication[a]	143 (25.9)	20 (43.5)	123 (24.3)	**0.004**

Limited health literacy

- More complications
  - SSI
- Longer LOS

Patient Selection

Inclusion Criteria	Exclusion Criteria
- Adult patients - Elective laparoscopic colectomy for neoplasm or benign indications - Planned Pfannenstiel extraction incision - No contraindications to TAP block (incl. allergies to dexamethasone or bupivacaine) or opioid-sparing analgesia (i.e. NSAIDs or acetaminophen) - Owns and is capable of using a 'smart' mobile device running iOS or Android - Lives within proximity of the Montreal General Hospital (50 km or 30 min drive) - Adequate support system at home * High health literacy / engagement	- Inflammatory bowel disease - Locally advanced malignancy requiring multi-visceral resection - Chronic opioid use - Significant comorbidities (incl. poorly controlled or insulin-dependent diabetes requiring postoperative tight glycemic control, and chronic renal failure preventing NSAID use) - Creation of a new stoma - Previous midline laparotomy - Cannot speak English or French - Cognitive impairment - Lives more than 50 km or 30 min drive away - No support system at home - No 'smart' mobile device - Intra-operative complications



- Preoperative education
  - Pain control = tolerable
  - Ok to have some nausea
- Patient expectations
  - "My friend/parent had this surgery 10 years ago and they stayed a week!"
- Get everyone on board
  - Caretaker!

Essential Elements / Lessons Learned

1. Patient selection

2. Post-discharge follow-up

3. Pain control

4. GI ”dys”function

J Gastrointest Surg (2017) 21:1865–1878
DOI 10.1007/s11605-017-3573-0

ORIGINAL ARTICLE

Ready to Go Home? Patients' Experiences of the Discharge Process in an Enhanced Recovery After Surgery (ERAS) Program

****Common theme****

Concerns about access to healthcare provider/information if complications/concerns arise after discharge

instructions in postdischarge recovery: a qualitative study

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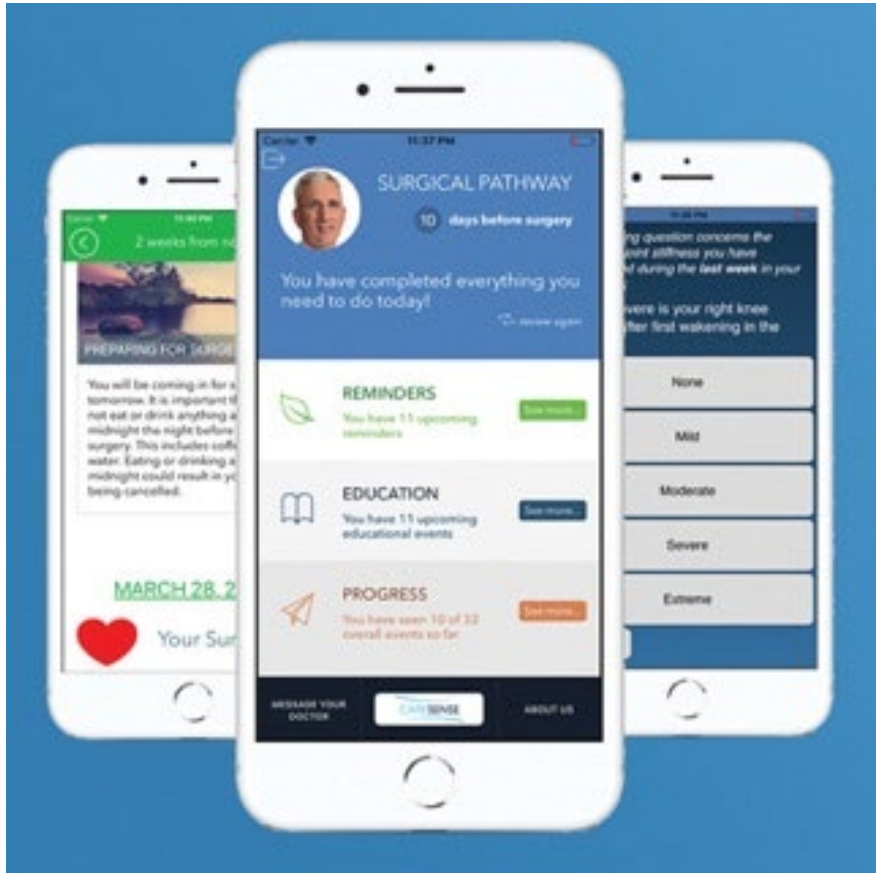
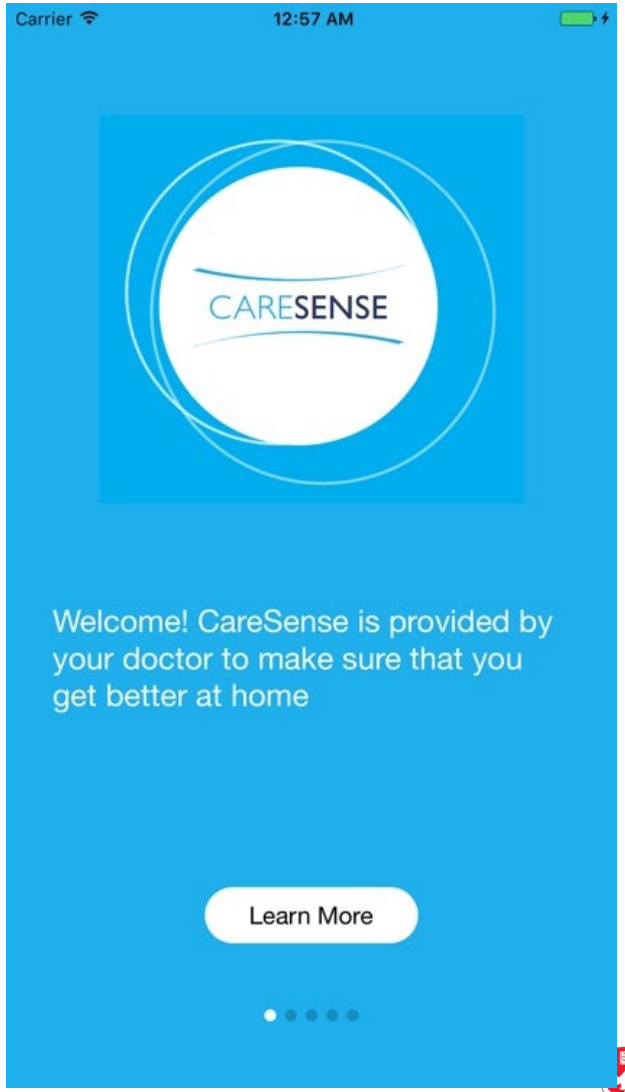
CareSense – Post-Discharge Remote Monitoring





