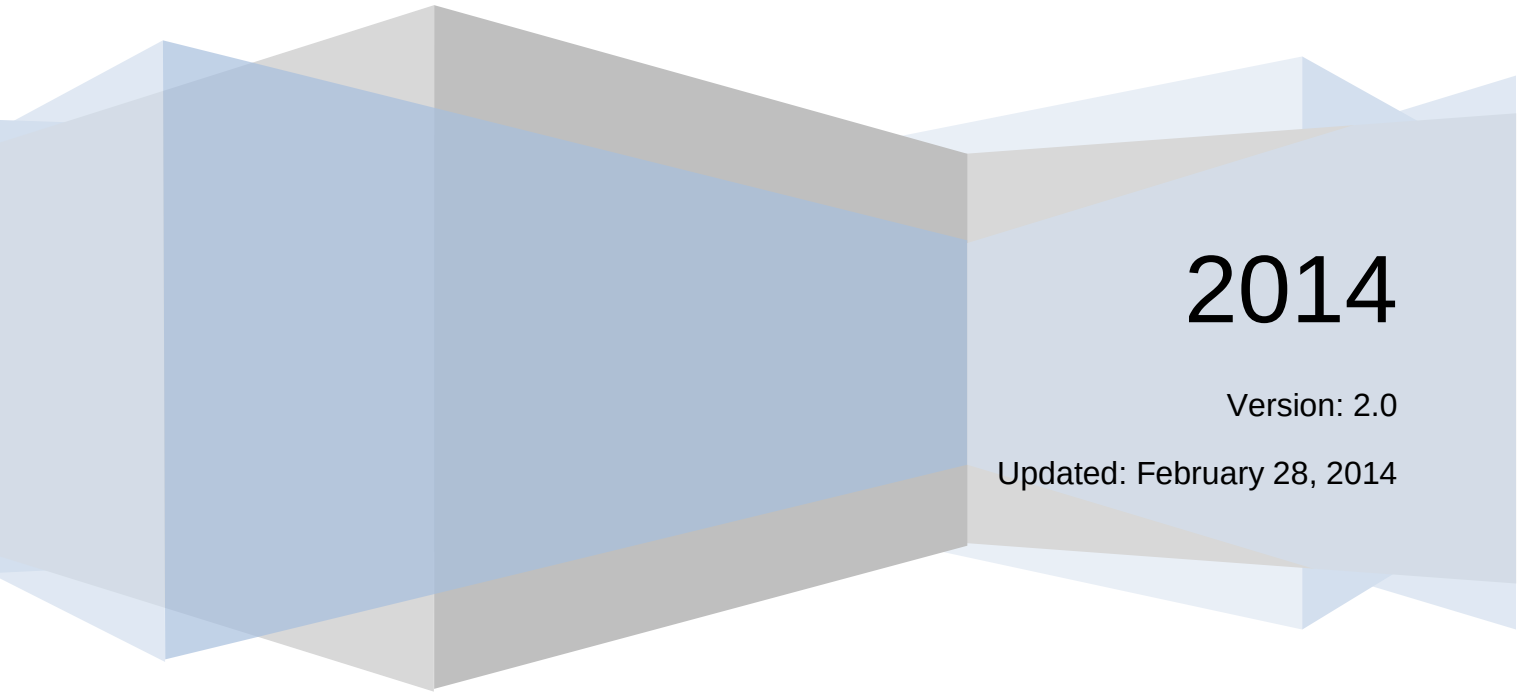
Alberta Health Services

Standards and Guidelines for Screening Colonoscopy Services

Alberta Colorectal Cancer Screening Program



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Contributions

This document was a collaborative effort undertaken by the Alberta Colorectal Cancer Screening Program (ACRCSP) over a timeframe of three years. This document is a compilation of the considerable expertise which has been developed to this date in Alberta, particularly at Calgary's Forzani MacPhail Colon Cancer Screening Center (CCSC) and in Edmonton's SCOPE Program. Members of the ACRCSP Clinical Operations Working Group provided valuable insight, time and effort at ensuring that the guidelines would be applicable to all settings across the province. We are also indebted to several medical experts for their input in these Guidelines.

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List of Abbreviations

ACBE - Air Contrast Barium Enema

ACRCSP - Alberta Colorectal Cancer Screening Program

AER - Automated Endoscope Reprocessor

AF - Atrial Fibrillation

AHS - Alberta Health Services

aPTT - Activated Partial Thromboplastin Time

ASA - American Society of Anaesthesiology

ASA- Aspirin

AVR - Aortic Valve Replacement

BMI - Body Mass Index

CABG - Coronary Artery Bypass Graft

CAG – Canadian Association of Gastroenterology

CCSC - Colon Cancer Screening Centre

CPGs – Clinical Practice Guidelines

CPR- Cardio Pulmonary Resuscitation

CrCL- Creatinine clearance

CRC - Colorectal Cancer

CT - Computed Tomography

DVT - Deep Vein Thrombosis

EMR- Electronic Medical Record

FAP - Familial Adenomatous Polyposis

FAQs – Frequently Asked Questions

FIT – Fecal Immunochemical Test

FOBT - Fecal Occult Blood Test

GI – Gastrointestinal

GRS - Global Rating Scale

GRS-C – Canadian-GRS

HGD - High Grade Dysplasia

HNPCC - Hereditary Non-Polyposis Colorectal Cancer

HP - Hyperplastic Polyps

HRA - High-Risk Adenoma

INR - International Normalized Ratio

IT- Information Technology

LMA – Laryngeal Mask Airway

LMWH - Low Molecular Weight Heparin

LOC - Level of Consciousness

LRA - Low-Risk Adenoma

MEC - Minimum Effective Concentration

MHV - Mechanical Heart Valve

NAPCOMS - Nursing Assessed Patient Comfort Score

nOACs - Novel Oral Anticoagulants Drugs

NSAID - Non-Steroidal Anti-Inflammatory Drug

PE - Pulmonary Embolism

PEG-ELS - Polyethylene Glycol Electrolyte Lavage Solution

PTCA - Percutaneous Transluminal Coronary Angioplasty

RLS – Reporting and Learning System

SSA/Ps - Sessile Serrated Adenomas or Polyps

TIA - Transient Ischemic Attack

TOP - Toward Optimized Practice

TSA - Traditional Serrated Adenomas

UK-GRS- United Kingdom Global Rating Scale

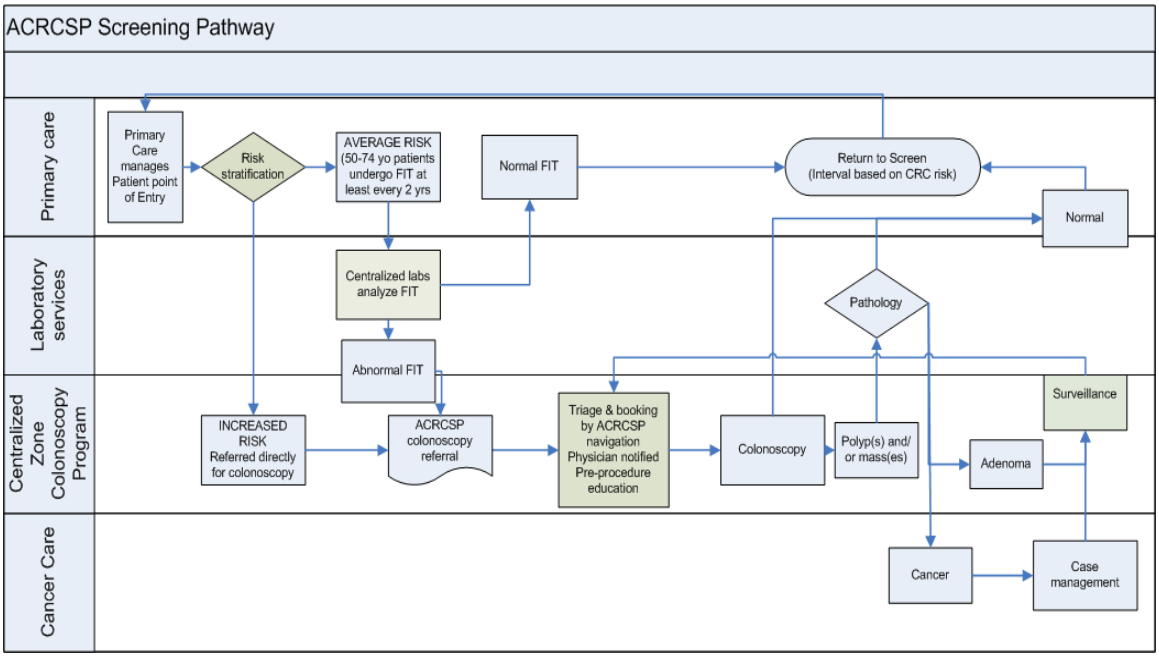
VTE - Venous Thromboembolic Event

1. Introduction

Colorectal cancer (CRC) is the third most common cancer in Alberta, and the second leading cause of cancer-related mortality; however, it is also a highly treatable cancer if caught in early stages (Canadian Cancer Statistics, 2013). An organized screening program effectively decreases the incidence of CRC, as well as CRC-related mortality.

The Alberta Colorectal Cancer Screening Program (ACRCSP) recommends that male and females between the ages of 50 and 74 are screened for CRC every one to two years using the Fecal Immunochemical Test (FIT). Individuals who have an abnormal (i.e., positive) FIT should undergo a colonoscopy as a diagnostic follow-up. Those individuals at increased risk for CRC – either due to a positive family history of CRC, a personal history of CRC, colonic adenomas, or other predisposing conditions – should periodically undergo a colonoscopy. Thus, the colonoscopy procedure is an important component of the screening pathway, and screening is an important health intervention in developed countries.

The approach to CRC screening should follow the ACRCSP pathway, which consists of the following key components (see graph below): 1) the entry-point to screening at the primary care level; 2) screening strategy based on risk level; 3) use of FIT every one to two years for average risk individuals, defined as men and women aged 50 to 74; 4) prompt referral to colonoscopy of any patient with an abnormal (positive) FIT result; 5) direct referral to colonoscopy for individuals at increased risk (e.g. family history of CRC, personal history of colonic adenomas)



The purpose of this document is to serve as a reference for standards of care and evidence-based guidelines regarding screening-related colonoscopy within the province of Alberta. This provides a framework for colonoscopy services to achieve a level of care that is both patient-centered and of high quality. This handbook is comprehensive: it starts with the referral of a patient for a colonoscopy procedure, and concludes with recommendations on how to communicate results of the procedure and ensure there is proper follow-up surveillance of the patient.

Recommendations made are based on the best and most current clinical evidence known. Sources include applicable evidence-based literature, other recognized guidance documents, as well as expert opinion from other program components within the ACRCSP. All guidelines are in accordance with the Canadian Association of Gastroenterology (CAG) Clinical Practice Guidelines (CPG) and Consensus Reports. Creation of this manual was a collaborative effort from the ACRCSP Clinical Operations Working Group, a multi-disciplinary group that provided shared experiences and expertise. It should be expected that in time, some changes in practice may occur and that these recommendations will require modifications. Therefore, this document will be reviewed and revised periodically.

The manual is intended for those involved in the provision of colonoscopy services, including physicians, nurses, administrators, technicians and clerks. It also serves as a source of information for primary care services to understand the comprehensiveness of screening-related colonoscopy and be familiar with how the services are delivered.

The ACRCSP will also be publishing two related Standards and Guidelines documents, both documents are complimentary to this one:

1) *Standards and Guidelines: Program and Practice*
   This document describes the standards, guidelines, recommendations and/or expert consensus that will serve to ensure that the ACRCSP program and respective CRC screening-related services within the province can provide high quality, safe, efficient and effective screening to the target population as they move through the CRC screening pathway.

2) *Quality Reporting of Colonoscopy Performance Standards for the Alberta Colorectal Cancer Screening Program*
   The aim of this document is to outline the quality standards that will be required of each participating colonoscopist in the ACRCSP. This document will detail the reporting structure that will be required from each Zone on quality targets and suggest strategies for quality improvement for individual endoscopists.

2. Referral, Triage, and Prioritization

2.1 Referral Uptake Process

As the ACRCSP evolves, patients will be able to access colonoscopy services via several mechanisms: 1) referral from primary care; 2) direct uptake by program of patients with an abnormal FIT result[1]; and 3) re-uptake of patients who are due for a surveillance colonoscopy. At this time, a patient requiring screening-related colonoscopy services must be referred from primary care.

1 "direct Uptake" is in reference to an anticipatory direct IT feed where abnormal laboratory results (FIT) would be sent electronically from the lab to the appropriate screening centre.

2.1.1 Referral Form

In order to facilitate and expedite the triage process, the referral for a colonoscopy requires specific information about the indication for the procedure (in accordance with ACRCSP guidelines), as well as whether the patient has underlying comorbidities that may increase his or her risk of procedural complications, requiring specific pre-procedural interventions (see Appendices 1 and 2 for a template of the ACRCSP Standardized Referral Form and Exclusion Criteria for a Screening-Related Colonoscopy).

Critical information includes:

- **Indication for a screening-related colonoscopy**
    - Abnormal fecal occult blood test (FIT)[2].
    - Personal history of colonic adenomas and/or CRC. Previous pathology and colonoscopy report should be appended.
    - Family history of CRC or high risk adenomas, indicating age at diagnosis of first and/or second degree relative(s) and the number of affected relatives.
    - Possible polyp on CT colonography, air contrast barium enema (ACBE) or sigmoidoscopy; report of the abnormal test should be appended, including pathology if indicated.
    - Hereditary cancer syndromes.
    - Others (e.g., occupational hazard [firefighter], acromegaly)
- **Whether the patient has had a previous colonoscopy** (including the colonoscopy report[s]; if unavailable, specify the date, location, and endoscopist if known).
- **Patient Medical History** (including comorbidities; medications; whether the patient is using antithrombotic medication and/or diabetic medication; relevant laboratory results; and a current Body Mass Index [BMI]).

[2]FIT: the fecal immunochemical test (FIT) is currently used as the primary screening test for average risk individuals age 50-74.

The use of the ACRCSP Referral for Screening-Related Colonoscopy Form is recommended for its ease of use and comprehensiveness (see Appendix 1- ACRCSP Standardized Referral Form for Screening-Related Colonoscopy).

Referral forms are to be completed by the referring physician or designate; incomplete referrals or referrals missing required information (e.g., patient demographics) may be returned to physicians' offices via fax. A complete referral form is vital, since the information provided will allow for appropriate triage, including patient eligibility, as well as urgency level. If new information is forthcoming, the family physician should send another referral to ensure the endoscopy facility has the additional or updated information, such as personal or family history. This will ensure that the patient is triaged accordingly.

The details of a patient's medical history are strongly encouraged to be included on the referral form since the history may impact the screening process and appropriateness of screening for some patients. For example, the referring physician should communicate that the patient is on antithrombotics, as these medications require special pre-procedure adjustments, which can include several options. Health service resources are used most effectively when the referral form is accurate; furthermore, patients who may be ineligible can be readily identified at the starting point.

2.1.2 Obtaining Background Information

Patients in Alberta may relocate throughout the province, and/or change physicians over time. As a result, the information provided on the referral may be incomplete. Therefore, it is important that those in charge of referral uptake systematically search available electronic medical records (EMRs) and/or available laboratory and endoscopy databases for evidence of screening-related activities and subsequent results. If electronic records cannot be obtained the patient should be asked about the location and/or endoscopist that performed their last procedure, and if possible request to obtain a manual report should be made. For example, a patient who has been referred for a screening colonoscopy due to a positive family history, may have already undergone a colonoscopy for diagnostic purposes within the screening interval, and, as such, may be up to date with screening. Another example is a patient who is referred because he or she self-reported a history of polyps. Upon review of the procedural report, it is ascertained that he or she either had no polyps or that the polyp was in fact a small hyperplastic rectal polyp with no clinical relevance.

Patients may have received more than one screening test within a given screening interval. In particular, a patient may have a normal result following a colonoscopy within a 10 year period but has been asked to complete a FIT and now present with an abnormal FIT result. The decision to repeat a

colonoscopy on a patient with an abnormal FIT within 10 years of a normal colonoscopy should be individualized. It is important to ascertain whether the original colonoscopy was of good quality, as well as whether the patient was symptomatic, in which case he or she should be referred to diagnostic services. The practice of performing an FIT on an asymptomatic patient within 5 years of a normal colonoscopy is not evidence informed and should be discouraged.

Finally, there should be a system in place to ensure that requests for screening colonoscopies on average risk patients be handled in a manner to ensure that the opportunity to screen is not missed. For example, while waiting for colonoscopy, a requisition for FIT can be provided to these patients.

2.2 Triage and Prioritization

2.2.1 Triage

The need to perform screening (or diagnostic follow up) by colonoscopy is determined by an individual's risk level for CRC. It is this risk that indicates when screening should be initiated, and the tests and frequency that are appropriate. An individual's risk of CRC is largely influenced by three factors: age, personal medical history, and family history.

Therefore, there are several indications for a screening-related colonoscopy:

a) Diagnostic follow-up in patients with an abnormal entry-level test

Follow up of an abnormal FIT:

The ACRCSP screening pathway uses the FIT as the entry-level screening test for average risk individuals. The estimated positivity rate of the FIT ranges between 5 and 8% and according to the literature, one in nine to one in eighteen individuals with an abnormal FIT will have a finding of CRC at colonoscopy and should be prioritized urgently. These patients may be anxious about their abnormal screening test result and therefore should be offered a rapid uptake by the service. The colonoscopy procedure should be performed within 60 days of the abnormal FIT result – though preferably within 30 days. In time, the ACRCSP standard will be for patients to undergo a colonoscopy within 30 days of an abnormal FIT result.

Patients referred for an abnormal FIT should undergo colonoscopy within 60 days of the abnormal test result.

Follow up of an abnormal sigmoidoscopy:

Patients who were found to have a polyp 1cm or greater on sigmoidoscopy

should undergo a colonoscopy. Patients with diminutive polyps at sigmoidoscopy should have this polyp biopsied to determine its histology; patients who only have small (<10mm) hyperplastic polyps in the rectosigmoid do not require a follow-up colonoscopy.

Follow up of an abnormal colonic imaging:
Patients may also be referred for colonoscopy if they have undergone a computed tomography (CT) colonography, a CT scan, or an ACBE, and were found to have a possible polyp, or even a possible cancer.

Patients with imaging results confirming CRC should be urgently referred to diagnostic care rather than screening-related services.

b) Screening colonoscopy

Colonoscopy is the recommended screening modality for individuals at increased risk of CRC (as defined in the Toward Optimized Practice [TOP] CPGs http://www.topalbertadoctors.org/home/).
This generally includes patients with a family history of one first degree relative diagnosed with CRC or high risk adenoma before the age of 60; patients with multiple first degree relatives diagnosed at any age; and patients with hereditary colon cancer syndromes (e.g., Hereditary Nonpolyposis Colorectal Cancer [HNPCC]/Lynch Syndrome, Familial Adenomatous Polyposis [FAP]). Some facilities may not accept patients with hereditary colon cancer syndromes for screening purposes. These patients will need to be referred to an individual gastroenterologist. Refer to Appendix 3 – ACRCSP Colonoscopy Prioritization Chart and Expected Wait Times, for priority status. The screening interval and age at onset of screening varies with the type of risk factor.

Although colonoscopy can be used as a screening modality for the average risk individual, the FIT is the preferred screening test. To ensure average risk individuals who are currently on a wait list for screening colonoscopy do not delay screening, the FIT should be performed every 1 to 2 years while awaiting the procedure. Services should then be informed of any abnormal FIT result, at which point the patients should be re-prioritized as urgent.

c) Surveillance colonoscopy

Patients with a personal history of colonic adenoma and/or CRC require periodic surveillance. The recommended intervals for surveillance are based on the number, size, and histology of the adenomas and should follow the ACRCSP Post-Polypectomy Surveillance Guidelines (see Appendix 4).

2.2.2 Prioritization

Once referrals are received, they are prioritized according to the likelihood of detecting CRC and are categorized as follows:

- **Urgent:** Patients with an abnormal FIT result should undergo colonoscopy within 60 days of the abnormal result, and have a pre-colonoscopy consult within a two week minimum.
- **Moderate:** Patients overdue for screening or surveillance and/or hereditary cancer syndromes due for screening. A surveillance colonoscopy is overdue if the patient is six months beyond the ACRCSP recommended interval and they should therefore have screening as soon as possible. Patients with a polyp or suspected polyp on sigmoidoscopy, CT colonography or barium enema should undergo colonoscopy within 6 months from finding.
- **Routine:** Patient is due for screening or surveillance within the recommended CPG interval.

2.3 Uptake of Patients with an Abnormal FOBT/FIT Result

By providing FIT to the average risk population, the goal is to identify those with possible early stage CRC and direct them to have a colonoscopy when an abnormal result is found. Referring physicians should always inform the centre providing the colonoscopy services of an abnormal FIT result. The abnormal laboratory result should also be sent with the referral for quick authentication. Abnormal FIT referrals should be triaged first, and patients should be booked within a two week minimum for their pre-colonoscopy consult appointment and within 60 days for the colonoscopy. This can be operationalized by asking clerical staff to label these referrals and prioritize them as "**Urgent"** for nursing triage. The triage staff is then able to confirm the laboratory result and any other identifying information prior to the patient being called for immediate booking of his or her pre-procedure consultation.

In the future it is anticipated that colonoscopy screening centres will receive a direct feed of abnormal FIT from the laboratory. Individuals with abnormal FIT results can then be rapidly identified and contacted either directly or through their primary care service.

