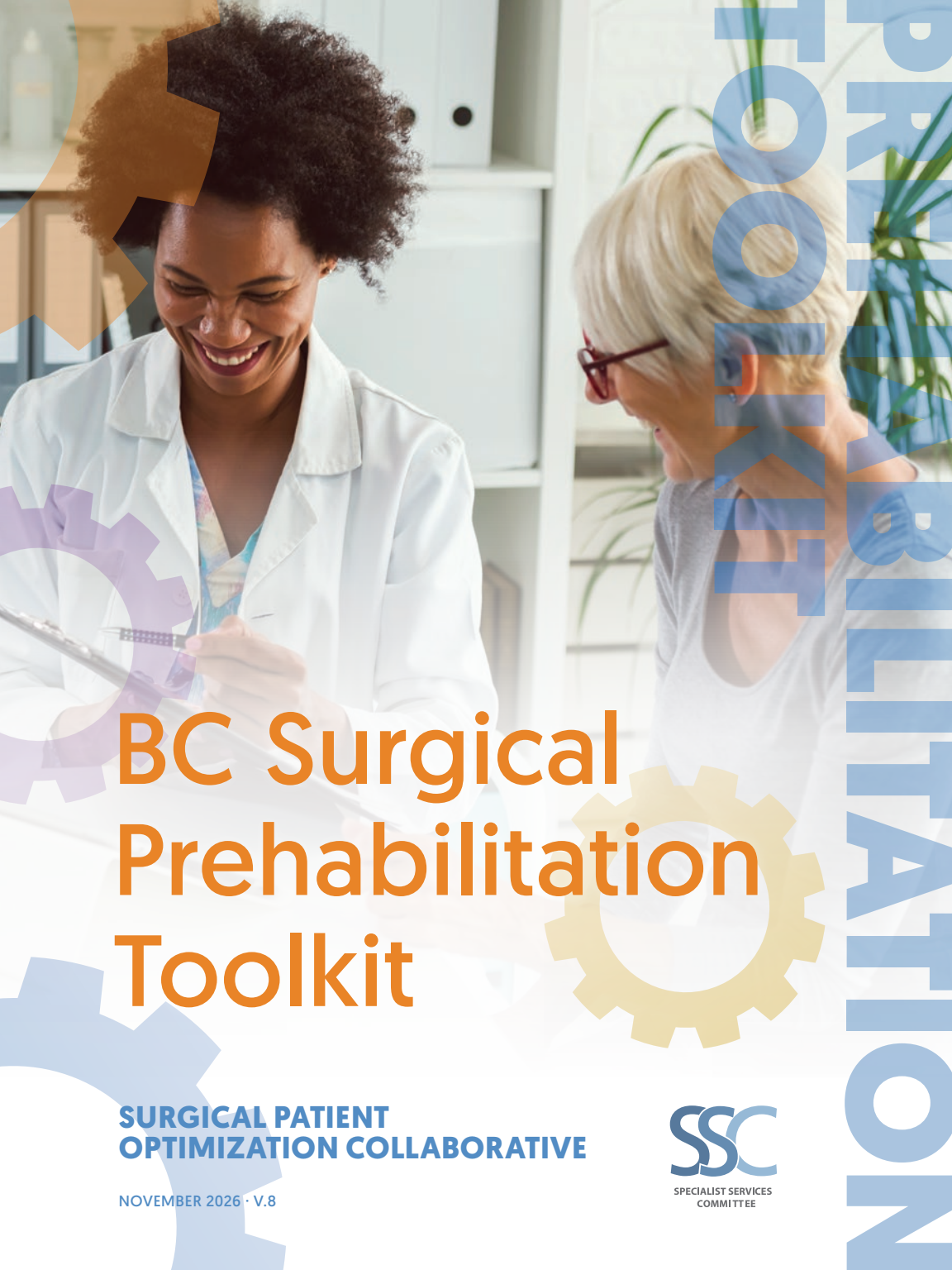


BC Surgical Prehabilitation Toolkit

PREHABILITATION TOOLKIT

SURGICAL PATIENT OPTIMIZATION COLLABORATIVE

NOVEMBER 2026 · V.8

SPECIALIST SERVICES COMMITTEE

PREHABILITATION TOOLKIT

This toolkit includes recommendations which may be used for surgical patient prehabilitation and optimization.

Watch Video
BC Surgical Prehabilitation Overview

TOOLKIT **OBJECTIVE**

To improve patients' surgical outcomes and experiences through mental and physical preparation prior to surgery.

TABLE OF CONTENTS

Welcome 4

Key Definitions 9

Acknowledgments 10

Clinical Components 13

- Anemia 16
- Cardiac 22
- Delirium 26
- Frailty 32
- Glycemic Control 36
- Goals of Care 40
- Mental Wellbeing 42
- Nutrition 48
- Obesity 52
- Obstructive Sleep Apnea 56
- Pain Management 62
- Physical Activity 68
- Smoking Cessation 72
- Substance Use
  - Alcohol 78
  - Cannabis 84
  - Illicit Substances 88
- Support After Surgery 94

Patient Activation 97

Process Improvement 101

Spread and Sustainability 103

Appendices 106

References 118

WELCOME

Prehabilitation and optimization are crucial strategies for enhancing patient health before surgery, thereby reducing the risk of postoperative complications. The presurgical period represents a window of opportunity to boost and optimize the health of an individual, providing a compensatory buffer for the imminent reduction in physiological reserve post-surgery.

Prehabilitation is a proactive approach that focuses on improving patients' physical and psychological resilience through interventions such as exercise, nutrition, and psychological preparation. Optimization centers on improving patients' medical conditions prior to surgery such as managing comorbidities, adjusting medications, and conducting health screenings. Both strategies are vital for expediting recovery, improving patient experiences and outcomes, and reducing healthcare system costs.

Surgical Patient Optimization Collaborative

Following the success of the 2015-16 Enhanced Recovery After Surgery (ERAS) Collaborative, the Surgical Patient Optimization Collaborative (SPOC) launched in 2019 with 14 sites and expanded with another 13 sites in 2022, to include a total of 27 sites. The collaboratives provided system change strategies, funding support, and shared learning to interdisciplinary teams. Through SPOC 1.0 and 2.0, prehabilitation programs have been established in more than 50% of hospitals performing surgery in BC, demonstrating the benefits of prehabilitation to surgical patients, providers, and the healthcare system within the BC surgical landscape.

The Toolkit

This toolkit was originally created in 2019 by the BC Surgical Optimization Working Group and vetted by 15 provincial sites involved in the Surgical Patient Optimization Collaborative (SPOC). Through 2024, the BC Prehabilitation Working Group reviewed and updated the toolkit, adding clinical context, actionable recommendations and screening tool recommendations based on current evidence-based guidelines.

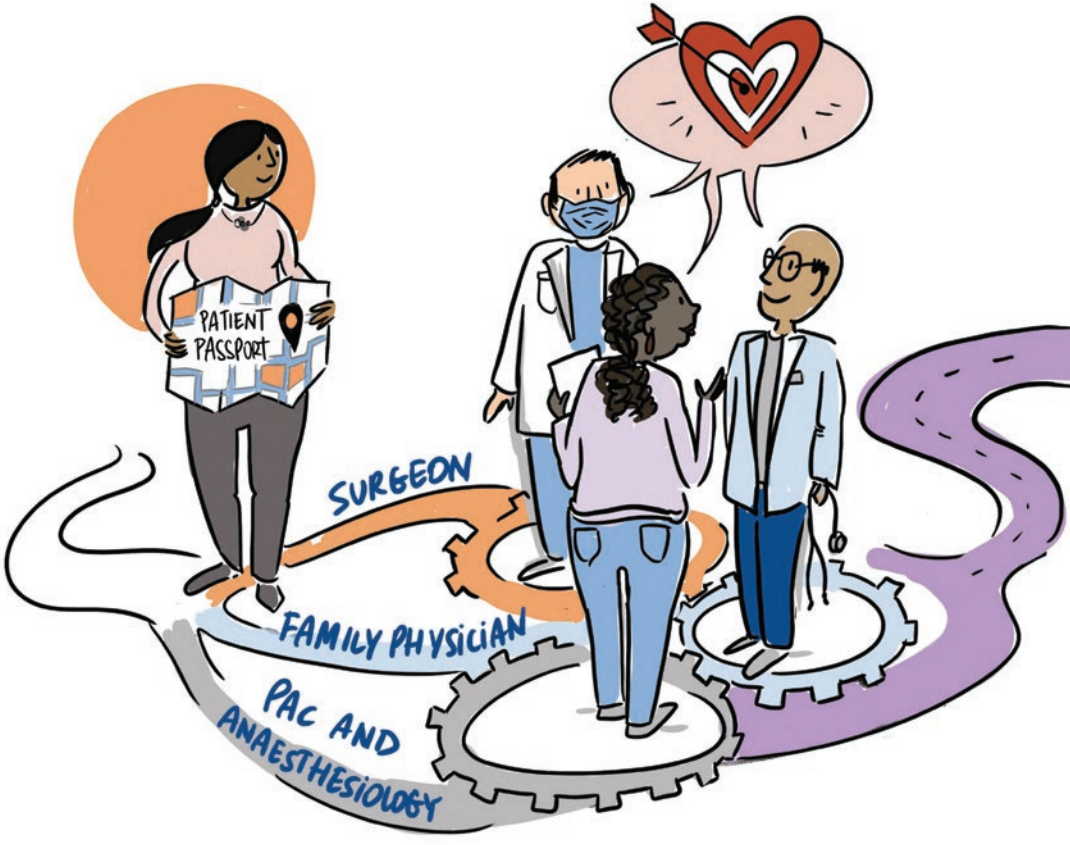
This updated toolkit reflects valuable feedback from clinicians within the collaborative and insights from field experts, aimed at enhancing the usability of clinical component pathways. The revisions focus on making the pathways more actionable and practical for providers, while also adding new components that address emerging needs and best practices identified through ongoing engagement around prehabilitation. The toolkit is reviewed and updated annually by the BC Prehab Faculty to ensure it remains current with the most up-to-date evidence-based guidelines and recommendations.

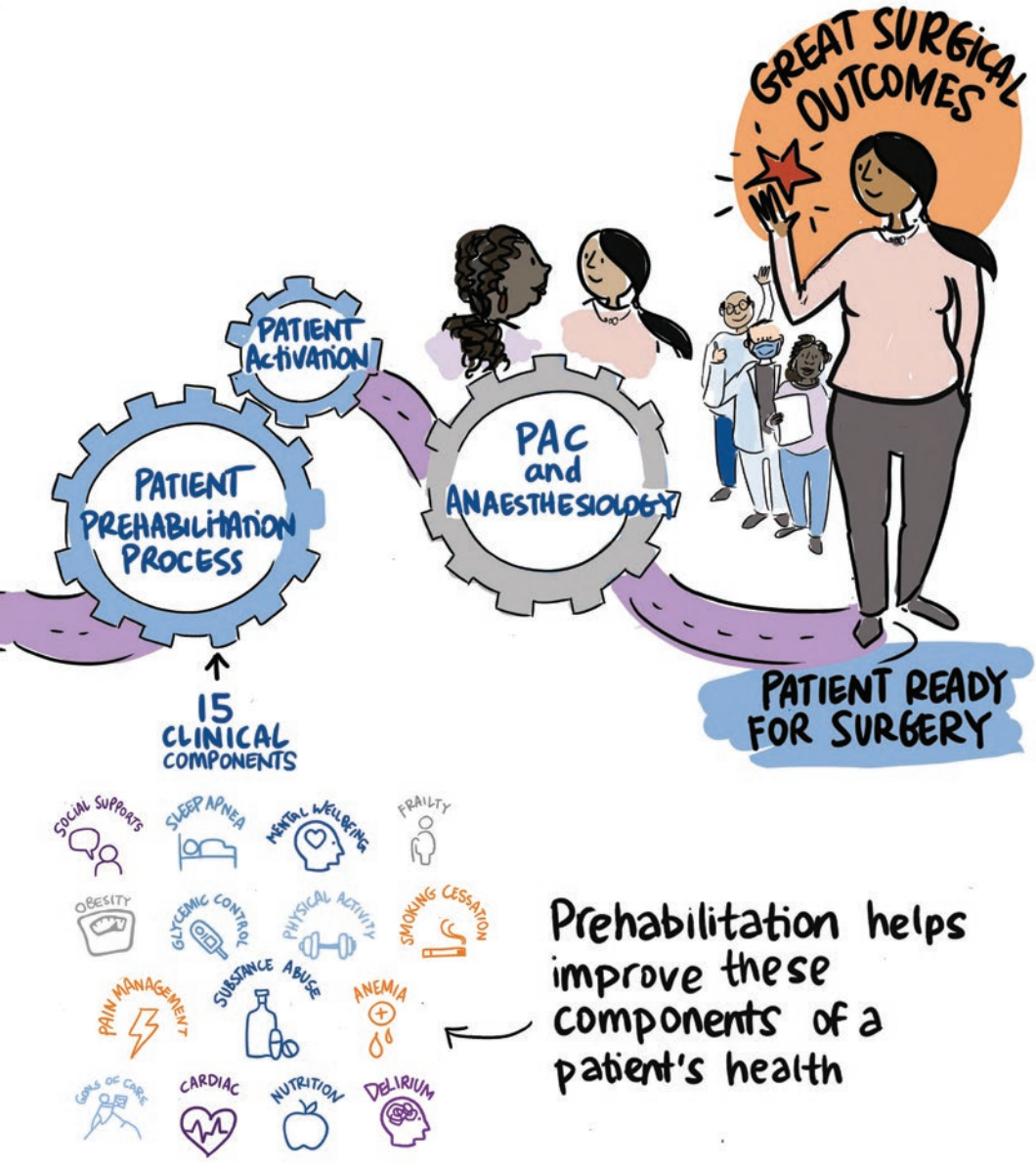
Scope

This toolkit includes clinical context for each clinical component and actionable recommendations for prehabilitation and optimization that may prove useful for healthcare providers looking to prehabilitate patients before surgery. This toolkit is not meant to dictate the practice of clinicians, rather to provide options that are available to both providers and patients throughout British Columbia. Clinicians are encouraged to use the toolkit at their own discretion based on the best interest of the patient.

PATIENT SURGICAL PREHABILITATION JOURNEY

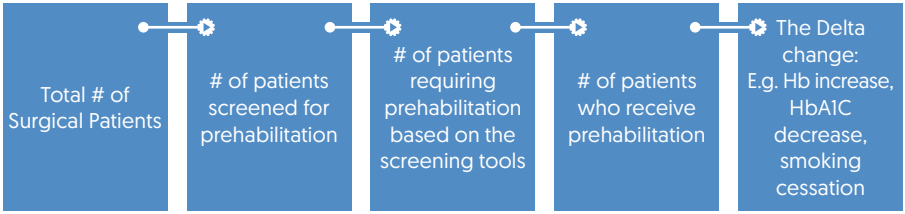
Aim: To improve patients' surgical outcomes by optimizing their mental and physical health before surgery.




GREAT SURGICAL OUTCOMES
PATIENT ACTIVATION
PATIENT PREHABILITATION PROCESS
PAC and ANAESTHESIOLOGY
PATIENT READY FOR SURGERY
15 CLINICAL COMPONENTS
SOCIAL SUPPORTS
SLEEP APNEA
MENTAL WELLBEING
FRAILTY
OBESITY
GLYCEMIC CONTROL
PHYSICAL ACTIVITY
SMOKING CESSATION
PAIN MANAGEMENT
SUBSTANCE ABUSE
ANEMIA
GOALS OF CARE
CARDIAC
NUTRITION
DELIRIUM
Prehabilitation helps improve these components of a patient's health

Prehabilitation Performance Indicators

The following measures can be used as indicators to alert a team of any improvement that may be needed in the process of prehabilitation.



Postoperative patient outcomes should be recorded when optimizing patients for surgery (Appendix A)

Family and Caregiver Partners

Patient partners such as family members or other caregivers should be included as part of the prehabilitation team. To effectively involve patient partners in the prehabilitation process, the language, culture, and health literacy of both the patient and their partners should be considered.

The desired outcomes of both the patient and the patient partner should be considered when making decisions about surgery. This includes, but is not limited to, how much they would like to know about the process, what to expect from surgery, and what they expect their condition to be like after surgery.

The patient passport can be shared with the patient partner to facilitate their involvement in the prehabilitation process.