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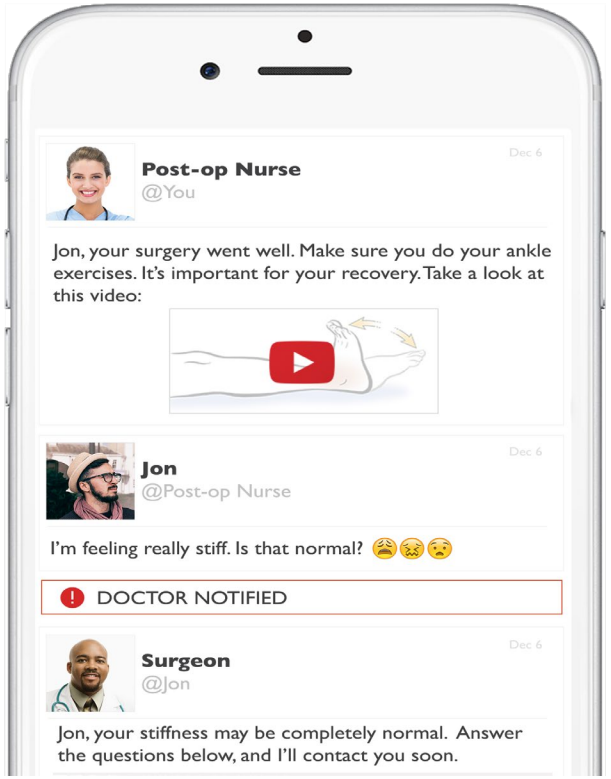
mHealth Apps

SeamlessMD

wellbe

twistle

Doctella
Let's start a conversation
Beta



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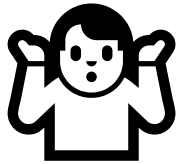
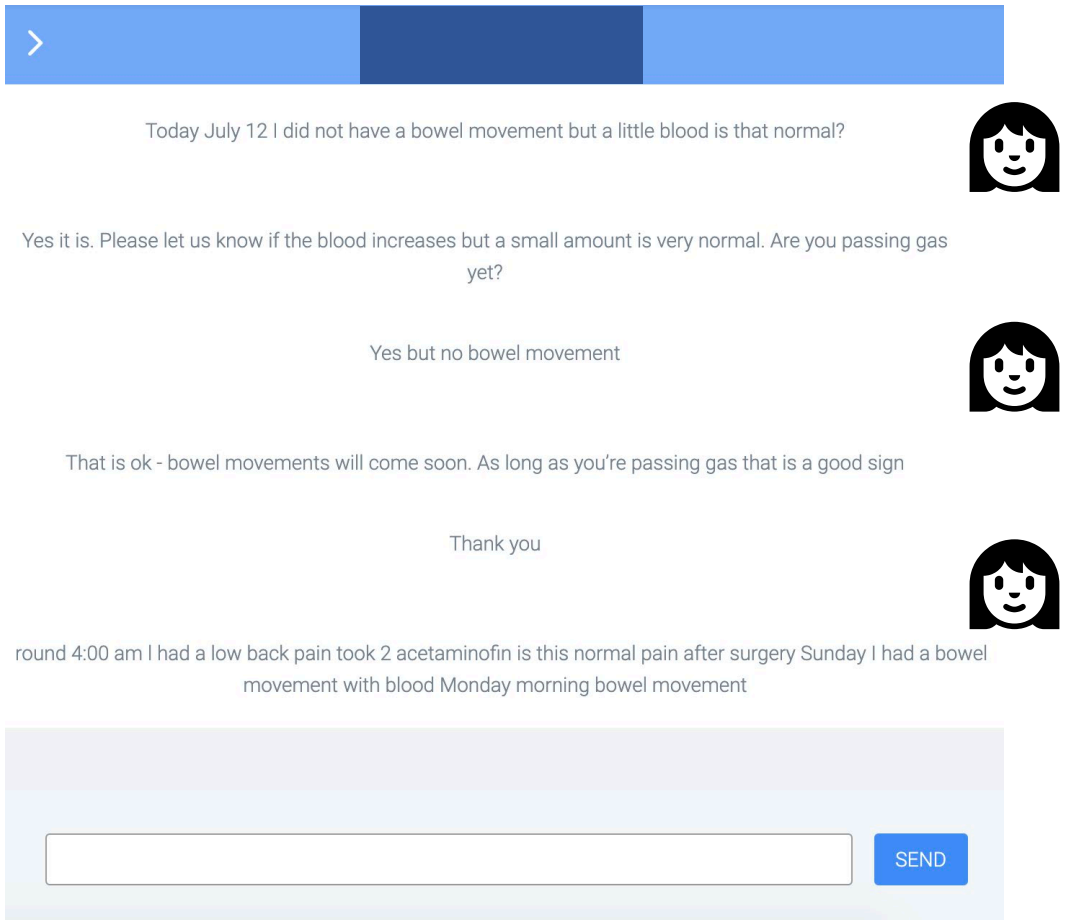
Post-Discharge Remote Monitoring