2.4 Management of Surveillance Cases

The request for surveillance colonoscopy should always trigger a review of the patient's colonoscopic and pathology findings against current guidelines, in order to ascertain the appropriateness of the procedure. Furthermore, the quality and completeness of the previous colonoscopies should be taken into account as a key premise of recommendations for surveillance; in particular, that baseline colonoscopy was of good quality, thus minimizing the risk of missed lesions (see Appendix 4 – ACRCSP Post-Polypectomy Surveillance

Guidelines). Age and comorbidities of individuals should also be taken into account. The risk of colonoscopy increases with advancing age and the presence of a significant concurrent comorbidity and/or advancing age make it less likely that screening and surveillance for CRC will significantly increase life expectancy in some individuals.

3. Pre-Procedure Consultation

3.1 Assessment of Patient Risk and Comorbidity

Colonoscopy is an invasive procedure with a small potential to cause harm. Although rare, complications from a colonoscopy may be the result of:

1) changes to patients' medications prior to the procedure;
2) bowel preparation;
3) sedation; and/or
4) the procedure itself.

Risks of complications are increased in elderly patients, as well as those with underlying comorbidities. Considering that the purpose of CRC screening is to decrease the likelihood of morbidity or mortality from CRC in otherwise healthy patients, it is important that risks related to the screening process and diagnostic follow-up be as low as possible. Based on the level of comorbidity, screening for CRC may not be appropriate, as some individuals' life expectancy will greatly depend upon the disease activity of other pre-existing condition(s), precluding any potential gains from CRC screening, yet unnecessarily exposing these patients to the risks of colonoscopy (see Appendix 2 - ACRCSP Exclusion Criteria.)

The level of comorbidity should be assessed as part of the initial consultation to inform patients of the risks of the procedure (as part of the informed consent process). This is also necessary to determine if pre-procedural changes to medications are required, if the procedure can be safely carried out in an out-of-hospital facility, and to decide if the procedure is appropriate.

Some of the common underlying conditions that may increase the likelihood of harm from the colonoscopy are:

- Cardiac disease, especially recent myocardial infarction, coronary artery bypass graft (CABG) and/or angioplasty with stent placement, unstable angina or arrhythmias. In general, screening-related colonoscopy should not be performed within six to twelve months of a myocardial infarct or acute coronary syndrome, CABG or coronary stent placement, stroke, deep vein thrombosis and/or pulmonary embolism.
- Respiratory disease, especially oxygen-dependency and obstructive sleep apnea.
- Chronic renal failure and other metabolic conditions that predispose to impaired water balance and/or electrolytic abnormalities.

- Bleeding diathesis and use of antithrombotic medication. Patients on anticoagulants should be managed according to guidelines (see Appendix 5 - Suggested Management of Antithrombotics for a Screening-Related Colonoscopy). The HAS-BLED score can be used to identify patients who are at excessive risk of bleeding (see Appendix 6 – HAS-BLED score).
- Diabetes mellitus.
- Morbid obesity. Body Mass Index is calculated to identify high risk patients with potential intubation concerns (see Appendix 10 - Link for BMI Calculator). Patients with either a BMI greater than or equal to 40, or a BMI greater than 35 and concomitant obstructive sleep apnea, should be assessed individually regarding their risk for complications during the colonoscopy procedure.

However, the assessment of each individual patient's general life expectancy should be completed by referring physician in FIT + cases.

The ACRCSP referral form includes a request for information of specific illnesses and how they are managed, list of current medications and allergies to determine patient eligibility. In addition, to assist in the triaging process, it is recommended that recent (within two years) hemoglobin, electrolytes and creatinine levels be available or collected for review of this blood work. Screening is a preventative intervention; therefore, deferring the procedure until patients have recovered from major health events and/or surgery is advised.

In addition, the following scoring systems may help characterize the level of co- morbidity and procedural risk:

a) The American Society of Anaesthesiology (ASA) score is an accepted tool to identify patient morbidity (see Appendix 11 - ASA Classification System). The classification category should influence the settings and precautions prior to referral for a screening colonoscopy. ASA class 3 patients or higher should be considered high risk for cardiopulmonary events; these patients may not be appropriate for a screening colonoscopy, or need to be done in a hospital setting for full resuscitation and support.

b) The Mallampati Airway Classification System can be used in patients with obstructive sleep apnea and/or morbid obesity to predict the degree of difficulty of endotracheal intubation, based on the amount of visualization of the posterior pharynx. The patient identified as *"moderate to severe intubation difficulty"* should be ineligible in the clinic setting (see Appendix 12 - Mallampati Airway Classification System).

c) The $CHADS_2$ score can be used to establish the risk of a thrombo-embolic event (see Appendix 7 – Stroke Assessment in Atrial

Fibrillation: $CHADS_2$ score and Section 3.5 Antithrombotics).

d) The HAS-BLED score can be used to identify those at excessive risk bleeding from the procedure (see Appendix 6 – HAS-BLED Score and Section 3.5 Antithrombotics).

3.2 Information and Consent

"Patient-centered care" may be defined as the intention to engage and involve the patient in the decision-making process about potential treatments/ procedures. When the health care system provides patient-focused education sessions and addresses the patient's concerns and questions, the result is a patient who is well-informed and comfortable with the upcoming treatment/ procedure. Accordingly, patient-centered care encompasses all aspects of the patient's experience from physical, cognitive, and psychological perspectives.

The CAG Quality Consensus Guidelines states that "for a patient to give a physician informed consent to perform an elective endoscopic procedure, the patient must be advised, in a timely fashion, of all relevant information about the procedure, its risks, benefits and alternatives, if any, and be given an opportunity to ask questions that the physician must answer [Armstrong, 2012]. This is especially important in the context of screening-related colonoscopy when otherwise healthy individuals undergo an invasive procedure. While this procedure information may be provided by an alternate health care provider, the endoscopist is responsible for ascertaining (either on the day of the procedure or before) that the patient has received this information and that all questions were answered to the satisfaction of the patient. This confidently secures the patient's consent for the colonoscopy.

The information pertaining to the colonoscopy should address the following:

- Indication for the procedure.
- Nature of the procedure and what the patient should expect.
- The bowel preparation.
- Patients' concerns about sedation, discomfort and pain.
- Benefits and limitations of the procedure.

In order to facilitate the delivery of this information, as well as ensure that all patients receive the same degree of comprehensive information, ACRCSP recommends that the provision of screening-related colonoscopy services be centralized into one or two areas within each Zone. This not only helps Zones meet standards of care, but it also helps the centralized uptake of referrals, monitoring of demands for colonoscopy services, and coordination of CRC screening related services across the Zone. It also facilitates the delivery of standardized patient information about the procedure.

The education session (part of the Pre-Procedural Consultation) comprises information about the colonoscopy (including benefits, complications and

alternatives), pre-procedural bowel preparation, and expectations the day of the procedure. The delivery format of the colonoscopy-related patient education may vary. Group sessions are very effective and generate high patient satisfaction. One-on-one telephone conversations with a nurse can also be performed. Mailed information is generally insufficient, as it cannot be ascertained that the patient has effectively read and understood the information. It is important to note that the quality of the bowel preparation is anecdotally best in patients who have attended the group sessions or had a telephone interview with a nurse. Educational material, in the form of Frequently Asked Questions handouts and pamphlets are posted on http://www.screeningforlife.ca/healthcareproviders/colorectal-cancer-resources and http://www.albertahealthservices.ca/9232.asp for all the Zones to access. It is important to note that the pre-procedure consultation is mandatory for patients as the education provided will lead to informed consent.

3.2.1 Indication for the Procedure

Providing high quality patient care ensures the patient receives a screening-related colonoscopy with proper indication. It is common for patients referred to colonoscopy because of an abnormal FIT to require further explanations about the indication for the colonoscopy and about CRC screening in general. Patients referred for adenoma surveillance have their colonoscopy findings and pathology reviewed to ensure the surveillance interval is in keeping with current guidelines (see Appendix 4 – ACRCSP Post-Polypectomy Surveillance Guidelines).

3.2.2 Nature of the Procedure

Prior to the actual procedure, it is both helpful and beneficial to provide patients with as much information as possible about the expected events that will take place during the procedure. When patients understand their role and the process involved with a screening colonoscopy, it will help create higher compliance rates and ease anxiety about the unfamiliar. Questions and concerns can be addressed directly and immediately. The following information should be covered:

- Directions to the colonoscopy facility, including specifics related to location, transportation, contact details and where they will present upon arrival.
- Description of the admission process. For example: “Patients will be asked to change into a hospital gown and lay on a stretcher. A nurse who performs the admission will ask questions pertaining to health, allergies, and the effectiveness of the bowel prep; pre-procedure vital signs will be obtained and an intravenous in the arm or hand will be initiated.”
- Description of events taking place in the procedure room. Prior to the

procedure, the endoscopist will meet with the patient to perform a quick assessment and answer any further questions. Medications, which minimize discomfort and have a sedating effect, will be administered intravenously. The colonoscope is inserted through the rectum and journeyed along the colon. The patient will experience sensations of pressure, cramping and/or bloating. Polyps are removed at the discretion of the endoscopist; all removed polyps are sent to pathology; if the endoscopist feels the removal of the polyp is unsafe at the time of the procedure, alternate arrangements will be discussed for retrieval at a later date and possibly by an expert therapeutic endoscopist. On average, the procedure takes about 20-30 minutes. After the procedure, all patients are sent to recover in a designated area, where they are monitored closely by nursing staff. Prior to discharge, some centers will provide patients with a small snack, and all pertinent procedural findings and discharge teaching will be discussed. All patients who received sedation must have a pre-arranged ride and must be informed that legal impairment is 24 hours post-procedure.

3.2.3 Bowel Preparation

The success of the colonoscopy is dependent on an adequate bowel preparation. A good bowel preparation is accredited with both higher polyp detection rates and successful cecal intubation. There is good evidence to support the practice of split-dosing, which yields better results and better patient tolerance. The second dose of laxative should preferably be taken 3 to 6 hours prior to the colonoscopy, even if the patient has to get up from their sleep to ingest it.

Two commonly used bowel preps for screening colonoscopy are Polyethylene Glycol Electrolyte Lavage Solution (PEG-ELS) (e.g., GoLytely, Colyte, PegLyte) and oral Picosulphate and Magnesium Citrate (e.g. Pico-Salax). The ACRCSP endorses the use of the split-dose PEG-laxative based bowel preparation.

The safety and efficacy of PEG-laxative has been well- documented. PEG is an isotonic laxative administered orally; it is safe for patients with renal failure, congestive heart failure, or advanced liver disease [Barkun, 2006]. Those unable to tolerate high-volume prep should be provided with an alternative, such as low-volume PEG combined with ascorbic acid (MoviPrep), or with bisacodyl (HalfLitely), or Pico-Salax laxative, which works better if combined with oral bisacodyl (Dulcolax) the night before.

Adequate hydration is vital with both volumes of prep in order to minimize adverse events. Successful prepping of the bowel is also accomplished by encouraging a low residue, low fiber diet, with clear fluids 24 hrs prior to the procedure. Healthcare providers can find information and material relating

to the bowel preparation to use with their patients on www.screeningforlife.ca.

Patients must be informed of potential side-effects when fasting and preparing for their colonoscopy. In order to limit adverse effects with the prep, patients should be advised to follow the instructions verbatim and to consume extra clear fluids to maintain ample hydration. Any patient identified as high risk for adverse effects from the prep should be offered alternatives to the procedure. This patient may be appropriate for referral to a gastroenterologist for an individual consultation where they can be adequately counseled on risks and benefits of the colonoscopy, including bowel prep and strategies to follow to have a successful procedure (see Appendix 13 - ACRCSP Bowel Preparation: Instructions for the Patient).

3.2.4 Patients' Concerns about Discomfort, Pain, and Level of Sedation

Patients are often concerned about the level of pain and/or discomfort they assume is involved with colonoscopy. Recognizing and addressing patients' concerns about pain is an important part of quality care. Patients need to be able to discuss their concerns with nursing staff and/or the endoscopist who will be able to present a realistic scenario. Patients should be informed that the procedure is not pain-free and discomfort can be expected, that discomfort is subjective and tolerated differently, and that medication is provided to lessen the discomfort. Colonoscopies often rely on the compliance of the patient intra-procedure. Having the patient conscious allows him or her to follow commands, shift positions, and vocalize pain, which are all components that improve the quality and safety of the procedure.

Patients should understand that the level of sedation will vary. Some patients who have sedation will sleep throughout the procedure and others are awake and observe the procedure on the monitor. Some patients may choose not to receive any sedation. The patient should also understand prior to the procedure that the level of sedation experienced will not be similar to general anaesthetic or deep sedation. Conscious sedation means patients are easily roused and breathing without the assistance of a machine. For those patients electing not to be sedated, their procedure can be performed comfortably without narcotics or sedation agents. Therefore, offering a choice for sedation is an important consideration.

For the patient requesting to undergo deeper sedation (i.e., Propofol) or under general anesthetic they should be made aware that this is not a common practice for screening-related colonoscopy. As previously mentioned maintaining consciousness during the procedure aids with patient compliance and improves overall quality and safety.

3.2.5 Disclosure of Risks and Limitations of Colonoscopy

Patients need to be informed about the full range of complications and adverse events that may be encountered – from those associated with the bowel preparation, to the sedation, and finally the procedure itself.

By far, the most common risk is an incomplete bowel preparation, which subsequently limits the endoscopist's ability to fully visualize the colon and increases the risk of missing significant lesions, polyps or cancers. Incomplete bowel preparation also leads to longer duration of the procedure, which can potentially be less comfortable for the patient and may result in a repeated procedure.

The bowel preparation itself carries a number of risks and adverse reactions including: nausea, vomiting, dizziness, perianal pain/irritation, allergic reaction, diarrhea (although considered necessary), cramping, sleep disturbances, electrolyte imbalance, dehydration, presyncope and falls, muscle spasms, and although rare, kidney failure.

Upon discharge from the procedure, the patient should be provided with a contact name and phone number for any questions and for emergency purposes. The patient should also be advised (verbally or in written format) as to when to seek medical attention (see Appendix 14 – ACRCSP Discharge Teaching Sheet for the Patient).

Colonoscopy is associated with a risk of bowel perforation of 1:1000, while colonoscopy with polypectomy is associated with a 1:500 risk of bowel perforation. The complication of bowel perforation could require further surgery resulting in a stoma to manage complications. The risk of bleeding following a routine colonoscopy is 0.07% or every 7:10,000 procedures; this risk is increased following a polypectomy to 1.2% or 1.2:100 procedures. Such a complication could lead to a blood transfusion and/or undergoing surgery. Very rarely, colonoscopy can cause trauma to adjacent abdominal structures, in particular it may cause a splenic injury. Patients must be fully aware that severe complications as a result of the procedure and specific procedure interventions could result in death. However, it is also important to note that this scenario is extremely rare (1 in 12, 000) [Rabeneck, 2008].

Although colonoscopy is the most accurate procedure for examining the entire large bowel and detecting lesions or polyps, as with any other test it is also not 100% accurate. Factors that can result in missed polyps/lesions are: poor prep, the size and appearance of the lesion(s), the endoscopist's proficiency and withdrawal technique, and patient-related factors affecting the ability to complete the procedure, such as anatomy of the bowel and the presence of severe diverticulosis.

The patient must be well-informed of the specific risks relating to conscious sedation including the risk of hypoxia, hypotension, respiratory depression, and/or other significant cardio-pulmonary events that may occur. The risk of cardio-pulmonary complications is directly affected by the patient's underlying condition and the nature of the procedure. Proper assessment of the patient is necessary prior to the procedure to minimize risk. High risk patients include those with cardiovascular, pulmonary, renal, hepatic, and neurologic disorders. Also considered high risk are obese (BMI greater than or equal to 40) and elderly patients. These risks should be identified during the pre-procedure consultation. The risk of over-sedation is possible; therefore, all endoscopy units must have appropriate resuscitative equipment and staff properly certified in Basic or Advanced Cardiac Life Support (depending on the clinic setting).

Due to the amnesic property of conscious sedation, all patients are considered legally impaired. Legal impairment continues for 24 hours following sedation initiation. Patients must refrain from driving or operating any heavy machinery, signing legal or financial papers, and drinking alcohol. Patients must be aware of their impairment prior to sedation being administered.

The patient must be provided with full disclosure regarding their option for sedation. The patient can choose to have no sedation with his or her procedure and this would eliminate the risks associated with conscious sedation. Patients who have no sedation are not legally impaired following their procedure and do not have any driving restrictions or require a responsible adult to be present following the procedure. Patients who choose not to be sedated should also be aware that discomfort and/or pain may occur. Depending on a patient's degree of tolerability, it is not unreasonable that he or she ask for sedation intra-procedure, warranting a ride home is confirmed.

3.4 Diabetes

Diabetic patients must be treated with care when having a colonoscopy, as they will be ingesting fewer calories, as well as fasting up to two-four hours[3] prior to their procedure. During the pre-procedural consult, or well in advance of the colonoscopy, the patient should be advised by the nurse or endoscopist on which oral hypoglycemics are safe to continue and which should be stopped prior (see Appendix 15 – Instructions for Patients on Oral Hypoglycemics). All patients should be instructed to perform frequent blood glucose checks while on a clear fluid diet, and symptoms of hypoglycemia should be treated promptly.

[3] Fasting times may vary depending on facility. Some facilities may recommend the patient remain NPO 6 hours prior to procedure.

There are six classes of oral hypoglycemic drugs: sulfonylureas, meglitinides, metformin, thiazolidinediones, DPP4 inhibitors and alpha-glucosidase inhibitors. The management of patients with diabetes mellitus may include being treated with a single agent or combination therapy of these hypoglycemic agents.

Sulfonylureas

Sulfonylureas are widely used for the treatment of type 2 diabetes. Their mechanism of action is to stimulate insulin secretion, which results in an increased risk of hypoglycemia when caloric intake is reduced [Krentz, 2005]. This class of hypoglycemics should therefore be held during preparation for the colonoscopy. Commonly used sulfonylureas include: gliclazide (Daimicron), glyburide (Diabeta), glipizide (Glucotrol) and glimepiride (Amaryl).

Meglitinides (nateglinide [Starlix] and repaglinide [Gluconorm])

The mechanism of action for meglitinides closely resembles that of sulfonylurea. The meglitinides stimulate the release of insulin from the pancreatic beta cells [Cheng, 2005]. This class of drugs also poses a risk of hypoglycemia but is much more short acting than sulfonylureas. Patients should be advised to hold on day of the procedure.

Biguanides (metformin)

Metformin, the only biguanide on the market, is a common first line agent used for type 2 diabetes. This class of oral hypoglycemic improves glucose control by increasing the amount of glucose taken up by the muscle wall, and by reducing insulin resistance [Cheng, 2005]. Metformin is less likely to cause hypoglycemia. Patients taking metformin can continue to take their usual dose the day before and day of their procedure.

Thiazolidinediones (pioglitazone [Actos] and rosiglitazone [Avandia])

Thiazolidinediones increase insulin sensitivity [Rendell, 2000]. The mechanism of action is thought to decrease hepatic output of glucose and increase peripheral insulin uptake. They do not cause hypoglycemia on their own. Patients can continue to take this class of oral hypoglycemic the day before and day of their colonoscopy.

Dipeptidyl-peptidase-4 (DPP-4) inhibitors (sitagliptin [Januvia] and saxaglitptin [Onglyza])

DPP-4 inhibitors slow gastric emptying, increase endogenous insulin (much less than a sulfonylurea) and antagonize the effects of glucagon [Wani, 2008]. This class of oral hypoglycemic can be continued during the preparation and

for the procedure.

Alpha-Glucosidase Inhibitors (acarbose [Glucobay])

Alpha-glucosidase inhibitors hinder the upper gastrointestinal enzymes that convert dietary starch and other complex carbohydrates into simple sugars [Cheng, 2005]. Patients can continue on alpha-glucosidase inhibitors before and during the procedure with little concern for hypoglycemia.

Alberta Health Services (AHS) has a handout available for patients to adjust their diet and insulin for medical procedures (see Appendix 16 – Adjusting your Diet and Insulin for Medical Procedures). These guidelines are general and patients should always consult their family physician, endocrinologist, or diabetic nurse at least one week prior to the procedure. The family physician or diabetic clinic are responsible for determining if the patient is medically stable for the procedure and should provide instructions on insulin dosing and adjustments. A recommendation for all patients with diabetes is that their colonoscopy be scheduled first or at earliest convenience in the day in order to avoid prolonged fasting.

3.5 Antithrombotics

The referring physician should clearly indicate whether the patient is on antithrombotic therapy and the reason for use. Management of antithrombotic therapy prior to the colonoscopy should follow established guidelines and should be clearly documented (see Appendix 5 – Suggested Management of Antithrombotics for Screening-Related Colonoscopy). It is recognized that this field is expanding with the recent introduction of several potent and short acting anticoagulants. Any deviation from the guidelines should be justified and clearly documented. The guidelines for management of peri-procedural anticoagulants are based on the following:

- The degree of urgency of the procedure: screening colonoscopies should not be performed within 6 months of a significant thrombotic event or myocardial infarct.
- The risk of bleeding due to the use of antithrombotics and patient-related factors such as liver and kidney disease (see Appendix 6 - HAS-BLED score).
- The risk of bleeding due to the procedure. Diagnostic colonoscopy is considered to be a low risk procedure for bleeding; however, the risk of bleeding is increased if a polypectomy is performed, such that it is generally assumed that screening-related colonoscopy represents a significant risk of bleeding.
- The risk of thromboembolic events if antithrombotics are stopped. (see Appendix 7 – Stroke Assessment in Atrial Fibrillation: $CHADS_2$ Score and Appendix 8 - Risk Stratification for Thromboembolism Pre-Procedure (Screening-Related Colonoscopy).

a) Antiplatelet agents

Aspirin and Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)

Aspirin and NSAIDs do not significantly increase the risk of post-polypectomy bleed and should not be discontinued prior to the colonoscopy. Patients on dypiridamole (Persantine) or dypiridamole/Aspirin (Aggrenox) are at low risk of bleeding and can continue therapy for their colonoscopy.