Adapted from Agency for Clinical Innovation | The Perioperative Toolkit[†]

Implementing the Toolkit

For best chances of success in implementing the changes in this toolkit there must be appropriate planning of objectives, team member roles, and milestones. Communication with all relevant parties about the plan and the reason for implementing the toolkit will also increase the chances of success with patient prehabilitation. Finally, assessment of the process through objective and subjective measures allows for improvement of the process and can help lead to lasting change. Refer to the PCAN Surgical Patient Prehabilitation Implementation Toolkit for implementation guidance.

Adapted from Agency for Clinical Innovation | The Perioperative Toolkit[†]

Revisions to the Toolkit

This toolkit is a collection of the best practices and knowledge available at the time of development. Any feedback can be directed to the Specialist Services Committee, sscbc@doctorsofbc.ca and appropriate changes will be made to the best ability of the development team.

KEY DEFINITIONS

Prehabilitation
Improving patients' physical and psychological conditions before surgery.

Optimization
Improving patients' medical conditions before surgery

Clinical Components
The aspects of a patient's health that can affect surgical outcomes.

Patient Activation
A patient's understanding, ability and willingness to manage and be involved in their own health and healthcare.

Screening Tool
Assessment of a surgical patient to determine whether or not prehabilitation is needed for each clinical component.

Prehabilitation and Optimization Recommendations
Actionable items that health care providers can use to prehabilitate and optimize patients.

Measurement
A measure of whether the patients selected for intervention were successfully prehabilitated.

[†] *www.aci.health.nsw.gov.au/__data/assets/pdf_file/0010/342685/The_Perioperative_Toolkit.pdf*

ACKNOWLEDGMENTS

The BC Surgical Prehabilitation Toolkit was first developed by the Specialist Services Committee of Doctors of BC in 2019 and updated in 2024 with the support and expertise of all members listed below.

Over countless hours, the following individuals came together as working groups and a faculty of experts to create and refine the contents of this toolkit. We thank them for their contributions to BC healthcare.

Dr Kelly Mayson
Anesthesiologist

Dr Lindi Thibodeau
Anesthesiologist

Dr Jacqueline Trudeau
Anesthesiologist

Dr Michelle Scheepers
Anesthesiologist

Dr Brenda Lau
Anesthesiologist

Dr Ainsley Sutherland
Anesthesiologist

Dr Jill Osborne
Anesthesiologist

Dr Katarina Kojik
Anesthesiologist

Dr Don Young
Anesthesiologist

Dr Su-Yin MacDonell
Anesthesiologist

Dr Victor Tran
Anesthesiologist

Dr Vincent Fruci
Anesthesiologist

Dr Alyssa Hodgson
Anesthesiologist

Dr Rosie Earle
Anesthesiologist

Dr Milan Khara
Addiction Medicine Specialist

Dr Karen Shklanka
Addiction Medicine Specialist

Dr Breay Paty
Endocrinologist

Dr Jordana Kapulto
Endocrinologist

Dr Tom Wallace
General Surgeon

Dr Erin Sloan
Internal Medicine

Dr Golhmer Sajjady
Internal Medicine

Dr Martha Spencer
Geriatrician

Dr Naaz Parmar
Geriatrician

Dr Gurmeet Sohi
Geriatrician

Dr Robynn Lester
Geriatrician

Dr Lisa Miller
Psychiatrist

Mandy Kennedy
Dietician

Dr Raj Bhui
Family Physician

Dr Sophia Chong
Family Physician

Dr Leslie Wood
Family Physician

Amy Myring
ERAS Coordinator

Julie Nakahara
ERAS Coordinator

Sarah Sauve
ERAS Coordinator

Tracey Hong
ERAS Coordinator

Marija Stefic-Cubic
Clinical Nurse Specialist

Sarah Hearne
Transitional Pain Specialist

Savannah Forrester
Seniors Health

Kyle Heppner
Physiotherapist

Darryl Caves
Physiotherapist

Heather Lawrence
Physiotherapist

John Warkentin
Pharmacist

Lila Gottenbos
NSQIP Champion

Kris Juck
Pain Care BC

Tatiana Popovitskaia
Pain Care BC

Laura Churchill
Choose to Move

Melanie Rathgeber
Evaluation

Claire Snyman
Patient Activation

Karen Bowen
Spread and Sustainability

Karen Phenix
Quality Improvement

Vicki Kendall
Patient Representative

Michelle Montgomery
Project Manager

Rachel Milledge
Project Specialist

Sooky Moore
Project Manager

Geoff Schierbeck
SSC Portfolio Liaison

Elizabeth Babcock
SSC Project Coordinator

Sarah White
SSC Administrative Assistant

Imayan Subramaniam
Medical Student

Micheline Metzner
Medical Student

Valerie Swanston
Medical Student

CLINICAL **COMPONENTS**

Implement clinical tools to prehabilitate patients prior to surgery

PATIENT **ACTIVATION**

Activate patients in their care

PROCESS **IMPROVEMENT**

Introduce a refined process to allow for prehabilitation

S·P·R·E·A·D

Address the human aspects of change, to ensure change endures and is spread widely

CLINICAL **COMPONENTS**

- Anemia
- Cardiac
- Delirium
- Frailty
- Glycemic Control
- Goals of Care
- Mental Wellbeing
- Nutrition
- Obesity
- Obstructive Sleep Apnea
- Pain Management
- Physical Activity
- Smoking Cessation
- Substance Use
  - Alcohol
  - Cannabis
  - Illicit
- Support After Surgery

CLINICAL COMPONENTS

The following pages provide the clinical context, screening tools, prehabilitation and optimization algorithms and actionable recommendations for each clinical component identified as a modifiable prehabilitation or optimization factor leading up to surgery.

The following information is included for each component:

1. Introduction providing the perioperative risks and impacts of prehabilitation and optimization for the component
2. Screening tool recommendation based on current evidence-based guidelines and validated risk scores where possible
3. Visual algorithm outlining potential workflow for assessing the clinical component and actional prehabilitation and optimization goals
4. Detailed information for each step in the visual algorithm

References for each section can be found at the end of the toolkit

Online resources referred to throughout the toolkit can be accessed on the SSC website via the QR code.

Access the online version here

Sample Clinical Component

1

GLYCEMIC CONTROL

Studies have reported an association between hyperglycemia and adverse infectious and cardiovascular outcomes after cardiac and noncardiac surgery. [1-5] Many studies recommend delaying elective surgery until HbA1c levels are below 8.5, recognizing that this may not be feasible for all patients and that such a cutoff is not currently supported by robust evidence. [6-10]

Screening Tools

Glycemic Control Screening Questions extrapolated from BC Guidelines for Diabetes Care [11]

The CANRISK questionnaire is a validated risk tool for patients to self-assess their diabetes risk. [11]

2

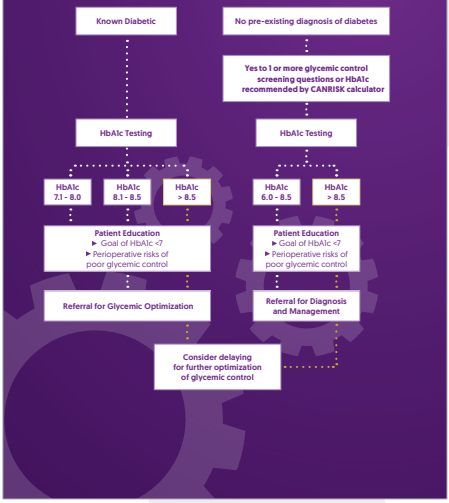
Glycemic Control Screening Questions

	YES	NO
Previously diagnosed with diabetes	☐	☐
Age over 40	☐	☐
Family history of diabetes	☐	☐
History of hypertension, dyslipidemia or steroid use	☐	☐
BMI >25	☐	☐
History of gestational diabetes mellitus	☐	☐
History of pre-diabetes	☐	☐

SCORING If **YES** to any of the above questions then a preoperative screening hemoglobin A1c test is recommended.

3

GLYCEMIC CONTROL ALGORITHM



4

Prehabilitation and Optimization Recommendations

Patient Education	○ Reinforce general goal of A1c less than 7 [12] ○ Explain perioperative risks of hyperglycemia ○ Refer to online patient resources ○ If no previous diabetes diagnosis: • HbA1c 6.0-6.4: likely prediabetic • HbA1c > 6.5: likely diabetic
Referral for Diabetes Diagnoses and Management (no pre-existing diabetes)	○ Encourage follow-up with primary care provider for confirmation of diabetes diagnosis and initiation of management ○ Refer to online provider resources for referral templates
Referral for Glycemic Optimization (known diabetes)	○ Request re-evaluation from physician directing diabetes care with the goal of improving blood glucose control prior to surgery, if feasible ○ If holding GLP-1 agonist for a prolonged duration, adding other antihyperglycemic medication may be required ○ Refer to online provider resources for telehealth consultation options and referral templates
Consider Delaying for Glycemic Optimization	○ Discuss concerns, including potential benefits and risk of delaying surgery, with surgical team, particularly for total joint arthroplasty, vascular surgery, and spine surgery with instrumentation ○ Refer to local diabetes expert or online provider resources for telehealth consultation options

ANEMIA



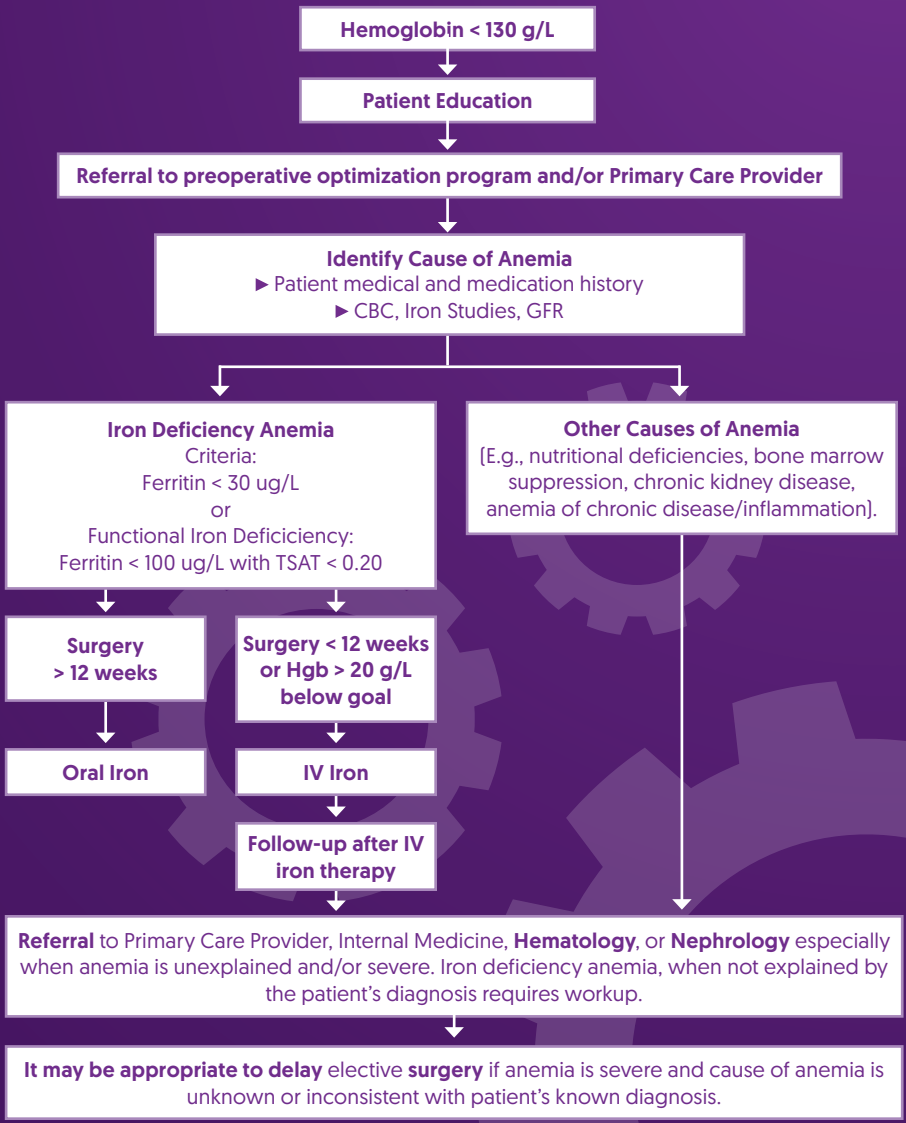
Preoperative anemia is common, especially in orthopedic, gynecologic, and colorectal surgical patients. [1,2] "The presence of preoperative anemia, even if mild, has been associated with increased risk of red blood cell (RBC) transfusion and increased morbidity and mortality after surgery.

In addition, transfusion of RBCs has been consistently associated with worsened clinical outcomes". [3] Anemia is defined by the WHO as Hgb less than 130 g/L in men and less than 120 g/L in women. Because women are actually at a higher risk of transfusion (lower blood volume), blood management programs advocate for defining preoperative anemia as less than 130 g/L in both men and women.

Screening Tools

Preoperative hemoglobin (Hgb) is recommended to screen for anemia in patients when they are undergoing a procedure that would warrant a group and screen (e.g., revision arthroplasty, large volume prostatectomy, cardiothoracic, hepatobiliary, major spine and major urological procedures). Practitioners may also screen for anemia in patients where index of suspicion is high based on history and medical comorbidities. If a patient is found to be anemic, additional blood work is recommended to delineate the cause.

ANEMIA ALGORITHM



Prehabilitation and Optimization Recommendations

Patient Education	⚙ Communicate importance of optimizing hemoglobin before surgery to decrease perioperative risks ⚙ Refer to online patient resources
Referral to Preoperative Optimization Program and/ or Primary Care Provider	⚙ In addition to treatment of anemia, patients with unexpected or unexplained anemia require further medical workup for investigation and treatment. This is particularly critical for patients with unexplained iron deficiency anemia, as they may need further evaluation to rule out serious conditions like gastrointestinal cancers.
Identify Cause of Anemia	⚙ Past medical history including bleeding history, medication history, and investigation history. ⚙ Bloodwork: CBC with differential, iron studies [ferritin, transferrin saturation (Tsat), serum iron, total iron binding capacity], GFR, CRP, B12. ⚙ Which patients require treatment? High blood loss surgeries or operations where group and screens are routinely required, such as: revision/bilateral arthroplasty, large volume prostatectomy and major urological procedures, major gynecology, open bowel resection/general surgery or hepatobiliary, cardiothoracic, multilevel spine. ⚙ Other situations where treatment should be considered: • Patients with anemia undergoing minor procedures. • Patients with iron deficiency with normal hemoglobin *particularly if about to undergo major surgery.

Treat Iron Deficiency Anemia

- Criteria: Ferritin < 30 ug/L or Ferritin 30-100 ug/L and transferrin saturation < 0.20
- If surgery > 12 weeks away: oral iron (e.g., ferrous fumarate 300 mg PO every other night with 600-1200 mg vitamin C (4)); recheck Hgb after one month
- If surgery < 12 weeks away or Hgb > 20 g/L below goal: IV iron.

  Dosing: Iron deficit can be estimated using the Ganzoni formula.

  Standardized dosing = Iron isomaltoside 1000 - 1500 mg (1-2 doses) or iron sucrose 900 - 1500 mg (3-5 doses).

Follow-up After IV Iron Therapy

- Expected duration of iron therapy:
  - Oral iron requires a minimum of 12 weeks to determine effect.
  - IV iron begins to take effect within 10-14 days, with an increase of up to 10g/L per week.
  - Goal: Hgb > 130 g/L. This is unachievable in many patients given the timing of surgery and logistics of treatment. Clinical judgment is required as to when maximum benefit has been achieved/ when to proceed.
- Follow-up bloodwork should be arranged 3-4 weeks post IV iron and 3 months post oral iron initiation to assess therapy. A preoperative CBC is recommended.
- Patients undergoing major surgery, or those that are iron deficient postoperatively may benefit from oral iron once the surgical period is over and the patient has recovered (oral iron not effective in the context of inflammation, so not recommended immediately postoperatively).

Referral to Hematology, Nephrology, or Internal Medicine	⚙ For other causes of anemia (e.g., nutritional deficiencies, bone marrow suppression, chronic kidney disease, anemia of chronic disease/ inflammation), or if the patient shows an inadequate response to iron treatment, consider referring the patient to a subspecialist physician for further management.
Consider Delaying Surgery	⚙ Consider postponing elective surgery to allow time for further investigation and treatment of anemia to support better surgical outcomes and reduce potential complications. This is particularly relevant when the anemia is severe, unexpected or unexplained. Suggest communication with the surgical team. ⚙ Patients with a signed refusal for blood products undergoing high blood loss surgeries require special consideration. Consider multidisciplinary discussion and delaying surgery until desired hemoglobin is reached.