- Patient education booklet 
- Daily 5-item questionnaire up to POD7
  - Is your pain controlled with oral pain pills?
  - Are you able to drink liquids without nausea?
  - Are you passing gas or bowel movements?
  - Do you have a fever?
  - Is your wound leaking?
- HIPAA-compliant Patient-Physician communication feature 

Easy Access Communication



1. Patients love it
   - >90% felt safer with this function

2. Platform/medium doesn't matter
   - Mobile app
   - Telephone
   - Email

   as long as someone answers

   Lee et al. *Surg Endosc* 2022

3. Patients don't abuse it
   - Avg # messages in first 7 days: 13.8 (incl. responses)

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CareSense – Post-Discharge Remote Monitoring

	APP+ (n = 94)	APP- (n=256)	Statistic 95% CI p-value
Main Outcome			
Total number of preventable ED visits	4	23	Incidence Rate Ratio: 0.34 (95% CI 0.12 – 0.97) **p = 0.043**
Secondary Outcomes			
Mean length of stay, days (95%CI)	3.2 (2.2 – 4.2)	4.6 (4.1 – 5.2)	Mean difference: -1.62 days (95%CI -2.88 – -0.38) **p = 0.011**
30-day complications, n (%)	21 (22%	68 (27%)	Odds ratio: 0.68 (95%CI 0.39 – 1.19) p = 0.175
30-day ED visits, n (%)	14 (15%)	38 (15%)	Odds ratio: 0.84 (95%CI 0.44 – 1.61) p = 0.592
Total number of ED visits	15	41	Incidence Rate Ratio: 0.85 (95% CI 0.48 – 1.53) p = 0.594
Readmissions, n (%)	7 (7%)	16 (6%)	Odds ratio: 1.58 (95%CI 0.61 – 4.13) p = 0.348

Lower number of ED visits in APP+, but same number of readmissions

- able to identify adverse events through app-based interactions

Eustache et al. *DCR* 2021

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CareSense – Post-Discharge Remote Monitoring

- High satisfaction

- High useability
  - System Useability Scale 84.5 (SD 17.6)

- Improved communication
  - 88% felt that the app improved their ability to communicate with their surgeon

**Average number of messages per patient in the first 7 days: 6.9

ENHANCED RECOVERY 2.0 – SAME DAY DISCHARGE WITH MOBILE APP FOLLOW-UP AFTER MINIMALLY INVASIVE COLORECTAL SURGERY

Authors:
Lawrence Lee MD PhD[1,2], Jules Eustache MD[2], Gabriele Baldini MD MSc[3], A. Sender Liberman MD[1], Patrick Charlebois MD[1], Barry Stein MD[1], Julio F. Fiore Jr PhD[2], Liane S. Feldman MD[1,2]

Ann Surg 2021

	Strongly Agree/Agree	Neither Agree or Disagree	Disagree/Strongly disagree	Did not answer
I felt like I should have stayed in hospital to recover from my operation	3 (9%)	4 (11%)	28 (80%)	0 (0%)
I felt ready to go home when I left the hospital	27 (77%)	6 (17%)	2 (6%)	0 (0%)
I felt that I needed to go back to the hospital.	2 (6%)	3 (9%)	30 (85%)	0 (0%)
I was satisfied with my postoperative recovery at home	33 (94%)	0 (0%)	2 (6%)	0 (0%)
My symptoms and concerns after surgery were adequately taken care of using mobile phone app.	28 (80%)	0 (0%)	1 (3%)	6 (17%)
If I had to go through it all over again, I would still choose to go home on the day of surgery.	28 (80%)	3 (9%)	5 (14%)	0 (0%)

mHealth

mHealth remote follow-up after colorectal surgery is feasible & not associated with a high user burden