Clopidrogrel (Plavix) and ticlopidine (Ticlid).

With an expected prevalence of large polyps in patients with an abnormal FIT result, individuals at low risk of thromboembolic event (ischemic heart disease and no coronary stent, cerebrovascular disease, peripheral vascular disease with no recent stenting) should stop their Plavix 7 days before the colonoscopy. Any concerns regarding the safety of withholding Plavix in patients with coronary stents should be discussed with the treating physician or cardiologist. Often the ongoing reason to be on Plavix is unclear so it is important to consult the prescribing physician regarding the proper management prior to the colonoscopy. Aspirin, if used concomitantly, may be continued. Individuals who are on Plavix because of a high risk of thromboembolic event should generally not undergo a screening-related colonoscopy. This includes patients with a recent bare metallic coronary stent (less than 4 weeks), or within 12 months of a drug-eluting stent placement, patients with a recent myocardial infarction, recent percutaneous transluminal coronary angioplasty (PTCA) or with unstable angina (less than 6 weeks). Plavix may continue to be held post procedure for an additional 48 hours, if a polyp greater than or equal to 1cm was removed or any bleeding noted.

b) Anticoagulants

Patients on anticoagulants are at higher risk of post-polypectomy bleed, particularly for polyps greater than 1cm in size.

Warfarin (Coumadin)

Patients at low risk of thromboembolic event (atrial fibrillation with no valvular heart disease and no prior history of thromboembolic event; bioprosthetic [tissue] heart valves, bi-leaflet mechanical heart valve in aortic position in absence of atrial fibrillation, deep vein thrombosis [DVT] or pulmonary embolism [PE] on anticoagulants for at least 3 months) may discontinue warfarin 5 days prior to the colonoscopy, in order to achieve an international normalized ratio [INR] of 1.5 or less, which is optimal. Warfarin may be resumed on the evening of the colonoscopy, unless a large polyp was removed or if significant bleeding occurred at the time of the polypectomy, in which case the warfarin should be restarted up to 3 days later.

Patients at high risk of a thromboembolic event (nonvalvular atrial fibrillation

with additional stroke risk factors [see Appendix 7- $CHADS_2$ Score] or prior stroke, atrial fibrillation with valvulopathy, mitral stenosis, mechanical heart valve in mitral position, mechanical heart valve with prior history of thromboembolic event, ball and cage or disk-shape aortic mechanical heart valve, recent DVT or PE [less than 3 months], thrombophilia) should be on bridging therapy with low molecular weight heparin (LMWH). LMWH is started once INR is less than 2 prior to procedure and continued up to 24 hours prior to procedure. LMWH is resumed post procedure once hemostasis achieved while awaiting resumption of therapeutic warfarin. Please refer to Appendix 9 – Moderate to High Risk Patients for Thromboembolism: Warfarin and Heparin Bridging Instructions for Screening-Related Colonoscopy.

Novel Oral Anticoagulants

Several novel oral anticoagulants drugs (nOACs) have recently been approved in Canada. These anticoagulants have been proposed as an alternative to vitamin K antagonists (warfarin) in the prevention of stroke and systemic embolism in patients with non-valvular atrial fibrillation and in some patients with venous thromboembolism. The advantages of these nOACs are: a rapid onset of action, predictable therapeutic effects and fewer, but not free of, drug-drug and drug-food interactions.

The nOACs also carry disadvantages. In the absence of the need to perform regular bloodwork, some patients will forget they are on them and these drugs carry an increased risk of extra cranial bleeding. It is recommended to routinely enquire specifically about nOACs in patients with atrial fibrillation who don't report taking warfarin. Patients must be compliant with their medication regime when on a nOAC as the half life is shorter and missed medication results in ineffective anticoagulation. Patients may also be taking concomitant medications including different combinations of antiplatelet agents that significantly increase bleeding. There is currently no readily available quantitative testing that will indicate the level of drug or drug activity for these agents. Specifically, the common coagulation tests such as the INR and activated partial thromboplastin time (aPTT) are relatively insensitive to these drugs. Most problematic is that, due to their mechanism of action on direct thrombin inhibitors or direct factor Xa inhibitors, these novel anticoagulants have no antidote available. This creates a very difficult situation for patients who are actively bleeding; emphasizing that caution should be exercised regarding the timing of resumption of nOAC intake after a large polypectomy has been performed. The nOACs are variably excreted by the kidneys and thus it is important that dose adjustment be considered in patients with moderate renal failure that it may take longer than 48 hours to reverse the effects of the nOACs in the setting of renal failure. Novel oral anticoagulants should not be used in patients with severe renal dysfunction (CrCl < 20 ml/min) [Heitman, 2013].

It is important to consider risk of clotting, bleeding and renal function in patients taking nOACs who require interruption for an endoscopy. Patients who are low risk of thromboembolism with $CHADS_2$ score less than 2 and normal renal function can safely have their nOACs withheld for 48 hours prior to the procedure. Novel oral anticoagulants can be resumed once hemostasis has been achieved, 24-48 hours post procedure if biopsies taken or polypectomy completed. The ACRCSP has created a diagram for easy referencing when managing antithrombotics pre-colonoscopy (see Appendix 5 – Suggested Management of Antithrombotics for Screening-Related Colonoscopy).

Dabigatran (Pradax)

Pradax is indicated for stroke prevention in patients with nonvalvular atrial fibrillation. For patients with normal renal function, dabigatran should be stopped for 48 hours prior to colonoscopy, and for patients with reduced renal function, dabigatran should be stopped for 3-5 days prior to colonoscopy. Dabigatran can be resumed 24 hrs post procedure; unless a large polyp was removed or if significant bleeding occurred at the time of the polypectomy, in which case the dabigatran may be restarted up to 2 days later.

Rivaroxaban (Xarelto)

The indications for rivaroxaban include: prevention of venous thromboembolic events (VTE) in patients having undergone elective knee or hip replacement surgery, prevention of stroke in atrial fibrillation patients and treatment of DVT or pulmonary embolism. For the clinically stable patient managed on rivaroxaban for a chronic condition (e.g., non-valvular atrial fibrillation), rivaroxaban should be held for 24 hours prior to the procedure. For patients with reduced renal function, rivaroxaban should be held for 48 hours prior to procedure. Rivaroxaban can be resumed at the patient's usual dose 24 hours post colonoscopy. If endoscopic intervention was performed (polypectomy) or bleeding noted with procedure, rivaroxaban should be held for 48hrs post procedure and/or resumed on advice of the endoscopist. Those patients that present on rivaroxaban for a short term period (e.g., prevention of VTE post surgery) should be deferred until anticoagulation therapy complete (see Appendix 5 – Suggested Management of Antithrombotics for Screening-Related Colonoscopy).

Apixaban (Eliquis)

Apixaban has recently been approved for use in Canada. Its current indications are: prevention and treatment of thromboembolic events in nonvalvular atrial fibrillation patients and post orthopaedic surgery VTE prophylaxis. The management of apixaban for patients requiring a screening colonoscopy is the same as rivaroxaban and dabigatran. Those patients on

apixaban for a short term condition (e.g., post elective hip or knee surgery) should be deferred until therapy is complete. Patients with non-valvular atrial fibrillation should be clinically stable and apixaban held 24 hours prior to procedure in patients with normal renal function and 48hours prior to procedure in those with renal insufficiency (Cr Cl < 50 ml/min). Their usual dose of apixaban can be resumed the day following their colonoscopy. Cases where a polypectomy was performed and/or bleeding occurred or risk is high, therapy should resume 48 hours following scope or at the discretion of the endoscopist (see Appendix 5 – Suggested Management of Antithrombotics for Screening-Related Colonoscopy).

3.6 Antibiotic Prophylaxis

A colonoscopy procedure, with or without polypectomy, is considered low risk for causing bacteremia. Consequently, it is also low risk for causing endocarditis or prosthetic infection. Thus, the use of antibiotic prophylaxis is not supported. The latest guidelines no longer consider any gastrointestinal procedure high risk for bacterial endocarditis, even in patients with high risk cardiac conditions (e.g., prosthetic valves or prior endocarditis) [ASGE, 2008].

The referring physician should identify if the patient has had elective surgery in the past three months and if so, then the screening colonoscopy should be delayed (see Appendix 2 – ACRCSP Exclusion Criteria). Follow up with the post-op patient should be done after a three to six month period to reassess eligibility and need for procedure; this may be done by the nurse via phone assessment. Cases that have an abnormal FIT/FOBT result should be reviewed prior to being deferred due to the possible urgent nature of the abnormal result.

The current literature is not supportive for antibiotic prophylaxis in patients with orthopaedic prosthesis; however, patients should always be evaluated by case and condition. Some patients' clinical condition may warrant this practice [ASGE, 2008].

3.7 Other Medication Changes

Individual prescription regimes should be reviewed and guidance provided as part of the pre-procedural consultation. In general, patients should be instructed to continue with prescription medication. Usual medication should be taken 2 hours before and /or 2 hours after the start of the bowel prep, if possible, in order to optimize absorption. Common medications that patients may continue include, but are not limited to: antihypertensives, antidepressants, oral corticosteroids, immunosuppressives, and antibiotics. Patients should also be informed to stop all fiber supplements four days prior to the procedure. NSAIDs may be continued pre procedure.

4. Booking the Pre-Procedural Consultation

For those Zones with centralized booking services in place, these services vary with respect to procedures such as the number of attempts made to contact patients to arrange the pre-procedural consultation and screening colonoscopy appointments. Referring health providers should be notified regarding any patient that can not be reached to ensure accuracy of contact information.

In general, patients are booked for the colonoscopy once the pre-procedural consultation has been completed. It is preferable that colonoscopies be booked within 60 days of the pre-procedural consultation. Patients with an abnormal FOBT/FIT result should be booked within 30 days of their consultation, so that the procedure can be completed within 60 days of the abnormal FOBT/FIT result. Diabetic patients should be given morning appointments.

The rate of no-shows and late cancellations is reduced if patients are given a choice as to the time and day of their colonoscopy. A common strategy is to give patients three options with respect to time and date. In some settings, patients may be given a choice regarding the facility. If possible, patient options and choice of endoscopist or gender of the endoscopist promotes patient autonomy and advocacy. However, in some locations this is not possible. As well, patients' medical situation must take precedence – high priority patients (i.e., abnormal FOBT/FIT results) should be seen promptly, which may mean having the procedure with the first available endoscopist on a specific day. Ideally, patients should receive a reminder phone call within one week of their appointment.

Failure to present for a booked appointment ("no-show") or cancellation of the colonoscopy within 48 hours of the scheduled appointment (a late cancellation) will prompt the staff to contact the patient and re-schedule. If the no-show and/or late cancellation occur for a second time, then the referral will be cancelled and the referring health provider informed. Reasons for delays or no-shows are recorded and no-show/late cancellation rates should be monitored. Facilities should aim for less than 5% of unused colonoscopy spots because of no-shows/late cancellations.

5. Colonoscopy Indicators of Quality

Please refer to *Quality Reporting of Colonoscopy Performance Standards for the Alberta Colorectal Cancer Screening Program*. This document is available to AHS staff through the internal ahs website.
http://insite.albertahealthservices.ca/8821.asp

6. Sedation, Comfort, and Monitoring

Providing adequate sedation is a fundamental part of quality practice for

endoscopy. The majority of colonoscopy procedures are performed on patients under conscious sedation: that is, minimally to moderately sedated. Minimal sedation is defined as a drug-induced state, during which time patients can respond to verbal commands. Physical and cognitive abilities may be impaired, but airway, reflexes, cardio, and pulmonary functions are unaffected. Minimal sedation is synonymous with anxiolysis. Moderate sedation (or conscious sedation) is known as a drug-induced depression of consciousness during which time patients respond purposefully to verbal or light tactile stimuli, alone or in combination. There are no interventions needed to maintain a patient's airway, and both spontaneous ventilation and cardiovascular function are maintained (AHS Procedural Sedation- Health Professions Strategy and Practice Policy current version under draft approval). Please refer to AHS internal website for more information. http://insite.albertahealthservices.ca/1495.asp

Conscious sedation is achieved by combining a narcotic (e.g., Fentanyl) and a benzodiazepine (e.g., Midazolam or Diazemul) intravenously. Patients should be informed about the different types of sedation offered during screening colonoscopies and information about the expected degree of discomfort. Procedural discomfort can be described as cramping, pressure, and bloating. The intention of procedural sedation is to produce a state of relaxation, ease anxiety and discomfort, while providing an amnesic effect. Sedation may be adjusted in response to a patient's discomfort while ensuring the patient maintains respiratory and cardiovascular functions. It is important for the physician prescribing the sedative medication to recognize that a patient with a high level of anxiety or a history of abdominal surgeries may experience more discomfort. Furthermore, patients with a history of narcotic dependency may have more difficulty achieving the desired level of sedation due to high tolerability. Elderly patients are also more sensitive to the sedative effect of drugs.

It is important to stress that procedural skills, nursing assistance, dynamic position change, and use of appropriate equipment (e.g., pediatric colonoscope for patients with a narrow pelvis) work in concert with conscious sedation to optimize patient safety and comfort, as well as the colonoscopy completion rate. The use of sedation does not replace the need for highly skilled endoscopists and endoscopy nurses.

Use of deep sedation with ultra short anesthetics, such a Propofol, is generally not required for screening-related colonoscopies. Moreover, increased awareness about the risk of splenic injury during deep sedation has raised concerns about the safety of this practice. A controlled, study from Edmonton failed to show any benefit from a productivity aspect [Sadowski, 2012].

6.1 Patient Monitoring

Although conscious sedation is aimed at minimal depression of a patient's

level of consciousness, a patient can quickly move from a state of conscious sedation to deeper sedation with respiratory and cardiovascular collapse. The endoscopy nurse is responsible for active monitoring of the patient's status, with proper documentation of same. The endoscopist should be notified of any concerns identified at any point during this process. Proper assessment and documentation of unexpected events and procedural complications related to sedation should be performed and interventions made as necessary.

6.1.1 Staffing and Competency (AHS Procedural Sedation- Health Professions Strategy and Practice Policy current version under draft approval)**.**

- For both minimally and moderately sedated patients, at least two health care providers must be present in the procedure room, and they must be competent in monitoring patients under procedural sedation. This includes the endoscopist and the endoscopy nurse. Competency is determined by the region (AHS) and should be evaluated and maintained within each working Zone.
- The physician who prescribed the medication(s) for conscious sedation must be present and available upon drug administration and throughout the procedure. That physician or a designated responsible physician must be present during the recovery period.
- Procedural sedation should only be used when the practitioner is familiar with sedative, anxiolytic, and analgesic medications, as well as the role of the reversal agents.
- Out-of-hospital facilities: Staff caring for the patient under conscious sedation (nurses and physicians) should have valid certification in Basic Cardiac Life Support and Advanced Cardiac Life support.

6.1.2 Equipment

- A combination of electronic monitoring equipment, reversal agents, and trained personnel should be available in all endoscopy facilities, and resuscitation equipment must be readily accessible for life-threatening emergencies.
- For the out-of-hospital facility this is to include: a cardiac monitor with defibrillator, backboard for CPR, endotracheal tubes, laryngeal masks and airways, stylets, Magill forceps, Laryngeal Mask Airway (LMA) Supremes, two functioning laryngoscopes, varying sizes of laryngoscope blades, oxygen sources/tanks and emergency drugs (including reversal agents).

6.1.3 Before and During the Procedure

- Baseline assessment should be performed for all patients during the admission process, using the following parameters: level of

consciousness (LOC), heart rate, blood pressure, and oxygen saturation. Patients identified as high risk, those with cardiac or pulmonary concerns, and/or those under deep sedation may need additional observation, such as electrocardiogram monitoring.

- Assessing patient's blood pressure, pulse, respiratory rate and depth, oxygen saturation and LOC while the patient is consciously sedated should be done, on minimum, every 5-15 minutes throughout the procedure.

6.1.4 Recovery and Discharge

- The patient should be brought back to a designated recovery area for close monitoring by nursing staff.
- Vital signs should be measured immediately upon arrival into the recovery area and as frequently as every 15 minutes for at least 30 minutes or until the patient reaches an appropriate level of arousal, as defined by their baseline or the minimum required score on the Modified Aldrete system (see Appendix 17 – Modified Aldrete Score).
- During the recovery phase, the nurse should be assessing if the patient is comfortable and able to expel flatus. The need for a rectal tube should be evaluated.
- If sites provide patients with a snack, they should be feed no sooner than 15 minutes post procedure.
- Patients are to remain in the recovery area a minimum of 30 minutes after the last dose of intravenous sedation was given. If any reversal agents were provided the patients stay is extended to a minimum of 60 minutes from the last dose of intravenous reversal medication. If diazemul or valium used recommend a minimum of 2 hours before discharge after receiving a reversal agent. The half life of these particular benzodiazepines extends the reversal agent.
- Patients' assessment should be based on the Aldrete or Modified Aldrete score (see Appendix 17). The Aldrete scoring system is a well-known scale for determining a patient's suitability for discharge. It evaluates five physiologic parameters: respirations, oxygen saturation, consciousness, circulations, activity. The Modified Aldrete scoring system is better suited for endoscopy as it includes assessment of ambulation or gait and a patient's ability to tolerate fluids or solids, for a total score of 14.
- Patients can be discharged once a score of 13/14 is reached on the Modified Aldrete System as long as the residual deficiencies concern either fasting-feeding or mild dizziness with ambulation.
- Patients returning home following procedural sedation must be advised to have a family member or friend (legal adult) accompany them from the facility and at home. Patients should be well-informed of the 24 hour legal impairment following conscious

sedation, restricting their capacity to drive.

6.2 Patient Comfort

Monitoring the sedated patient also includes monitoring their level of tolerance to the procedure and the endoscopy nurse in the procedure room should be well trained to help identify intolerable patient discomfort. The NAPCOMS (Nursing Assessed Patient Comfort Score) [Rostom, 2013] is a reliable and validated tool for assessing patient comfort in the setting of outpatient colonoscopy performed with minimal to moderate sedation (see Appendix 18 – Nurse Assessed Patient Comfort Score). The score ranges from 0 to 6, and applies to the intensity, frequency and duration of painful episodes (each rated from 0 to 3). The level of consciousness (0 to 3) and the global tolerability (0 to 3) are not used in the overall score. If a total pain score is obtained, at any point during the procedure that is equal or greater than 6 indicating moderate to severe discomfort, a procedural pause should be triggered. This score should prompt the endoscopist and nurse to review progress, indication(s), sedation given, technical challenges, and consideration of alternate procedures should be addressed. If it is determined that comfort cannot be safely improved, a decision to stop the procedure should be made. In this way, NAPCOMS allows the implementation of stopping rules that can be applied as objectively and reliably as possible.

7. Monitoring Clinically Relevant Adverse Events

Although considered safe, it is well accepted that colonoscopy can result in serious adverse events or complications. This potential for a serious complication is disconcerting for CRC screening where the procedure is performed in an otherwise healthy population. Recognizing that adverse events may occur as a result of colonoscopy and the importance of individual endoscopy facilities tracking and reporting these events is a fundamental part of quality improvement.

Knowing that adverse events can occur anytime during the screening-related process is why a comprehensive pre-procedural consultation is essential to limit any unnecessary risk. Adverse events or complications can be a result of the bowel preparation, sedation for the procedure, the colonoscopy itself or the removal or polyps (polypectomy). Serious complications of colonoscopy include intestinal perforation, bleeding from the site of a polypectomy, cardiac or pulmonary complications resulting from the sedation and electrolyte disturbances or dehydration consequential to the bowel preparation. Complications can be obvious, happening as a direct result of the procedure or preparation. These direct adverse events are easier to track and gather accurate information on. On the contrary, some complications are delayed, occurring several days to weeks after the procedure. These latent

complications are more difficult to track as the endoscopy facility is only made aware if a system is in place for monitoring post colonoscopy related adverse events or if the patient is diligent and self reported the incident to the endoscopy clinic.

Endoscopy facilities should develop an approach that they can confidently identify problems and take necessary measures to improve outcomes. Clinically relevant adverse events as well as near-misses as a result of the screening process/procedure should be systematically reported through the regional "Reporting and Learning System" found on the internal AHS website. These events may be minor (e.g., phlebitis at the site of the peripheral IV insertion) or appear inconsequential (e.g., brief hypoxemia), to more severe (e.g., persistent bleeding, any clinical deterioration warranting admission to hospital) or even fatal (death). For a complete list of reportable clinical adverse events see Appendix 19 – Key Clinical Events to Report.

The approach should ensure:

- There is a person in charge of ensuring all clinically relevant events and near-misses (if any) have been reported.
- There is a process to ensure that reported events are communicated to a dedicated endoscopy committee, comprised of both medical and managerial representatives.
- This committee is in charge of the review and adjudication of events.
- Relevant cases are submitted to a formal review, leading to the creation of action plans to help minimize the risk of reoccurrence and palliate to deficiencies identified by the review process.
- There is a planned review of the implementation of the action plan, to ensure its success and ensure it was effectively implemented.

AHS Reporting and Learning System for Patient Safety (RLS) can be found on http://insite.albertahealthservices.ca/1284.asp

8. Communicating Results

8.1 Communicating Results to the Patient

The discharge process extends from the completion of the procedure to subsequent follow up. This process includes providing the patients with verbal and written instructions explaining post procedure activities.