CARDIAC



In patients 45 years or older hospitalized for at least one night after elective non-cardiac surgery, the overall 30-day mortality rate in a large multinational study involving more than 40,000 patients was 1.8%, with variations in rate depending on region of the world.

For the 22,447 patients within the study from North America, Europe and Australia, overall 30-day mortality was 1.1% .The 30-day mortality risk for non-elective urgent/emergent surgery is at least double the risk of elective surgery. [1]

Many of these deaths are linked to cardiac complications. [1] Myocardial Injury after Noncardiac Surgery (MINS) occurs in 12%-24% of these mortality cases, as indicated by troponin levels exceeding the 99th percentile within 3 days of surgery and presumed to be due to myocardial ischemia,. [2] MINS is associated with a postoperative 30-day mortality rate of 9.8%, compared to 1% for those without it, and increases the risk of major vascular complications, such as myocardial infarction and stroke [3,4,5]. Most patients suffering MINS postoperatively are asymptomatic for ischemic features or symptoms. Without postoperative troponin testing, 90% of patients experiencing MINS would remain undetected. [3, 6, 7]

Screening Tools

The Revised Cardiac Risk Index (RCRI) is a six-question tool used to estimate a patient's risk of major perioperative cardiac complications after non-cardiac surgery. [8, 9] For patients aged ≥ 65, or for patients aged 45-64 with either significant cardiovascular disease, or an RCRI score ≥ 1, measuring NT-proBNP or BNP before non-cardiac surgery can improve risk assessment [10]. When the postoperative risk of MINS is deemed to be greater than a 5% risk based on NTproBNP or BNP levels, then postoperative MINS Surveillance by way of Troponin testing is indicated [10]

Revised Cardiac Risk Index

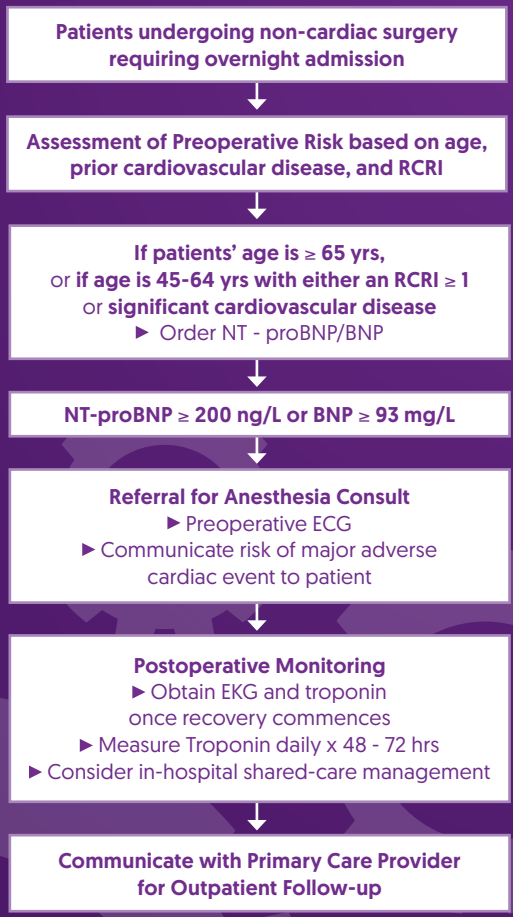
RCRI SCREENING	YES	NO
1. History of ischemic heart disease	☐	☐
2. History of congestive heart failure	☐	☐
3. History of cerebrovascular disease	☐	☐
4. Use of insulin therapy for diabetes	☐	☐
5. Preoperative serum creatinine > 177 µmol/L (>2.0 mg/dL)	☐	☐
6. High-risk surgery (Intraperitoneal, intrathoracic, or suprainguinal vascular surgery)	☐	☐

SCORING Add 1 point for every **YES**

Total RCRI Points	Risk Estimate %	95% CI for the Risk Estimate
0	3.9	2.8%-5.4%
1	6.0	4.9%-7.4%
2	10.1	8.1%-12.6%
≥3	15.0	11.1%-20.0%

Total RCRI Score and corresponding risk of myocardial infarction, cardiac arrest, or death at 30 days after noncardiac surgery.

CARDIAC ALGORITHM



Prehabilitation and Optimization Recommendations

Order NT-proBNP/BNP	⚙ Criteria: overnight admission and one of the following: age ≥ 65 OR age 45-64 with either RCRI ≥ 1 or significant cardiovascular diseasee ⚙ Threshold values are different for each test (BNP or NTproBNP) for triggering postoperative monitoring with troponin
Referral for Anesthesia Consult	⚙ Perioperative risk discussion and planning ⚙ If NT-proBNP is unexpectedly high without an obvious cause, consider further evaluation, including a physical exam and echocardiogram ⚙ Communicate risk estimates with patient based on RCRI score or elevated NT-proBNP values (8% for 200-1500 ng/L, and 16% for > 1500 ng/L, risk of death is 1.4% and 4.0% respectively) [8] *Note these risk values are overall results from large trials including different surgerytypes. Risk stratification may vary based on the type of surgery planned.*
Postoperative Monitoring	⚙ Obtain EKG and troponin on the day of surgery once recovery commences ⚙ Measure Troponin daily x 2-3 days (should not prolong hospitalization for troponin monitoring) ⚙ If Troponin > 99th percentile, MINS management required [1] ⚙ Consider in-hospital shared-care management
Communicate with Primary Care Provider for Outpatient Follow-up	⚙ Establish follow-up plan for MINS positive patients after discharge from hospital given their increased risk of postoperative mortality

DELIRIUM



Postoperative delirium is one of the most common complications after major surgery, affecting 15–25% of older adults undergoing major non-cardiac surgery.

It is frequently underrecognized, particularly the hypoactive subtype. Delirium is associated with increased complications, longer hospital stays, loss of independence, mortality, healthcare costs, and long-term cognitive and functional decline. [1-6]

Screening Tools

Identification of patients at increased risk of delirium is an important component of prevention, allowing targeted interventions to reduce postoperative delirium. The strongest risk factors include cognitive impairment, older age, and frailty. Other important risk factors include a history of delirium, visual or hearing impairment, substance dependence, social isolation, severe comorbid illness, and postoperative factors such as infection and medications (e.g., anticholinergics, opioids, and benzodiazepines). [7]

The modified Delirium Elderly At-Risk (mDEAR) tool is recommended as the preferred screening tool because it is the most evidence-supported instrument that can be completed using patient-reported information alone. It assesses cognitive impairment, age, functional dependence, sensory impairment, and chronic substance use, with a score of ≥3 indicating increased risk of postoperative delirium. [8]

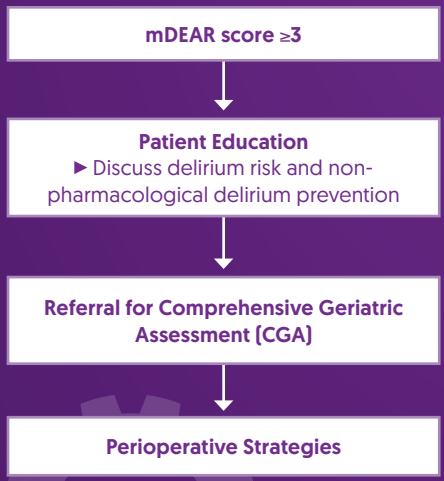
Although the evidence supporting the mDEAR remains limited and other validated delirium risk assessment tools are available, these require cognitive testing or other clinician-administered assessments that cannot be incorporated into a standardized patient-completed questionnaire. The mDEAR therefore represents the most practical option for province-wide preoperative screening while recognizing that clinical judgment should always complement screening results when assessing an individual's risk of postoperative delirium.

Modified Delirium Elderly at Risk (mDEAR) Tool

	YES	NO
1. Cognitive Impairment - Has the patient been disoriented to person, place, time or situation? - Does patient have a history of confusion or forgetfulness? - Does the patient have a history of cognitive impairment, memory loss, inattention or difficulty concentrating?	☐	☐
2. Patient Age - Age ≥ 80 years old	☐	☐
3. Sensory Impairment - Patient is hearing impaired; **OR** - Patient has low vision	☐	☐
4. Functional Status - Dependence in 1 or more activity of daily life (ADL)	☐	☐
5. Substance Use - Patient consumes > 3 drinks of alcohol per week; **OR** - Patient takes benzodiazepines > 3 times per week Examples include: Alprazolam (Xanax), Clonazepam (Klonopin), Diazepam (Valium), Lorazepam (Ativan) and Temazepam (Restoril)	☐	☐

SCORING
Assign 2 points for question 1, and 1 point each for questions 2-5

DELIRIUM ALGORITHM



Prehabilitation and Optimization Recommendations

Patient Education

- Discuss increased risk of postoperative delirium
- Review signs and symptoms
- Non-pharmacological delirium prevention:
  - Regular reorientation and cognitive stimulation
  - Access to natural light and a visible clock
  - Access to usual hearing aids and glasses
  - Early mobilization
  - Family presence, familiar items
  - Sleep hygiene (e.g. avoid daytime napping)
- Refer to online patient resources

Referral for Comprehensive Geriatric Assessment (CGA)

- Studies have shown that CGA can reduce the risk of postoperative delirium.
- Geriatrician involvement may lead to more accurate identification of delirium and proactive initiation of multimodal delirium risk management in higher risk patients. [6]
- If specialized CGA is not available in your area, consider referral to virtual provincial geriatrician resources

Perioperative Strategies

- Minimize polypharmacy and deliriogenic medications (e.g. benzodiazepines, zopiclone, anti-cholinergic medications, opioids)
- Avoid prolonged fasting of fluids
- Implement regular screening for delirium (e.g. CAM, 3D-CAM (10), 4AT)
- Oral and nutritional assistance, orienting communication and early mobilization together reduced delirium by 56% and LOS by 2 days in one study (11)
- Non-pharmacological sleep enhancement protocols (music, noise reduction, sleep aids such as melatonin)
- Optimize pain management
- Anesthetic modality has not been shown to impact incidence of delirium (12)
- Intraoperative dexmedetomidine use may prevent postoperative delirium compared to other anesthetic agents (13)
- Current evidence that depth of anesthesia monitoring and avoidance of “deep” anesthesia (i.e. BIS target 40-60) is conflicting (14), although the effect likely varies by population
- Prophylactic dosing and routine treatment with antipsychotic medications does not reduce the incidence or duration of delirium (15)



FRAILTY



Frailty is a clinical state of increased vulnerability due to age-associated decline in physiological reserve, resulting in compromised ability to cope with external everyday or acute stressors. [1]

Preoperative frailty is associated with increased postoperative complications, mortality, and longer-term negative outcomes, including falls, lower quality of life, non-home discharge, and prolonged length of stay. [2,3]

Screening Tools

The FRAIL Scale is a validated preoperative screening tool for frailty and predictor of mortality and postoperative complications that can be completed entirely by the patient, making it well suited for standardized preoperative screening. [4] Many geriatricians find assessment of ADLs and IADLs to be a useful adjunct.

Although the Clinical Frailty Scale (CFS) is the preferred tool for clinical frailty assessment, it requires clinician judgment and is therefore not appropriate for patient-completed screening. Patients identified as at risk using the FRAIL Scale should undergo further clinical assessment, with the CFS used where appropriate to confirm frailty and inform perioperative planning. [5–7]

FRAIL Scale

Fatigue: Have you felt fatigued all or most of the time in the last month?

Resistance: Cannot walk up one flight of stairs?

Aerobic: Cannot walk one block?

Illnesses: Do you have more than 5 illnesses?

Loss of weight: Have you lost more than 5% of your weight in the last 6 months?

SCORING Add 1 for every **YES** ≥3 = frail | 1 or 2 = prefrail

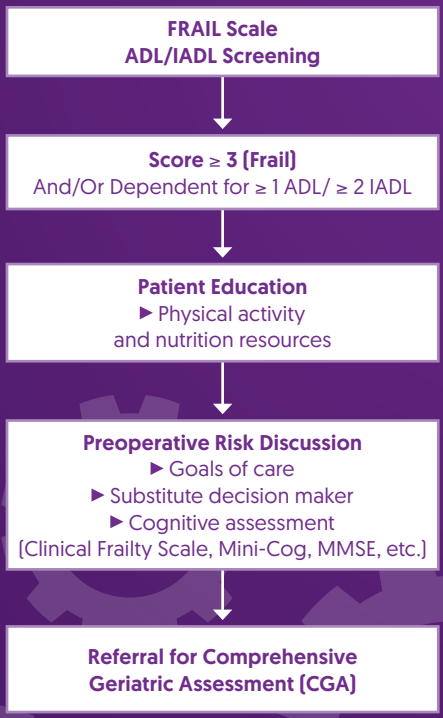
From Morley JE, Vellas B, Abellan van Kan G, et al. J Am Med Dir Assoc 2013;14:392-397.

Frailty Screening Questions

ADLS (Activity of Daily Living) FLAG IF ANSWER "WITH HELP" TO 1 OR MORE	
Do you take a bath	☐ On your own ☐ with help?
Do you dress yourself	☐ On your own ☐ with help?
Do you eat your meals	☐ On your own ☐ with help?
Do you walk	☐ On your own ☐ with help?
Do you use the toilet	☐ On your own ☐ with help?
Do you brush your teeth and hair	☐ On your own ☐ with help?

IADLS (Instrumental Activity of Daily Living) FLAG IF ANSWER "WITH HELP" TO 2 OR MORE	
Do you shop for essentials such as groceries	☐ On your own ☐ with help?
Do you do the daily housekeeping such as dishes and laundry	☐ On your own ☐ with help?
Do you manage your personal finances, such as bills and taxes	☐ On your own ☐ with help?
Do you prepare daily meals	☐ On your own ☐ with help?
Do you drive, use public transport, or use taxis	☐ On your own ☐ with help?
Have you fallen in the past year?	☐ Yes ☐ No

FRAILTY ALGORITHM



Prehabilitation and Optimization Recommendations

Patient Education	⚙ Refer to online patient resources for frailty-specific physical prehab and nutrition resources, including information on how to access physiotherapy for patients with frailty
Preoperative Risk Discussion	⚙ Assess goals of care and advance care plan (e.g., complete MOST form) ⚙ Identify substitute decision maker ⚙ Assess for cognitive impairment and ability to provide consent for surgery (Clinical Frailty Scale, Mini-Cog, MMSE, etc.) ⚙ Refer to online provider resources for assessment tools
Referral for Comprehensive Geriatric Assessment (CGA)	⚙ Referral to geriatrician can be useful prior to moderate/highly invasive surgery ⚙ If no local specialist, refer to online provider resources for telehealth consultation options

GLYCEMIC CONTROL



Studies have reported an association between hyperglycemia and adverse infectious and cardiovascular outcomes after cardiac and noncardiac surgery. [1-5]

Many studies recommend delaying elective surgery until hemoglobin A1c (HbA1c) levels are below 8.5, recognizing that this may not be feasible for all patients and that such a cutoff is not currently supported by robust evidence. [6-10]

Screening Tools

Glycemic Control Screening Questions extrapolated from BC Guidelines for Diabetes Care [11]

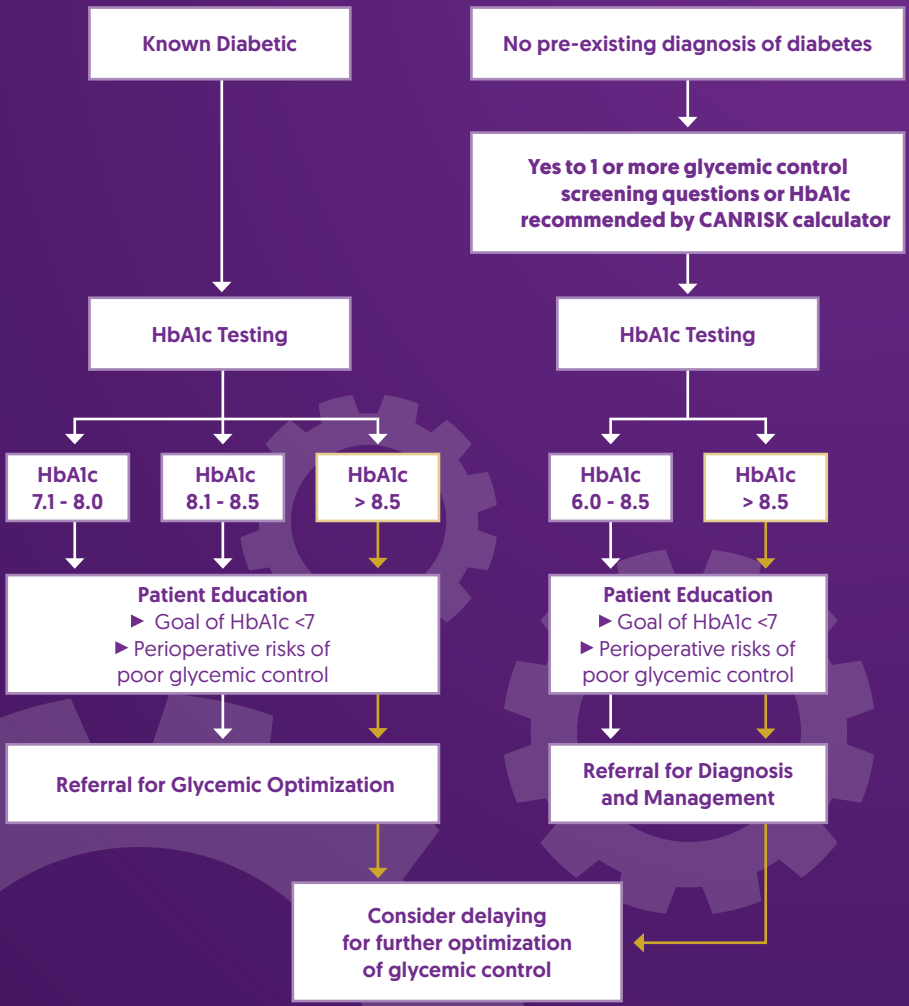
The CANRISK questionnaire is a validated risk tool for patients to self-assess their diabetes risk. [11]

Glycemic Control Screening Questions

	YES	NO
Previously diagnosed with diabetes	☐	☐
Age over 40	☐	☐
Family history of diabetes	☐	☐
History of hypertension, dyslipidemia or steroid use	☐	☐
BMI >25	☐	☐
History of gestational diabetes mellitus	☐	☐
History of pre-diabetes	☐	☐

SCORING If **YES** to any of the above questions then a preoperative screening hemoglobin A1c test is recommended.

