CHOOSING WISELY
IMPLEMENTATION GUIDE

A Beyond the Mask Project

Ontario's Anesthesiologists

A SECTION OF THE ONTARIO MEDICAL ASSOCIATION

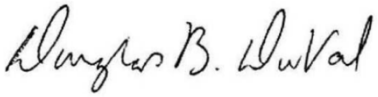
Endorsements

On behalf of the Canadian Anesthesiologists' Society (CAS), I am pleased to endorse this Ontario's Anesthesiologists Guide to implementation of the CAS Choosing Wisely Canada (CWC) recommendations.

The CAS, as the national specialty society for anesthesiology, joined Choosing Wisely® Canada in 2015 and established the CAS CWC committee. Each participating society had been asked to develop an initial list of "Five Things Clinicians and Patients Should Question", identifying commonly utilized investigations and treatments unsupported by evidence of benefit, and possibly causing unintended harm. This initiative was initially spearheaded on behalf of CAS by Drs. Patricia Houston, Susan O'Leary, Gregory Bryson and Duminda Wijeysundera. In 2016, the Chair of the CAS CWC committee was passed on to Dr. Kyle Kirkham.

The CAS and also Ontario's Anesthesiologists have recognized that it is a logical next step to provide anesthesiologists with educational materials and a "compass", to assist them as they plan and orchestrate essential changes in culture and processes within their own institutions, in order to operationalize the CAS CWC recommendations. Dr. Kirkham has worked closely with Ontario's Anesthesiologists in the development of this implementation guide. This material, including the described experience of several Ontario institutions will be valuable across the country. Congratulations to Dr. Kirkham and to Ontario's Anesthesiologists on this joint effort, which will be made available to all members of the Canadian Anesthesiologists' Society.

Douglas DuVal,

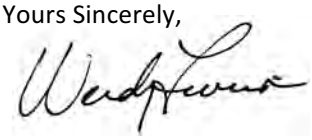


President, Canadian Anesthesiologists' Society

As Chair of Choosing Wisely Canada I would like to applaud the anesthesiology community for showing such great leadership on the issue of unnecessary testing. In 2015, Choosing Wisely Canada had the pleasure of working with the Canadian Anesthesiologists Society to publish its list of "Five Things Physicians and Patients Should Question". This catalyzed a series of positive spinoff initiatives, including peer-reviewed publications, authored by Ontario's anesthesiologists, showing that more than a third of patients undergoing low-risk surgeries in Ontario had pre-operative testing. Ontario's anesthesiologists have also shown leadership in taking action on unnecessary testing through innovative quality improvement projects with great success, some of which are included as case studies in this document.

This Implementation Guide and Ontario's Anesthesiologists' Beyond the Mask initiative further exemplify the leadership of your specialty in combating low-value care. I encourage all anesthesiologists to find at least one thing – an idea, a tool, a process - in this impressive document to include in their daily work. If each person could do that, think about the difference it will create.

Yours Sincerely,



Wendy Levinson, MD, OC
Chair, Choosing Wisely Canada

Ontario's Anesthesiologists
A SECTION OF THE ONTARIO MEDICAL ASSOCIATION

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Choosing Wisely Implementation Guide

EXECUTIVE SUMMARY

Across Canada, some 30% of the tests, treatments and procedures associated with eight selected Choosing Wisely Canada recommendations are potentially unnecessary: unnecessary tests and treatments waste health system resources, increase wait times for patients in need and can lead to patient harm[1]. Further, the substantial variation that exists among regions and facilities in terms of the number of unnecessary tests and procedures performed points to an opportunity for improvement. In Ontario, the Institute for Clinical and Evaluative Sciences (ICES) found a 30-fold difference in rates of preoperative tests among institutions[1]. From the standpoint of anesthesiologists, 30% of Ontarians receive potentially unnecessary cardiac tests and blood work before low-risk, non-cardiac surgery[2,3].

Choosing Wisely Canada (CWC) was formed in 2012 to help clinicians and patients engage in conversations about unnecessary tests, treatments and procedures. Recognizing the importance of this initiative, the Canadian Anesthesiologists' Society (CAS) published five recommendations (the CAS CWC Recommendations) in 2015 related to reducing the number of unnecessary pre-operative tests conducted on asymptomatic patients facing low-risk non-cardiac surgery. A number of hospitals have adopted these and are sharing their success with respect to reducing the number of unnecessary tests while not experiencing any increase in the number of surgeries postponed or poor patient outcomes following surgery. However, many hospitals have yet to embrace or to achieve these patient-centred efficiencies.

This *Implementation Guide*, a product of Ontario's Anesthesiologists' (OA) Beyond the Mask (BTM) strategic initiative, has been created to enable anesthesiology departments across Ontario and Canada to implement the CAS CWC Recommendations efficiently by being informed and supported by the lessons of, and tools developed by, others. CWC has made a number of tools available on its website already, most notably the *Drop the Pre-Op* toolkit which includes templates and action steps based on the experience of the North York General Hospital (NYGH). The NYGH initiative started prior to the introduction of the CAS CWC Recommendations and focused predominantly on streamlining pre-op processes. This *Implementation Guide* builds from that important work to include a range of initiatives presented in the form of case studies in order to reflect both the diversity of the Ontario hospital landscape and the diversity of approaches that can be used successfully.