All Zones should provide written discharge instructions for the patient (see Appendix 14 – ACRCSP Discharge Teaching Sheet for the Patient). These instructions should include possible diet restrictions, resuming usual medications and limitations related to the sedative medication. The patient

should be informed of the normal side effects they may experience after the procedure, such as: dizziness from the effects of the sedation, cramping/pressure from the introduction of air and possible spotting of blood from tissue samples. The patient should be informed of the possibility of late complications, receive a description of signs and symptoms that would be concerning, and information about when to seek medical attention. A contact number either from the endoscopy facility, local hospital, or Health Link Alberta should be provided for patient questions/concerns. Written discharge instructions should comply with ACRCSP guidelines.

All patients should receive the results of their procedure in a written form as well as verbally explained in layman terms, ensuring they understand what has been communicated to them. Patients should leave with a clear understanding of their results. They should be told whether biopsies were taken or polyps were removed, and be informed on how the follow up regarding the pathology findings will take place, by whom, and how long it will take. They should receive a recommendation regarding the next surveillance interval, and, if this recommendation can only be made once pathology has been reviewed, they should know who will make the recommendation and how it will be communicated. Patients with suspected malignancy should be given the name and phone number of the person in charge of booking the necessary diagnostic tests and referrals. Ideally, patients should leave the endoscopy unit with appointments in hand.

There should be a system in place to ensure that the endoscopist or a designate is informed of all pathology reports. The pathology results from any biopsy specimens obtained require patient notification of the findings and implications. Patients may be informed by telephone or in future follow up with the endoscopist or their family physician. The pathology results determine if the patient will require subsequent screening and at what interval. A plan to communicate these results should be documented. Any pathology that is identified as adenocarcinoma or otherwise concerning should be prioritized and patients should be called directly for plan management.

8.2. Communicating Results to the Referring Physician

The procedure report, follow up plans and recommended surveillance or re-screening intervals must be clearly communicated to the referring physicians with a timely manner. The pathology report, if present, should also be copied to the referring physician. Recent changes in surveillance guidelines are such that it may be preferable to await the pathology report prior to making specific surveillance recommendations, in which case an addendum to the original colonoscopy report should be sent to the referring physician upon review of the pathology report. Plans for patients with suspected malignancies are documented and

include additional follow-up (surgical referral), staging and treatment.

A copy of the procedure report must reach the referring physician within a reasonable time frame, ideally within 7 working days. A complete colonoscopy report should include several key elements, as recommended by CAG [Beaulieu, 2013] (see Appendix 20 – Required Endoscopy Report Elements). Detailed justification and description of these elements is found in the *Quality Reporting of Colonoscopy Performance Standards for the Alberta Colorectal Cancer Screening Program*. This document is available to AHS staff through the internal AHS website.
http://insite.albertahealthservices.ca/8821.asp

9. Pathology: Specimen Handling, Processing and Reporting

CRC screening will result in an increase in detection of precursor lesions (primarily adenomas and serrated lesions), thereby identifying patients at increased risk for the development of CRC who require subsequent follow up by colonoscopy. The management of patients depends on an accurate diagnosis of colorectal polyps. Identifying and removing polyps is the first step, but processing them accurately and in a timely manner ensures that a standard of quality is being maintained. Recommendation on surveillance intervals depend upon the accurate pathological characterization and reporting of polyps. Endoscopy facilities should have systems in place to ensure that all pathology results be reviewed and acted upon as indicated.

9.1 Specimen Handling and Processing

The ACRCSP follows the recommendations of the National Colon Cancer Screening Network, [NCCSN, 2011] summarized as follows:

Endoscopy suite:

The endoscopy suite should record the following information (see Appendix 21 – Submitting a Colonoscopy Pathology Specimen):

- Polyps from different locations in the colorectum should be submitted in separate containers and labeled as to their site of origin. The label should include patient demographic information.
- Multiple small polyps from the same location can be submitted in the same specimen containers.
- The endoscopist (or procedure room nurse) should indicate on the requisition form whether the submitted specimen is a biopsy of a polyp or a polypectomy specimen.
- Indicate the endoscopically assessed polyp size. Indicate whether the polyp was taken in sections (piece-meal) or whole.
- The ACRCSP also recommends that concerning specimens (i.e. masses or obvious cancers) be flagged to ensure that reporting and required next steps be performed promptly and

comprehensively.
- Approved requisition forms provided by AHS (provincial) when submitting specimens.

Pathology laboratory:

The pathology laboratory should record the following information:

- Number and size of polyps or tissue fragments (or range in size if multiple). Polyp size may be obtained from gross measurements but endoscopically assessed size may be more reliable.
- Presence or absence of a stalk in intact polyps.
- Length and diameter of stalk, if present.

Tissue sectioning and processing:

- Polyps should be submitted in their entirety and must be sectioned to demonstrate the polyp stalk in the most optimal manner. Ink should be applied to the base of the stalk.
- If a stalk is not present and the polyp is large enough to be sectioned, pale tissue at the base of the polyp should be sought and ink applied to this area.
- The method of sectioning depends on the diameter of the head of the polyp, not the size of the stalk.

9.2 Pathologists Reporting of Colonic Polyps

Summary of pathology guidelines (From the National Colon Cancer Screening Network, 2011)

Category	Polyp Type	Qualification re Dysplasia
Conventional Adenomas	Tubular adenoma	± high -grade dysplasia/invasive adenocarcinoma
	Tubulovillous adenoma	
	Villous adenoma	
Serrated Adenomas	Sessile serrated adenoma/polyp	± dysplasia (low/high-grade)
	Traditional serrated adenoma	± high -grade dysplasia
	Serrated polyp, unclassified	
Hyperplastic Polyps		

9.2.1 Adenomatous Polyps

Key features to report:

- Amount of villosity present (tubular vs. tubulovillous vs. villous).
- Presence or absence of high-grade dysplasia or malignancy.
- Polyp margin, as indicated.

Assessment of villosity

- Polyps in which less than 20-25% of the polyp is villous are classified as tubular .
- Polyps in which greater than 75-80% is villous are classified as villous.
- All other polyps are tubulovillous.
- It may be difficult to distinguish "true" villi from exaggerated, axially sectioned crypts. In general, it is better to err on the side of under-diagnosis of villous change, especially in small (<1 cm) adenomas.

Grading of dysplasia and terminology of dysplasia

- Conventional adenomas have by definition, at least low-grade dysplasia.
- Report on the presence or absence of high-grade dysplasia and/or invasive adenocarcinoma.
- With narrative reporting, the appendix “negative for high-grade dysplasia and malignancy” is preferred over “with low-grade dysplasia” to avoid potential confusion and over-treatment by physicians.
- The terms “carcinoma in-situ” or “intraepithelial carcinoma” or “intramucosal carcinoma” should not be used. The term“high-grade dysplasia” should be used instead.

Malignant polyps

Defined as polyps with invasive adenocarcinoma, defined as invasion through the muscularis mucosae into the submucosa (pT1). The following pathological features must be reported in malignant polyps as they predict adverse outcome:

- Presence or absence of any amount of poorly differentiated adenocarcinoma.
- Presence or absence of angiolymphatic invasion.
- Distance of invasive adenocarcinoma from margin of resection.
- Optional features to report in malignant polyps include presence/absence of tumour budding, and Haggitt level in pedunculated polyps.

Reporting completeness of excision

- A statement regarding completeness of excision is required for all malignant polyps (polyps with invasive adenocarcinoma) and all polyps with high-grade dysplasia.
- State in the report if this is not assessable due to fragmentation.
- A statement regarding the completeness of excision is generally not recommended for adenomas without high-grade dysplasia.

In such cases, statements such as "may not be completely excised" or "completeness of excision cannot be assessed" should not be made, as they can lead to confusion amongst treating physicians and unnecessary re-referrals.

9.2.2 Serrated Polyps

Hyperplastic polyps

Hyperplastic polyps are most frequently found in the distal colon and rectum, and have serrations that are prominent in the luminal halves of crypts, with crypt bases that are straight and narrow. Because the normal crypt proliferative zone is in the lower third-half of the crypts, crypt lining cells in this location have a more immature appearance with the presence of mitoses. Cells in the upper half of the crypts show maturation.

Sessile serrated adenomas or polyps (SSA/Ps)

- “Sessile serrated adenoma (SSA)” is the preferred term.
- SSA/Ps occur throughout the colorectum but are more common on the right side, where they outnumber hyperplastic polyps. They are often larger than 10 mm and may be difficult to see at endoscopy because of their tendency to be flat, ill- defined lesions that occur on the crests of mucosal folds; their colour is similar to the background mucosa. SSA/Ps are characterized by both architectural and cytological abnormalities. Architectural abnormalities predominate and are the most recognizable feature of these polyps, particular at low power. In contrast to a hyperplastic polyp, there are deep crypt abnormalities with exaggerated deep crypt serration, abnormally located differentiated cells (goblet or gastric in type), horizontally spreading boot or anchor-shaped crypt bases or dilated crypt bases. Upper crypt abnormalities are present and comprise enlarged vesicular nuclei with prominent nucleoli and upper crypt mitoses. Sub mucosal fat is often present underneath SSA/Ps.

- When examining SSA/Ps, pathologists must exclude dysplasia, which typically in the form of conventional dysplasia i.e. resembles that type of dysplasia found in conventional adenomatous polyps. The presence of dysplasia in a SSA/P is an indication that the lesion is advanced, with an increased and probably more rapid propensity to develop into adenocarcinoma.

Traditional serrated adenomas (TSAs)

- TSAs are the least well studied member of the serrated polyp group. These polyps are most apt to be misdiagnosed as tubulovillous or villous adenomas as TSAs are protuberant (not

sessile), and usually have recognizable villi or papillary projections, with prominent and rigid serrations. TSAs typically contain slender cells with eosinophilic cytoplasm that have thin, elongated “pencillate” nuclei; the nuclei are often centrally located within the cell and mitoses are rare in these cells. A defining feature is the presence of ectopic budding crypts that appear to bud into the underlying lamina propria. TSAs usually also have areas within them that are similar to conventional tubular adenoma.

- Advanced TSAs are those lesions that have a greater degree of dysplasia, akin to high grade dysplasia (HGD) in conventional adenomas. We recommend that pathologists report the presence or absence of HGD in all TSAs.

For any serrated polyp in which there is associated dysplasia, a comment should be included in the report to explain that these are considered to be advanced lesions that have an increased propensity to transform to adenocarcinoma.

10. Post Polypectomy Surveillance Guidelines

10.1 Background

Adherence to evidence based guidelines is supported by the reduction of interval colorectal cancers and CRC-related mortality.

Surveillance interval guidelines are based on the presumption that a high quality baseline colonoscopy was performed, i.e. that the colonoscopy was completed to the cecum, and that the colonic mucosa was well visualized. It is also important to ensure the completeness of polypectomy and that all polypectomy material was sent to pathology. Patients with a incomplete colonoscopy (for example due to inability to reach cecum or poor bowel preparation) should undergo repeat colonoscopy (either by same operator or referred, depending on the reason why the colonoscopy was incomplete) or, less preferably, diagnostic imaging of the colon by CT colonography.

A system should be in place to ensure that all pathology reports are reviewed and that recommendations to primary care physician regarding surveillance intervals are adjusted as indicated. Endoscopists should make clear recommendations to primary care physicians about the need for and timing of subsequent colonoscopy. Considering that the recommendation largely depends on the histological findings, interval recommendation in patients with polyps should account for the pathology report instead of being made at the time of colonoscopy.

The decision regarding surveillance interval should be based on the most advanced finding(s) at baseline colonoscopy. The polyp size is based on size documented at the time of colonoscopy. Patients with both significant serrated polyp findings and concurrent adenomas may be at a more advanced stage in the progression toward cancer. Closer follow up may be indicated in some cases based on clinical judgment.

For findings with short follow-up recommendations, a longer subsequent follow-up interval may be appropriately applied when a follow-up exam shows improvement in findings, i.e., reductions in the number, size, and/or histological severity of lesions. Occurrence of lower gastrointestinal (GI) symptoms in between surveillance episodes should be addressed and investigated as per usual clinical care.

A FIT should not be performed in patients undergoing surveillance colonoscopy.

Ending surveillance program: Surveillance should be carried out until the benefit is outweighed by age and/or co-morbidity. Considering that the average lead time for an adenoma to progress to carcinoma is 10 years, and that the risk of post-colonoscopy complications is greater in older patients, the appropriateness of surveillance beyond the age of 74 should be determined on a case-by-case basis and referred to GI services if required.

10.2 Terms, Definitions and Practical Points about the Guidelines

“Small polyp” refers to a polyp that is less than 1cm in size. The term “diminutive polyp” refers to one that is 5mm or less in size, but doesn’t hold implications for the purpose of the guidelines.

“Low-risk adenoma” (LRA) refers to patients with 1–2 tubular adenomas <10 mm in diameter. “High-risk adenoma” (HRA) refers to patients with tubular adenoma >/=10 mm, 3 or more adenomas, adenoma with villous histology, or HGD.

“Advanced neoplasia” is defined as adenoma with size >/=10 mm, villous histology, or HGD. The terms “carcinoma in-situ” or “intraepithelial carcinoma” or “intramucosal carcinoma” should not be used, “high-grade dysplasia” should be used instead.

“Malignant polyp” refers to a polyp with invasive adenocarcinoma, defined as invasion through the muscularis mucosae into the submucosa (pT1).

10.3 Post Colonoscopy Screening Guidelines

Patients with NO adenomas or sessile serrated lesions should

undergo screening based on their underlying risk level:

- Average risk patients should rescreen in 10 years, using the screening modality that is recommended for average risk.
- Patients with a first-degree relative with CRC or high-risk polyp less than 60 years of age or with multiple first degree relatives with CRC at any age should have a repeat colonoscopy in 5 years.

10.4 Post Polypectomy Surveillance Guidelines

1. Patients with small (<1cm) rectal hyperplastic polyps should maintain screening intervals based on underlying risk level (consider colonoscopy results as synonymous to normal).

2. Patients with 1 or 2 small (<1cm) tubular adenomas with low-grade dysplasia:

- Repeat colonoscopy in 5-10 years.
- Return to screening intervals based on underlying risk level (discontinue surveillance) if follow-up colonoscopy is normal.
-

3. Patients with 3 to 10 adenomas, or any adenoma >1 cm, or with villous features or with high-grade dysplasia:

- Repeat colonoscopy in 3 years.
- If the follow-up colonoscopy is normal or shows only 1 or 2 small tubular adenomas with no high-grade dysplasia, then the interval for the subsequent examination should be 5 to 10 years.

4. Patients with >10 small (<1cm) adenomas on a single examination:

- Repeat colonoscopy in less than 3 years.
- Consider the possibility of an underlying familial syndrome.

5. Patients with sessile serrated lesions:

- Repeat colonoscopy in 5 years if:
  - 1-2 small (<10mm) sessile serrated adenomas/polyps or traditional serrated adenomas with no dysplasia.
  - 4 or more hyperplastic polyps proximal to sigmoid colon or any hyperplastic polyp >5mm proximal to sigmoid colon.
- Repeat colonoscopy in 3 years if:
  - 3 or more small (<10mm) sessile serrated adenomas/polyps or traditional serrated adenomas.
  - Any sessile serrated adenomas/polyps or traditional serrated adenomas >/= 10mm OR with dysplasia.
  - Because of interobserver variation in the pathological differentiation of hyperplastic polyps (HP) from sessile serrated adenomas/polyps (SSA/P), proximal colonic serrated lesions

>10 mm in size that are designated HP may be considered to be SSA / P by clinicians. Conversely, it would be unusual for a small (<5mm) polyp in the rectosigmoid to represent a sessile serrated adenoma/polyp rather than a hyperplastic polyp.

6. Patients with sessile lesions that are removed piecemeal:
    - Tattooing of the polypectomy site is recommended. Repeat colonoscopy in 2- 6 months to verify complete removal. Residual polyp can be treated endoscopically. Large amount of residual polyp should be either referred for surgical excision or referred to an expert endoscopy center. Completeness of removal should be based on both endoscopic and pathologic assessments (i.e. biopsy the polypectomy site even if endoscopically normal).
    - Once complete removal has been established, repeat colonoscopy in 3 years.
    - Review surveillance interval after 2 consecutive three-yearly examinations.

7. Patients with malignant polyps:
    - Defined as polyps with invasive adenocarcinoma, i.e. invasion through the muscularis mucosae into the submucosa (pT1).
    - Repeat colonoscopy within 3 months to verify complete removal. Completeness of removal should be based on both endoscopic and pathologic assessments (i.e. biopsy the polypectomy site even if endoscopically normal).
    - Repeat colonoscopy 6 months later then return to colonoscopy every 3 years. Review surveillance interval after 2 consecutive three-yearly examinations.

8. Patients with history of polyp(s) at prior colonoscopy
    - All attempts should be made to obtain further documentation regarding such polyps, especially the pathology and colonoscopy reports and follow colorectal adenoma surveillance.
    - In absence of any documentation, proceed to colonoscopy (ideally 3-5 years from previous) and determine surveillance based on findings and underlying risk level.
    - Patients with a prior history of small rectal hyperplastic polyps do not require surveillance and should be screened according to their underlying risk level.

9. Patients with history of colorectal cancer (out of scope)
    - Patients with colon and rectal cancer should undergo high-quality perioperative clearing colonic evaluation. In the case of nonobstructing tumors, this can be done by preoperative colonoscopy.

- Patients undergoing curative resection for colon or rectal cancer ought to undergo another colonoscopy 1 year after the resection. If the examination performed at 1 year is normal, then the interval to the next subsequent examination should be 3 years. Following the examination at 1 year, the intervals before subsequent examinations may be shortened if there is evidence of HNPCC or if adenoma findings warrant earlier colonoscopy.
- If the colonoscopy at 3 years is normal, then the interval before the next subsequent examination should be 5 years.
- Periodic examination of the rectum for the purpose of identifying local recurrence usually performed at 3 to 6 month intervals for the first 2 or 3 years, may be considered after low anterior resection of rectal cancer.

11. Decontamination and Reprocessing of Flexible Endoscopes

Each Zone is expected to adhere to strict policies and procedures for decontamination and reprocessing of endoscopes. Guidelines for infection prevention and control must be followed as per Accreditation Canada's standards for reprocessing and sterilization of reusable medical devices. These standards can be found on http://www.accreditation.ca/review-our-standards

Quality Assurance is regulated through high standards set within the Zones regarding cleaning, disinfection, and sterilization of reusable equipment and medical devices. All departments within Zones are accountable for properly trained staff who follow policies in place. Departments should establish guidelines for the cleaning process of endoscopes [Hookey, 2013]. As per AHS standards regarding medical device reprocessing operation procedures should be reviewed at least every 2 years, or sooner if an accident or error occur, changes in standards and regulations are announced, internal or external audits warrant review, or the manufacturer changes the equipment or device. Each department should have a monitoring and recording system that adheres to published standards or Zone (AHS) policies to ensure compliance. Refer to unit or facility policies and procedures for more information. Education provided by AHS, in collaboration with infection prevention and control, on reprocessing medical devices and ensuring patient and staff safety, can be found at http://www.albertahealthservices.ca/6853.asp

11.1 Reprocessing Staff/Personnel

Contaminated endoscopes are a source of infection for clients and staff. Staff responsible for reprocessing these devices must demonstrate competency in infection control and safe handling of chemicals. Handling refers to the collection, storage, transportation and disposal of these materials. Staff must always be protected in required attire when managing chemicals or reprocessing endoscopes. Standard attire includes: waterproof gown, eye protection or face shield, hair covering or hood to cover all head and facial

hair (except eyebrows and eyelashes) and disposable nitrile gloves. Written policies and manufacturer's instructions should be on the unit for staff to reference when cleaning and handling endoscopes. Staff involved in reprocessing endoscope should have opportunities for ongoing education and competency training, as this is a highly specialized skill set. All staff should undergo a review annually to ensure competency is meeting standards. It is the responsibility of each department to have a quality control program in place for monitoring, evaluating and documenting staff performance.

11.2 Cleaning and Reprocessing Endoscopes

Cleaning of all endoscopes (flexible or rigid) and medical equipment is done according to manufacturer's instructions. The type of equipment used will determine the disinfection required. Anything labeled "single use" is discarded not reprocessed. The level of disinfection or sterilization required will be determined by: the risk of disease transmission, the purpose of the device, and new technologies or information involving the disinfection process [AHS regional policy # 1634, 2008]. The detergent or enzymatic solution used throughout the cleaning and reprocessing of endoscopes is set out by the manufacturer, this includes proper concentration levels needed for optimal cleaning.

11.2.1 Point of Care Pre-Cleaning

The first step in cleaning flexible endoscopes is to manually pre-clean the scope immediately post procedure. This is usually performed in the procedure room by the endoscopy nurse. All endoscopes are pre-cleaned according to manufacturer guidelines. Endoscopy room nurses must demonstrate proficiency when pre-cleaning contaminated endoscopes. This skill extends to competency in infection control and safe handling of chemicals. Pre-cleaning of soiled endoscopes is done immediately after the procedure to prevent drying of organic and inorganic debris on the surface, which aids to decrease the number of microorganisms. This step should not be delayed as debris that dries and hardens becomes very difficult to remove, hindering high-level disinfection.

Olympus and Pentax scope instructions differ therefore manual pre-cleaning of these scopes should not be interchanged. The manufacturer can provide diagrams for manual pre-cleaning that can be posted in each endoscopy room for quick reference by staff. Guidelines and instruction booklets should be readily available to all staff involved in the practice of reprocessing scopes. Following the manual pre-cleaning, the endoscopy nurse must transport the contaminated scope to the designated reprocessing room, using a receptacle recommended by the department (i.e. sealed/leak-proof container that is

labeled for contaminated contents). The reprocessing room must be separate from the patient care area.