GLYCEMIC CONTROL ALGORITHM



Prehabilitation and Optimization Recommendations

Patient Education	⚙ Reinforce general goal of A1c less than 7 [12] ⚙ Explain perioperative risks of hyperglycemia ⚙ Refer to online patient resources ⚙ If no previous diabetes diagnosis: • HbA1c 6.0-6.4: prediabetes likely • HbA1c > 6.5: diabetes likely
Referral for Diabetes Diagnoses and Management (no pre-existing diabetes)	⚙ Encourage follow-up with primary care provider for confirmation of diabetes diagnosis and initiation of management ⚙ Refer to online provider resources for referral templates
Referral for Glycemic Optimization (known diabetes)	⚙ Request re-evaluation from physician directing diabetes care with the goal of improving blood glucose control prior to surgery, if feasible ⚙ GLP-1 receptor agonists may increase aspiration risk due to delayed gastric emptying. Emerging evidence supports continuing these medications, with many sites using an extended clear-fluid fast to reduce risk. Institutional practices vary and may change as evidence evolves. See the BC Prehab Medication Management App for further guidance and contact your local surgical or anesthesia department for site-specific recommendations. ⚙ Refer to online provider resources for telehealth consultation options and referral templates
Consider Delaying for Glycemic Optimization	⚙ Discuss concerns, including potential benefits and risk of delaying surgery, with surgical team, particularly for total joint arthroplasty, vascular surgery, and spine surgery with instrumentation ⚙ Refer to local diabetes expert or online provider resources for telehealth consultation options

GOALS OF CARE



One in three high-risk patients choosing surgery will experience serious medical complications leading to long-term decline in health and quality of life. Often patients do not receive the information they need to make an informed decision about surgery. [1]

Essential communication regarding goals of care is essential for aligning surgical interventions with patient values, preferences, and clinical realities. Shared decision making is a collaborative process between clinicians and patients, which aims to select the most suitable treatment option based on best available evidence and informed patient preferences. [1]

Screening Tools

- Do you have an advanced care plan - a list of instructions to help guide a trusted person to make healthcare treatment decisions on your behalf if required?
- Have you identified a substitute decision maker - someone you trust to make healthcare treatment decisions on your behalf if you are unable to do it yourself?
- Is the patient at higher risk of perioperative complications? (e.g., advanced age, frailty, poor functional capacity, moderate/highly invasive surgery, multiple comorbidities)

Optimization is recommended for patients that answer No to question 1 or 2, or Yes to question 3.

Prehabilitation and Optimization Recommendations

Patient Education	⚙ Encourage patients to think about what matters most for their health. ⚙ Provide Advance Care Planning Guide and What Matters Most to Me worksheet ⚙ Refer to online patient resources
Preoperative Goals of Care Discussion	⚙ Lead with "What should I know about you as a person to help me take the best care of you that I can?" • Intended to open a patient-centered, narrative conversation that goes beyond symptoms and diagnoses. ⚙ Ask the following questions: • "What worries or concerns do you have about your upcoming surgery?" • "Can you share what you understand about your current health?" • "How do you hope that this surgery will help you?" • "Are there any outcomes from this surgery that you would consider unacceptable?" ⚙ Use the best-case scenario / worst-case scenario framework [2,3], a narrative and visual decision-support tool designed for high-stakes conversations. Refer to provider online resources.
Referral for Comprehensive Geriatric Assessment (CGA)	⚙ Consider preoperative assessment by Geriatrics to delineate risk

MENTAL WELLBEING



Significant anxiety and depression are associated with increased postoperative pain, prolonged hospital length of stay, and hospital readmission, as well as many other postoperative complications. [1,2]

Preoperative education and expectation setting can help reduce postoperative anxiety, depression, and length of stay, and improve patient experiences and outcomes. [3,4]

Screening Tools

The Patient Health Questionnaire-2 (PHQ-2) is an initial screening tool for depression, comprising the first two questions of the Patient Health Questionnaire-9 (PHQ-9). A PHQ-2 score of 3 or more warrants completion of the PHQ-9. [5,6]

The General Anxiety Disorder-2 (GAD-2) is an initial screening tool for generalized anxiety disorder (GAD), comprising the first two questions of the General Anxiety Disorder-7 (GAD-7). A GAD-2 score of 3 or more warrants completion of the GAD-7 scale. [7]

While no scale is diagnostic, these tools are intended to help identify pre-surgical patients who may be experiencing more significant symptoms, who may benefit from targeted pre-surgical intervention.

Patient Health Questionnaire (PHQ-9)

OVER THE **LAST 2 WEEKS**, HOW OFTEN HAVE YOU BEEN BOTHERED BY ANY OF THE FOLLOWING PROBLEMS?	NOT AT ALL	SEVERAL DAYS	MORE THAN HALF THE DAY	NEARLY EVERY DAY
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

SCORING PHQ-9

This is calculated by assigning scores of 0, 1, 2, and 3 to the response categories, respectively, of "not at all," "several days," "more than half the days," and "nearly every day." PHQ-9 total score for the nine items ranges from 0 to 27.

0-4: Minimal depression
5-9: Mild depression
10-14: Moderate depression
15-19 Moderately severe depression
20-27: Severe depression

Developed by Drs. Robert L. Spitzer, Janet B.W. Williams, Kurt Kroenke and colleagues, with an educational grant from Pfizer Inc.
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Generalized Anxiety Disorder Questionnaire (GAD-7)

OVER THE **LAST 2 WEEKS**, HOW OFTEN HAVE YOU BEEN BOTHERED BY ANY OF THE FOLLOWING PROBLEMS?	NOT AT ALL	SEVERAL DAYS	MORE THAN HALF THE DAY	NEARLY EVERY DAY
1. Feeling nervous, anxious, or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it is hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid, as if something awful might happen	0	1	2	3

SCORING GAD-7 Anxiety Severity

This is calculated by assigning scores of 0, 1, 2, and 3 to the response categories, respectively, of "not at all," "several days," "more than half the days," and "nearly every day." GAD-7 total score for the seven items ranges from 0 to 21.

0–4: minimal anxiety

5–9: mild anxiety

10–14: moderate anxiety

15–21: severe anxiety

Source: Primary Care Evaluation of Mental Disorders Patient Health Questionnaire (PRIME-MD-PHQ). The PHQ was developed by Drs. Robert L. Spitzer, Janet B.W. Williams, Kurt Kroenke, and colleagues. For research information, contact Dr. Spitzer at ris8@columbia.edu. PRIME-MD® is a trademark of Pfizer Inc. Copyright© 1999 Pfizer Inc. All rights reserved. Reproduced with permission

MENTAL WELLBEING ALGORITHM

Complete both the PHQ and GAD questionnaires to assess risk of depression and anxiety.

PHQ-2
Score ≥ 3
Complete PHQ-9

Score 5-18

- ▶ Patient Education
- ▶ Self-Referral Options
- ▶ Clinician referral to mind-space.ca

Score ≥ 19

OR Yes to self-harm thoughts
Urgent referral to Psychiatry or Primary Care

GAD-2
Score ≥ 3
Complete GAD-7

Score 5-14

- ▶ Patient Education
- ▶ Self-Referral Options
- ▶ Clinician referral to mind-space.ca

Score ≥ 15

- ▶ Referral to Psychiatry or Primary Care
- ▶ Clinician referral to mind-space.ca

Clinician tips on Reframing Benefits vs. Emphasizing Risk

The language clinicians choose can meaningfully shape patient experience. During informed consent or risk discussions, framing recommendations in terms of benefits - rather than focusing solely on risks - can foster reassurance and engagement.

- Risk-focused framing:

  "Your history of anxiety/depression increases your risk of greater pain, longer hospital stay, readmission, and other complications.

- "Benefit-focused framing:

  "Your answers to the screening questions show me that you've been feeling some worry and/or low mood. Many people feel this way before surgery. Taking care of your mental wellbeing can help you to feel more calm, comfortable, and in control. It can help you to heal more quickly and more easily."

Patient Education

- Set patient expectations for postoperative depression and anxiety management
- Refer to online patient resources

Self-Referral Options

- Encourage patient to seek help from at least one of the following options
  - Primary care appointment to discuss mental health (provide patient with their PHQ-9 and GAD-7 scores)
  - Help Starts Here or 211 for online/telephone access to local supports and resources
  - 310-6789 BC mental health and crisis response line
  - 988 national suicide crisis helpline
  - BounceBack BC - a free, online skill-building program to manage low mood, mild to moderate depression, anxiety, stress, or worry (ages 13+)

Physician-Referral Options

- Mild to moderate symptoms
  - Mind Space Referral (mind-space.ca)
  - PHQ-9 score 5-18, and NO thoughts of self-harm
  - GAD-7 score 5-15
  - Patients require an active primary care provider. Referral can come from PCP or perioperative clinician as long as patient has a PCP.
- Severe/Urgent Symptoms:
  - GAD-7 >=15 OR PHQ-9 score >19 OR YES to thoughts of self-harm
  - Assess immediacy of risk, urgent referral to psych via ER if necessary
  - Otherwise urgent referral to primary care for assessment/psychiatry referral

NUTRITION



Malnutrition is present in approximately 45% of patients at time of admission to hospital. It is often underrecognized and is associated with increased postoperative complications and in-hospital and 30-day mortality.

Nutrition risk is also associated with increased length of stay, readmission, and hospital costs.[1-5] Preoperative & early postoperative nutritional intervention are associated with improvements in postoperative complications and mortality.[6]

Screening Tools

The Canadian Nutrition Screening Tool (CNST) is a valid and reliable screening tool to identify those patients at risk of malnutrition in the adult acute care environment.[1]

Name _____ Age _____ Weight _____ Room _____

Identify patients who are at risk for malnutrition

Ask the patient the following questions*	YES	NO
Have you lost weight in the past 6 months without trying to lose this weight? If the patient reports a weight loss but gained it back, consider it as no weight loss.	☐	☐
Have you been eating less than usual for more than a week?	☐	☐

Two YES answers indicate nutrition risk †

*If the patient is unable to answer the questions, a knowledgeable informant can be used to obtain the information. If the patient is uncertain regarding weight loss, ask if clothing is now fitting more loosely.

Patients at nutrition risk need an assessment to confirm malnutrition

Nutrition screening using a valid tool can generate a significant volume of requests for nutrition evaluation. Subjective Global Assessment (SGA) is a simple and efficient first-line assessment of nutritional status that can be used following a positive screening and to help prioritize cases.

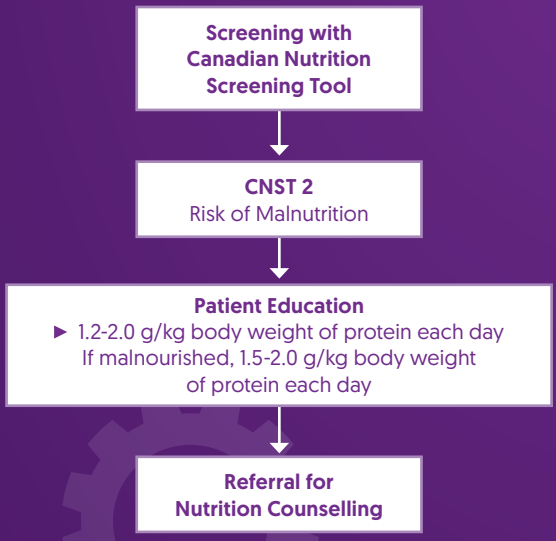
If a patient is malnourished (SGA B or C), an in-depth nutrition assessment, along with treatment, is required by a registered dietitian.

The Canadian Nutrition Screening Tool was rigorously validated and tested for reliability in Canadian hospitals. Non-expert raters completed the tool and it was compared to the SGA conducted by a dietitian or trained nutrition researcher.

† If a patient is not at risk, rescreen within a week. Only consider weight change in the past week.

Validation and reliability testing of the Canadian Nutrition Screening Tool was funded by an unrestricted educational grant of Abbott Nutrition Canada.