The *Implementation Guide* also references the bi-annual Hospital Performance Series Report developed by Health Quality Ontario (HQO) that measures each hospital's individual performance as well as its comparative performance against other Ontario hospitals in the use of pre-operative electrocardiography and chest radiography for low-risk non-cardiac

surgery groups. The value of this report is highlighted, together with ways to utilize it as part of a measurement and evaluation strategy.

Success in achieving the goals of the CAS CWC Recommendations requires one specialty to have control of ordering pre-op tests to ensure clear accountability. Logically, the specialty making decisions based on the results of the activity (in this situation, ordering pre-op tests) should be accountable for selecting which tests are needed, and this is anesthesiology in most hospitals. The case studies indicate that moving forward with this premise and simply introducing the related changes and tools is not typically successful in achieving sustained change. Rather, a more inclusive approach is needed that starts with finding champions and includes building awareness and educating key stakeholders. In many situations, the case studies identify the requirement to, and the importance of, streamlining the pre-op processes prior to implementing the CAS CWC Recommendations.

Given the above, it is safe to assume that there is no one implementation design and approach that will work in all circumstances. However, there are some steps that appear to be universal, for example, forming a multi-functional design and implementation team and educating and engaging senior management and other stakeholders. Other steps such as the requirement for streamlining the related pre-op test ordering processes prior to introducing the CAS CWC Recommendations may not be - or may not appear initially to be - a requirement. A logic model (see pg. 11) has been constructed that provides a high-level overview of the inputs, steps or activities required, as well as the outputs and outcomes – and can be customized to fit the needs of the specific intervention. To provide a starting point, to the right of this page is a simple 8-step generic approach with cross-references to the location of relevant information in the *Implementation Guide*.

In addition to the references cited in the 8-Step Guide, there is other valuable content within the *Implementation Guide*, including:

8-STEP GUIDE

1. **IDENTIFY THE OPPORTUNITY**

   Section 2.a Getting Started

2. **BUILD INITIAL SUPPORT AND IDENTIFY A CHAMPION**

   Section 2.a Getting Started

3. **FORM A CROSS-FUNCTIONAL TEAM**

   Section 2.b Gathering the Team

4. **PERFORM A CURRENT SITUATION ASSESSMENT**

   Section 2.c Understanding Your Starting Point

5. **COMMUNICATE AND CONTINUE TO BUILD SUPPORT**

   Section 2.d Gaining Support

6. **DETERMINE APPROACH**

   a) Implement CAS CWC Recommendations immediately
   b) Introduce process change and then the CAS CWC Recommendations

   Section 2.e Determining Approach and Timing

7. **DESIGN, PILOT, ASSESS, IMPROVE, ROLL OUT**

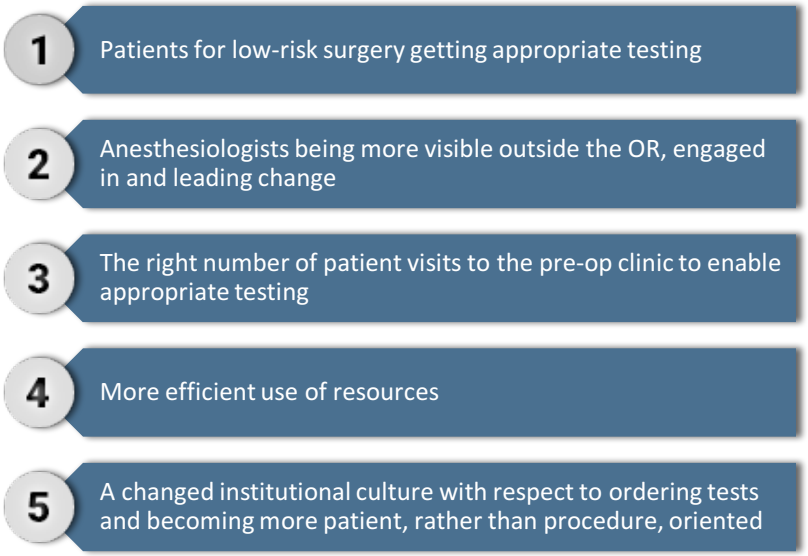
   Section 2.e Determining Approach and Timing

8. **MONITOR, MEASURE AND SUSTAIN THE GAINS**

   Section 2.f Ongoing Measurement, Section 2.g Sustaining the Gains

- ✓ Background on the context: ***Section 1: The Opportunity***
- ✓ Insights into common issues and questions: ***Section 3: Frequently Asked Questions***
- ✓ Implementation examples: ***Section 4: Case Studies***
- ✓ What is needed to be successful: ***Section 5: Lessons Learned & Experiences Shared***
- ✓ Important logistical information including where you can provide feedback or request information, abbreviations, references and a list of the individuals responsible for developing the Implementation Guide: ***Sections 6-9***
- ✓ Sample tools, templates and medical directives: ***Appendix A***

In conclusion, a reminder that the *Implementation Guide* is not a recipe book; it does not prescribe a paint-by-numbers approach. Each implementation must be tailored to site-specific characteristics. The *OA Implementation Guide* shares in-depth, practical implementation details and a number of proven resources to enable your success in achieving **five valuable outcomes**:



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The Opportunity

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1.b Choosing Wisely Canada

1.c Development of Choosing Wisely Canada Recommendations for Pre-operative Testing

1.d Development of Ontario's Anesthesiologists Implementation Guide

The Opportunity

In 2015, Ontario's Anesthesiologists (OA), a Section of the Ontario Medical Association (OMA), launched the Beyond the Mask initiative (BTM)[4], a project committed to demonstrating the contribution of Ontario's anesthesiologists to improving access, being fiscally responsible and enhancing patient outcomes. Its purpose is to position anesthesiologists as: innovators with respect to models of care and the practice of anesthesiology; leaders of peri-operative care; and systems managers, championing quality, access and sustainability.