11.2.2 Manual Cleaning

Following the manual pre-clean, the endoscope is disassembled and leak tested by the scope reprocessor prior to being submitted to manual cleaning. If a leak is found, remove the scope from use and immediately contact your manager/supervisor and the manufacturer. Follow the facility's protocol. Before immersing in prepared detergent, the internal and external scope and its components must be thoroughly examined for damage by the scope reprocessor. Anything identified for repair must be immediately sent to the manufacturer. Instructions for safe handling and shipping of scopes are set out by the manufacturer. The organization should have policies and procedures in place for loaned, consigned or leased medical devices (endoscopes) as necessary. All endoscopes and accessories will be thoroughly cleaned with an approved enzymatic detergent and brush. Manually cleaning the endoscope is more systematic and involves cleaning the inside and outside of the endoscope, channels and valves meticulously and according to the manufacturer's instructions. This process must be done within 1 hour time frame or the standards of practice for delayed reprocessing will need to be followed. Manual cleaning is necessary prior to high-level disinfection and/or sterilization of the endoscope.

11.2.3 Automated Disinfection

Automated endoscope reprocessors (AER) are units designed to perform immersion of endoscopes in high-level disinfection. Reprocessing of endoscopes requires a high-level disinfectant as the endoscope is considered a semi-critical device. "A semi-critical device is one that comes in contact with mucous membranes and non-intact skin. These devices must be free of most micro-organisms, but the presence of bacterial spores does not present a high risk of infection" [AHS regional policy #PS-07, 2012]. Manufacturer's instructions on how to operate the AER must be followed. The disinfectant used must be approved by Health Canada and the manufacturer of the automated reprocessing machine. The manufacturer should provide instructions on preparing, testing and using the disinfectant solution. Each endoscope and its components shall be completely immersed in the disinfectant solution during the reprocessing cycle. The disinfectant should always be tested with each reprocessing cycle or as specified in the manufacturer's instructions. This testing is referred to as an MEC (minimum effective concentration) test, indicating the lowest amount of chemical needed to obtain the desired effect. This testing is to be performed by the scope reprocessor and results documented. Contingency plans for emergency situations for AER equipment failures or shutdowns must be in place. AER units should be checked by an electronic technician or biomed in keeping with preventative measures. These AHS employed technicians

have standards of practice in places that make them accountable to check these units at a minimum on a monthly basis.

11.3 Reprocessing Room: Proper Care and Storage

The reprocessing room should have separate work areas for cleaning and storage. This room should also have dedicated plumbing and drains for proper waste disposal and adequate air ventilation to remove noxious vapors. All reprocessing rooms should be cleaned daily with an approved disinfectant by the Zone. Reprocessed endoscopes are stored in a clean cabinet, in a vertical position rather than coiled, to minimize damage and facilitate drying. Insertion tubes must not touch the sides or bottom of the cabinet. All reusable or other detachable components (e.g., valves, auxiliary water tubes and caps) are not attached to the endoscope during storage: however, they may be stored loosely in the endoscope storage cabinet. Endoscope storage cabinets must be cleaned and disinfected at least once per week and documented.

Departments may slightly vary in the way endoscopes are stored, but guidelines should be in place. Manufacturers provide recommendations on the care of reprocessed/disinfected scopes. Reprocessing personnel are responsible for routine inspection and care of related reprocessing equipment and endoscopes. Any issues should be communicated to the manufacturer and Biomed (as applicable), and these issues tracked for quality control.

As a measure of quality assurance, all facilities must maintain a permanent record of endoscopy device reprocessing. This record is to include: identification number and type of endoscope, identification of the AER if applicable, date and time of the clinical procedure, name of the client involved or identification number, results of the leak test and visual inspection, and identity of the scope reprocessor. All records are to be managed in accordance with applicable legislation and within the standards of AHS covenant Policies (Policy III-55).

Each facility is also responsible for preventive and scheduled maintenance of the automated endoscope reprocessor. Any maintenance and repair should be documented for easy referencing.

11.4 Standardized Monitoring Process

Standardized monitoring processes have been introduced by AHS to ensure quality monitoring is performed and reprocessed scopes can be audited throughout the province. Reprocessed scopes are required to be tagged with the date the scope was reprocessed and/or the expiry date to prevent the use of a non-reprocessed scope on a patient. An unused, reprocessed scope expires in 7 days. Scopes are not to be used beyond the expiry date. All expired scopes are considered contaminated and must be reprocessed even

if not used. Monitoring of expired scopes should be performed by the scope reprocessors or a supervisor.

Reprocessed scopes must be systematically swabbed monthly for presence of bacteria. Facilities must record scopes that have been included in this bacteria testing. A sterility culture is performed on these random scopes and must show no growth after 48 hours incubation, before the instrument can be used in procedural rotation. Any scope that fails the sterility culture or is positive for bacteria must be manually cleaned then reprocessed. Another sterility swab should be done, and once the scope is clear (i.e., no growth identified) it can be used. Staff members are responsible for reporting and documenting this data to the designated supervisor or manager to ensure the random swabbing procedure was completed.

12. Endoscopy Global Rating Scale

With an increased public focus on colorectal cancer screening the expectations for delivery of a high quality and safe colonoscopy service are heightened. The Global Rating Scale (GRS) is a quality improvement instrument that endeavors to enhance the quality of patient centered care. Originally developed in the United Kingdom, this tool has recently been adapted to the Canadian health care environment (GRS-C). The GRS-C is a web-based evaluation tool that provides a straightforward approach for endoscopy units to review the quality of service they provide. It facilitates the development of appropriate policies along with regular monitoring of quality indicators. The GRS-C measures performance in 12 quality domains: 1) consent and patient information; 2) safety; 3) patient comfort; 4) quality of the procedure; 5) appropriateness of the procedure; 6) ability to communicate results to referring physicians; 7) quality of access; 8) timeliness of the service; 9) booking procedures; 10) privacy and dignity; 11) aftercare, and 12) ability for patients to provide feedback to the service. In each of these 12 domains, the web-based GRS-C tool promotes patient centered standards of quality through the use of an iterative process of measurements; interpretation of observed outcomes and formulation of action plans to ensure desired outcomes have been achieved.

The ACRCSP recommends province wide use of the GRS-C for any facility involved in screening CRC services as a way to systematically assess and improve the quality of services provided.

The ACRCSP recommends province-wide regular use of the GRS-C for any facility involved in screening CRC services as a way to systematically assess and improve the quality of services provided. In order to accomplish this, the

following steps are suggested:

1. Designate a team of 3-4 members from your endoscopy unit (e.g. nursing unit manager, endoscopy theatre nurse, endoscopy physician) to complete the GRS twice annually (April and October)
2. Obtain access and log in passwords from the Canadian Association of Gastroenterology (Sandra Daniels - CAG <sandra@cag-acg.org>)
3. Log on to GRS-C website (www.mdpub.org/grs/index.php)
4. For each of the 12 domains, a series of 6-8 YES/NO questions are asked. For any NO response, a field appears allowing input of an action plan to address the deficit. To complete a given level, a YES response must be answered to all items in that level
5. Initially, most Canadian endoscopy units are likely to be level D or below, as most units do not periodically provide patients the opportunity to give feedback on performance. The D level is not intended to indicate a failing grade but serves as a starting point for a program of improvement.
6. The following are some examples illustrating how an endoscopy unit can make significant improvements in quality over the short term:
    a. Consent Domain:
        i. Use of a standard patient information sheet for each procedure (see an example in Appendix 22).
        ii. Institution of a regular patient satisfaction survey (see an example in Appendix 23).
    b. Patient Comfort Domain: Use of standard Patient Comfort Score (See an example in Appendix 18).
    c. Quality Indicator Domain: Refer to Quality Indicator Document for details on Quality Reports to endoscopists.
    d. Aftercare Domain: Standardized Patient information sheet given to patient (See an example in Appendix 14).

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Appendices

Appendix 1: ACRCSP Screening-Related Colonoscopy Referral

Alberta Health Services

Screening-Related Colonoscopy Referral

Receiving Site

Patient label placed here *(if applicable)* or if labels are not used, minimum information below is required	
Last Name	First Name
Birthdate *(yyyy-Mon-dd)*	
Gender	PHN #
Phone Number	

- Referrals will be triaged and assigned a priority based on the information included in this form. Highest priority will be given to those with an abnormal Fecal Immunochemical Test (FIT).
- Incomplete referrals, referrals for patients that do not meet current screening guidelines, and referrals that do not meet eligibility criteria will not be accepted and will be returned to the referring physician.
- **Mandatory Sections*:** Eligibility Criteria, Patient Health History, and Body Mass Index. Please ensure these sections are complete prior to submitting referral form.

Referring Physician Name	Fax	Signature	Date *(yyyy-Mon-dd)*
PRACID #		Affiliated PCN	

Eligibility Criteria*

- Age 40-74 years with valid AHCIP coverage (cases reviewed individually by screening facility)
- Asymptomatic. No GI signs or symptoms requiring specialist consultation (i.e. rectal bleeding, anemia)
- The patient is clinically stable and able to undergo conscious sedation
- The patient has an eligible reason for referral **- check <u>one</u> below**

☐ Positive fecal occult blood test (FIT or guaiac) performed in an asymptomatic individual for colon cancer screening. Must be age 50-74; patients outside age range will be reviewed on a case by case basis **(append results)**

☐ Personal history of colorectal cancer (CRC) or adenomatous polyps **(append results)**

☐ Family history of CRC or †high risk adenomotous polyps in one or more first degree relatives

►1st degree relative diagnosed with CRC or †high risk adenomatous polyps:

☐ Younger than age 60 ☐ Older than age 60 ☐ Unsure of age

☐ Polyp on sigmoidoscopy **or** suspected polyp on CT colonography **or** barium enema **(append results)**

☐ Other *(specify)* _____

Patient Health History*	**Body Mass Index:***
Does this patient have any significant comorbidities as listed on page 2: ☐ Yes ☐ No (If yes, please complete page 2) ►*Please attach current medication and/or allergy list* ►*Please ensure most recent bloodwork (CBCs) is completed with referral form*	

Additional Requirements *(i.e. wheelchair bound, limited mobility, etc)*	
Specify	☐ Interpreter needed ► Specify primary language

†Note: 1) High risk adenomotous polyps include: 3-10 adenomas, one adenoma >/= 10mm, any adenoma with villous features, high grade dysplasia or intramucosal carcinoma.
2) Patients with one second or one third degree relative with CRC or a high risk adenomotous polyp are considered average risk.

Alberta Health Services

Screening-Related Colonoscopy Referral

Receiving Site

Patient label placed here *(if applicable)* or if labels are not used, minimum information below is required	
Last Name	First Name
Birthdate *(yyyy-Mon-dd)*	
Gender	PHN #
Phone Number	

Previous colonoscopy

☐ Yes ☐ No ► Approximate Date (yyyy-Mon-dd) _____ *(Append a copy of colonoscopy/pathology reports)*

Cardiac History

☐ Acute coronary syndrome *(must be greater than 12 months)*
☐ Angina *(must be asymptomatic in past 6 months)*
☐ Atrial fibrillation
☐ Arrhythmia
☐ CABG and/or coronary angioplasty and/or stent *(must be greater than 6 months post)*
☐ Cerebrovascular event *(must be greater than 12 months and no significant deficits)*
☐ Pacemaker *(must be greater than 3 months)*
☐ Antithrombotics ► Specify type _____ ☐ Also taking Aspirin

Respiratory History

☐ Asthma or COPD. Mild to moderate - well controlled on inhalers and/or low dose steroids
☐ Sleep Apnea with or without CPAP *(Note: not all facilities accept patients with BMI greater than 35 and on CPAP)*

Medical History

☐ Diabetes Mellitus
  ☐ On oral hypoglycemics and/or insulin *(referring physician to manage dosing for colonoscopy)*
☐ Kidney disease *(glomerular filtration rate (GFR) must be greater than 45 or creatinine less than 150)*
☐ Chronic viral hepatitis *(without advanced cirrhosis)*
☐ Human immunodeficiency virus (HIV)
☐ Coagulopathy *(von Willebrand, hemophilia)*
☐ Seizure disorder - well controlled *(no or little seizure activity within 6 months)*
☐ Anatomical or structural abnormalities of neck or face
☐ Any other medical problem potentially limiting the safety of the scope and/or safety of the bowel preparation. Please specify _____

Surgical History

☐ Surgery within 1 year, specify _____

Appendix 2: ACRCSP Exclusion Criteria for Screening-Related Colonoscopy

Alberta Colorectal Cancer Screening Program

Alberta Colorectal Cancer Screening Program (ACRCSP)

Exclusion Criteria for a Screening-Related Colonoscopy

Patients who fulfill any of these exclusion criteria but have a strong indication for colonoscopy should be referred to an individual GI consultant for assessment.

Patient Characteristics
☐ Age less than 18 years and greater than 74 years ☐ Obesity Class 3: BMI 40 or greater*
Previous Surgery
☐ Cardiac related surgery (CABG, angioplasty, or stent/grafts) within past 6 months ☐ All other surgeries (e.g., chest/abdominal, joint repair) within past 3 months
Medical History
Cardiac ☐ Acute Coronary syndrome within 12 months ☐ Myocardial infarction within 12 months ☐ Angina **with** symptoms in past 6 months ☐ Congestive Heart Failure. Moderate to severe with marked limitation of activity Respiratory ☐ COPD. *Moderate to severe and poorly controlled* ☐ Home Oxygen *or* Oxygen dependent ☐ CPAP **with** a BMI greater than 35* Neurological ☐ Cerebrovascular event **with** significant deficits **or** within past 12 months ☐ Seizure disorder *(frequent or poorly controlled)* ☐ Dementia or significant cognitive impairment Hepatic/Renal ☐ End stage liver disease (*any history of variceal hemorrhage and/or coagulopathy and/or encephalopathy and/or ascites).* ☐ Chronic renal insufficiency *(glomerular filtration rate [GFR] less than 45 or creatinine greater than 150)* ☐ Dialysis Other ☐ Platelet count less than 100 ☐ Advanced HIV/AIDS ☐ Any other condition that would impact life expectancy so as to make screening irrelevant

*Note: Cases reviewed individually by screening facility.

Alberta Colorectal Cancer Screening Program
2202 2nd Street SW, Calgary, Alberta T2S 3C1 Ph: 403-698-8135

Appendix 3: ACRCSP Colonoscopy Prioritization Chart and Expected Wait times

Urgent Priority	Moderate Priority	Routine
Abnormal FOBT or FIT (Must be asymptomatic, age 50-74)	**High Risk Individuals overdue for screening or surveillance** **Hereditary Cancer Syndromes**** (Hereditary Nonpolyposis Colorectal Cancer Syndrome, Familial Adenomatous Polyposis) **Polyp found on: Sigmoidoscopy** **CT colonography** **Barium Enema**	**Personal History** • Of colorectal cancer (CRC) *or* adenomatous polyps **Family History, especially if** • One 1st degree relative with CRC *or* adenomatous polyps diagnosed less than 60 years of age • Two or more 1st degree relatives with CRC *or* adenomatous polyps diagnosed at any age
Expected wait time within 60 days* of referral	Expected wait time within 6 months* of referral	Expected wait time within 12 months* of referral

*These wait times are general estimates as facilities may vary. Individuals are always assessed whether they are up to date with their screening and surveillance, as well as according to guidelines and co-morbidities.

**Some screening facilities may not accept patients with known hereditary cancer syndromes. Individual consultation to a gastroenterologist would be required.

Appendix 4: ACRCSP Post-Polypectomy Surveillance Guidelines

Screening Intervals Following a Normal Colonoscopy

Risk	Screening interval
Average risk	Rescreen in 10 years using "average risk" strategy
Family history of CRC/polyp in single first degree relative over age 60 years at diagnosis	Rescreen in 10 years using "average risk" strategy
Family history of CRC/high risk polyp in one first degree relative </=60 years at diagnosis or 2 or more first degree relatives of any age at diagnosis	Repeat colonoscopy in 5 years
Known or suspected Lynch syndrome	Repeat colonoscopy every 1-2 years

Surveillance Intervals for Adenomatous Lesions

Pathology	Screening interval	Subsequent Intervals*
Low risk adenomas (LRA): 1-2 small (<10mm) adenomas with low grade dysplasia	Repeat colonoscopy in 5-10 years	No adenoma: 10 years LRA: 5 years HRA: 3 years
High risk adenomas (HRA): 3-10 adenomas or 1 adenoma >/= 10mm or any adenoma with villous features or high grade dysplasia	Repeat colonoscopy in 3 years	No adenoma: 5 years LRA: 5 years HRA: 3 years
>10 adenomas	Repeat colonoscopy in <3 years	
Sessile polyps removed piecemeal	Repeat colonoscopy in 2-6 months to ensure complete polyp removal, then surveillance in 3 years	No adenoma: 5 years LRA: 5 years HRA: 3 years

*based on findings at first surveillance colonoscopy

Surveillance Intervals for Adenomatous and Serrate Lesions

Adenomas	Serrated Lesions	Screening interval
LOW RISK LESIONS	**LOW RISK LESIONS**	
	Small (<10mm) hyperplastic polyps in rectum or sigmoid	Maintain screening interval based on underlying risk level (consider as normal)
1-2 small (<10 mm) adenomas with low grade dysplasia		Repeat colonoscopy in 5-10 years
	1-2 small (<10mm) sessile serrated adenomas/polyps or traditional serrated adenomas	Repeat colonoscopy in 5 years
	4 or more hyperplastic polyps proximal to sigmoid colon or any hyperplastic polyp >5mm proximal to sigmoid colon	Repeat colonoscopy in 5 years
HIGH RISK LESIONS	**HIGH RISK LESIONS**	
3-10 small (<10 mm) adenomas	3 or more small (<10mm) sessile serrated adenomas/polyps or traditional serrated adenomas	Repeat colonoscopy in 3 years
Any adenoma >/= 10mm	Any sessile serrated adenomas/polyps or traditional serrated adenomas >/= 10mm*	Repeat colonoscopy in 3 years
Any adenoma with villous features or high grade dysplasia	Any sessile serrated adenoma/polyp with dysplasia**	Repeat colonoscopy in 3 years
>10 adenomas		Repeat colonoscopy in <3 years
	Serrated polyposis syndrome***	Repeat colonoscopy in 1 year

* Because of interobserver variation in the pathological differentiation of hyperplastic polyps(HP) from sessile serrated adenomas/polyps (SSA/P), proximal colon serrated lesions >10 mm in size that are designated HP may be considered to be SSA / P by clinicians. Conversely, it would be unusual for a small (<5mm) polyp in the rectosigmoid to represent a sessile serrated adenoma/polyp rather than a hyperplastic polyp.

** Consider repeat colonoscopy in 2-6 months to ensure complete removal of SSA/P or TSA with dysplasia.

*** 1) At least 5 serrated polyps proximal to sigmoid colon, with 2 or more >/=10mm; 2) any serrated polyps proximal to sigmoid colon with family history of serrated polyposis syndrome, 3) >20 serrated polyps of any size throughout the colon.

Points to make:

1) The decision regarding surveillance interval should be based on the most advanced finding(s) at baseline colonoscopy.

2) The polyp size is based on size documented at the time of colonoscopy.

3) Patients with both significant serrated polyp findings and concurrent adenomas may be at a more advanced stage in the progression toward cancer. Closer follow up may be indicated in some cases based on clinical judgment.

4) Recommendations for surveillance of serrated lesions are for the first follow up. For findings with short follow-up recommendations, a longer subsequent follow-up interval may be appropriately applied when a follow-up exam shows improvement in findings, i.e. reductions in the number, size, and /or histological severity of lesions.

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Cairns SR, Scholefield JH, Steele RJ, et al. Guidelines for colorectal cancer screening and surveillance in moderate and high risk groups (update from 2002). Gut 2010 May;59(5):666-90.

Appendix 5: Suggested Management of Antithrombotics for Screening Related Colonoscopy (with possible polypectomy)

Antithrombotics	Risk/Condition	Pre Colonoscopy Management	Post Colonoscopy
Warfarin (Coumadin) *Patients on warfarin should be managed by their prescribing physician*	Low Risk thromboembolic event	Stop warfarin 5 days prior to colonoscopy to achieve an INR of 1.5 or less.	Restart warfarin (usual dose) evening of procedure, unless bleeding or a large polyp was removed*
	High Risk thromboembolic event	Low molecular weight heparin (LMWH) is started once INR is less than 2, prior to procedure and continued up to 24 hours prior to procedure.	Restart warfarin (usual dose) post procedure once hemostasis achieved while awaiting resumption of therapeutic warfarin*
Pradax (dabigatran) **Xarelto** (rivaroxaban) **Eliquis** (apixaban) *It is assumed that these patients have adequate renal function*	If this patient is on a nOAC's for a short term period, defer scope till therapy complete.	Eligible if dabigatran can be held 48 hrs prior to procedure. Eligible if rivaroxaban and apixaban can be held 24 hrs prior. Liaison from prescribing physician or cardiologist required prior to cessation. If unable to hold nOAC for recommended time patient not eligible in clinic setting.	Dabigatran, rivaroxaban, or apixaban can be resumed 24hrs post procedure and once hemostasis assured. If polypectomy or any bleeding with procedure resume 48hrs or at endoscopist discretion*
Plavix (clopidogrel) **Ticlid** (ticlopdine)	Alone or combined with ASA *Must be considered Low Risk for thromboembolic event***	Eligible. Plavix and/or Ticlid may be stopped for 7 days prior to procedure. Continue ASA if used concomitantly	If polypectomy performed or any bleeding with procedure resume at discretion of endoscopist*
Aspirin (ASA) **NSAIDs** **Persantine** (dypiridamole) **Aggrenox** (dypiridamole/ASA)	Alone or combined with ASA	Eligible. Continue therapy	If polypectomy performed or any bleeding with procedure resume at discretion of endoscopist*

*Restarting antithrombotics is dependent on endoscopic intervention performed during procedure: if a polyp ≥1cm removed antithrombotics may need to be held up to 48 hours post

** Patients high risk for thromboembolic event on antiplatelets (i.e. recent bare metallic coronary stent < 4 weeks, or within 12 months of a drug-eluting stent placement, patients with a recent MI, recent PTCA or with unstable angina < 6weeks) should not undergo a screening colonoscopy.