NUTRITION ALGORITHM



Prehabilitation and Optimization Recommendations

Patient Education	⚙ Patients with a CNST score of 2 are at high risk for malnutrition and require dietitian assessment. It is essential that the patient is able to meet their carbohydrate and protein needs prior to surgery. For 2-4 weeks prior to surgery, an increase in dietary protein (aiming for 1.2-2 g/kg/day) may be recommended. [9] If individual is malnourished, total protein intake increases to 1.5-2.0 g/kg/day. [10] ⚙ Refer to online patient resources
Referral for Nutrition Counseling	⚙ Dietitian to assess for malnutrition and provide a plan to optimize nutrition before surgery ⚙ Refer to online provider resources for dietician resources and referral templates

OBESITY



Obesity is a chronic medical condition that may increase perioperative risk. It is additionally linked to several other conditions, such as type II diabetes and obstructive sleep apnea, that may further enhance risk beyond elevated BMI. [1-4]

For patients with class 1* obesity (BMI: 30–34.9), increased perioperative complications mainly relate to venous thromboembolism. In class 2* & 3* obesity (BMI: 35 or higher), there is a modest increase in the risk of postoperative pulmonary complications, wound infections, longer hospital stays, increased blood loss, longer surgeries, and renal failure. [5-8]

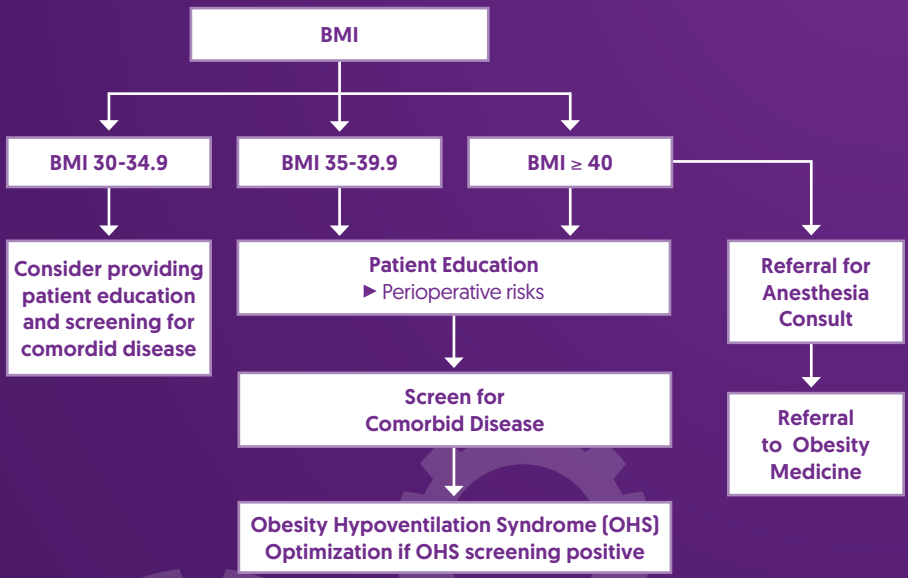
Although high BMI is associated with higher perioperative risks, there is limited research on the effects of preoperative weight loss through diet and limited evidence to suggest delaying surgery based on BMI. [9]

**Classification is based on Caucasian populations. Lower cutoffs have been recommended for other ethnicities. [10]*

Screening Tools

Although BMI is easy to obtain and therefore used to identify and categorize severity of obesity, integrating other indices (e.g., waist to hip ratio, waist circumference, and percent body fat) may improve predictions of metabolic health, comorbid conditions, and perioperative risk stratification. [1-3]

OBESITY ALGORITHM



Prehabilitation and Optimization Recommendations

Patient Education

- Counsel patients on obesity-related perioperative risks, recognizing that stigma and bias can worsen morbidity and mortality
  - Ask permission to measure and discuss weight as it impacts surgical risk "Would it be okay if we discussed your weight today as it impacts your anesthetic and surgical care?"
- Refer to online provider resources for information on communicating and treating obese patients

Screen for Comorbid Disease

- Obstructive Sleep Apnea (OSA)
  Refer to sleep apnea section
- Obesity Hypoventilation Syndrome (OHS)
  See below
- Diabetes
  Refer to glycemic control section
- Cardiovascular disease risk stratification
  Refer to cardiac section
- Kidney disease

Obesity Hypoventilation Syndrome (OHS)

- Initial Screen for OHS
  - Complete Room air ABG if BMI ≥ 50 or BMI ≥ 35 and STOP-Bang ≥ 6 and HC03 ≥ 27
  - For patients with BMI < 50, a serum HCO3 < 27 effectively rules out OHS
- Room air PaCO2 ≥ 45 mmHg suggests OHS, but other potential causes of hypercapnia need to be ruled out for a definitive diagnosis
- If OHS suspected:
  - Referral for Anesthesia consult
  - Referral to Sleep Medicine
  - Preoperative investigations
    - Chest X-ray
    - Echocardiogram
    - Spirometry

Referral for Anesthesia Consult

- To allow for assessment of and planning for the perioperative management of comorbid conditions (e.g.,OSA, OHS) and other factors such as airway management, vascular access, and patient positioning [11]

Consider Referral to Obesity Medicine

- Recommended for patients with significant comorbid disease
- Refer to online provider resources for obesity medicine providers

OBSTRUCTIVE SLEEP APNEA



Obstructive sleep apnea (OSA) is a chronic medical condition that is commonly undiagnosed. The most common form of sleep-disordered breathing, it is characterized by recurring transient obstructions of airflow that occur exclusively during sleep.

OSA is associated with increased risk of perioperative complications, including postoperative respiratory failure, cardiac events, and ICU transfer, and should be identified and treated as early as possible to help reduce this risk. [1-7]

Screening Tools

The STOP-Bang questionnaire is a validated tool for preoperative screening for OSA, assessing the likelihood of moderate to severe OSA. Scores of 5 or higher indicate a high probability of moderate to severe OSA. [8]

While the STOP-Bang questionnaire is a useful screening tool, clinical judgment remains essential because the STOP-Bang may underestimate OSA risk in populations with atypical presentations or additional risk factors. Clinicians should consider a lower threshold for screening or referral in individuals with factors not fully captured by screening tools—including women (particularly those who are pregnant or postmenopausal), transgender men receiving testosterone therapy, individuals with a strong family history, craniofacial or neuromuscular disorders, PTSD, and habitual alcohol use. [9-12]

STOP-Bang Questionnaire

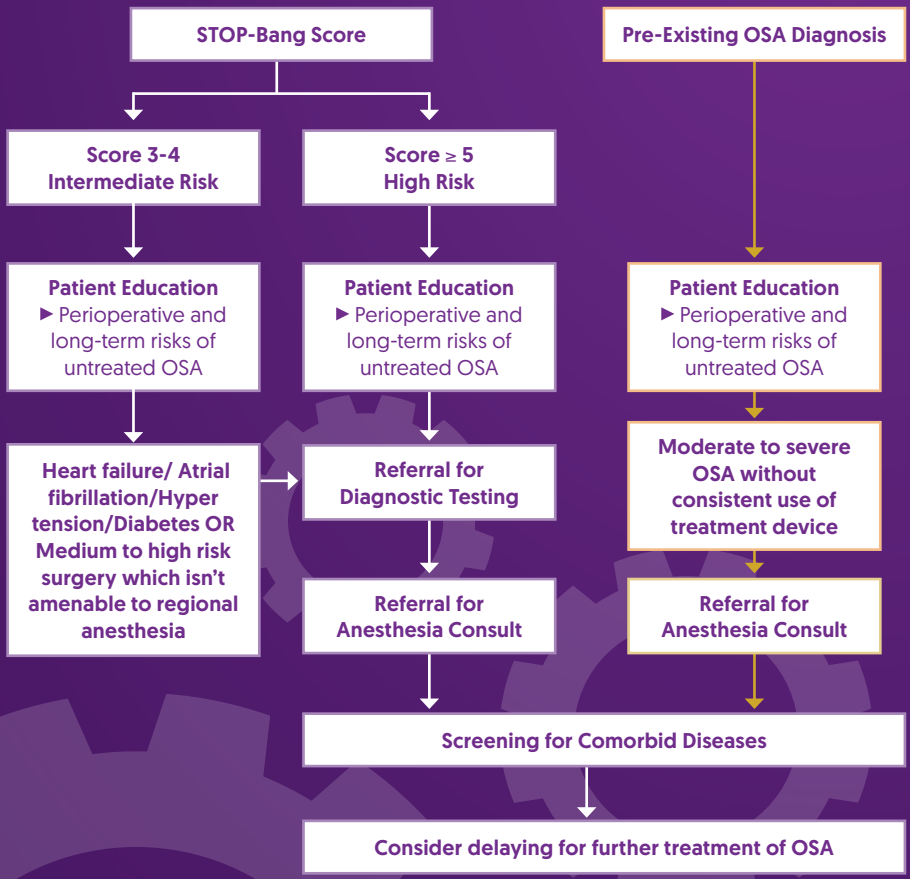
Is it possible that you have Obstructive Sleep Apnea (OSA)?

Please answer the following questions below to determine if you might be at risk.

	YES	NO
Do you **snore loudly** (loud enough to be heard through closed doors or your partner elbows you for snoring at night?	☐	☐
Do you often feel **tired, fatigued, or sleepy** during the daytime (such as falling asleep during driving or talking to someone?)	☐	☐
Has anyone **observed you stop breathing or choking/gasping** during your sleep?	☐	☐
Do you have or are being treated for **high blood pressure?**	☐	☐
Body mass index higher than 35 kg/m²?	☐	☐
Age older than 50?	☐	☐
Neck size large? (measured around Adams apple) Is your shirt collar 16 inches/40cm or larger?	☐	☐
Male Gender?	☐	☐

For general population
OSA - Low Risk: Yes to 0-2 questions
OSA - Intermediate Risk: Yes to 3-4 questions
OSA - High Risk: Yes to 5-8 questions
or yes to 2 or more of 4 STOP questions + male gender
or yes to 2 or more of 4 STOP questions + BMI > 35kg/m²
or yes to 2 or more of 4 STOP questions + neck circumference 16 inches/40cm

OBSTRUCTIVE SLEEP APNEA ALGORITHM



Patient Education

- Counsel patients on the perioperative and long-term risks of untreated moderate or severe obstructive sleep apnea
- For pre-existing OSA diagnosis:
  - Instruct patient to continue using their treatment device (e.g., CPAP, BPAP, or dental device) until their surgery, and bring it to hospital, including for daycare surgery
  - Request sleep study results from primary care provider if not available on electronic health record
  - If patient is not using their treatment device as prescribed, emphasize the importance of its use in the postoperative period and suggest they follow up with their sleep clinic to discuss barriers to use and potential solutions

Referral for Diagnostic Testing

- Home Sleep Apnea Test (HSAT) (without Sleep Disorder Physician consultation)
  - See Form A for inclusion and exclusion criteria. This testing should be ordered by a physician who is responsible for the longitudinal care of a diagnosis of sleep apnea.
- Sleep Disorder Consultation Referral
  - Sleep physicians will determine the appropriate testing modality and follow for therapy
  - Use for patients that are not appropriate for HSAT
- See online provider resources for referral templates

Prehabilitation and Optimization Recommendations

Referral for Anesthesia Consult	⚙ Consider referral in patients coming for moderate to severely invasive surgery, airway surgery, or those with severe OSA not compliant with CPAP ⚙ To plan for postoperative management & monitoring to minimize OSA related perioperative complications
Screening for Comorbid Disease	⚙ Obesity Hypoventilation Syndrome *(see Obesity)* ⚙ Diabetes ⚙ Cardiovascular / Respiratory complications
Consider delaying for further treatment of OSA	⚙ Made on a case by case basis taking into consideration: • Patient's overall health • Urgency of the surgery • Potential impact of untreated OSA on the surgical outcome ⚙ In the vast majority of cases there is insufficient evidence to support delaying surgery for testing/ treatment unless there is evidence of significant or uncontrolled systemic disease or additional problems with ventilation or gas exchange. Continuation with surgery is reasonable if the patient is managed perioperatively as though they have untreated moderate to severe OSA [9]



PAIN MANAGEMENT



Significant acute postoperative pain is common, even among those on an established pain management protocol. [1]

Pain after surgery is associated with increased risk of postoperative readmission to hospital, emergency department visits, myocardial injury, delirium, and chronic pain. [2-7] Postoperative pain control may be improved by addressing modifiable patient risk factors such as sleep, BMI, depression, anxiety, and preoperative pain. [8]

Screening Tools

The Perioperative Opioid Quality Improvement (POQI) score is a screening tool being developed at St. Paul's Hospital to identify patients at increased risk of significant postoperative pain and long-term opioid use. While the POQI score is not yet validated, it was selected to support postoperative pain risk stratification based on clinical experience using this tool in British Columbia.

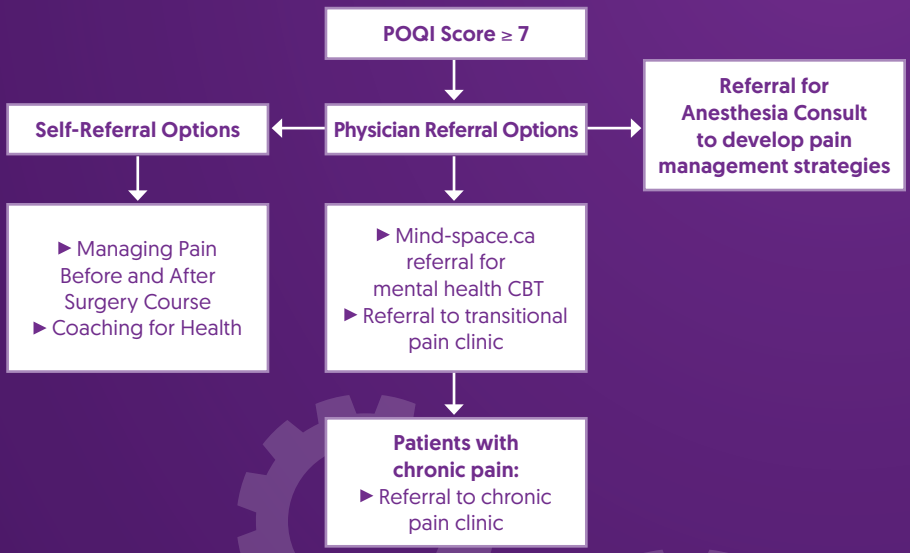
Preoperatively, it screens patients for common variables associated with an increased risk for developing postoperative pain. Postoperatively, inpatient consumption of > 90 morphine milligram equivalents per day is used as a surrogate marker for assessing performance of the preoperative screening tool [9]. Patients with a POQI score >= 7 (out of a possible total of 35) are considered to be at 'increased risk' of significant postoperative pain and long-term opioid use and should receive a personalized care plan to help reduce their initial exposure to opioids. [9]

Perioperative Opioid Quality Improvement (POQI) Algorithm

	YES	Scoring (if Yes)
History of chronic pain	☐	4
History of anxiety or panic attacks	☐	2
History of depression	☐	2
History of poorly controlled pain after surgery	☐	2
Current prescription for opioids	☐	5
Current prescription for benzodiazepines	☐	4
Current prescription for antidepressants	☐	4
Recreational drug use (history of or present)	☐	4
Substance use disorder (history of or present)	☐	5
Age <40	☐	1
Female	☐	2

SCORING
Add all **YES** scores together for a total between 0-35.

PAIN MANAGEMENT ALGORITHM



Prehabilitation and Optimization Recommendations

Patient Education	⚙ Set patient expectations for postoperative pain management ⚙ "Achieving zero pain is not realistic. The goal is to achieve a level of pain that allows patients to breathe deeply and cough, get up and move, do exercises or physio, and rest or sleep when it is time to do so. There are many ways to achieve this."
Self-Referral Options	⚙ Refer to online patient resources including access to the following: • Managing Pain Before and After Surgery (PainBC): A free self-paced online program for people having surgery and their families to better manage pain after surgery and decrease complications • Coaching for Health (PainBC): A free one-on-one telephone coaching program designed to help people living with chronic pain learn self-management skills, regain function, and improve well-being • Empowered Relief (Pain Canada) - a free 2 hour CBT module for managing pain. • Power Over Pain Portal - a national hub for pain resources • Gentle Movement at Home video series
Referral for Anesthesia Consult	⚙ To develop effective pain management strategies and explore options for anesthesia and postoperative pain control, especially in moderate to severely invasive surgery

Physician-Referral Options

- Mind-space.ca - MSP-funded virtual group medical visits for mental wellbeing, anxiety, depression.

  **All patients referred to Mind Space must have a current primary care provider.*

- Referral to Transitional Pain Clinic
  - Transitional pain clinics are short-term outpatient services that manage pain before and after surgery to prevent acute pain from becoming chronic. Currently available at Vancouver Coastal Health and Providence Health sites.
- Referral to Chronic Pain Clinic - find local clinics on Pathways BC.



PHYSICAL ACTIVITY



Poor functional capacity and physical fitness are associated with poor surgical outcomes including prolonged hospital length of stay and increased risk of postoperative complications. Increasing physical fitness can improve resilience and recovery after surgery. [1,2]

Screening Tools

The Physical Activity Vital Sign (PAVS) Calculator is a quick and easy way to flag sedentary patients for referral and counseling.