May decrease unnecessary ED visits

High satisfaction

Essential Elements / Lessons Learned

1. Patient selection

2. Post-discharge follow-up

3. Pain control

4. GI ”dys”function

Pain Control

485 patients were included with 42% TAP block versus 58% without

Specimen extraction incisions (SEI) were midline (11%), transverse (11%) and Pfannenstiel (78%)

TAP blocks were independently associated with a significant decrease in opioid use on both POD0 and POD1, but not beyond

TAP was independently associated with -6.8 MME (95%CI: -11.2,-2.3) on POD0 and -13.0 MME (95%CI -18.0,-8.1) on POD1 after adjusting for SEI and other confounders

SEI had no impact on opioid requirements

Stephan Robitaille MD, Anna Wang MD, Naser Al-Ali, Hiba Elhaj, A. Sender Liberman MD, Patrick Charlebois MD, Barry Stein MD, Liane S. Feldman MD, Julio F. Fiore Jr PhD , Lawrence Lee MD PhD, Does specimen extraction incision and transversus abdominus plane block affect opioid requirements after laparoscopic colectomy? ***Unpublished data**

Essential Elements / Lessons Learned

1. Patient selection
2. Post-discharge follow-up
3. Pain control
4. GI ”dys”function

GI ”dys”function

Is Clear Fluid (CF) diet tolerated on POD-0?

221 patients, 69% CF+ and 31% CF-

CF- more likely in IBD

The CF+ group

- fewer complications (19% vs. 35%, p = 0.009)
- shorter mean LOS (mean 3.6d (SD 2.9) vs. 6.2d (SD 9.4), p = 0.002)
- More likely to be discharged by the target LOS (66% vs. 50%, p = 0.024)

CF+ on POD-0 = potential criteria for SDD

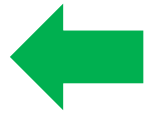
Leung VWY, Baldini G, Liberman S, Charlebois P, Stein B, Feldman LS, Fiore JF Jr, Lee L. Tolerating clear fluids diet on postoperative day 0 predicts early recovery of gastrointestinal function after laparoscopic colectomy. Surg Endosc. 2022 Dec;36(12):9262-9272. doi: 10.1007/s00464-022-09151-8. Epub 2022 Mar 7. PMID: 35254522.