Appendix 6: HAS-BLED Score

A validated clinical tool to assess bleeding risk in atrial fibrillation patients. HAS-BLED is an acronym that assigns a 1 point value to each bleeding risk factor identified. Score ranges from 0-9, with a score ≥ 3 indicating high risk of bleeding.

Letter	Clinical Characteristic	Points awarded
H	Hypertension	1
A	Abnormal renal and liver function (1 point each)	1 or 2
S	Stroke	1
B	Bleeding	1
L	Labile INRs	1
E	Elderly (e.g., age > 65 years)	1
D	Drugs or alcohol (1 point each)	1 or 2
		Maximum 9 points

References:
Modified after European Heart Rhythm Association (EHRA), Endorsed by the European Association for Cardio-Thoracic Surgery (EACTS), Authors/Task Force Members, A. John Camm, Paulus Kirchhof, Gregory Y.H. Lip, et al. Guidelines for the management of atrial fibrillation: The Task Force for the Management of Atrial Fibrillation of the European Society of Cardiology (ESC) *Eur Heart J (2010) 31 (19): 2369-2429 first published online August 29, 2010 doi:10.1093/eurheartj/ehq278.*

Lane DA, Lip GY. Use of the CHA(2)DS(2)-VASc and HAS-BLED scores to aid decision making for thromboprophylaxis in nonvalvular atrial fibrillation. Circulation 2012 Aug 14;126(7):860-5.

Appendix 7: Stroke Assessment in Atrial Fibrillation: $CHADS_2$ Score

$CHADS_2$ score is a validated tool, developed to estimate the risk of stroke in the atrial fibrillation patient allowing physicians to easier evaluate the appropriate antithrombotic regime. This scheme looks at 5 different risk factors or conditions, each being assigned a point value. $CHADS_2$ is an acronym for the risk factors: Congestive heart failure, Hypertension (consistently over 140/90 with or without medication), Age (≥75), Diabetes Mellitus, and prior Stroke or TIA or thromboembolism. The need for antithrombotic treatment is then determined by tallying the score of each condition present.

This useful and easy tool can be applied to the pre procedural patient on antithrombotic therapy. The decision to cease or continue therapy for a screening colonoscopy should include the perceived risk of thrombi for this specific patient population.

Risk Factor or Condition		Points
C	Congestive heart failure (or left ventricular dysfunction)	1
H	Hypertension: Blood pressure consistently able 140/90 mmHg (or treated hypertension on medication)	1
A	Age ≥75 years	1
D	Diabetes Mellitus	1
S_2	(Prior) Stroke or TIA or thromboembolism	2

Score	Risk	Anticoagulation Therapy	Considerations
0	Low	None or Aspirin	Aspirin daily
1	Moderate	Aspirin or Warfarin	Aspirin daily or raise INR to 2.0-3.0, depending on patient preference
≥ 2	Moderate or High	Warfarin	Raise INR to 2.0-3.0, unless contraindicated

References:
Broderick JP, Bonomo JB, Kissela BM, et al. Withdrawal of antithrombotic agents and its impact on ischemic stroke occurrence. Stroke 2011 Sep;42:2509-14.
Gage BF, Waterman AD, Shannon W, et al. Validation of clinical classification schemes for predicating stroke: results from a national registry of atrial fibrillation. JAMA 2001 Jun 13;285(22):2864-70.
Kwok A, Faigel DO. Management of anticoagulation before and after gastrointestinal endoscopy. Am J Gastroenterol 2009 Dec;104:3085-97.

Appendix 8: Risk Stratification for Thromboembolism Pre-Procedure (Screening-Related Colonoscopy)

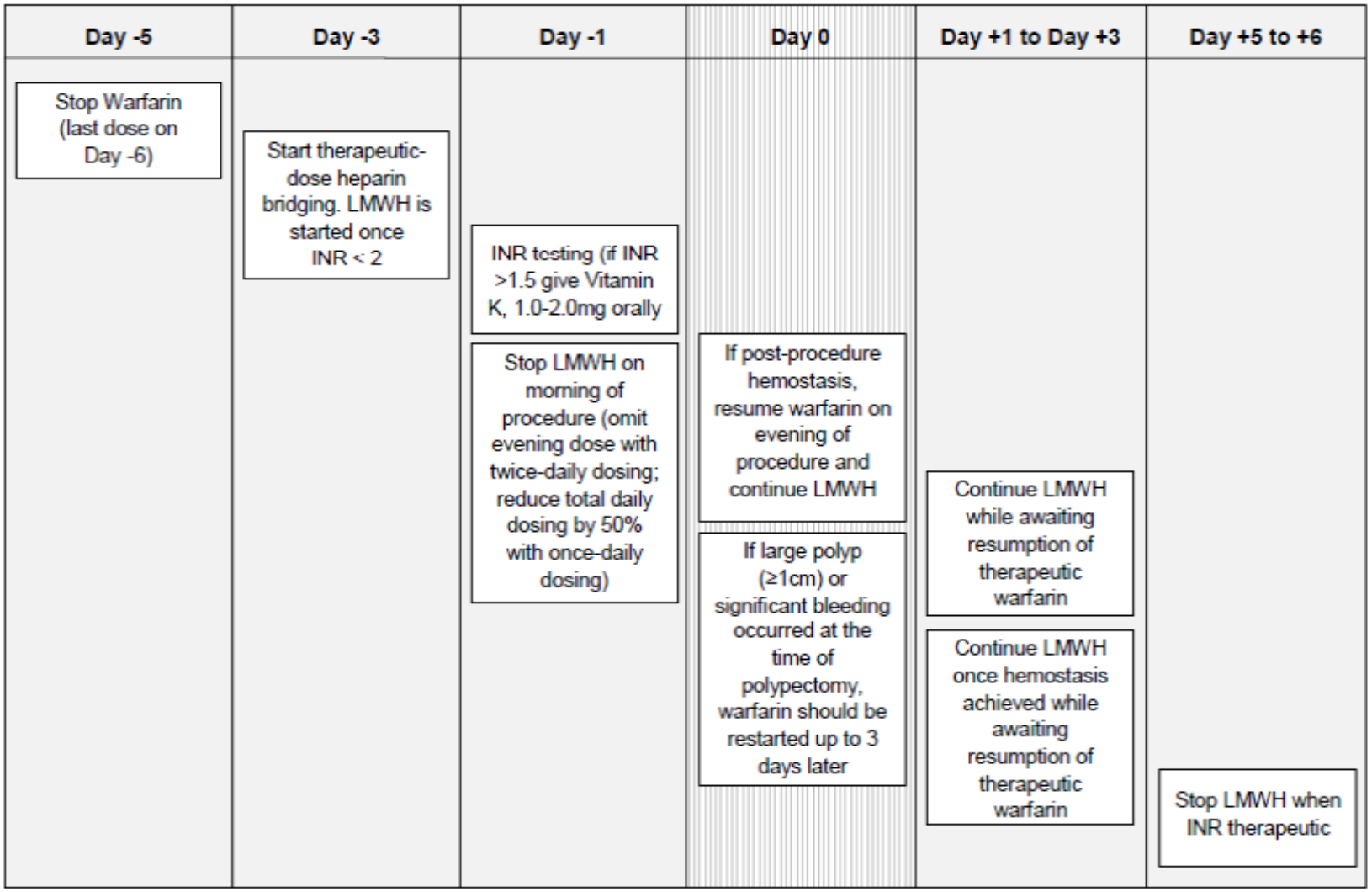
Risk Stratification for Discontinuation of Anticoagulant Therapy		Recommendation
High Risk	• Recent stroke/TIA (<12 mo for screening colonoscopy) • Atrial fibrillation with $CHADS_2$ score of 5 or 6 • Recent venous thromboembolism {VTE} (<3 mo) • Thrombophilia syndromes • Unstable angina	Not a candidate for a screening-related colonoscopy
High to Moderate Risk	• Nonvalvular atrial fibrillation with $CHADS_2$ score of 3 or 4 or prior stroke • Atrial fibrillation with valvulopathy • Mitral stenosis • Mechanical heart valve in mitral position • Mechanical heart valve with prior thrombo-embolic event • Caged-ball or tilting disc-shape aortic mechanical heart valve • Deficiency of protein C, protein S, or antithrombin • Antiphospholipid antibodies • VTE within past 3-12 months	Bridging with heparin or LMWH recommended. Liaison with prescribing physician or cardiologist recommended.
Low Risk	• Bileaflet mechanical heart valve in aortic position and no major risk factors for stroke • Bioprosthetic (tissue) heart valves • Atrial fibrillation without valvular disease and no prior thrombo-embolic event or CHADS score of 0-2 • VTE >12 mo	May discontinue anticoagulant (warfarin) 5 days prior to colonoscopy, in order to achieve INR <1.5. Liaison with prescribing physician or cardiologist recommended.
Risk Stratification for Discontinuation for Antiplatelet Therapy		**Recommendation**
High Risk	• Drug eluting coronary artery stents within 12 mo of placement • Bare metal coronary artery stents within 1 mo of placement • Recent myocardial infarct • Recent percutaneous transluminal coronary angioplasty (PTCA)	Should defer screening until outside of high risk time period.
Low Risk	• Ischemic heart disease without coronary stent • Cerebrovascular disease • Peripheral vascular disease with no recent stenting	Continue on ASA. Hold Plavix and resume post procedure.

References:

Spyropoulos AC, Douketis JD. How I treated anticoagulated patients undergoing an elective procedure or surgery. Blood 2012 Oct 11;120(15):2954-62.

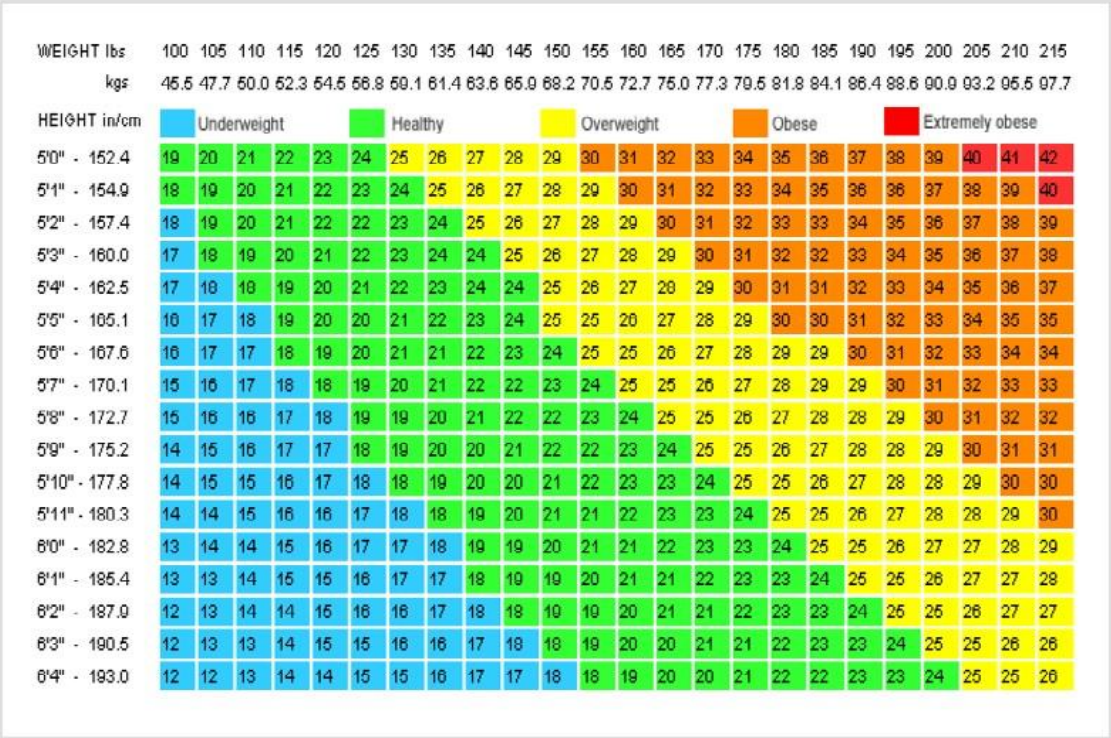
Veitch AM, Baglin TP, Gershlick AH, et al. Guidelines for the management of anticoagulant and antiplatelet therapy in patients undergoing endoscopic procedures. Gut 2008 Sep;57(9):1322-9.

Appendix 9: Moderate to High Risk Patients for Thromboembolism: Warfarin and Heparin Bridging Instructions for Screening-Related Colonoscopy



References:
Doueketis JD. Perioperative management of patients who are receiving warfarin therapy: an evidence-based and practical approach. Blood 2011 May 12;117(19):5044-9.
Veitch AM, Baglin TP, Gershlick AH, et al. Guidelines for the management of anticoagulant and antiplatelet therapy in patients undergoing endoscopic procedures. Gut 2008 Sep;57(9):1322-9.

Appendix 10: Link for BMI Calculator



WEIGHT lbs	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215
kgs	45.5	47.7	50.0	52.3	54.5	56.8	59.1	61.4	63.6	65.9	68.2	70.5	72.7	75.0	77.3	79.5	81.8	84.1	86.4	88.6	90.9	93.2	95.5	97.7
HEIGHT in/cm	Underweight						Healthy					Overweight				Obese					Extremely obese			
5'0" - 152.4	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
5'1" - 154.9	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	36	37	38	39	40
5'2" - 157.4	18	19	20	21	22	22	23	24	25	26	27	28	29	30	31	32	33	33	34	35	36	37	38	39
5'3" - 160.0	17	18	19	20	21	22	23	24	24	25	26	27	28	29	30	31	32	32	33	34	35	36	37	38
5'4" - 162.5	17	18	18	19	20	21	22	23	24	24	25	26	27	28	29	30	31	31	32	33	34	35	36	37
5'5" - 165.1	16	17	18	19	20	20	21	22	23	24	25	25	26	27	28	29	30	30	31	32	33	34	35	35
5'6" - 167.6	16	17	17	18	19	20	21	21	22	23	24	25	25	26	27	28	29	29	30	31	32	33	34	34
5'7" - 170.1	15	16	17	18	18	19	20	21	22	22	23	24	25	25	26	27	28	29	29	30	31	32	33	33
5'8" - 172.7	15	16	16	17	18	19	19	20	21	22	22	23	24	25	25	26	27	28	28	29	30	31	32	32
5'9" - 175.2	14	15	16	17	17	18	19	20	20	21	22	22	23	24	25	25	26	27	28	28	29	30	31	31
5'10" - 177.8	14	15	15	16	17	18	18	19	20	20	21	22	23	23	24	25	25	26	27	28	28	29	30	30
5'11" - 180.3	14	14	15	16	16	17	18	18	19	20	21	21	22	23	23	24	25	25	26	27	28	28	29	30
6'0" - 182.8	13	14	14	15	16	17	17	18	19	19	20	21	21	22	23	23	24	25	25	26	27	27	28	29
6'1" - 185.4	13	13	14	15	15	16	17	17	18	19	19	20	21	21	22	23	23	24	25	25	26	27	27	28
6'2" - 187.9	12	13	14	14	15	16	16	17	18	18	19	19	20	21	21	22	23	23	24	25	25	26	27	27
6'3" - 190.5	12	13	13	14	15	15	16	16	17	18	18	19	20	20	21	21	22	23	23	24	25	25	26	26
6'4" - 193.0	12	12	13	14	14	15	15	16	17	17	18	18	19	20	20	21	22	22	23	23	24	25	25	26

http://bodyandhealth.canada.com/health_tools.asp?t=5&text_id=1855

Appendix 11: American Society of Anesthesiology (ASA) Classification System

The ASA Classification System is an accepted tool to identify patient morbidity. The classification category should influence the settings and precautions prior to referral for a screening-related colonoscopy. ASA class 3 patients or higher should be considered high risk for cardiopulmonary events; these patients may not be appropriate for a screening-related colonoscopy, or need to be done in a hospital setting for full resuscitation and support.

ASA Physical Status Classification System

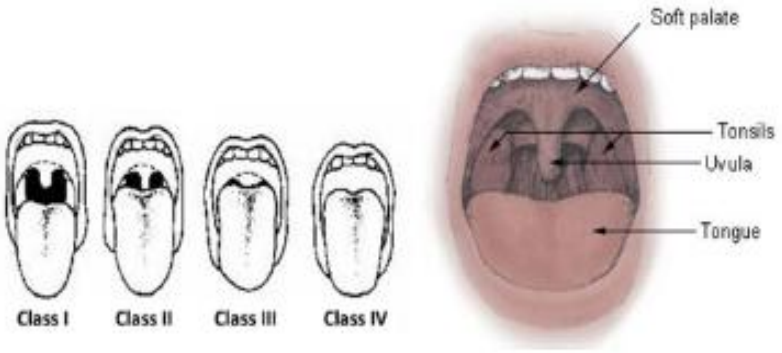
ASA Physical Status 1	A normal healthy patient
ASA Physical Status 2	A patient with mild systemic disease
ASA Physical Status 3	A patient with severe systemic disease
ASA Physical Status 4	A patient with severe systemic disease that is a constant threat to life
ASA Physical Status 5	A moribund patient who is not expected to survive without the operation
ASA Physical Status 6	A declared brain-dead patient whose organs are being removed for donor purposes

Source: American Society of Anesthesiologists "http://www.asahq.org/clinical/physicalstatus.htm". Adaptation from ASGE.

Appendix 12: Mallampati Airway Classification System

The Mallampati Airway Classification

This system is a method for quantifying the degree of difficulty of endotracheal intubation based on amount of posterior pharynx that can be visualized. The exam is performed with the patient sitting with the head in a neutral position and the mouth open as wide as possible. Patients identified as *"moderate to severe intubation difficulty"* should be considered ineligible in the clinic setting.



Class I: soft palate, fauces, uvula, pillars visible. No difficulty.

Class II: soft palate, fauces, portion of the uvula visible. No difficulty.

Class III: soft palate, base of uvula visible. Moderate difficulty.

Class IV: hard palate only. Severe difficulty.

Reference:
Mallampati SR, Gatt SP, Gugino LD, et al. A clinical sign to predict difficult intubation: a prospective study. Can Anaesth Soc J 1985;32(4):429-34.

Appendix 13: ACRCSP Bowel Preparation: Instructions for the Patient

patient information

Preparing for Your Colonoscopy

Your colonoscopy is on: _____

Please be at the facility at: _____

The test usually takes 20 to 30 minutes. You will be at the facility for a few hours.

If you have questions about the instructions, please call us at _____

- You will be given sedation for the procedure. Legally, you are considered impaired for the next 24 hours. A responsible adult must take you home after the procedure—you are **not allowed** to drive, or take a taxi or a bus alone.
- If you don't have a ride arranged on the day of the colonoscopy, it can either be cancelled or may be done without sedation.

Before the Colonoscopy

Make sure we know about all the medicine you take as they can affect the preparation (prep) or test.

- Most medications can be taken up to and on the day of your test. You should take your medicine either 2 hours before or 2 hours after drinking the bowel prep solution to make sure they are absorbed.
- The nurse or doctor (endoscopist) will tell you if you need to stop any medicine before the test.
- Diabetic pills and/or insulin and antithrombotics and/or blood thinners are examples of medications that may need to **be adjusted or stopped**. Please make sure you talk to the nurse or doctor prior to your test if you are on any of these medications.
- If you start a new medicine between your pre-colonoscopy visit and date of your colonoscopy, be sure to tell the nurse the names of the medicine when you come for your test or call us before the appointment.
- Tell the doctor (endoscopist) and nurse about any drug allergies you have and of any medical problems.

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4 days before your test

Start the low-fibre diet

Low-fibre foods include:

- beef
- chicken
- fish
- pork
- cooked or steamed vegetables
- canned fruit
- dairy products
- white bread
- white pasta
- white rice
- eggs

Don't eat:

- nuts
- popcorn
- foods with seeds
- oatmeal
- raw fruits and vegetables
- whole wheat or high fibre bread
- whole wheat or whole grain cereal or pasta
- fibre supplements (e.g., Metamucil®)

No later than the day before the test

Buy at a pharmacy:

- One 4 litre bottle of the bowel prep solution: Colyte®, Peglyte®, or Golytely®.
- Clear fluids of your choice (Gatorade®/PowerAde®/Soup broth) because of the electrolyte replacement. **Do not only drink water.**
- Baby wipes (if you wish) for irritation caused by repeated bathroom trips.

Clear Fluids that are okay (No red coloured drinks. Orange is okay.)

- Sports Drinks – Gatorade®/PowerAde®
- Clear pulp-free fruit juices - apple, white grape, white cranberry, lemonade
- Clear soups – broth/bouillon
- Water
- Kool-Aid
- Iced tea
- Juice popsicles
- Jell-O
- Ginger ale, 7-Up®, Sprite®
- Tea/coffee without milk products/substitutes

Preparing Your Bowel

The most important thing that you can do to make sure your colonoscopy is a success is to properly prepare your bowel. The colon must be cleaned out so that the bowel wall and any issues (like polyps or other growths) can be seen. If the bowel isn't cleaned out, there is a chance that a polyp or other abnormality may not be seen or the test may have to be done again.

- The bowel is prepared by drinking a bowel prep solution that is a very strong laxative. Drinking this solution will cause you to have diarrhea.
- Your bowel movements will begin between 1 to 4 hours after drinking the laxative.
- Make sure you drink lots of clear fluids so you don't become dehydrated.
- Only purchase the bowel prep solution the facility has told you to buy.
- Severe reactions can happen, but this is rare. If you experience severe abdominal pain, persistent vomiting, swelling or hives, fainting or if you feel like fainting when drinking the bowel prep solution please call Emergency Medical Services at 911 and also notify the facility.