1.a The Case for Change

Across Canada, provincial health expenditures are under pressure. Experts suggest that as much as 30% of testing may be unnecessary[1]. Physicians and other health care professionals are revisiting their practice and using evidence to determine where fiscal savings may be achieved without adversely effecting patient health outcomes. One means to achieve this is through examination of the need for specific tests - an approach called Choosing Wisely, that was launched in 2012 by the ABIM Foundation (US)[5] and led to the founding of Choosing Wisely Canada[6] in April, 2012.

1.b Choosing Wisely Canada

The Choosing Wisely Canada[6] (CWC) initiative, a campaign to help physicians and patients engage in conversations about unnecessary tests, treatments and procedures, has led to the development of 38 sets of recommendations (as of April 4, 2017). The campaign aims to encourage and empower physicians to evaluate and implement the evidence on current best practice and supports physician efforts to help patients make smart and effective choices to improve the quality of their care. Unnecessary tests and treatments do not add value to patient care; rather they may increase patient stress and detract from patient care through potential exposure of patients to the harm of investigating false positive results. Unnecessary tests and treatments also put a strain on the limited resources of the health care system.

1.c Development of Choosing Wisely Canada Recommendations for Pre-operative Testing

The Choosing Wisely Canada recommendations for pre-operative testing were created in partnership with the Canadian Anesthesiologists' Society (CAS)[7].

Significant evidence guided the development of these recommendations, including that routine pre-op testing in patients undergoing low-risk surgery does not improve outcomes or change management and may lead to further unnecessary testing and cancellation of surgery. An overview of this evidence is included in Appendix F.

The CAS CWC Recommendations for pre-operative care are[7]:

1. Don't order baseline laboratory studies (complete blood count, coagulation testing, or serum biochemistry) for asymptomatic patients undergoing low-risk non-cardiac surgery.

2. Don't order a baseline electrocardiogram for asymptomatic patients undergoing low-risk non-cardiac surgery.

3. Don't order a baseline chest X-ray in asymptomatic patients, except as part of surgical or oncological evaluation.

4. Don't perform resting echocardiography as part of pre-operative assessment for asymptomatic patients undergoing low to intermediate-risk non-cardiac surgery.

5. Don't perform cardiac stress testing for asymptomatic patients undergoing low to intermediate risk non-cardiac surgery.

To date, there has been mixed adoption of the CAS CWC Recommendations. In Ontario, Health Quality Ontario (HQO) has begun providing report cards to hospitals, outlining the performance of the individual hospital and comparing it to other Ontario hospitals via an anonymized format. The report cards provide hospitals with data on their own performance compared to other Ontario hospitals in the use of pre-op electrocardiography and chest radiography for low-risk non-cardiac surgery groups. Hospitals can compare their numbers with those of their peers and set targets for improvement.

In 2016, a CWC toolkit called *Drop the Pre-Op*[14] was developed by the North York General Hospital to share the process and tools developed in introducing pre-op changes aligned with the CAS CWC Recommendations, as well as three other recommendations developed by the Canadian Society for Transfusion Medicine, the Canadian Cardiovascular Society, and the Canadian Association of General Surgeons.

Conversations among anesthesiologists surfaced the need for additional guidance given that many of the hospitals across Ontario are different in focus, size and configuration. Meeting this need gave rise to this *Implementation Guide* that includes the experience of a number of

different types of hospitals from across Ontario and, in addition, provides information about the change management, stakeholder engagement and communication components associated with introducing a change of this kind.

1.d Development of Ontario's Anesthesiologists Implementation Guide

The OA *Implementation Guide* was developed to support the successful implementation of CAS CWC Recommendations and to complement the CWC *Drop the Pre-Op Toolkit* [14]. While the CAS CWC Recommendations are straightforward, implementing these recommendations can be a complex undertaking depending on the extent of the change needed. Some hospitals have simply asked physicians to stop ordering some of the identified tests for low-risk patients undergoing non-cardiac surgery. Without changing any processes or tools, this approach has generally not achieved sustained success. The default option is to prepare for the adoption of the CAS CWC Recommendations by first streamlining and, for multiple site hospitals, standardizing processes for ordering tests. This is a more complex process requiring significantly more effort to achieve alignment of all stakeholders – but has been shown to sustain results over time. Through the provision of practical advice, anecdotes, example forms, case studies, and lessons learned, the *Implementation Guide* provides practical information not otherwise readily accessible to date.

- A range of hospital sites is presented to showcase different implementations based on a variety of site characteristics and feasibility.
- Information is layered throughout the case studies in terms of implementation, measurement and team composition approaches.
- In addition to the case studies, general information is collated by topic to highlight specific aspects of the implementation.