Provider/Healthcare System Benefits

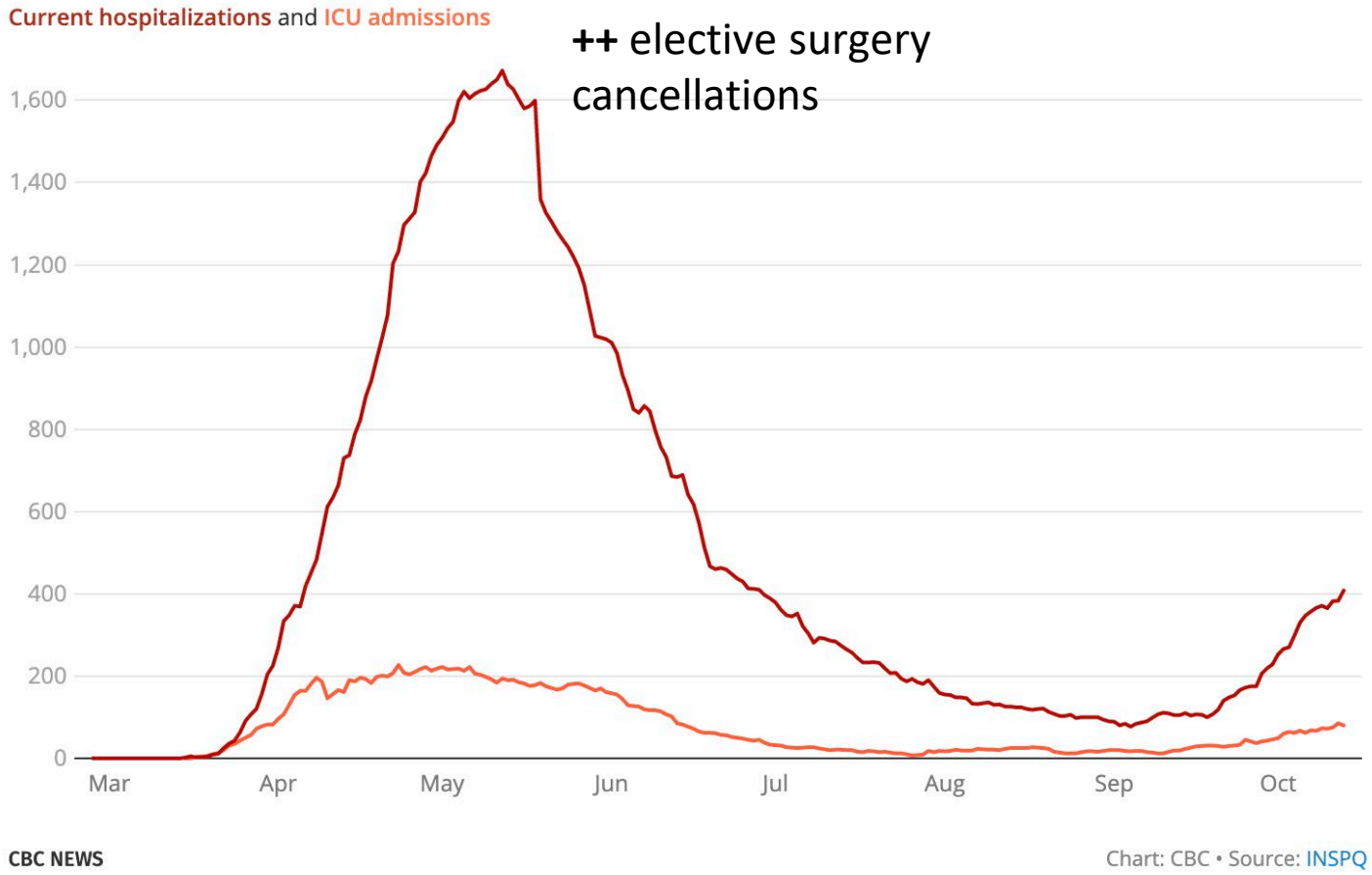
Hospital costs

SDD << standard inpatient ERP

	Difference in $CAD (95% CI)
Overall costs	-3486 (95% CI -5670, -1302)
OR costs	+329 (95% CI -432, 1091)
Hospital ward costs	-2090 (95% CI -3322, -858)
Pharmacy costs	-490 (95% CI -778, -202)
Diagnostic examination costs	-300 (95% CI -676, 76)
Laboratory costs	-203 (95% CI -328, -77)
Allied health costs	-64 (95% CI -376, 247)
ED and readmission costs	-736 (95% CI -1415, -57)



COVID-19 Hospitalizations October 2020



SDD allowed patients to get their surgery even with limited inpatient hospital capacity

- Shorter delays to surgery
- ”Better” cancer outcomes

Still relevant with ongoing human resource limitations

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Future Directions

- Health wearables integration for *true* remote monitoring

HR >100, T >38.5, no activity

HR >100, T 37, ↑ activity

How can we improve eligibility for SDD?

Prehabilitation

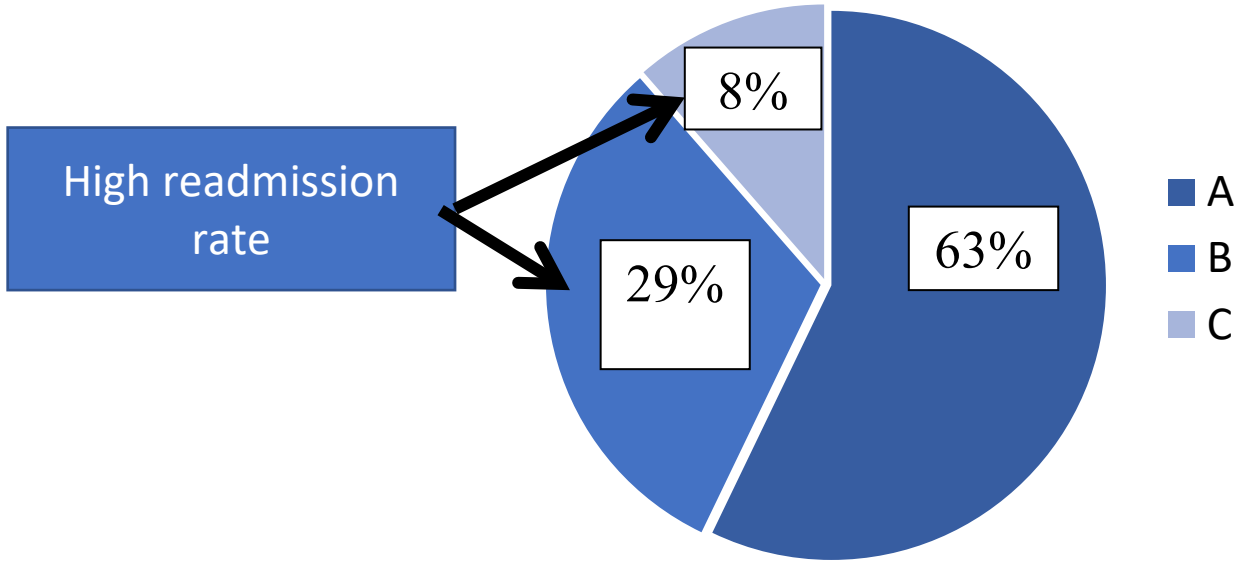
WHERE DOES THIS FIT IN?

CAN WE IMPROVE SDD RATE?

Undernutrition Before Surgery: Our Experience.