The Physical Activity Vital Sign Calculator

1. On average, how many days per week do you engage in moderate to strenuous exercise (like a brisk walk)?	_____ days
2. On average, how many minutes do you engage in exercise at this level?	_____ minutes
Total minutes per week of physical activity (multiply #1 by #2)	_____ minutes *per week*

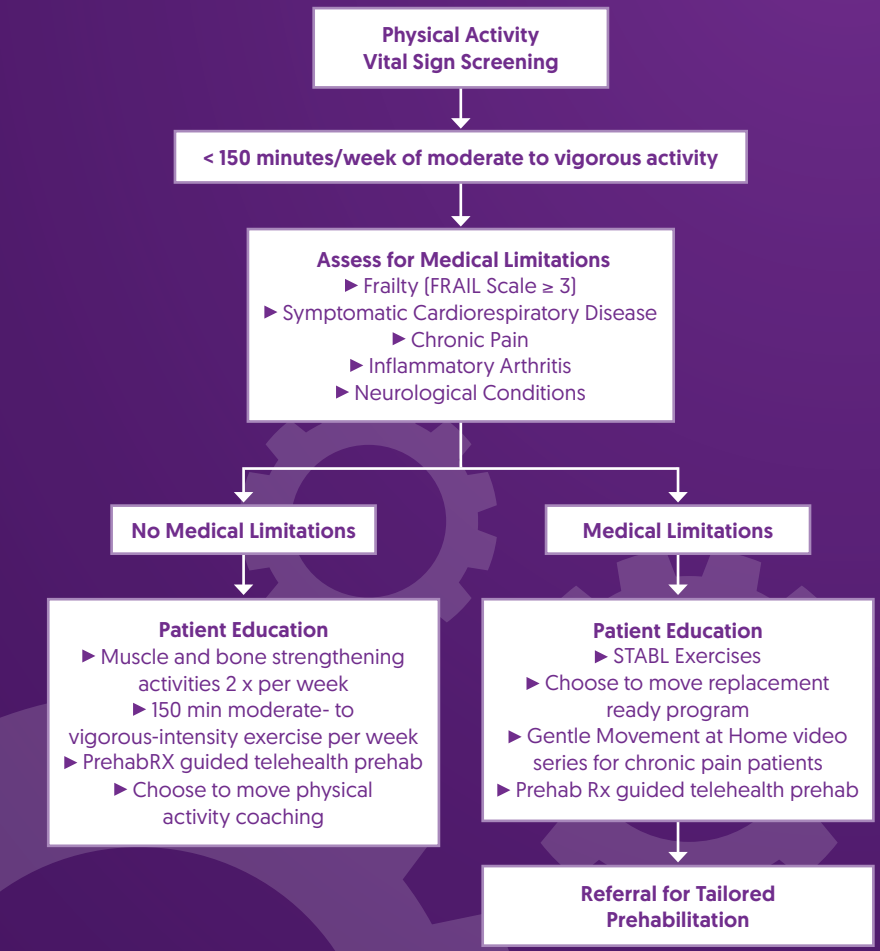
Using the Physical Activity Vital Sign

- National guidelines recommend 150 minutes per week of moderate intensity physical activity. Moderate intensity activity is usually done where an individual can talk, but cannot "sing". Examples include: brisk walking, slow biking, general gardening, and ballroom dancing.
- In place of moderate intensity activity, an individual can also complete 75 minutes of vigorous intensity physical activity. Vigorous intensity activity is done at a pace where individuals can no longer talk and are somewhat out of breath. Examples include: swimming laps, playing singles tennis, and fast bicycling.
- Individuals can also achieve 150 "minutes" through a combination of moderate and vigorous intensity physical activity, with 1 minute of vigorous activity being equal to 2 minutes of moderate activity.
- If activity is done throughout the day, individuals are encouraged to perform activity in "bouts" that are at least 10 minutes in length.
- If your patient is NOT achieving 150 minutes a week of physical activity, advise them to gradually increase either their frequency or duration until they are capable of safely performing 10 minutes bouts of activity and achieve national recommendations.

The Physical Activity Vital Sign – Other Considerations

- A comprehensive assessment of physical activity should include promotion of active living throughout the day to reduce sedentary time, as well as muscle strengthening and flexibility exercises as recommended by the Physical Activity Guidelines for Americans.
- If you wish to add a question on muscle strengthening activities, we would recommend the following question: **How many days a week do you perform muscle strengthening exercises, such as bodyweight exercises or resistance training?** _____ days

PHYSICAL ACTIVITY ALGORITHM



Patient Education

- Emphasize the importance of muscle- and bone-strengthening activities at least 2 days per week to increase strength and functional capacity prior to surgery (e.g., STABL Exercises) [5]
- Recommend at least 150 min of moderate- to vigorous-intensity aerobic physical activity per week, in bouts of 10 minutes or more
  - Moderate intensity activity: brisk walk or riding a bicycle; you can talk but not sing
  - Vigorous intensity activity: jogging or swimming; you are out of breath and can talk but do not want to
- Refer to the FREE Choose to Move program for personalized physical activity coaching and support.
- Refer to Prehab Rx guided telehealth rehab
- Refer chronic pain patients to the Gentle Movement at Home video series on YouTube

Referral for Tailored Prehabilitation

- Consider referral to physiotherapy for tailored preoperative exercise guidance for patients with medical limitations such as:
  - Frailty *(See frailty)*
  - Symptomatic cardiorespiratory disease
  - Chronic pain
  - Inflammatory arthritis
  - Neurological conditions
- Refer to online provider resources for physiotherapy resources, referral templates, and information on who can access physio for free in BC

SMOKING CESSATION



Cigarette smoking is a risk factor for perioperative pulmonary, cardiovascular, bleeding and wound healing complications. [1,2]

There is some evidence that vaping (or the use of e-cigarettes) is also associated with these complications. [3] The likelihood that quit-motivated patients can abstain from smoking is increased by use of nicotine replacement therapy (NRT). [4]

Screening Tools

Screening Questions:

- Do you currently use products that contain tobacco or nicotine? (e.g., smoking cigarettes or e-cigarettes, vaping nicotine, or chewing tobacco)
- If Yes, what type of tobacco/nicotine product?
- If cigarettes, how many packs/day? If other, how much & how often?

SMOKING CESSATION ALGORITHM

ASK
about tobacco/nicotine use

- What do you smoke?
- How much do you smoke?
- How long have you smoked?

ADVISE
users to quit

Discuss risks and impacts for surgery and urge patient to quit

ASSESS
readiness to make a quit attempt

Ask if patient is willing to quit

ASSIST
with the quit attempt

Provide resources for quitting

- Encourage quit plan
- Recommend physician or pharmacist support for pharmacotherapy
- Provide online/telephone resources

ARRANGE
follow-up care

Encourage patient book follow-up appointment with primary care. Revisit smoking cessation discussion on day of surgery.

Adapted from US DHSS Guidelines.

Patient Education

5 A's Algorithm for Smoking Cessation [5]

- ASK about tobacco/nicotine use
  - See screening questions
- ADVISE to quit
  - Strongly urge all tobacco users to quit in a clear, strong, personalized manner
  - "It is extremely important for you to quit smoking before surgery. Smoking and vaping have a huge impact on your heart and lung health and increase the risk of complications after surgery. Quitting or cutting back on smoking before surgery can:
    - lower your risk of getting pneumonia after surgery,
    - reduce your risk of having a heart attack during/after surgery,
    - speed up your healing after surgery, which reduces your risk of infection."
- ASSESS readiness to make a quit attempt
  - "Are you willing to try to quit before surgery?"

Patient Education
CONTINUED

- ASSIST with the quit attempt
  - "Stopping smoking is not solely about willpower. Your body may be addicted to or dependent on nicotine and quitting can be difficult."
  - Quit Plan: Encourage patients to set a quit date, tell family/friends, remove tobacco products from the environment, plan for withdrawal symptoms and cravings
  - Recommend pharmacotherapies [6]: Medications & Nicotine Replacement Therapy can increase smoking cessation success and reduce withdrawal symptoms (e.g., patch, gum, sprays, or oral medication). Family doctors or pharmacists are able to arrange therapies and ensure these therapies are covered financially through PharmaCare. Refer to online patient resources for covered therapies.
  - Provide resources for quitting: [6]
    - Quit Now
    - Healthlink or *211 to access support through live chats, telephone and connection with local smoking cessation resources
    - Online patient resources
- ARRANGE follow-up care
  - See referral for follow-up below

Referral for Follow-up

- Outpatient follow-up:
  - Encourage patients to schedule follow-up with their primary care provider for 2 weeks time to discuss progress
- Day of Surgery - revisit smoking cessation:
  - If still smoking: Normalize that lapses are very common and reassure that stopping smoking is not solely about willpower. Many people require more than one attempt. Reinforce the benefits of smoking cessation postoperatively, and offer further resources if appropriate (such as pharmacotherapy if it was not utilized with last quit attempt).



ALCOHOL



Preoperative alcohol use is associated with an increased risk of postoperative morbidity, infections, wound complications, pulmonary complications, prolonged hospital length of stay, and admission to intensive care. [1]

Screening for alcohol misuse prior to elective surgery allows for further screening for health complications, planning for those at risk of complicated withdrawal, and offering resources for safe tapering preoperatively in those patients who are motivated to do so.

Screening Tools

The Alcohol Use Disorder Identification Test (AUDIT-C) is an effective and validated 3-question screen for severity of alcohol misuse that is based on the 10-question AUDIT questionnaire. [2]

Alcohol Use Disorder Identification Test
(AUDIT-C)

1. Within the past year, how often did you have a drink of alcohol?

- ☐ a. Never
- ☐ b. Monthly
  (e.g. Special occasions/Rare)
- ☐ c. 2-4 times a month
  (e.g. 1x on weekend - "Fridays only" or "every other Thursday")
- ☐ d. 2-3 times a week
  (e.g. weekends – Friday-Saturday or Saturday-Sunday)
- ☐ e. 4 or more times a week
  (e.g. daily or most days/week)

2. Within the past year, how many standard drinks containing alcohol did you have on a typical day?

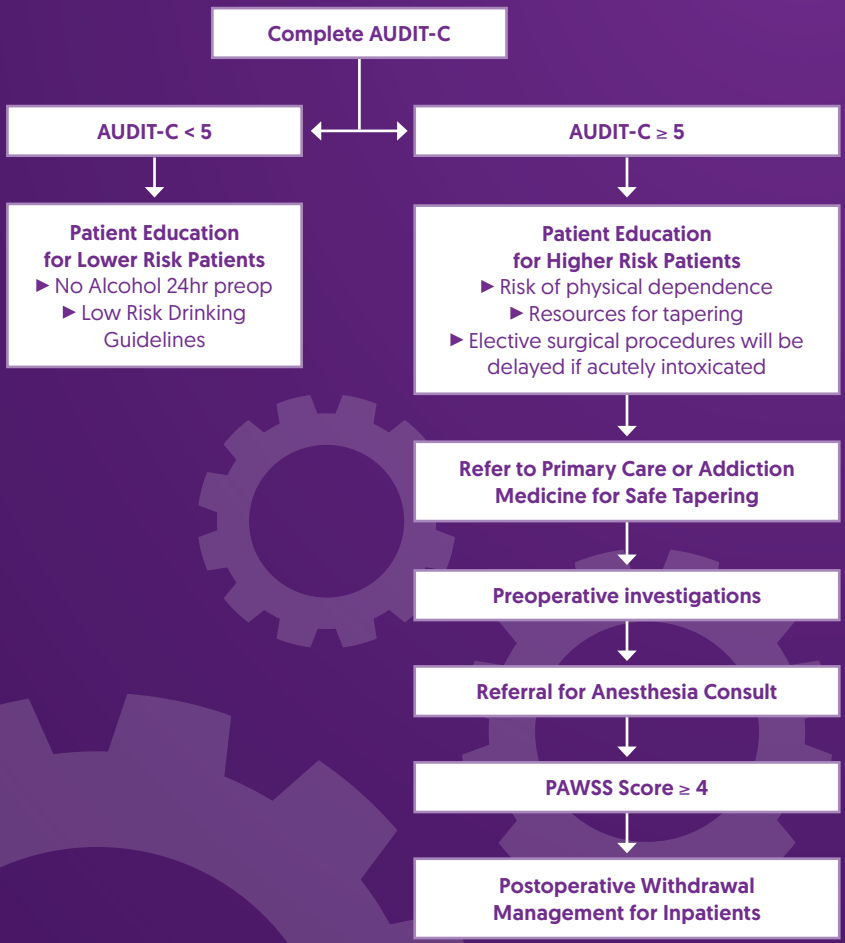
- ☐ a. 1 or 2
- ☐ b. 3 or 4
- ☐ c. 5 or 6
- ☐ d. 7 to 9
- ☐ e. 10 or more

3. Within the past year, how often did you have six or more drinks on one occasion?

- ☐ a. Never
- ☐ b. Less than monthly
- ☐ c. Monthly
- ☐ d. Weekly
- ☐ e. Daily or almost daily

SCORING The AUDIT-C is scored on a scale of 0-12.
a = 0 points, b = 1 point, c = 2 points, d = 3 points, e = 4 points

SUBSTANCE USE · ALCOHOL ALGORITHM



Patient Education for Lower Risk Patients (AUDIT-C < 5)

- "Frequent alcohol use before surgery can affect how your body responds to medications. It also decreases your body's ability to fight infection and heal properly. There are many ways that your healthcare team can help you to safely cut down or stop using alcohol. It is important to not use alcohol for at least 24 hours prior to surgery."
- Discuss Canadian Low Risk Drinking Guidelines: "Research shows that no amount or kind of alcohol is good for your health. It doesn't matter what kind of alcohol it is—wine, beer, cider or spirits. Drinking alcohol, even a small amount, is damaging to everyone, regardless of age, sex, gender, ethnicity, tolerance for alcohol or lifestyle. That's why if you drink, it is better to drink less." Canada's Low Risk Drinking Guide suggests that:
  - 0 drinks per week has benefits such as better health and better sleep.
  - 1 to 2 standard drinks per week: You will likely avoid alcohol-related consequences for yourself and others
- Refer to online patient resources for information on safe alcohol consumption and reduction
- Telephone service: 24-hour BC Alcohol and Drug Information and Referral Service toll-free from anywhere in B.C. at 1-800-663-1441

Patient Education for Higher Risk Patients (AUDIT-C ≥ 5)	⚙ "Frequent alcohol use before surgery can affect how your body responds to medications. It also decreases your body's ability to fight infection and heal properly. There are many ways that your healthcare team can help you to safely cut down or stop using alcohol. It is important to not use alcohol for at least 24 hours prior to surgery, however, if you use alcohol daily you could be physically dependent. That means it can be dangerous to stop drinking overnight or cold turkey." ⚙ Advise patients that elective surgical procedures will be delayed if they are acutely intoxicated ⚙ Patient resources: • Make an appointment to see your primary care provider (e.g., family doctor) • Call 811 to speak to a healthcare navigator who can find resources near you to help you slowly and safely reduce your alcohol use prior to surgery • Refer to online patient resources
Referral for Safe Tapering	⚙ Primary care or Addiction Medicine for management suggestions

Prehabilitation and Optimization Recommendations

Preoperative Investigations	⚙ Screening for complications of alcohol use: • CBC • INR/PTT • Albumin ALP • ALT • GGT
Referral for Anesthesia Consult	⚙ Especially if inpatient stay required
PAWSS Score	⚙ To assess risk of complicated withdrawal ⚙ PAWSS score ≥ 4 indicates high risk of complicated withdrawal
Postoperative Withdrawal Management for Inpatients	⚙ Consider involving Addiction Medicine in hospital especially if PAWSS ≥ 4. ⚙ Alcohol withdrawal management postoperative orders (CIWA)

CANNABIS



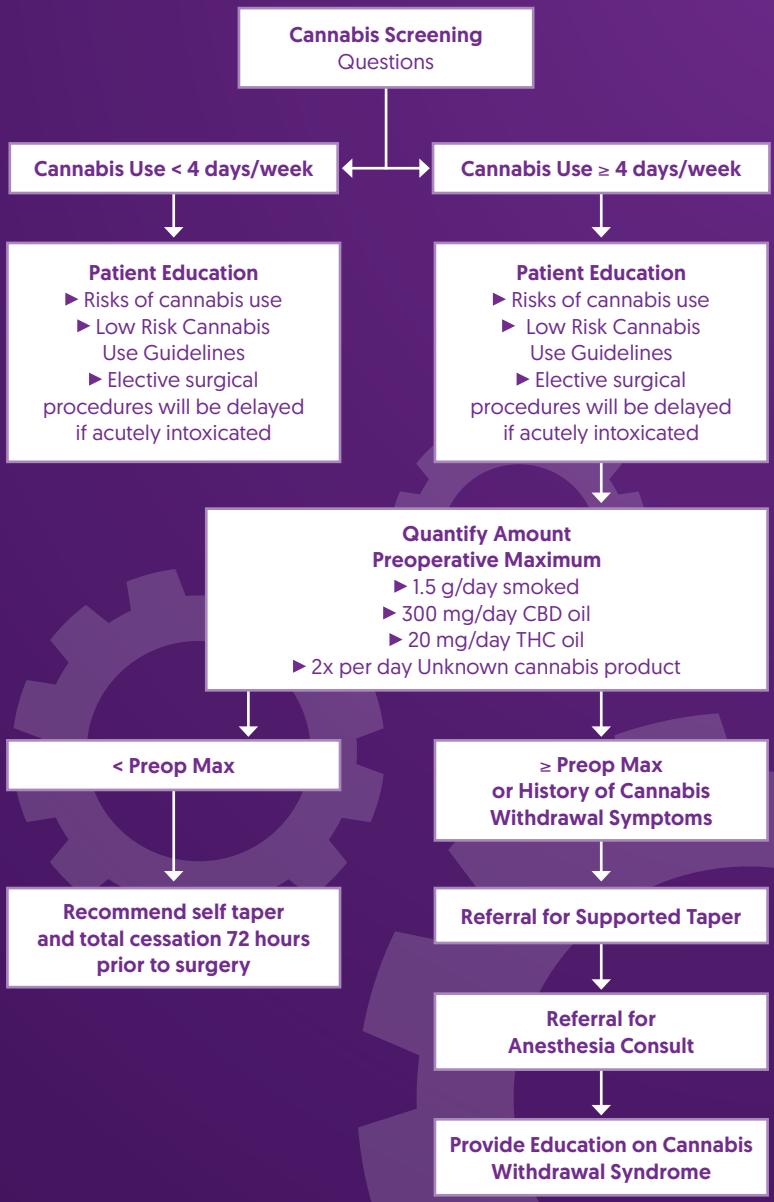
Cannabis (marijuana) use may lead to increased anesthetic requirements, postoperative pain, opioid use after surgery, and nausea and vomiting. [1-3]

Smoking cannabis increases the risk of pulmonary complications, cardiovascular complications (including postoperative myocardial infarction), and in-hospital mortality; it may also increase airway irritation, carboxyhemoglobin, and reduce oxygen-carrying capacity, similar to conventional cigarette smoking. [3-5]

Screening Tools

Cannabis Screening Questions:

- Do you use Cannabis? If Yes:
  - How often?
  - How much do you use?
  - How are you using it? (e.g., smoking, vaping, tincture/oil, edibles, cream)
  - Have you ever had symptoms like headaches, anxiety, poor sleep, or stomach pain when you stopped using cannabis for a day or two (Cannabis Withdrawal Syndrome)?