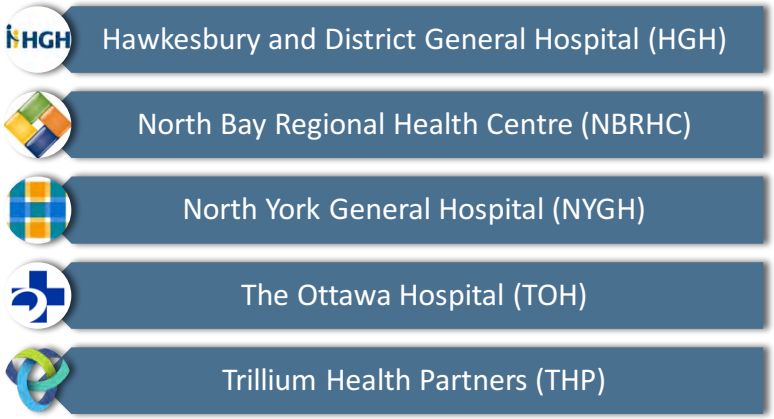
This *Implementation Guide* is not a step-by-step how-to manual, rather it:

- Includes an overview of the likely steps needing to be undertaken, together with tools and advice every step of the way. Each implementation of the CAS CWC Recommendations will be different based on the site, team, resources, and feasibility, to name a few of the factors
- Enables you to help plan appropriately for an implementation at your site by providing an inclusive logic model as well as useful tips, insights, and resources shared by other sites for you to utilize or adapt for your own use.

Section 2 Implementing the CAS CWC Recommendations

Implementing the CAS CWC Recommendations

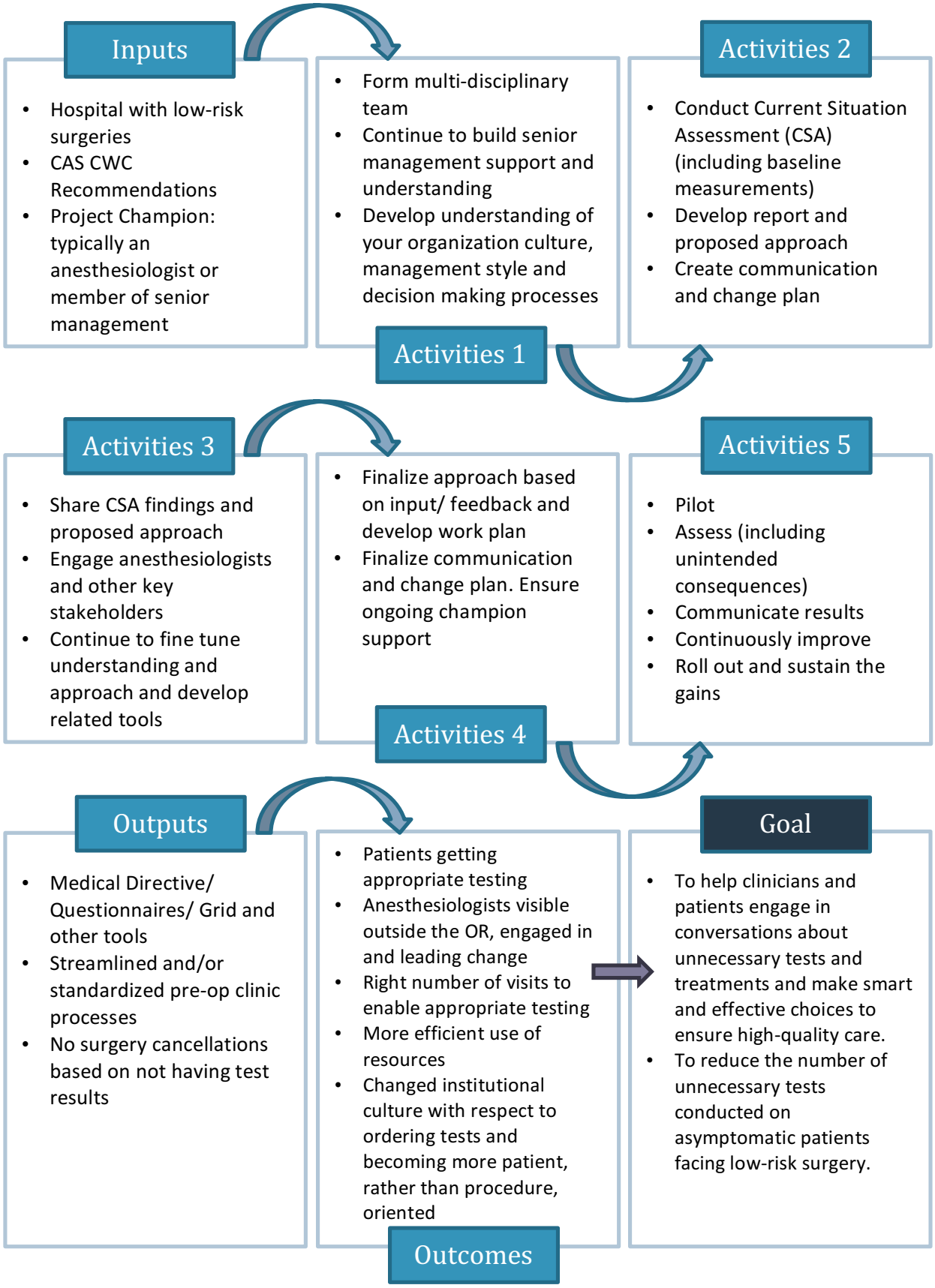
The implementation approach taken by each site will vary based on the nature of the hospital, the goal(s) of the implementation as well as the capability and capacity of the site. Hence, a range of sites was consulted for the preparation of this *Implementation Guide*, including:



While the overall goal of the CAS CWC Recommendations (i.e. decreasing unnecessary pre-op tests) may seem simple, the individuals interviewed for this *Implementation Guide* stressed the complexity of their implementation efforts. The individual, detailed case studies (included in Section 4b) provide specific site narratives of their unique approach to, and execution of, the implementation process. In contrast, **the information provided in this section is a synthesis of key topics drawn from the sites' experience as well as input from other CAS and CWC leaders.** A number of pre-op process changes are detailed in addition to describing the implementation of the CAS CWC Recommendations. A distinction must be made in that the *CAS CWC Recommendations are specific to decreasing unnecessary pre-op tests and do not include changes to the pre-op process. In practice, the two are closely related and to best represent how the CAS CWC Recommendations have been implemented at some of the case study sites, it is necessary to describe changes to the pre-op procedures.*

Changes in process and testing are likely to lead to changes that affect many stakeholders. Change management and communication thus become an important component of successful implementation.