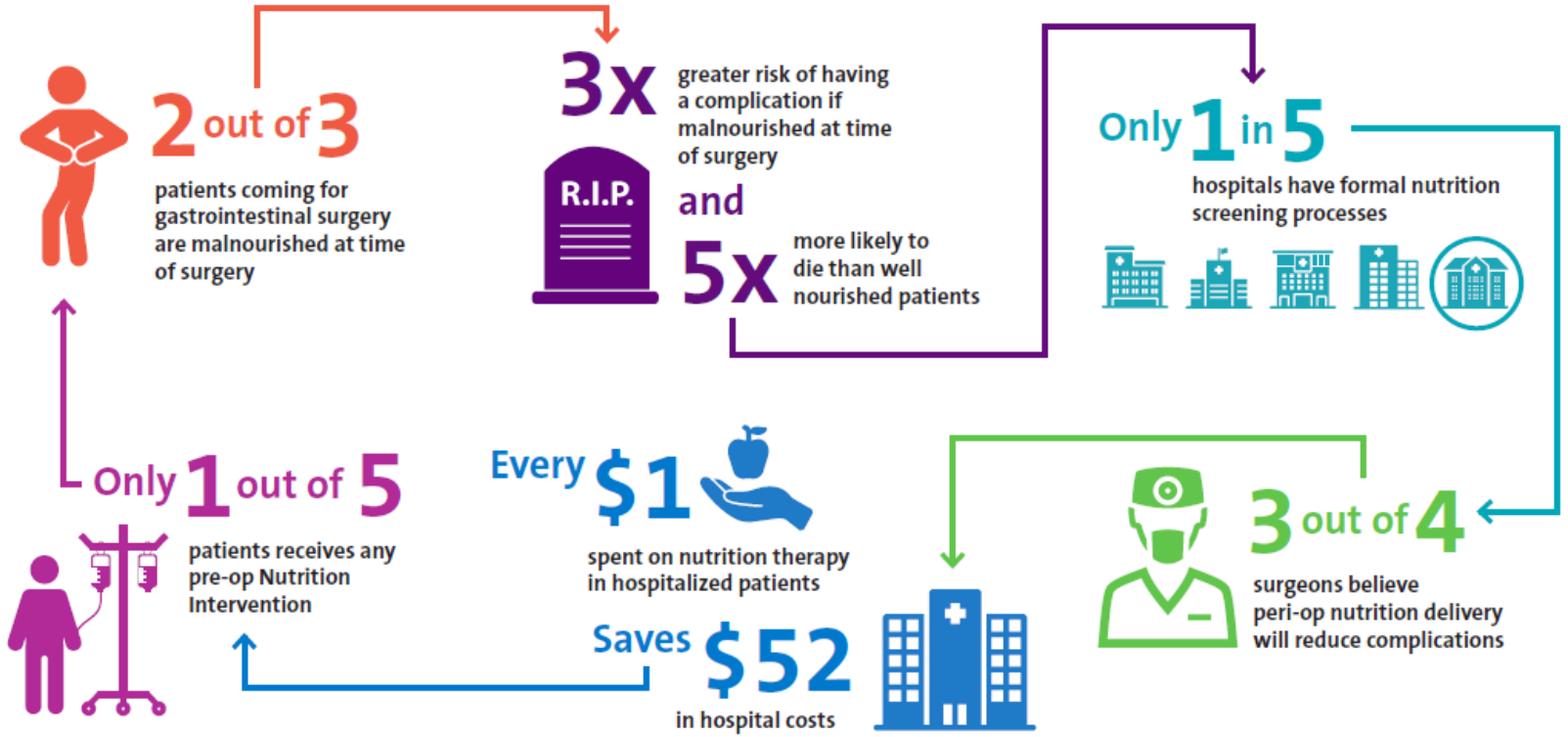
Gillis C, Carli F . Nut Clin Pract 2015

The incidence of undernutrition in *all* patients attending preoperative clinic at Montreal General Hospital for *elective colorectal surgery*



Global Assessment (n=70) score A refers to adequately nourished; B moderate or suspected undernutrition; C severely undernourished

Malnutrition



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Exercise

Physical activity: any bodily movement produced by skeletal muscle that results in energy expenditure = **"Movement"**

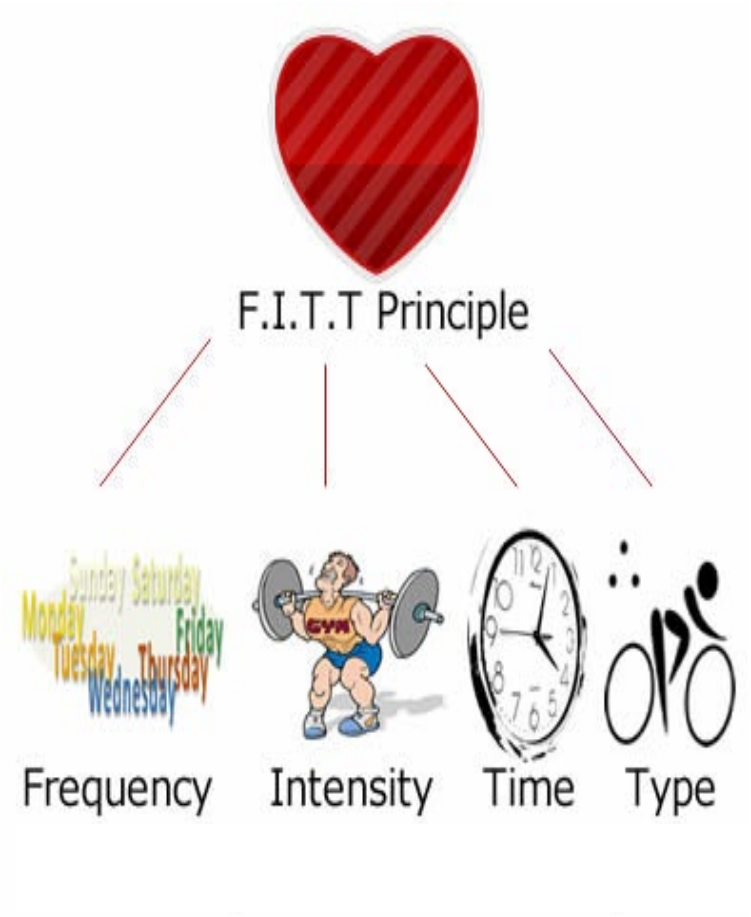
can be measured (kcal)	occupational, sports, conditioning, household or other activities.