Tips when Drinking the Bowel Prep Solution

- Drink the mixture through a straw placed far back in your mouth.
- Rinse your mouth with water or mouthwash after drinking the solution, or brush your teeth.
- Sip on liquids with a strong taste, like PowerAde®/Gatorade® after drinking the solution **(no red color beverages).**
- The bowel prep solution may taste better when it's cold. You can place the bottle in the fridge after it's mixed. Drinking a large amount of cold liquid in a short time period may make you feel "chilled."
- Suck on a hard candy or suckers after you drink the solution.
- You can chew gum during the prep, but don't swallow it.
- If you feel sick to your stomach, drinking ginger ale may help to settle your stomach. So you don't get dehydrated, continue to drink clear fluids in smaller amounts, but more often. Or you can have the medicine Gravol® (anti-nausea medication) and take 25-50mg every 4-6 hours as needed. This medicine can be purchased from any pharmacy without a prescription. Once the feeling has gone away it is very important to keep drinking the bowel prep solution.

Preparing for your Colonoscopy Appointment

The day before your test: _____

1. Eat a light breakfast (e.g., toast, tea, coffee, juice).
2. After that, drink only clear fluids. You must not eat anything or drink milk or milk products until after your colonoscopy.
3. In the morning, ready the bowel prep solution as per the instructions on the bottle. Put the bottle in the fridge. The solution is a bit easier to drink when it's cold.
4. **Between 4:00 pm-8:00 pm drink 2 litres of the bowel prep solution within 2 hours**—about an 8 oz. glass every 10 minutes. Drinking it quickly can make it easier to tolerate.
5. **Drink about 2 litres of clear fluids** during or after you are finished the bowel prep solution at 8 p.m. so that you don't become dehydrated.
6. If you get dehydrated you may become weak, dizzy and/or light-headed, and faint or fall. If possible, have a responsible adult with you or available while you are doing the bowel prep.

The day of your test: _____

1. **Starting 5 hours before the time you are told to be at the Facility, drink the last 2 litres of the bowel prep solution within 2 hours.** For example, if you have to be there at 10 a.m., start drinking the last 2 litres at 5 a.m.
2. **Continue to drink clear fluids** before you drink the last 2 litres or after you are finished the bowel prep solution so that you don't become dehydrated.
3. It is important to get through all 4 litres of the bowel prep solution to clean you bowel. If you are having loose, watery stools after 2-3 litres this does not mean that you can stop drinking the solution. There could still be solid stool near the end of your large bowel.
4. **Stop drinking clear fluids 2 hours before your test**. For example, if your test is at 10:00 a.m. you can have clear fluids up until 8:00 a.m.
5. If you have to take medicine within 2 hours of the test, you can take it with a small amount of water.

Please arrange to have a responsible adult in the waiting room to drive you home **1½ hours** after the time you were told to arrive.

What will happen on the Day of my Colonoscopy?

- Please be at the Facility's Reception Desk at the time written on the first page. You will need your Alberta Health Care Card and picture identification (driver's license). Leave all valuable items at home (credit cards, money and jewellery).
- A nurse will take you into another area, where you will change into a patient gown and remove your underwear. The nurse will review the medicine you take, any allergies your have, and check your blood pressure and pulse.
- An intravenous (IV) will be started in a vein in your hand or arm.
- The doctor (endoscopist) doing the colonoscopy will meet with you and answer any questions.
- You will be taken into the procedure room.
- You will be given medicine through the IV that will make you sleepy and lessen any discomfort. Some people fall asleep during the procedure, but are easy to wake up and can follow commands. Many people are awake enough to watch the procedure on the monitor. It can be common to not feel any different after having the medicine, but the medicine is still working.
- The colonoscopy tube is inserted into your rectum (bum) and passed up into the colon.
- You will go back to the recovery area after the test is done. You will be asked to pass as much of the air that was put in your bowel for the colonoscopy as you can.
- Before you leave, the nurse or doctor will go over the results of your colonoscopy and tell you what follow-up to have.
- You may return to work the following day. Remember **no driving for 24 hours** after your colonoscopy because your considered legally impaired from the sedation.
- Generally it is not advised to plan air travel or long-distance travel within 2 weeks of your colonoscopy.

Appendix 14: ACRCSP Discharge Teaching Sheet for the Patient

Colonoscopy for Colon Cancer Screening Results

Date: _____

Results:

☐ The test was complete. The entire colon was seen.

☐ The test was incomplete. All areas of the colon could not be seen.

Findings:

☐ No polyps

☐ Polyps

☐ Other findings: _____

More Testing Needed

☐ CT Colonography (virtual colonoscopy)

☐ Repeat colonoscopy within 3 to 6 months

Recommendations

☐ Resume screening for colorectal cancer in 10 years (speak with your family doctor about your screening options)

Repeat colonoscopy in:

☐ 1 year (booking to be arranged by_____)

☐ Other*_____

☐ No more screening needed

☐ Other recommendations for screening_____

*Once the lab results of your polyps are back, you will be told when to have your next colonoscopy. **Your family doctor will be sent a copy of the report and recommendation for a repeat colonoscopy**. Speak with your family doctor at your next medical exam. You will need a new referral to the facility for your next colonoscopy.

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If You Have New Bowel Symptoms

Although the colonoscopy is very accurate, it is possible for polyps, and even cancer, to be missed. This is why it's important **never** to ignore new bowel symptoms (like bleeding, a change in bowel habits, or pain in your abdomen). See your family doctor as soon as possible if you have these or other symptoms.

Colonoscopy Discharge Instructions

After the procedure it is **normal** to:

- feel sleepy or light-headed (due to the effects of the sedation)
- feel cramping or pressure in your abdomen (because of the air introduced into the colon during the test (this goes away as you pass gas)
- see a small amount of fresh blood on the toilet tissue if tissue samples were taken

After the procedure:

- rest
- eat your normal diet
- take your regular medicine, unless your doctor or our facility tells you otherwise

☐ You were given sedation ☐ You were not given sedation

If You were given sedation

Sedation can affect your concentration and co-ordination for several hours. By law, you are considered legally impaired for the next 24 hours:

- Don't drive a care or operate heavy machinery or power tools
- Don't sign legal or financial documents
- Don't drink alcohol

When should I call my doctor?

Complications can be delayed. Bleeding from the site where a polyp was removed can happen up to 4 weeks later. Don't ignore any concerning or unexpected symptoms. Symptoms to watch out for include:

- bleeding from the rectum (bum), other than minor spotting (up to 4 weeks later)
- feeling faint or passing out
- temperature over 38 °C/100.4 °F
- pain in the abdomen that doesn't feel better even after passing gas

Go to an emergency department or call 911 if bleeding from the rectum won't stop or the pain in your abdomen is getting worse. If you aren't sure about your symptoms, you can call the facility at _____ during normal business hours, or outside business hours, Health Link Alberta at 1-866-408-LINK (5465). If you go to an Emergency Department or are admitted because of problems related to your colonoscopy within 30 days of your colonoscopy, please let the facility know.

Appendix 15: Instructions for Patients on Oral Hypoglycemics

As indicated in the list below, oral hypoglycemics that need to be held should not be taken the day before the procedure, as well as on the day of the colonoscopy. Oral hypoglycemics that can be continued can be taken the day before and day of the colonoscopy. The patient should be encouraged to perform frequent blood glucose checks while restricted to a clear fluid diet prior to the procedure. Patients can resume their usual dose of diabetic medication with their first meal post procedure.

Hold *(Day Before and Day of Test)*	**Continue** *(Day Before and Day of Test)*
gliclazide (*Diamicron) (Diamicron MR*)	metformin *(Glucophage)(Glumetza)*
glyburide (*Diabeta)(Euglucon)*	pioglitazone *(Actos)*
glipizide (*Glucotrol)*	metformin/ pioglitazone *(ACTOplus met)*
tolbutamise (*Orinase*)	rosiglitazone *(Avandia)*
glimepiride (*Amaryl)*	metformin/rosiglitazone *(Avandamet)*
chlorpropamide (*Diabinese)*	sitagliptin *(Januvia)*
glimepiride/rosiglitazone (*Avandaryl)*	metformin/sitagliptin *(Janumet)*
glimepiride/pioglitazone (*Duetact*)	saxagliptin *(Onglyza)*
glyburide/metformin (*Glucovance)*	metformin/saxagliptin (Komboglyze)
glipizede/metformin (*Metaglip)*	acarbose *(Glucobay)(prev. Prandase)*
repaglinide *(Gluconorm) (Prandin)**	
nateglinide *(Starlix)**	

**Shorter acting medication may be held the day of procedure only*

Appendix 16: Adjusting Your Diet and Insulin for Medical Procedures (an AHS handout)

health information

Adjusting Your Diet and Insulin for Medical Procedures

When you have diabetes and take insulin, getting ready for medical procedures or fasting lab tests may mean that your diet and insulin dose have to change. The guidelines below will help you adjust your diet and insulin as you prepare for your procedure or lab test. These are general guidelines only. **Always follow your doctor's instructions.**

If you are being followed by the Diabetes, Hypertension, and Cholesterol Centre, a diabetes educator, or you have a diabetes specialist, contact them at least one week before your procedure for more advice about adjusting your insulin.

Barium Enema and Colonoscopy

Diet:

- You will start clear fluids 1–2 days before the procedure as directed by your doctor.
- Choose only those fluids that are in the chart on the next page.
- **Do not drink any fluids that are red or purple.**
- If your blood sugars fall below 4.0 mmol/L or if you have symptoms of low blood sugar, take 15–25 grams carbohydrate or 250 mL (1 cup) of fluid from List 1. Test your blood sugar again in 15 minutes and take more fluid if you need to.
- Take extra fluid from List 1 if you have concerns about falling blood sugars.
- Treat the clear fluid days like a sick day and use the chart on the next page to choose what to eat and drink. Your diet can be changed into clear fluids in one of these ways:
  - If you count carbohydrate, try to drink the same amount of carbohydrate as you would eat at each meal and snack. Use the conversion of 10 grams carbohydrate 125 ml (½ cup) of any item from List 1.
  - If you follow a meal pattern, 125 mL (½ cup) of any item from List 1 will replace 1 serving from the grains and starches, fruit, milk and alternatives, or other choices group.
  - If you do not follow a special diet or meal plan, take 125 mL (½ cup) of a fluid from List 1 every hour.

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List 1 – Fluids that contain sugar (Every ½ cup has 10 grams of carbohydrate)	**List 2 – Fluids that are sugar-free** (Choose as desired)
• fruit drink or fruit juice without pulp (examples, apple, white grape, cranberry) • sports drinks (e.g., Gatorade®) • regular pop • regular Kool-Aid® or other powdered drinks (for example, Tang®) • regular popsicle • regular Jell-O®	• water • clear bouillon or broth • diet pop • diet Kool-Aid® or Crystal-Lite® • black coffee or tea • diet popsicle • diet Jell-O®

Insulin and Blood Testing:

The Day Before the Test

- Decrease the evening Humulin N®, Novolin NPH®, Lantus®, or Levemir® insulin dose by 20%, or as advised by your doctor. This will reduce the risk of low blood sugars. **Make sure to reduce your evening insulin the night before the test to reduce the risk of lows on the morning of the procedure.**
- Decrease your Apidra®, Humalog®, NovoRapid®, Humulin R®, or Novolin® Toronto insulin dose by half (50%), or as advised by your doctor. This will reduce the risk of low blood sugars. You may need to lower your insulin more if your low blood sugars continue.
- If you are on an insulin pump:
  - Continue with your usual pump basal rate the day before the test, or advised by your doctor. Lower your basal rate by 20% if your blood sugar tests low.
  - The evening before the test, decrease your pump basal rate by 20% at bedtime, or as advised by your doctor. This will reduce the risk of low blood sugars.
  - Decrease your bolus dose by half (50%), or as advised by your doctor. This will reduce the risk of low blood sugars. You may need to lower this more if your low blood sugar continues.
- Test your blood sugars more often than usual (at least every 4 hours). Blood sugars in the range of 8–12 mmol/L are fine for these 2 days, even if this is higher than your usual target.
- Call your doctor if your blood sugars are too high.

Test Day:

- Decrease your morning Humulin N®, Novolin® NPH, Lantus®, or Levemir® insulin dose or insulin pump basal rate by 30%, or as advised by your doctor. This will reduce the risk of low blood sugars during the test.
- **Do not** take your morning Apidra®, Humalog®, NovoRapid®, Humulin R®, or Novolin® Toronto insulin before the test. Take it once your test is done and you are ready to eat.
    - Test your blood sugar before you give this dose of insulin. If your blood sugar is higher than usual, you may need a higher dose of fast/short-acting insulin.

Gastroscopy

Night Before:

- Do not have anything to eat or drink after midnight.
- Decrease your Humulin N®, Novolin® NPH, Lantus®, Levemir® insulin or pump basal rate by 20% the night before the test to avoid lows the morning of the test.
- Eat a bedtime snack to reduce the chance of having a low blood sugar in the morning.

Test Day:

- Decrease your morning Humulin N®, Novolin® NPH, Lantus®, or Levemir® insulin, or insulin pump basal rate by 30%.
- **Do not** give Apidra®, Humalog®, NovoRapid®, Humulin R®, or Novolin® Toronto insulin before the test. Take it once the test is done and you are ready to eat.

Fasting Blood Tests

To avoid low blood sugars:

- Have a bedtime snack 12 hours before blood test.
- Decrease your evening Humulin N®, Novolin® NPH, Lantus®, or Levemir® insulin by 10–20%.
- If you are on an insulin pump **and** have not done any overnight basal check within the last year, decrease the overnight basal rate by 20%.
- Test your blood sugar before leaving home. If your blood sugar is less than 4 mmol/L, eat, and have the blood test done on another day.
- Give your usual morning insulin after the test is done and you are ready to eat.

Appendix 17: Modified Aldrete Score

Recovery Room Discharge Scoring System: Modified Aldrete Scoring System

	Discharge Criteria Scoring System
Activity:	Able to move, voluntarily or on command
2	Four extremities
1	Two extremities
0	No extremities
Respiration	
2	Able to breathe deeply and cough freely
1	Dyspnea, shallow or limited breathing
0	Apnea
Circulation	
2	Blood pressure within 20 mm Hg of preoperative level
1	Blood pressure within 20-50 mm Hg of preoperative level
0	Blood pressure + 50 mm Hg preoperative level
Consciousness	
2	Fully awake
1	Arousable on calling
0	Unresponsive
Oxygen saturation	
2	Saturation > 92%
1	Needs oxygen to maintain saturation > 90%
0	Saturation < 90% with oxygen
Ambulation	
2	Able to stand up and walk straight*
1	Vertigo when erect
0	Dizziness when supine
Fasting – Feeding	
2	Able to drink fluids
1	Nauseated
0	Nausea and vomiting

Overall total score is 14; *minimum score is 13 to be discharged home with deficiency being only in fasting-feeding or mild dizziness with ambulation.

References:
American Society of Anesthesiologists Task Force on Sedation and Analgesia by Non-Anesthesiologist. Practice guidelines for sedation and analgesia by non-anesthesiologist. Anesthesiology 2002;96(4):1004-7.
Willey J, Vargo JJ, Connor JT, et al. Quantitative assessment of psychomotor recovery after sedation and analgesia for outpatient EGD. Gastrointest Endosc 2002 Dec;56(6):810-6.

Appendix 18: Nurse Assessed Patient Comfort Score

Alberta Health Services

Patient label

Nurse Assessed Patient Comfort Score (NAPCOMS)

Instructions: During the colonoscopy, the nurse observes and rates patient comfort or pain (intensity, frequency and duration). Unacceptable discomfort levels, as determined by a NAPCOM score ≥ 6, should prompt a procedural pause to review progress, indication(s), sedation given and technical challenges. If comfort cannot be safely improved, the procedure should be stopped and alternate interventions should be considered. Mark inside boxes provided.

Total Pain Score: 0-5 = Acceptable levels

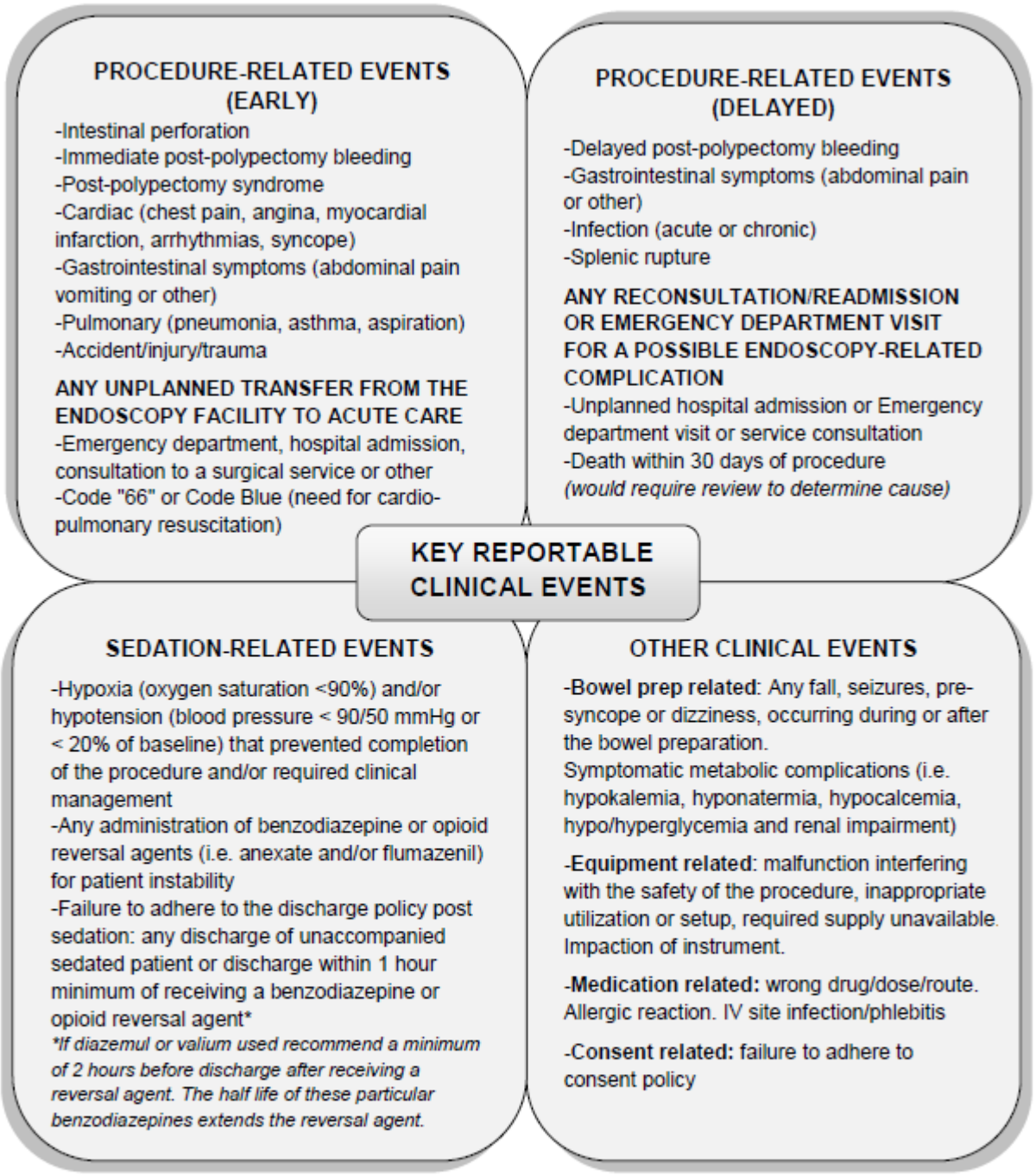
≥ 6 = Threshold has been reached. Interventions should be made to decrease patient discomfort

**Note: level of consciousness and tolerability are not used in overall score*

Domain	Item	0	1	2	3	Score
Pain	A-Intensity	None ☐	Mild ☐	Moderate ☐	Severe ☐	☐
	B-Frequency	None ☐	Few 1-2 episodes ☐	Several times 3-4 episodes ☐	Frequent >4 episodes ☐	☐
	C-Duration	None ☐	Short episode < 30sec ☐	Moderate episode 30sec- 1min ☐	Long episode > 1min ☐	☐
	Intensity + Frequency + Duration = **Total Pain Score** (A + B + C) = Total Pain Score					☐
Sedation	Level of Consciousness	Alert ☐	Sleepy but initiates conversation ☐	Responds only when asked or stimulated ☐	Unresponsive or only responds with pronounced stimulation ☐	
Global	Tolerability	Very well Tolerated ☐	Reasonably well Tolerated ☐	Just Tolerated ☐	Poorly Tolerated ☐	

Reference: Rostom A, Ross ED, Dube C, et al. Development and validation of a nurse-assessed patient comfort score for colonoscopy. Gastrointest Endosc 2013;77(2):255-61.

Appendix 19: Key Clinical Events to Report



Note: All reportable Clinical Events must be reported to the Nurse Clinician or the occurring designated charge person of that day prior to the end of your shift. A report should be completed through the Reporting and Learning System located on the internal AHS website Click on 'submit a report' and enter your information. It is quick and easy to perform.

Reference: Borgaonkar MR, Hookey L, Hollingworth R, et al. Indicators of safety compromise in gastrointestinal endoscopy. Can J Gastroenterol 2012;26(2):71-78.