A generic logic model has been developed, an extrapolation of the 8 process steps outlined in the Executive Summary, to demonstrate the fit of the various pieces, while recognizing that not every site will go through the same steps or even all the steps in the same order.



2.a Getting Started

Most implementations begin with the recognition by an anesthesiologist or member of senior management that there is room for improvement in pre-op testing for asymptomatic patients undergoing low-risk surgery. That awareness might be stimulated by the current coverage in healthcare literature of the CW campaign or by attendance at a webinar on the topic. The distribution of Health Quality Ontario's biannual Hospital Performance Series report has also helped to showcase these types of changes among senior management.

Sites that started implementing pre-op process changes some years ago describe the recognition, particularly for multi-site hospitals, of the importance of standardizing pre-op processes to gain process efficiencies and enable more efficiency and effectiveness between sites. In this regard, it can be helpful in building a case for support to understand how your hospital funds testing (per unit vs. budget envelope for the lab).

Deciding to make these types of changes may be attributed to the arrival of a new anesthesiology or senior management team member bringing a fresh perspective and different expertise to the opportunity. Regardless of the source of the interest, a champion emerges with the energy and authority to move things forward.

2.b Gathering the Team

If the champion does not have senior management support initially, typically that individual pulls together evidence, sometimes with an informal 'team' of supporters, and shares the story until there is formal support given to the initiative by management. Usually that formal support comes in the form of permission to bring together a working team to start investigating the issues. This is a critical step in the journey as putting together the right team is crucial: each team member plays a unique role in the success of the implementation.

In the cases presented, anesthesia played a key leadership role in the interdisciplinary teams that executed the various implementation approaches.

The case studies demonstrate that teams have a unique composition and that their formation was distinctive. Leadership in terms of forming the team often reflects the origins of the champion, e.g. the team is formed by the Chief of Anesthesia; or by the Director of Professional Practice who reported to the member of senior management interested in moving the initiative forward.

There were often a number of other key team members, typically reflecting the stakeholders involved in the change, with titles such as:

- Manager or clinical director of peri-operative services
- Charge nurse, pre-operative center
- Project leader or clinical manager of pre-admission unit
- Surgical program director
- Nurse educator

2.c Understanding Your Starting Point

Before you get started, it is important to understand the work flow associated with ordering pre-op tests as well as who exactly is ordering tests. Additionally, you need to understand when the ordering of tests occurs in the process, and the range of forms being used. Be sure to consider whether patients are assessed by primary care physicians and/or internists, and if these health care providers order tests. Determine those who appear to be ordering unnecessary tests. This list may include:

- Anesthesiologists;
- Surgeons;
- Surgeon administrative assistants;
- Pre-admission clinic nurses;
- Pre-op holding nurses;
- Consult internists, etc.

You may wish to check if they are using old documents/directives or if the surgeons have forms that tell the pre-op clinic what they want, etc., to determine why these individuals are ordering unnecessary tests. Findings here will help inform your implementation approach.

One of the key ways to demonstrate success of the implementation effort is through provision of concrete data as evidence of change. This is also important in developing a continuous quality improvement plan (refer to Health Quality Ontario's Quality Improvement Guide[15]). To enable robust measurement at your site, it is important to establish an appropriate baseline.

Insights and advice on measurement may be provided by:

- Members of the medical informatics team
- Members of the IT team
- Members of the quality improvement team
- Your Chiefs

It is advised that you work with others at your site to create a measurement plan. This will include developing an understanding of the type of measures that are available and practical, and how to establish the best approach.

Some implementation team members indicated not fully understanding how their medical informatics department could help them until they hosted a discussion about potential measurement needs.

Consider using external resources that provide ideas for measurement and potential external benchmarks, and for pre-implementation baseline data. These may be available through your hospital, such as the Health Quality Ontario data reports (e.g. your site's Health Quality Ontario's biannual Hospital Performance Series report), and resources available through the Canadian Institute for Health Information (CIHI). You may consider developing a formal tracking process locally to compare annually against the HQO report outcomes.

Many individuals interviewed indicated that within approximately three months of implementation, the overall numbers of tests were observed to decrease sharply and level off at that point. Effectively, if the baseline measurements at your site are not identified pre-implementation, there will not likely be a method to determine them after the fact.

2.d Gaining Support

It is important to ensure that all stakeholders affected by the change understand the motivation for implementation and their role in the overall process even if they are not members of the implementation team. Part of the role of team members is to build support among leadership (Chiefs of Anesthesiology and Surgery, Administration) and to communicate with Departments (Anesthesia, Surgery, Pre-admission Unit) and Committees (Peri-Operative, Surgical Quality Program, Medical Advisory), as appropriate.

The approach taken to some key stakeholder groups is described below.