Cannabis Screening
Questions
Cannabis Use < 4 days/week
Cannabis Use ≥ 4 days/week
Patient Education
▶ Risks of cannabis use
▶ Low Risk Cannabis Use Guidelines
▶ Elective surgical procedures will be delayed if acutely intoxicated
Patient Education
▶ Risks of cannabis use
▶ Low Risk Cannabis Use Guidelines
▶ Elective surgical procedures will be delayed if acutely intoxicated
Quantify Amount
Preoperative Maximum
▶ 1.5 g/day smoked
▶ 300 mg/day CBD oil
▶ 20 mg/day THC oil
▶ 2x per day Unknown cannabis product
< Preop Max
≥ Preop Max or History of Cannabis Withdrawal Symptoms
Recommend self taper and total cessation 72 hours prior to surgery
Referral for Supported Taper
Referral for Anesthesia Consult
Provide Education on Cannabis Withdrawal Syndrome

Patient Education

- Advise patients on perioperative risks of cannabis use [1,2]
  - "Cannabis use puts you at higher risk of heart attacks and lung complications as well as nausea and vomiting and increased pain after surgery."
  - "It is best to stop using cannabis for at least 72 hours before surgery. This does not apply to creams."
- Advise patients that elective surgical procedures will be delayed if they are acutely intoxicated
- Discuss Canada's Lower Risk Cannabis Use Guidelines: [6]
  - Choose low-strength products, such as those with a lower THC content or a higher ratio of CBD to THC
  - Avoid using synthetic cannabis products
  - Smoking cannabis (for example, smoking a joint) is the most harmful way of using cannabis because it directly affects your lungs
- Refer to online patient resources

Recommend Self Taper

- Lower amount every day over 7 days with total cessation 72 hours prior to surgery
- "If you use a lot of cannabis on a daily basis you should slowly decrease the amount you use every day until you can stop for 72 hours without feeling unwell."
- Slow taper if experiencing symptoms of Cannabis Withdrawal Syndrome (CWS)

Prehabilitation and Optimization Recommendations

Referral for Supported Taper	⚙ Consider tapering to a goal of less than the recommended preoperative maximum (rather than complete cessation 72 hours preop) ⚙ Consider primary care, Addiction Medicine, or RACE line support
Referral for Anesthesia Consult	⚙ To develop effective pain management strategies and explore options for anesthesia and postoperative pain control, especially in moderate to severely invasive surgery
Provide Education on Cannabis Withdrawal Syndrome [9]	⚙ Usually begins 1-2 days after cessation and lasts up to 3 weeks ⚙ Symptoms include: headaches, anxiety, poor sleep, stomach pain ⚙ Treatment: • Supportive counseling and psychoeducation • Consider referral for supported taper or suggest slower taper (10% reduction per day) • No medications are approved for medically assisted withdrawal, though some are used 'off-label' in clinical practice

ILLICIT SUBSTANCES



Substance use is associated with increased postoperative complications, prolonged hospital length of stay, and increased healthcare costs. [1-4] Acute intoxication and chronic use have implications for perioperative care. [5]

Additional challenges depend on the severity and type of substance(s) used, as well as other factors that may be associated with substance use, including experiencing homelessness or mental illness. Collaboration with community providers is important, especially for patients being treated for opioid use disorder.

Screening Tools

Screening Questions:

- In the last 12 months, have you used drugs other than those required for medical reasons? (not including alcohol or cannabis)
- If yes, characterize drug use (drug, dose, frequency, and route of administration)

The Drug Abuse Screening Test (DAST-10) is a validated 10-item brief screening tool that assesses drug use (excluding alcohol and tobacco), in the past 12 months and gives a score of the degree of problems related to drug use and misuse. [6,7] This allows preoperative interventions to target those patients with substantial or severe problems related to drug abuse.

Drug Abuse Screening Test (DAST-10)

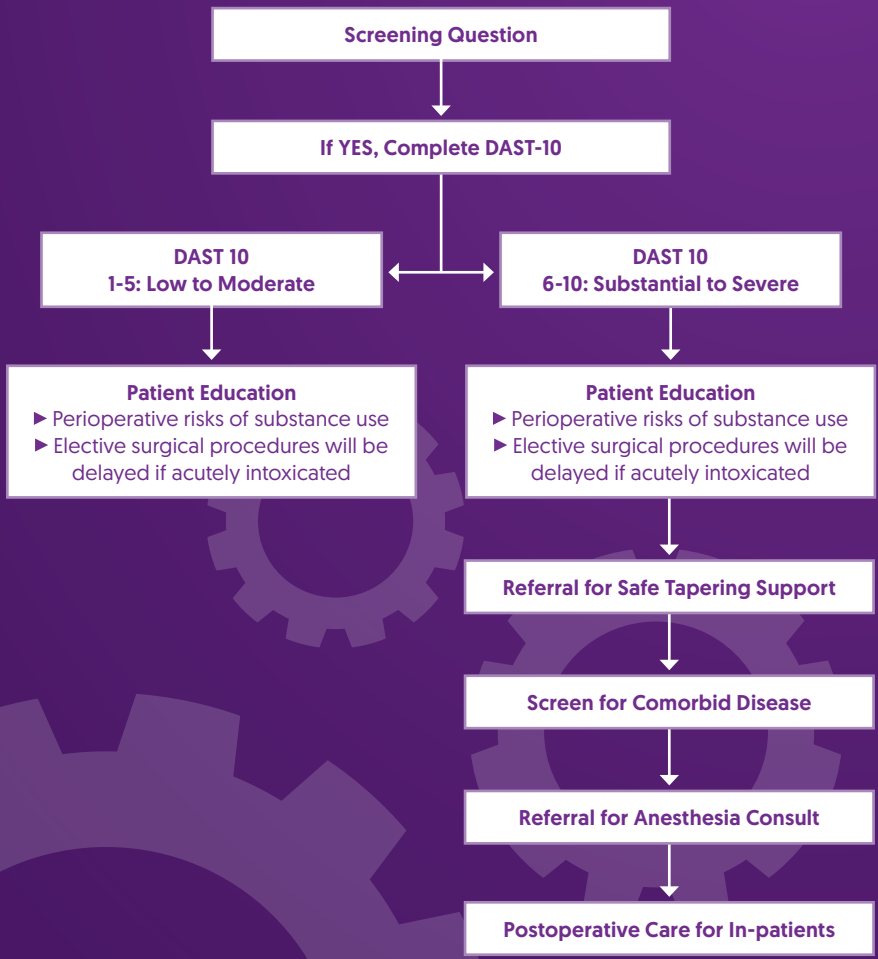
These questions refer to drug use in the past 12 months.
Please answer Yes or No.

	YES	NO
1. Have you used drugs other than those required for medical reasons?	☐	☐
2. Do you use more than one drug at a time?	☐	☐
3. Are you always able to stop using drugs when you want to?	☐	☐
4. Have you had "blackouts" or "flashbacks" as a result of drug use?	☐	☐
5. Do you ever feel bad or guilty about your drug use?	☐	☐
6. Does your spouse (or parents) ever complain about your involvement with drugs?	☐	☐
7. Have you neglected your family because of your use of drugs?	☐	☐
8. Have you engaged in illegal activities in order to obtain drugs?	☐	☐
9. Have you ever experienced withdrawal symptoms (felt sick) when you stopped taking drugs?	☐	☐
10. Have you had medical problems as a result of your drug use (e.g., memory loss, hepatitis, convulsions, bleeding, etc.)?	☐	☐

SCORING Score 1 point for each question answered **YES**
Except for question 3 for which a **NO** receives 1 point.

Skinner HA (1982). The Drug Abuse Screening Test. Addictive Behavior. 7(4):363-371.
Yudko E, Lozhkina O, Fouts A (2007). A comprehensive review of the psychometric properties of the Drug Abuse Screening Test. J Subst Abuse Treatment. 32:189-198.

SUBSTANCE USE · ILLICIT SUBSTANCES ALGORITHM



Prehabilitation and Optimization Recommendations

Patient Education	⚙ Advise patients on the perioperative risks of substance use [8] ⚙ Advise patients that elective surgical procedures will be delayed if they are acutely intoxicated [8] ⚙ Recommend support services: • Encourage patients to see their healthcare provider for safe ways to decrease substance use before surgery • Online services: available at Help Starts Here • Telephone service: 24-hour BC Alcohol and Drug Information and Referral Service toll-free from anywhere in B.C. at 1-800-663-1441
Referral for Safe Tapering Support	⚙ Addiction Medicine or Primary Care with/without RACE line support
Screen for Comorbid Disease	⚙ CBC ⚙ EKG ⚙ HIV ⚙ Hep B ⚙ Hep C

Prehabilitation and Optimization Recommendations

Referral for Anesthesia Consult	To develop effective pain management strategies and explore options for anesthesia and postoperative pain control, especially in moderate to severely invasive surgery
Postoperative Care for Inpatients	Referral to Addiction Medicine consultative services to avoid complicated withdrawal and facilitate discharge planning and supports



SUPPORT AFTER SURGERY



Making arrangements in advance to have adequate support at home can help patients return home after surgery as soon as it is appropriate and avoid delays to discharge. [1,2] Traditional criteria for discharge following day surgery includes the presence of a capable adult care-giver for 24 hours postoperatively.

Screening Tools

Screening Questions:

- Do you have someone that can help you during your recovery after surgery if necessary?
- Do you have someone who can take over your caregiving responsibilities while you recover from surgery (e.g., vulnerable adults, children, or pets)?

SUPPORT AFTER SURGERY ALGORITHM

Screening Questions
No capable adult available for the recovery period

↓

Patient Education
- ▶ Importance of support after surgery
- ▶ Set expectations for recovery period

↓

Patient Resources
- ▶ Direct to 211 or gov.bc.ca *(QR code below)* for how to arrange home care

↓



Prehabilitation and Optimization Recommendations

Patient Education	○ Advise patients on the importance of post-surgery support and set clear expectations for their recovery ○ "Depending on what type of surgery you are having you may need to have someone help you for a while. If the plan is for you to go home the same day (daycare surgery), it is critical that you have someone to assist you on the way home as well as a responsible adult to spend the night with you."
Provide resources for those with no support	○ *211 or gov.bc.ca - telephone or online resource to find local home and community care services ○ Refer to local social worker

PATIENT ACTIVATION

- Assess patients' level of activation
- Assist patients to self-manage and engage in actions supporting their health and healthcare
- Implement a Shared Decision-Making process with patients

Access Patient Prehabilitation Resources here

PATIENT **ACTIVATION**

Assess patients' level of activation

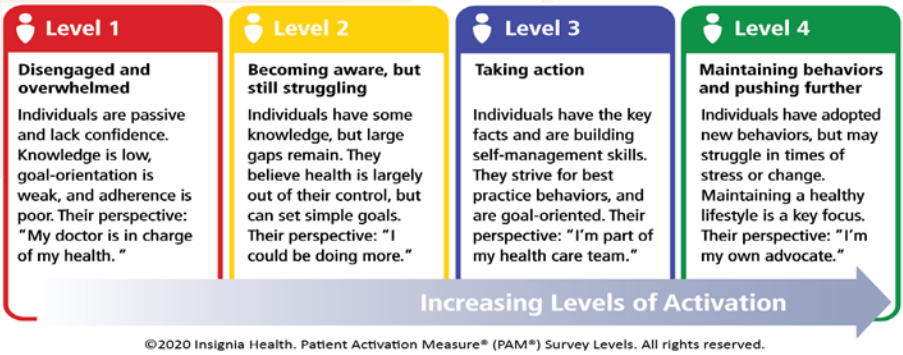
Recommendations

- Understand Health Literacy
- Measure patients' Health Literacy levels (See Appendix B)
- Understand the definition of Patient Activation
- Use a Patient Activation scale in the discussion with your patients to assess their level of activation (See Appendix C)

Appendices

Appendix B · Realm-SF Score Sheet

Appendix C · Patient Activation Measure



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PATIENT **ACTIVATION**

Assist patients to self-manage and engage in actions supporting their health and healthcare

Recommendations

- Educate patients about their health condition, symptoms, surgery and prehabilitation interventions
- Assist patients in tracking symptoms with a symptom diary/tracker (See Appendix D)
- Guide patients on how to track their medications and medical records
- Help patients develop skills to self-manage their health and healthcare
- Encourage patients to participate in group activities that promote health and wellbeing

Appendices

Appendix D · Diary of Symptoms

PATIENT **ACTIVATION**

Implement a Shared Decision-Making process with patients

Recommendations

- Initiate a shared decision-making process with patients (See Appendix E)
- Set healthcare goals with patients (See Appendix F)
- Build a collaborative care plan with patients
- Have patients ask questions about their diagnosis, treatment & support (See Appendix G)
- Identify and action any further opportunities to improve post-surgical management

Appendices

Appendix E · SHARE Approach Model

Appendix F · My Personal Action Plan

Appendix G · Ask Me 3

PROCESS IMPROVEMENT

- Adapt/modify existing processes to allow for patient prehabilitation to take place



PROCESS **IMPROVEMENT**

Adapt/modify existing processes to allow for patient prehabilitation to take place

Recommendations

- Process map current and future state
- Analysis of existing documentation
- Facilitated discovery workshops
- Individual staff or small group interviews
- Direct work observation
- Business analysis design

SPREAD AND **SUSTAINABILITY**

- **S** - Support
- **P** - Positive Culture
- **R** - Resources
- **E** - Engagement
- **A** - Adoption/Ability
- **D** - Desired Results



SPREAD AND **SUSTAINABILITY**

SUPPORT

Effective and supportive leadership is critical in change. Leaders need to be visible, encouraging, and authentic. Leaders solicit and respond to feedback, demonstrating care and active listening.

Themes

- Visible and Visionary Leadership
- Encouragement and Support
- Feedback and Ideas
- Communication

POSITIVE CULTURE

Culture reflects the attributes, beliefs, perceptions & values employees share. Change leaders must understand the role that culture plays on staff behaviour and their ability to deliver improvements.

Themes

- Model the Way
- Rewarding Patient Care
- Common Vision and Practices
- Learning Culture

RESOURCES

Teams and individuals must feel capable to transition into the new desired state. Change leaders need to be able to provide time and access to knowledge (both intellectual and psychological) needed for staff to implement the required skills and behaviours.

Themes

- Capacity
- Investment
- Training and Education
- Accessibility

This is a high level summary of
the Spread and Sustainability Resource Cards.
Access a digital copy of the full resource cards here ▶

ENGAGEMENT

The degree of person-centeredness in a system is reflected in superior decision making, design and care. Large-scale engagement is the best way to guarantee spread and sustainability in change. Change leaders need to ensure everyone has a vested interest in the change, across all levels and roles, and feels that they have a voice in the change process.

Themes

- Valued Contribution
- Understanding Motivation
- Involvement
- Ownership

ADOPTION

Understanding why errors occur and tackling poor design and procedures is key to improvement. Hearing, listening and responding to the voices of staff and patients is key to ensuring the successful implementation of a change. Change leaders need to ensure that reasons for change, processes, and required skills are made clear to maximize adoption.