Exercise: physical activity that is **planned, structured, performed regularly/repetitively** and has a **goal** of improving or maintaining **physical fitness** = **Quantifiable**

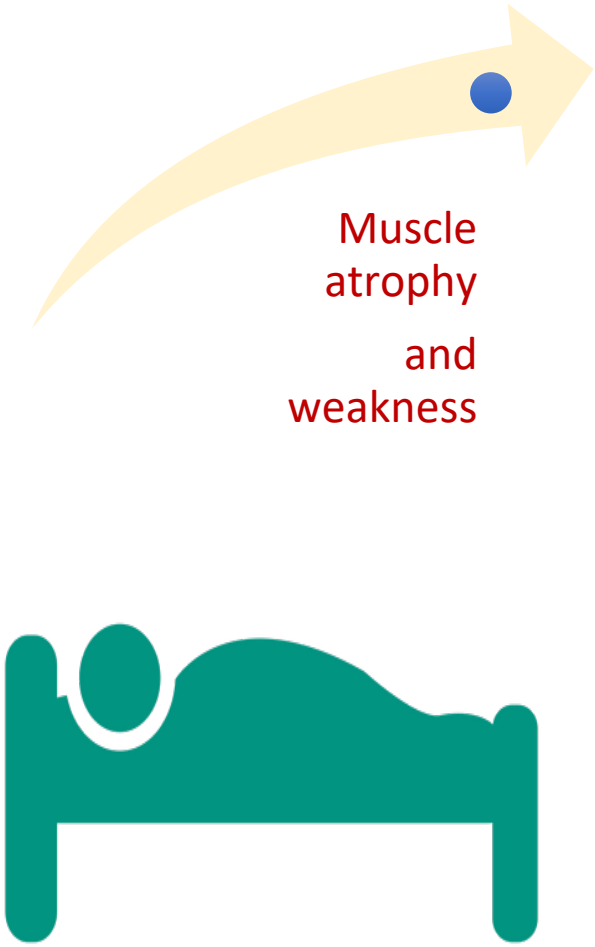
Physical fitness: a set of attributes that are either **health** or **skill** related. The degree to which individuals possess (or do not possess) these attributes can be **measured** with **specific tests.**

(Caspersen et al., 1985)