2.d.i Leadership

Support from leadership is key for the initiative to be successful. This will be described more in *Section 5 Lessons Learned & Experiences Shared*. While it is important for the initiative to be owned and executed by staff in the peri-operative process, unless leadership demonstrates support for change, staff will often not be convinced that change is required or potentially motivated sufficiently to make the changes. Given that the multiple departments/functions involved in the pre-op clinic report to more than one member of the Senior Leadership Team, the process of change does require support from the entire Senior Leadership Team.

Leadership may include the following types of groups:

- Senior Leadership Team
- Medical Advisory Committee
- Nursing Leadership
- The Chiefs of Departments

2.d.ii Surgeons and their Staff

In general, the anesthesia lead liaises with surgical and anesthesia colleagues, helping them understand the rationale for change and how it may impact them. Many anesthesia leads indicated that providing their colleagues with evidence for the proposed changes was important, meeting their need to see proof that change would be beneficial.

Numerous meetings with surgeons (as a group or individually) have been required typically to ensure they are comfortable with the changes and on board with the reasoning. Not a lot of difficulty was reported in instances where pre-op testing was removed from the surgeons' responsibility. However, given that a current procedure/system is often ingrained, tension has been experienced with respect to the potential removal of authority to order tests. In these cases, demonstration to the department of surgery that the entire anesthesia department is committed provides reassurance that:

- OR cases will not be set aside at the last moment by an anesthesiologist not having pre-op test results;
- Anesthesiologists will follow up on abnormal tests; and,
- Surgeons may continue to order tests related directly to surgical care.

However, care must be exercised to ensure that there is not duplicate ordering of tests in different stakeholder "silos."

Regular audits may be helpful to identify which surgeons (or surgeon admin assistants) are having difficulty changing their practices. Pinpointing this issue is important for an appropriate conversation or approach to resolve the matter. Surgeons' administrative assistants are key to any change that is introduced, and effective approaches with them include inviting them for lunch, and/or personally visiting them to build relationships.

2.d.iii Pre-operative Clinic

In the pre-op clinics[1], in general, it is nurses and anesthesiologists who are affected by change. The suggestions provided below are to help adoption of the changes by both groups.

[1] Pre-op clinics have a multitude of names. A generic 'Pre-Operative Clinic' title has been selected to encompass these names that may include Pre-Admission Clinic, Pre-Admit Clinic, Pre-Operative Admit Clinic, etc.

In cases where nurses have taken on ordering of pre-op tests via medical directive, there are anecdotes of needing to help nurses understand that this is **not** out of the scope of their practice and that these tests are ordered under the direction of anesthesia. Furthermore, nurses are not simply doing what the surgeons 'should be doing'. Rather, the medical directive allows them to provide better patient care, again, under the direction of anesthesiology. Nurse educators can be most helpful in clarifying these aspects and other potential misconceptions about changes.

You may wish to develop a process whereby more difficult pre-op cases are provided to one of the designated nurses for daily review with the on-call anesthesiologist. Site nurses indicate that having such a process in place helps put them at ease with the overall change. You may wish to ensure there are efforts to continue learning from cases with respect to how the medical directive is applied in the pre-op clinic. Daily meetings with the pre-op clinic staff (including the nurse and anesthesia leads) to address questions, especially at the start of the implementation process, helps all team members to become increasingly comfortable with changes.

Anesthesiologists will likely require introduction to the CAS CWC Recommendations. This may be achieved by the anesthesia lead spending time at department meetings, rounds, etc., reviewing the key principles behind the CAS CWC Recommendations with other anesthesiologists and providing them with the opportunity to ask questions about the Recommendations as well as the implementation approach. By and large, anesthesiologists do not appear to require much convincing that they are in the best position to order pre-op tests for patients and that it is in the patient's best interest for the anesthesiologist to be following up on any blood work or tests pre-op, rather than the surgeon.

2.d.iv Recovery

Health care professionals on the recovery end of surgery are also affected by the implementation of the CAS CWC Recommendations. For example, they may be concerned about negative patient outcomes and then attribute such outcomes to a lack of pre-op tests. Consider including this group in implementation planning and discussions so as to avoid the concern upfront. Gaining their confidence may require undertaking a chart audit to demonstrate that specific patients' poor outcomes are not the result of a lack of pre-op testing, but rather can be attributed to other factors.

2.e Determining Approach and Timing

The team will be faced with the decision of whether or not standardizing/streamlining pre-op clinic processes is necessary to enable the successful introduction of the CAS CWC Recommendations. In the case studies, process changes are undertaken to streamline and standardize the process from consult to surgery, including determining which patients need a pre-op clinic visit, who those patients should see at the pre-op clinic visit, and which investigations must be ordered in advance of surgery. In one instance, standardization of approaches between sites was important because they share surgical staff (TOH and HGH). Not only does standardization ensure the same information is collected on each patient, it also helps base patient care on information collected as opposed to the type of procedure the patient will undergo.

This section firstly outlines what may be required from a process change standpoint; then describes the actual steps associated with implementing the CAS CWC Recommendations prior to outlining choices with respect to phasing and staging the implementation; and, finishes by delineating the commitment associated with informing and educating stakeholders.

Again, it is important to emphasize that implementation of CAS CWC Recommendations **must** be tailored to the site's goals and capabilities to accommodate change. By sharing different options within each of these sections, the hope is to help you envision how these options, or versions thereof, may be adopted or adapted as part of your own implementation efforts.