Themes

- Keep it simple
- PDSA Cycles
- Reason for Change
- Contextual Implementation

DESIRED RESULTS

All improvement will require change, but not all change will result in improvement. Evaluation is vital to our understanding of which methods and innovations work to improve quality. Where there is a clear benefit from a change, innovation or improvement, that modification will be adapted and spread more rapidly.

Themes

- Impact measurement
- Monitoring Improvement Outcomes
- Data Collection
- Innovation

APPENDIX A
Postoperative Patient Outcomes Definitions

Superficial Incisional SSI	Superficial incisional SSI is an infection that involves only skin or subcutaneous tissue of the surgical incision.
Deep Incisional SSI	Deep Incisional SSI is an infection which involves deep soft tissues. Deep soft tissues are typically any tissue beneath skin and immediate subcutaneous fat, for example fascial and muscle layers
Organ/Space SSI	Organ/Space SSI is an infection that involves any part of the anatomy (e.g., organs or spaces), other than the incision, which was opened or manipulated during an operation.
Wound disruption	The spontaneous reopening of a previously surgically closed wound.
Pneumonia	Pneumonia is an infection of one or both lungs caused by bacteria, viruses, fungi, or aspiration. Pneumonia can be community acquired or acquired in a healthcare setting.
Intraoperative OR Postoperative Unplanned Intubation	The placement of an endotracheal tube or other similar breathing tube [Laryngeal Mask Airway (LMA), nasotracheal tube, etc.] and ventilator support.
On Ventilator > 48 Hours	Total cumulative time of ventilator-assisted respirations exceeding 48 hours.
Pulmonary Embolism	Lodging of a blood clot in the pulmonary artery with subsequent obstruction of blood supply to the lung parenchyma. The blood clots usually originate from the deep leg veins or the pelvic venous system.
Progressive Renal Insufficiency/Acute Renal Failure Requiring Dialysis	Progressive Renal Insufficiency: the reduced capacity of the kidney(s) to perform its function in comparison to the preoperative state. Acute Renal Failure Requiring Dialysis: A clinical condition associated with significant decline of kidney function in comparison to the preoperative state.
Urinary Tract Infection	An infection in the urinary tract (kidneys, ureters, bladder, and urethra).
Stroke/Cerebral Vascular Accident [CVA]	An interruption or severe reduction of blood supply to the brain resulting in severe dysfunction.
Intraoperative or Postoperative Cardiac Arrest Requiring CPR	The absence of cardiac rhythm or presence of a chaotic cardiac rhythm requiring the initiation of cardiopulmonary resuscitation.
Intraoperative or Postoperative Myocardial Infarction	Blockage of blood flow to the heart causing damage or death to part of the heart muscle.
Transfusion Intra/Postop [RBC within the First 72 Hrs of Surgery Start Time]	Transfusion of red blood cells, whole blood, autologous blood, and cell-saver products.
Vein Thrombosis Requiring Therapy	New diagnosis of blood clot or thrombus within the venous system (superficial or deep) which may be coupled with inflammation and requires treatment.
Sepsis	Sepsis takes a variety of forms and spans from relatively mild physiologic abnormalities to septic shock Sepsis: systemic response to infection. Septic Shock: Sepsis is considered severe when it is associated with organ and/or circulatory dysfunction.
Still in Hospital > 30 Days	The patient remains in the acute care setting at your institution continuously for > 30 days after the principal operative procedure.
Postoperative Death > 30 Days of Procedure if in Acute Care	Death occurring > 30 days after the principal operative procedure, as a direct result of the surgery and/or associated with postoperative complications and the patient has remained in the hospital in the acute care setting at your site.
Hospital Readmission	Patients who were discharged from their acute hospital stay for their principal operative procedure, and subsequently readmitted as an inpatient to an acute care hospital setting.
Unplanned reoperation	A return to the OR that was not planned at the time of the principal operative procedure.
Average Acute LOS	Report at baseline, September 2019 to May 2021
Average Complication rate	Report at baseline, September 2019 to May 2021
Average Readmission rate	Report at baseline, September 2019 to May 2021

APPENDIX B
Realm-SF Score Sheet

REALM-SF Score Sheet

Patient ID #: _____ Date: _____ Examiner Initials: ____

Behavior	_____
Exercise	_____
Menopause	_____
Rectal	_____
Antibiotics	_____
Anemia	_____
Jaundice	_____
TOTAL SCORE	_____

Administering the REALM-SF:

Suggested Introduction:

"Providers often use words that patients don't understand. We are looking at words providers often use with their patients in order to improve communication between health care providers and patients. Here is a list of medical words.

Starting at the top of the list, please read each word aloud to me. If you don't recognize a word, you can say 'pass' and move on to the next word."

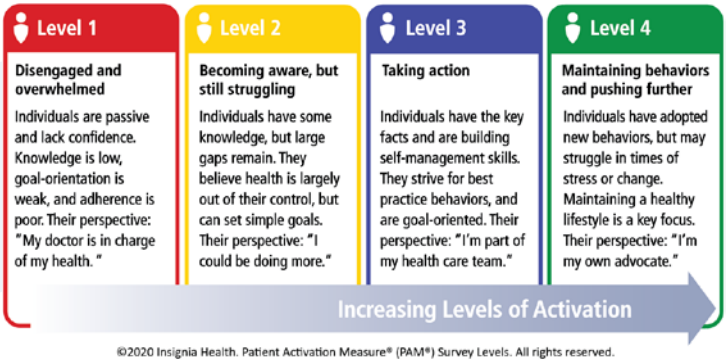
Interviewer: Give the participant the word list. If the participant takes more than 5 seconds on a words, say "pass" and point to the next word. Hold this scoring sheet so that it is not visible to the participant.

PATIENT ACTIVATION MEASURE® (PAM®)

Increasing Activation Starts with Measurement

The Patient Activation Measure® (PAM®) is a 10- or 13-item survey that assesses a person's underlying knowledge, skills and confidence integral to managing his or her own health and healthcare.

PAM segments individuals into one of four activation levels along an empirically derived 100-point scale. Each level provides insight into an extensive array of health-related characteristics, including attitudes, motivators, and behaviors. Individuals in the lowest activation level do not yet understand the importance of their role in managing their own health, and have significant knowledge gaps and limited self-management skills. Individuals in the highest activation level are proactive with their health, have developed strong self-management skills, and are resilient in times of stress or change.



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PAM is Backed by Extensive Research

The Patient Activation Measure survey is a unidimensional, interval level, Guttman-style question scale developed by Dr. Judith Hibbard, Dr. Bill Mahoney and colleagues at the University of Oregon. PAM was created and tested using Rasch analysis and classical test theory psychometric methods. Related versions include Caregiver PAM and Parent PAM, and over 35 validated translations.

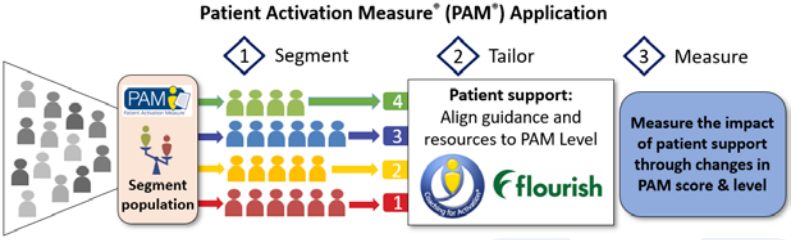
To date, over 500 peer-reviewed published studies worldwide have documented the PAM survey's ability to measure activation and predict a broad range of health-related behaviors and outcomes. This foundation in research consistently demonstrates that individual self-management improves significantly as activation increases, and has led to endorsement of PAM as a performance measure by the National Quality Forum.

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PAM® Applications

The Patient Activation Measure survey is reliable and valid for use with all patients, including those managing chronic conditions and engaged in disease prevention efforts. PAM is widely used today in population health management programs, disease and case management systems, wellness programs, medical home projects, care transitions, value-based programs, and much more. PAM is applied in three key manners:



1. **Improving segmentation and risk identification**. Traditional risk models rely upon past utilization and have been shown to miss over half of the individuals in the lower two activation levels. Research consistently shows that lower activation is an indicator for disease progression, like diabetes or depression, as well as increased ED visits, hospital admissions, and ambulatory care sensitive (ACS) utilization.
2. **Tailoring Support to PAM Level**. Hundreds of health-related characteristics have been mapped to PAM Levels, offering a wealth of insight into a person's self-management abilities. This insight guides patient support to establish goals and action steps that are realistic and achievable for each individual. An activation-based approach to coaching and education, whether provided by phone, in clinic, online or in-home, has been proven to deliver significantly improved outcomes. Insignia Health's coaching model (Coaching for Activation®) and consumer-facing Web-based program (Flourish®) make over a decade of activation research and experience actionable for health care organizations and the people they serve.
3. **Measuring Impact**. Even a single point change in PAM score is meaningful. By periodically re-administering the PAM survey, the impact of patient support strategies and programs can be understood well in advance of traditional outcome measures.

About Insignia Health

Insignia Health specializes in helping health systems, health plans, hospitals, care management services, and other organizations assess patient activation and develop strategies for helping individuals become more successful managers of their health and health care. Insignia Health applies its proprietary family of health activation assessments to measure each individual's self-management competencies. The Patient Activation Measure® and over 15 years of health activation research form the cornerstone of a complementary suite of solutions that help clinicians, coaches and population health providers improve health outcomes and lower costs. Insignia Health supports health activation efforts of over 250 health systems and organizations around the world.

InsigniaHealth.com

Diary of Symptoms

You can complete this form online and then print the form for easy reference. Only text that is visible on the form is printed; scrolled text will not print. Any text you enter into these fields will be cleared when you close the form; you cannot save it.

You can help your doctor diagnose and treat your condition by being prepared to answer questions about your symptoms. Since some symptoms are difficult to describe, it is helpful to write down information about your symptoms as you experience them during your daily activities.

While waiting for your appointment, keep a diary of your symptoms. This form may help. Describe the symptom for which you are keeping this diary:

Day	1	2	3	4	5	6	7
Time of day the symptom starts							
Time of day the symptom bothers you the most							
Does the symptom come and go during the day?							
Is the symptom affected by any of the following: • Activity • Rest • Stress • Recent changes in your eating patterns, such as skipping meals. • Prescription or over-the-counter medicines (name of medicine and time of day it affects your symptom)	Time:	Time:	Time:	Time:	Time:	Time:	Time:
Medicine name:							
Medicine name:							
• Alcohol or caffeinated drinks (number and time)							
Number of drinks:							
Time of day:							
• Smoking or the use of other tobacco products							
What other symptoms do you have:							
Rate how you felt today: 1 – Great 2 – Okay 3 – Not good 4 – Bad							
Other information about your symptoms:							

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APPENDIX E
SHARE Approach Model

The SHARE Approach:
A Model for Shared Decision Making

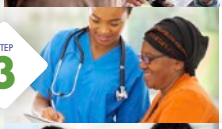
The SHARE Approach is a five-step process for shared decision making that includes exploring and comparing the benefits, harms, and risks of each option through meaningful dialogue about what matters most to the patient.



STEP 1 — **S**eek your patient's participation.



STEP 2 — **H**elp your patient explore & compare treatment options.



STEP 3 — **A**ssess your patient's values and preferences.



STEP 4 — **R**each a decision with your patient.



STEP 5 — **E**valuate your patient's decision.

Shared decision making occurs when a health care provider and a patient work together to make a health care decision that is best for the patient. The optimal decision takes into account evidence-based information about available options, the provider's knowledge and experience, and the patient's values and preferences.

AHRQ Agency for Healthcare Research and Quality

Benefits of the **SHARE Approach**



Both health care professionals and patients benefit from using shared decision making.

Benefits to Health care Professionals:

- Improved quality of care delivered
- Increased patient satisfaction

Benefits to Patients:

- Improved patient experience of care
- Improved patient adherence to treatment recommendations

Using the SHARE Approach builds a trusting and lasting relationship between health care professionals and patients.

SHARE Approach Resources

The Agency for Healthcare Research and Quality (AHRQ) provides a collection of tools and training resources to support the implementation of shared decision making in practice. Refer to the **AHRQ Shared Decision Making Toolkit Website** to locate resources such as:

SHARE Approach Workshop Curriculum:
Collection of training guides, slides, videos, and other resources to support the training of health care professionals on shared decision making and SHARE Approach implementation

SHARE Approach Tools:
Collection of reference guides, posters, and other resources designed to support AHRQ's SHARE Approach implementation

SHARE Approach Webinars:
Accredited webinars that review topics related to the implementation of patient-centered outcomes research in shared decision making

SHARE Approach Success Stories:
AHRQ's SHARE Approach tools and resources are used by organizations nationwide to implement shared decision making in health care. These case studies highlight stories of successes and best practices by describing the use and impact of the AHRQ's SHARE Approach strategies and tools by health systems, clinicians, academicians, and other professionals.

These resources provide health care professionals with the training and tools they need to implement the SHARE Approach in their practice.

Go to: **www.ahrq.gov/shareddecisionmaking**

AHRQ Pub. No. 14-0034-1-EF
April 2016
www.ahrq.gov



My Personal Action Plan

No matter what your health goal is, creating a specific plan can help you succeed.

Follow the steps to put you on a path toward meeting your goal.

You can fill out this form online, but the information can't be saved. Or you can simply print it and then fill it out by hand.

Step 1

Know your own reason.

Why is this change important to you? Make sure it's something that you really want to do.

_____

Step 2

Set a specific long-term goal.

What is a long-term goal that you can reach in about 6 to 12 months?

_____

Step 3

Set your short-term goals.

How can you create short-term goals that you take week by week to reach your long-term goal? _____

Step 4

Prepare for slip-ups or setbacks.

What might get in the way of reaching this goal? You may already know that things like time, money, or emotions could get in the way. How might you get around these things?

_____

Step 5

Plan for support and rewards.

Who can help you meet your goals? Maybe friends, family, or a support group? And how will you reward yourself? A movie, a special meal, an hour to yourself can be a treat.

_____

See your success.

How will your life be different after you make this change?

healthwise

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Every time you talk with a health care provider
ASK THESE 3 QUESTIONS

1 **What is my main problem?**

2 **What do I need to do?**

3 **Why is it important for me to do this?**

When to ask questions
You can ask questions when:
- You see a doctor, nurse, pharmacist, or other health care provider.
- You prepare for a medical test or procedure.
- You get your medication.

What if I ask and still don't understand?
- Let your health care provider know if you still don't understand what you need.
- You might say, "This is new to me. Will you please explain that to me one more time?"
- Don't feel rushed or embarrassed if you don't understand something. Ask your health care provider again.

Who needs to ask 3?
Everyone wants help with health information. You are not alone if you find information about your health or care confusing at times. Asking questions helps you understand how to stay well or to get better.

Ask Me 3®
Good Questions for Your Good Health

Institute *for* Healthcare Improvement

To learn more, visit ihi.org/AskMe3

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Write your health care provider's answers to the 3 questions here:

1. What is my main problem?

2. What do I need to do?

3. Why is it important for me to do this?

Asking these questions can help you:

- ☑ Take care of your health
- ☑ Prepare for medical tests
- ☑ Take your medications the right way

You don't need to feel rushed or embarrassed if you don't understand something. You can ask your health care provider again.

When you Ask 3, you are prepared. You know what to do for your health.

Institute *for* Healthcare Improvement

Your providers *want* to answer 3

Are you nervous to ask your provider questions? Don't be. You may be surprised to learn that your medical team wants you to let them know that you need help or more information.

Like all of us, health care providers have busy schedules. Yet they want you to know:

- All you can about your health or condition.
- Why their instructions are important for your health.
- Steps to take to keep you healthy and any conditions under control.

Bring your medications with you the next time you visit a health care provider. Or, write the names of the medications you take on the lines below.

Like many people, you may see more than one health care provider. It is important that they all know about all of the medications you are taking so that you can stay healthy.

Ask Me 3® is an educational program provided by the Institute for Healthcare Improvement / National Patient Safety Foundation to encourage open communication between patients and health care providers.

Ask Me 3®
Good Questions for Your Good Health

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Substance Use

ALCOHOL

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SPECIALIST SERVICES COMMITTEE

Specialist Services Committee
115 - 1665 West Broadway
Vancouver BC V6J 5A4

604.638.4852
sscbc@doctorsofbc.ca

www.sscbc.ca

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