Appendix 20: Required Endoscopy Report Elements

Report Field
1. Type of procedure
2. Date and time of procedure
3. Name of endoscopist
4. Name(s) of assistant(s)
5. Age and sex of patient
6. Indications(s) for procedure
7. Comorbidities
8. Type of bowel preparation
9. Documentation of consent
10. Type and dose of sedation used
11. Other medication and related information
12. Extent and completeness of examination
13. Quality of bowel preparation
14. Relevant findings
15. Pertinent negatives
16. Adverse events and resulting interventions
17. Patient comfort
18. Diagnoses
19. Endoscopic interventions performed
20. Details of pathology specimens
21. Details of follow-up arrangements
22. Appended pathology report(s), when available
23. Management recommendations
24. Information provided to patient and/or family

Reference:
Beaulieu D, Barkun AN, Dube C et al. Endoscopy reporting standards. Can J Gastroenterol 2013 May;27(5):286-92.

Appendix 21: Submitting a Colonoscopy Pathology Specimen

Submitting a Specimen to Pathology

Use AHS-approved anatomic pathology requisition only

*Required Information ***Physician to act on results** (Full first and last names and location code or address)	***Patient Demographics** *or* **Patient Label on all copies**	
***Tissue removed by** (Mark appropriate box or name if different than above)	***Present Date** (Year/mon/dd)	*Lab use only*
***Additional copies to** (i.e. referring physician and address)		

***Clinical Information:**

- Indication for procedure (i.e. FOBT/FIT+, vs. screening in increased risk, vs. surveillance, vs. specific clinical scenario)
- Comments: The endoscopist may include further description for any of the specimens submitted. The endoscopist may comment on a suspected malignancy or more specific histologic classification (i.e. inflammation or colitis). Suspected malignancies should be flagged to ensure reporting and required next steps are performed promptly.

***Gross Description:**

- SPECIMEN SITE: anatomic location of the colon.
  Polyps from different locations in the colorectum should be submitted in separate containers.
  Multiple small polyps from the same site may be in the same container for submission.
- SPECIMEN TYPE: polyp vs. biopsy
  State whether specimen was taken in whole or piecemeal. State whether specimen was completely excised.
- POLYP MORPHOLOGY: Pedunculated, sessile, flat or diminutive.
- POLYP SIZE: i.e. < 1cm or ≥ 1cm
- PATIENT LABELS:
  All containers should have clear patient identification labels and be submitted in alphabetical order.
- TIME:
  As to when the specimen was placed in the formalin should be indicated.

Appendix 22: Example of a Standard Patient Information Handout

Alberta Health Services

FORZANI & MACPHAIL | COLON CANCER SCREENING CENTRE

Screening for Colon Cancer

In Alberta, cancer of the large bowel (colon and rectum) is the fourth most commonly diagnosed cancer and the second leading cause of cancer death. Colon cancers develop from non-cancerous polyps. Polyps are mushroom-like growths. Approximately 20-25% of people over age 50 have polyps. Only a few of them ever turn into a cancer. However, 6% of people develop bowel cancer at some time during their life. Colon cancer is easily cured if detected early. But because many cancers are detected late, approximately 40% of people die because of their colon cancer. Colon cancers can be prevented altogether if polyps are detected and removed before they have a chance to become cancerous.

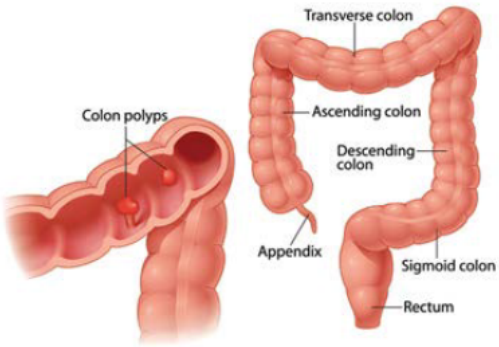
Screening means looking for polyps or cancers in people who **do not** have symptoms.

SYMPTOMS OF A POLYP:

- The majority do not cause any complaints
- Rarely they can bleed
- Very rarely they can cause diarrhea

SYMPTOMS OF A COLON CANCER:

- Usually occur late in course of colon cancer
- Visible blood in the stools
- Anemia or a low blood count
- Weight loss
- Regular pain in your stomach or abdomen
- A persistent change in the bowel pattern



WHO IS AT A HIGHER RISK FOR DEVELOPING COLON CANCER:

- A history of colon cancer in a first-degree relative (mother, father, brother, sister, son, daughter)
- A history of a polyp in a first-degree relative, especially if younger than 60 years of age
- People with a personal history of colon cancer or polyps
- People with certain medical conditions (Crohn's disease, ulcerative colitis)

REASONS TO SCREEN FOR COLON CANCER

- To prevent colon cancer from developing: Since most cancers develop from polyps, if one can detect and remove a polyp a future cancer may be prevented
- To decrease colon cancer deaths: If one can detect the cancer at an early stage, it may be more successfully treated resulting in a lower chance of dying from that cancer

Additional information about colon cancer and screening tests, including an online video about colonoscopy, is available at the Centre's website: http://www.colonscreeningcentre.com

3280 Hospital Drive N.W., Calgary, Alberta, Canada T2N 4Z6 • www.colonscreeningcentre.ca

METHODS TO SCREEN FOR COLON CANCER:

Commonly Available Tests Appropriate for Those at Average Risk for Colon Cancer

There are several ways to detect polyps and cancers. At this time, no single test has been shown to be definitely superior. However, there are advantages and disadvantages to each of the tests and one test may be better for a given person than another test.

1. **Test of stools for blood (Fecal Immunochemical Test) yearly or every two years**

- This test is performed at home. You receive a test kit from your doctor or lab. At home, you collect a small piece of stool by scraping the surface of the stool with the collection stick that comes with the kit. Then you return the test kit to the lab. The stool sample is checked for blood.
- A single test detects 30-40% of polyps and 70-80% of cancers.
- If the FIT is positive, a colonoscopy is required to confirm the presence of a polyp or cancer.
- Approximately 5-10% of people who do not have a cancer or polyp will have a falsely positive test resulting in further testing.

2. **Sigmoidoscopy every five years**

- This test is performed in a doctor's office or hospital clinic. A flexible videoscope is used to examine the left side of the colon. A fleet enema is used before the test to clean out that part of the bowel. If a polyp or cancer is seen, a colonoscopy is often required to examine the rest of the bowel and to remove the polyp. There is strong evidence that sigmoidoscopy reduces the risk of developing and dying from colorectal cancer.
- About 40% - 60% of all polyps and cancers are within the reach of the sigmoidoscope.
- In research studies, the risk of dying from bowel cancers was reduced by about 60%.
- This test is not available at the Colon Cancer Screening Centre (CCSC).

3. **Combination of stools for blood plus sigmoidoscopy**

- The two tests described above can be combined.
- It is not clear how much is gained by this combination.

4. **CT Colonography (Virtual Colonoscopy) every 5 years**

- A special x-ray (CT scan) taken of the colon.
- The colon is prepared with powerful laxatives, similar to a colonoscopy preparation.
- This test is able to detect polyps and abnormalities like a colonoscopy however a colonoscopy is required to confirm any findings.
- This test is not available at the CCSC. It is available at private radiology clinics in Calgary and may require the patient to cover the costs of the test.

5. **Colonoscopy every 10 years**

- This test is performed at the CCSC. A flexible videoscope is used to examine the entire colon. This is a day procedure that is usually performed with sedation given through a needle into a vein. The day before the test, the bowel is cleaned out by taking a powerful laxative. If a polyp is identified, it can usually be removed at the same time.
- This is the most accurate test for detecting polyps and cancers, but it is also associated with the highest procedural risks.
- It will detect 80-90% of polyps (dependent on size) and at least 95% of cancers.
- It has never been studied alone in a research study, but there is strong evidence that it should reduce the risk of developing and dying from bowel cancer more than any of the other tests.

Risks and Complications of Tests

- No medical test is without some risk, however small
- Because all people with a positive fecal occult blood test, sigmoidoscopy or air-contrast barium enema need to undergo a colonoscopy, they will be exposed to both the risks of the initial test and the colonoscopy.

Colonoscopy

- Complications can result from the colonoscopy itself and from the sedation
- 1/1000 risk of a serious complication
  - Hole in the bowel (requires surgery to fix)
  - Bleeding, usually only occurs if polyp removed (may require blood transfusions and repeat colonoscopy or surgery to stop)
  - Heart or lung complications from sedation
  - Severe dehydration, kidney troubles or chemical imbalance from bowel preparation
- These complications can generally be treated successfully, but rarely, especially in people with significant medical problems, could result in death. Estimated risk of death from colonoscopy is 1/10,000.

CT Colonography (Virtual Colonoscopy)

- 1/1000 risk of a serious complication.
- Exposure to radiation. Radiation doses can range greatly between facilities and is affected by patient size.

Sigmoidoscopy

- 1/10,000 risk of a hole in the bowel.

Fecal Immunochemical Test (FIT)

- No real risks of the test itself.

For additional information about colorectal cancer

Colon Cancer Screening Centre	http://www.albertahealthservices.ca/7907.asp
Calculate your risk for cancer	www.yourdiseaserisk.wustl.edu
Canadian Cancer Society	www.cancer.ca
Cancer View Canada	www.colonversation.ca

SCREENING RECOMMENDATIONS

Several organizations have developed guidelines for colon cancer screening. These do not always agree. The Colon Cancer Screening Centre follows the most recent recommendations, which are those developed by the Alberta Colorectal Cancer Screening Program and the US Multi-Society Task Force on Colorectal Cancer.

AVERAGE RISK INDIVIDUAL SCREENING RECOMMENDATIONS:

- An average risk individual is someone without symptoms of bowel cancer, who has no family history of bowel polyps or cancers and does not have inflammatory bowel disease.
- It is recommended that all individuals undergo screening starting at age 50.
- alberta guidelines recommend the use of annual fecal Immunochemical test (FIT).
- Guidelines from the Canadian Association of Gastroenterology and several American organizations, including the American Cancer Society, recommend that any of the five commonly available tests can be used.
- Colonoscopy is an option for motivated individuals who want a more thorough examination to detect cancers and polyps, and who are willing to accept the risks of colonoscopy.

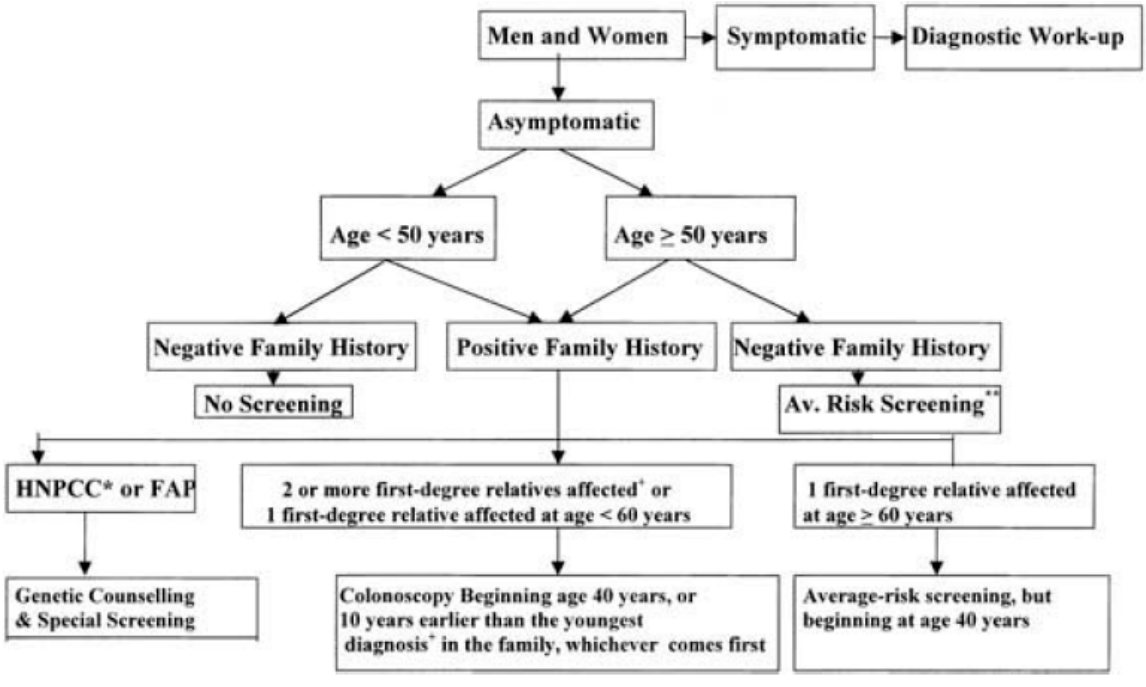
FAMILY HISTORY OF COLORECTAL CANCER OR POLYP:

To start at approximately age 40 (or 10 years younger than age of relative at diagnosis)

- Prefer use of colonoscopy, especially if relative's polyp or cancer developed before age 60. If relative less than 60, recommended that colonoscopy be done every 5 years.

SCREENING RECOMMENDATIONS FOR A PERSON WHO HAS A SIGNIFICANT POLYP:

- If a polyp is seen and removed at a colonoscopy, ongoing testing is required to detect and remove new polyps.
- Follow-up colonoscopy usually occurs 3 year or 5 years after initial polyp is removed depending on how well the colon was seen at colonoscopy and the number and size of polyps removed.
- If normal, follow-up colonoscopy in 5-10 years.



Appendix 23: Example of a Patient Satisfaction Survey

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FORZANI & MACPHAIL | COLON CANCER SCREENING CENTRE

Feedback on Your Colonoscopy Experience

We are looking to improve the way we run the Colon Cancer Screening Centre, and your answers to these questions will help us decide how we best do this. A few minutes of your time would be very much appreciated.

We are asking that you do not sign these forms (i.e. they are anonymous), so that your answers can be as honest as possible. Please return the questionnaire to the reception desk or by mail, using the attached self-addressed business reply envelope.

Colon Cancer Screening Centre
University of Calgary - 6th Floor
Teaching Research and Wellness Building
3280 Hospital Drive NW
Calgary, Alberta
T2N 4N1

Phone: 403-944-3800

For Office Use Only:

CCSC ID# ☐☐☐☐☐☐

Date Received: ☐☐ / ☐☐ / 20☐☐

MM DD YYYY

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GENERAL INSTRUCTIONS:

- SHADE all bubbles like this: ●
- If you make a mistake, put an X through the incorrect bubble like this: 
- Please use a blue or black ball point pen, NOT a felt pen.

1. Before the date of your Colonoscopy:

	Yes	No
Did you phone the Colon Cancer Screening Center for any reason?	○	○

If YES, what was the purpose of the phone call (check all that apply)

- ☐ To confirm an appointment
- ☐ To change an appointment
- ☐ To get directions to the Colon Cancer Screening Center
- ☐ To get further information about bowel preparation
- ☐ To get further information about the colonoscopy
- ☐ To seek help with problems while taking the bowel preparation
- ☐ To Seek advice about taking my regular medications
- ☐ Other

If you phoned the Colon Cancer Screening Center about a question or inquiry, did you have difficulty reaching a staff member?

Yes	No
○	○

If you phoned the Colon Cancer Screening Center about a question or inquiry, was it answered to your satisfaction?

Yes	No
○	○

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2. Bowel Preparation Instructions:

Which bowel preparation did you use?

- ◯ Colyte (4 litres)
- ◯ Pico-Salax Sachets + Bisacodyl Pills
- ◯ Other (please specify): _____

Did you have any troubles understanding the instructions about how to prepare for your colonoscopy?

- ◯ No
- ◯ Yes (Please explain): _____

_____

_____

3. The Day of your Colonoscopy:	**Yes**	**No**
Were you treated courteously and with respect by the reception staff?	◯	◯
Was your journey through the unit well coordinated?	◯	◯
Did you feel adequately informed about what was happening to you and when?	◯	◯
Was there an excessive delay in waiting for your test after your arrival?	◯	◯
Was there any difficulty starting your intravenous line (needle into your vein for fluids and sedation)?	◯	◯

If YES, what was the difficulty?

- ◯ Very painful
- ◯ Took two attempts to start intravenous line
- ◯ Took more than two attempts to start intravenous line
- ◯ Other

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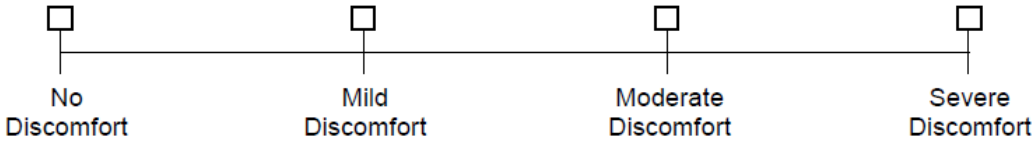
4. The Day of your Colonoscopy continued:

	Yes	No
Before going into the endoscopy room, did you feel that you had an opportunity to ask the nurses any further questions you may have had?	○	○
Was the doctor doing the test courteous and considerate?	○	○
Were the nurses assisting with the test courteous and considerate?	○	○
Did you feel that your privacy was respected as best it could be?	○	○
Do you feel that you had adequate time in the endoscopy room and that you and the doctor doing the test were not rushed?	○	○
Did you feel the doctor and nurse were attentive to your comfort during the colonoscopy?	○	○

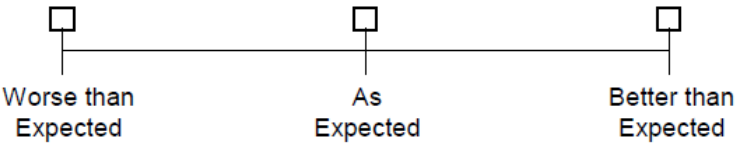
Do you think you received the right amount of sedation?

- ○ Yes
- ○ No, I would have tolerated the procedure better if I received more sedation
- ○ No, I think I would have tolerated the procedure just as well with less sedation
- ○ I requested no sedation

On the scale below, please mark your overall assessment of the level of discomfort you experienced during your colonoscopy:



On the scale below, please mark if the colonoscopy experience was worse, better, or as you had expected:



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5. Aftercare:

	Yes	No
Were you given information on what reactions to expect after your procedure?	○	○
Have you been told the results of your test?	○	○
Did you receive a written copy of your test results?	○	○
Were you told if you should have another colonoscopy in the future, and if so, when the colonoscopy should take place?	○	○
Have you been recommended to undergo another colonoscopy within the next 5 years?	○	○

If YES, how likely is it that you will undergo the colonoscopy?

- ○ I will definitely undergo the recommended colonoscopy
- ○ I will likely undergo the recommended colonoscopy
- ○ I am uncertain if I will undergo the recommended colonoscopy
- ○ I will not undergo the recommended colonoscopy

6. The Day after your Colonoscopy:

Did you experience any problems the day after your colonoscopy?

	None	Mild	Moderate	Severe
Abdominal pain or cramps	○	○	○	○
Nausea	○	○	○	○
Vomiting	○	○	○	○
Blood in bowel motions	○	○	○	○
Dizziness	○	○	○	○
Felt as though you might pass out or faint	○	○	○	○
Headache	○	○	○	○
Fatigue	○	○	○	○
Other:_____	○	○	○	○

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7. The Day after your Colonoscopy continued:

Were you able to return to work the day after your colonoscopy?

- ◯ Yes
- ◯ No, I took the day off because I didn't feel well after my colonoscopy
- ◯ No, I felt well but I took the day off because I received sedation for my colonoscopy
- ◯ No, I was not scheduled to work/ I am unemployed/ I am Retired
- ◯ No, for another reason

8. A Few Questions about you:

Gender:
- ◯ Male
- ◯ Female

Age:
- ◯ Under 50 years
- ◯ 50 - 65 years
- ◯ Over 65 years

Have you had a colonoscopy before?
- ◯ Yes
- ◯ No

Why did you have this colonoscopy?

- ◯ Because I have a family history of colorectal cancer or polyps
- ◯ Because I had polyps or colorectal cancer in the past
- ◯ Because I had a positive fecal occult blood test (home stool test)
- ◯ Routine exam/ Recommended by my Doctor
- ◯ For another reason

9. Time of Appointment:

Please indicate the time of your colonoscopy appointment:

- ◯ 7:30AM - 9:00AM
- ◯ 9:30AM - 12:00PM
- ◯ 12:30PM - 2:00PM
- ◯ 2:30PM - 5:00PM

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Please indicate which doctor you had for your colonoscopy procedure (The doctor's name will be on the colonoscopy report that you recieved):

☐ Adams, F.	☐ Cleary, C.	☐ Hilsden, R.	☐ Ma, M.
☐ Andrews, C.	☐ Cole, M.	☐ Iacucci, M	☐ Maclean, A.
☐ Aspinall, A.	☐ Curley, M	☐ Jenkin, D.	☐ Misra, T.
☐ Bass, S.	☐ Datta, I	☐ Johnson, D	☐ Mohamed, R
☐ Bailey, J.	☐ Devlin, S.	☐ Jayakumar, S	☐ Novak, K
☐ Belletrutti, P.	☐ Ferraz, J.	☐ Kareemi, M.	☐ Rioux, K.
☐ Buie, D.	☐ Gupta, M	☐ Kumar, P	☐ Rosen, W.
☐ Buresi, M	☐ Haussmann, J.	☐ Nash, C	☐ Shaffer, E.
☐ Chalmers-Nixon, T.	☐ Heine, J	☐ Leung, Y	☐ VanRosendal, G.
☐ Cheng, E	☐ Heitman, S.	☐ Love, J.	☐ Sherman, T
☐ Williams, J	☐ Don't Remember	☐ Other (please specify):_____	

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Please feel free to add any comments on how we could improve our service. All responses will be gratefully received. Please do not ask us to response about specific issues with your colonoscopy. If you have specific questions or concerns, please contact the CCSC at 403-944-3800. We are unable to respond to questions written here.

Thank you for taking the time to complete this questionnaire. Please return the questionnaire in the attached stamped, self-addressed envelope.

						CCSC ID#