2.e.i Identifying Patients Needing a Pre-operative Clinic Visit

Various tools are used by different sites to help identify patients who need a pre-op clinic visit (see Appendix A for examples). You may wish to implement a patient health history questionnaire to stratify patients based on surgical risk and comorbidities. When using surgical risk as a factor, consider aligning the language of the medical directive to order pre-op tests to the vocabulary of the CAS CWC Recommendations. This will make the process more streamlined and the associated changes easier to introduce.

2.e.ii Identifying Who Patients Should See for a Pre-operative Clinic Visit

A patient health history questionnaire that is either completed at the time of visiting the surgeon or in the pre-op clinic helps determine the healthcare provider(s) patients need to see as part of their pre-op consultation (see Appendix A for examples of these tools). The case studies detail numerous approaches that have been adopted. In most cases, patients continue to see or have a pre-op telephone call with a nurse.

2.e.iii Identifying Investigations for Pre-operative Testing

Appendix A has forms that are used to streamline identification of required investigations for pre-op testing. These forms are completed by the patient or surgeon to help identify the tests needing to be ordered. In many cases, implementation of the CAS CWC Recommendations results in the pre-op test ordering responsibility resting exclusively with the anesthesiologist, the individual who will make decisions based on test results. In practice, the tests are ordered primarily by nurses in the pre-op clinic following the medical directive put in place by anesthesia. Surgeons may still choose to order tests specifically for surgical management. They then follow up on these specific tests, whereas anesthesiology follows up on all other tests. Order sets also make it easier for standardization of testing requirements.

2.e.iv Phased or One Step

The implementation itself may be rolled out over a series of phases or in one step. This decision usually depends on the site (for example, what is feasible) and leadership's comfort with the nature and extent of the proposed change(s). After a pilot period, you may wish to review the planned implementation timing and either continue to move forward with the changes as planned, or make modifications to current processes before phasing in other changes.

Timing is an important consideration for implementation, and often relies on having the resources to execute as well as support from hospital leadership and other stakeholders for the change. Information about bringing the implementation team together and the stakeholders to be influenced is found in Section 2.b Gathering the Team and Section 2.d Gaining Support. In practice, gaining stakeholder support takes time. Implementation teams

describe undertaking meetings, planning, extensive consultations and education sessions with all affected groups, usually over a minimum of six to twelve months before implementation is rolled out.

2.f Ongoing Measurement

As with other areas of this *Implementation Guide*, this section is by no means a prescriptive answer to your site's potential measurement needs. Some sites that have implemented CAS CWC Recommendations have not formally developed metrics for their outcomes. As detailed in Section 2.c Understanding Your Starting Point, measurement at your site will be influenced by what data are available and feasible to collect. The case studies use different approaches to measurement, clearly laid out in tabular format at the beginning of Section 4 Case Studies. The case study of NYGH and its associated resources are provided to help you with measurement considerations.

Types of measures to consider implementing at your site are shared below, noting that the related definitions have been taken from the *Drop the Pre-Op Toolkit[14]* for ease in cross-referencing. Specific examples are provided in the case studies to provide you with ideas of what may be feasible measures at your site.

It is worth noting that not all measures will decrease post-implementation. For example, increased numbers of patients with pre-op visits may occur post-implementation due to increased efficiency of the clinic.

- You should determine who will be responsible for reviewing the measurements at your site and how often.
- Implementation teams should meet regularly to review their measurements.
- You may wish to use chart audits or quality improvement tools and processes to help your measurement efforts.
- Upon implementation, there will likely be decreases in test numbers almost immediately, which level off rapidly and then remain fairly consistent.

2.f.i Primary Measures

The *Drop the Pre-Op Toolkit*[14] defines primary measures as "…the main improvements you are trying to achieve." Examples of primary measures include:

- Number of pre-op tests, which may include tests such as blood work, ECGs, and chest X-rays.
- Number of pre-op visits including how many patients see which healthcare providers (e.g. anesthesiologist, nurse and/or internist, etc.). This number may not decrease if efficiency of the clinic increases. However, there should be a decrease in the number of lower-risk patients seen in the clinic.

The ideal primary measure is the decrease in number of low-risk patients who are undergoing pre-op visits and pre-op tests. In practice, data collection abilities at sites may impact the feasibility of collecting these specific measures.

2.f.ii Process Measures

The *Drop the Pre-Op Toolkit*[14] defines process measures as being those that "…ensure that each aspect of the intervention is being carried out as delivered as intended." These

measurements essentially measure the number of staff using the tools you have developed, which will be dependent on the type of tools you have created. Some examples include:

- Number of staff using health history questionnaires.
- Number of staff using surgical checklists.
- Number of staff using pre-op order sets.
- Number of staff using medical directives, etc.

2.f.iii Balancing Measures

The *Drop the Pre-Op Toolkit*[14] defines balancing measures as "…new unintended consequences that need to be measured." Some balancing measures include:

- Number of surgery cancellations due to lack of pre-op tests.
- Number of pre-op add-on requests due to increased pre-op clinic efficiency.
- Affects on staff. For example, additional clinic days or decrease in staff needed in the clinic.
- Pre-op clinic visit time. In the cases of relatively healthy patients, pre-op clinic time may decrease, while for other patients, pre-op clinic visit time may increase as they are now being seen by the appropriate health care professionals.
- Surgeon visit time. In some cases, the introduction of tools to standardize processes that are used during the surgeon visit may increase visit time (certainly initially).
- Patient satisfaction with the pre-op experience.