Further defining exercise: dose

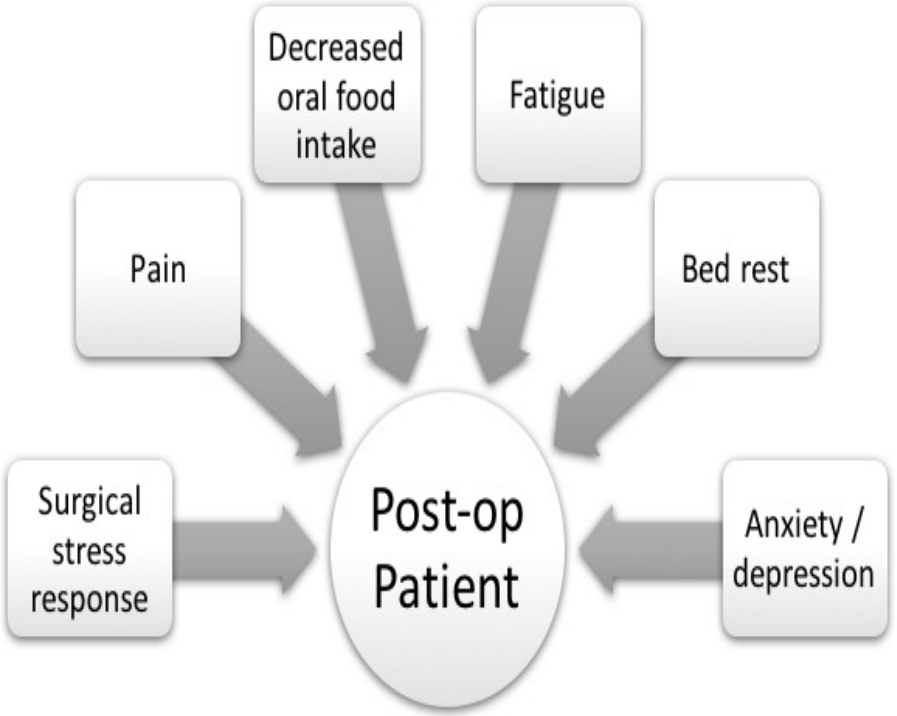


For the (pre) surgical patient, exercise is especially important

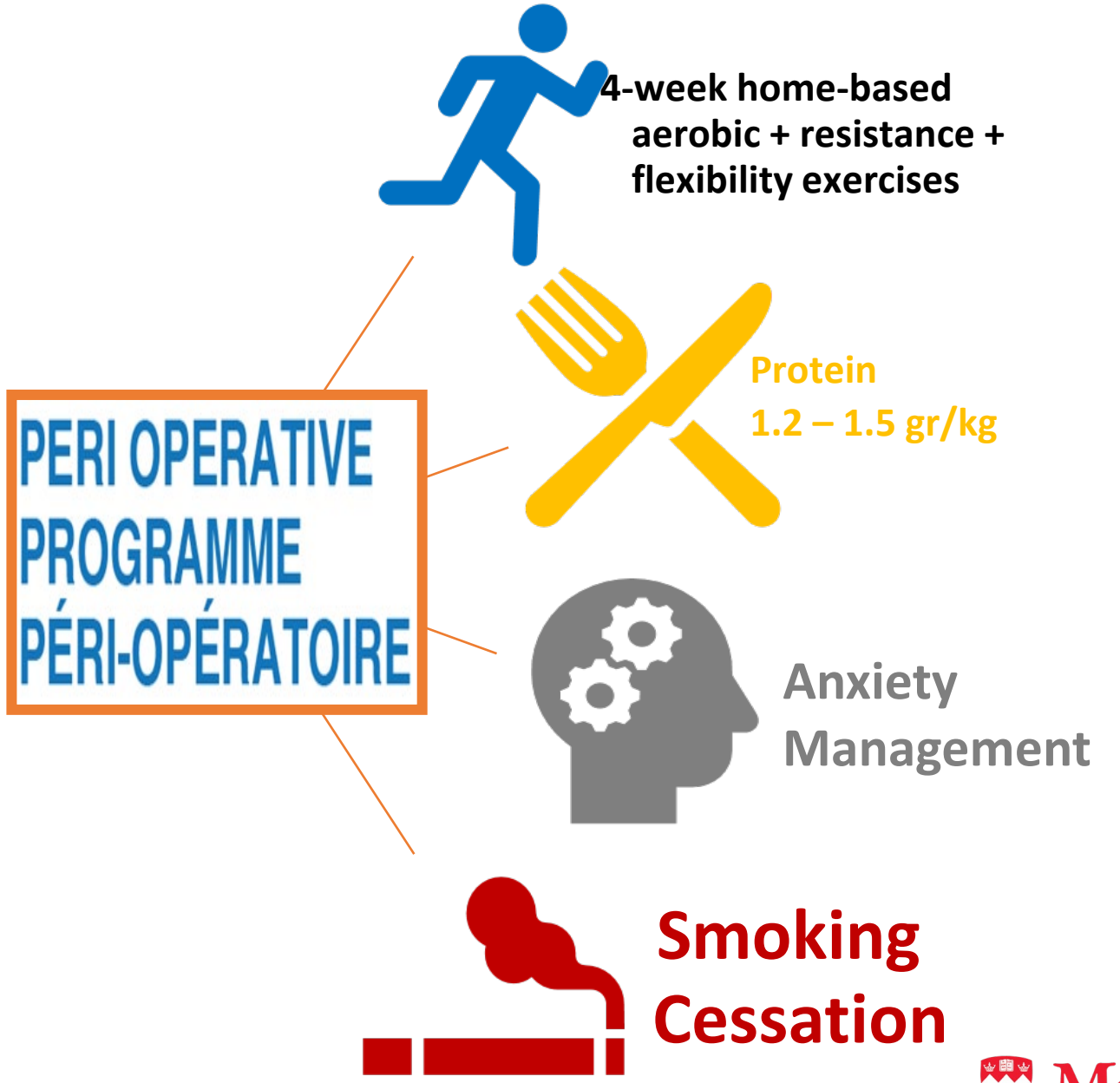


Muscle atrophy

and weakness

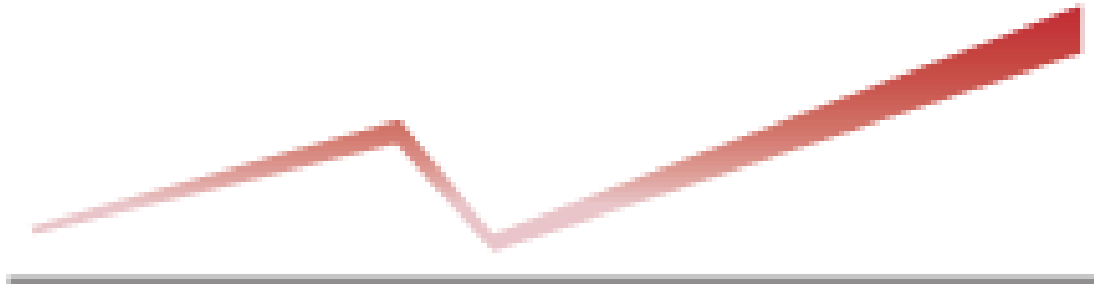


Components of McGill Multimodal Prehabilitation



Can Prehab improve SDD rates?

- Strengthening candidacy for same day discharge colorectal surgery: A multi-centered mixed methods study (Grant submitted)



PERI OPERATIVE
PROGRAMME
PÉRI-OPÉRATOIRE

- Same-day discharge for colorectal surgery: looks promising
- Digital health technologies are central
- Patient, provider, and healthcare benefits
- Prehabilitation may expand the candidacy range for SDD

Questions?

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