2.g Sustaining the Gains

It is important for the implementation team to continue to meet after implementation has been completed, recognizing that even though changes have been rolled out, there is a need to continue to monitor these and gather feedback.

- Early in the implementation, the team may wish to meet daily, even if briefly, to ensure that the processes are moving well, and if not, to identify issues and target them immediately.
- At minimum, consider meeting once a week in the initial stages of implementation and expect this frequency to taper as staff becomes more comfortable with changes.
- Recognize staff affected by the changes appreciate timely (for example, same-day) responses to any issues they have or concerns they express.
- Consider setting a time to meet formally as part of a specified post-implementation period to evaluate early results, for example, at three months. Three months post-implementation start is an appropriate time for initial issues to be ironed out, and for additional changes to be considered based on feedback received up to that time.

Section 3
Frequently Asked Questions

3.a Should a Choosing Wisely Committee be established at our hospital for the implementation of CAS CWC Recommendations? If so, who should be on this Committee?

3.b How might support/buy-in from the surgeons be gained?

3.c Should patients (including family members and caregivers) be engaged in this campaign? If so, how?

3.d What is the optimal step-by-step process for ordering, obtaining and reviewing pre-operative tests? Who orders the tests? Who reviews the results? What is the timeline?

3.e How do you ensure that the pre-operative test results are available at the time the patients are seen in the pre-operative clinic by the anesthesiologists?

3.f How can surgeons' concerns be approached about cases being cancelled if pre-operative tests are not ordered?

3.g How can the concerns be addressed of anesthesiologists who prefer to have "standard" pre-operative tests ordered for every case?

3.h What are the medico-legal implications of having someone else order/review blood work and investigations?

3.i How can appropriate investigations be arranged for patients not assessed by an anesthesiologist?

3.j How can this process work in a clinic where patients are seen by anesthesiologists and/or family physicians and/or internists?

3.k How does this process work if the investigations are ordered after the assessment?

3.l Can this process work if I use telemedicine?

3.m How could project progress be tracked (with minimal resources), with respect to:

- 3.m.i Introducing changes?
- 3.m.ii Tracking results once changes have been implemented?

3.n How can the Health Quality Ontario data be accessed?

Frequently Asked Questions

These FAQs have been developed as an easy reference when implementing the CAS CWC Recommendations. While a number of these questions are answered throughout the document, this section is provided as one place where they are easy to locate. The FAQs and responses provided have been created with input from the OA Choosing Wisely Hub members.

3.a Should a Choosing Wisely Committee be established at our hospital for the implementation of CAS CWC Recommendations? If so, who should be on this Committee?

Yes. A Choosing Wisely committee will ensure there is a group of champions prepared to initiate change. The committee should consist of all relevant physician and non-physician stakeholders and should be led by an anesthesiologist or member of senior management. Other members may include, but are not limited to: surgeons, internists, peri-operative nurses and administrators. While a Choosing Wisely committee could be focused on the pre-op testing recommendations, your hospital may want to consider a broader mandate for such a committee to begin looking at all the various recommendations that could be implemented.

3.b How might support/buy-in from the surgeons be gained?

A number of suggestions from others who have implemented CAS CWC Recommendations include:

- Provide surgeons with evidence from other hospitals that have implemented the CAS CWC Recommendations successfully i.e., less unnecessary testing, and no increase in surgery cancellations due to fewer tests.
- Where possible, remove the surgeons' responsibility for ordering tests (and thus also following up on the results) required by anesthesia.
- Provide evidence of how anesthesiologists ordering tests will result in a lower likelihood of patients' surgery being cancelled on the day of surgery.
- Demonstrate the value to patients of not getting unnecessary blood work or X-rays.
- Permit clinical autonomy by continuing to allow surgeons to order the tests they need for surgical preparation (and monitor this to ensure duplicates of tests are not ordered).

3.c Should patients (including family members and caregivers) be engaged in this campaign? If so, how?

Some hospitals have included patients in their CW implementation campaign. Involving patients in the campaign may lead to unexpected insights on the challenges a hospital may face implementing their plan as well as the development of innovative, different solutions. Methods to include patients in the campaign may include using surveys (for example about patient experiences going from surgeons' office to the operating room), consulting with your hospital's Patient and Family Advisory Councils, or via patient testimonials.

3.d What is the optimal step-by-step process for ordering, obtaining and reviewing pre-operative tests? Who orders the tests? Who reviews the results? What is the timeline?

It is important to recognize that there is no one "right" answer to these questions, and that local practice will significantly impact how each of them is addressed at different hospitals. Some suggestions to consider are provided below drawn from the case studies and the experiences of CW Hub members:

- Whether the surgeon's office or anesthesia clinic orders the tests, there could be an established process, guide or grid based on patient and/or procedure factors.
- If the anesthesia clinic orders the tests, nurses in the clinic could be provided specific medical directives to follow.
- Nurses should see the patients and ensure blood work is taken early in the clinic visit if such directives are in place so that results are available for when the patient is seen by anesthesia.
- Blood work can be reviewed on the clinic visit or afterwards by the anesthesiologist or nurse in the clinic that day. If the nurse is reviewing, abnormal blood work should be flagged and the physician notified. The same procedure should be applied to other tests ordered such as a stress test/ECHO/PFTs etc.
- A designated person in the clinic (nurse or clerk) can obtain any tests or notes needed from outside sources before the pre-op clinic visit to eliminate the need for new tests to be ordered.
- Depending on the site, there may be a preference for the anesthesiologist to review and follow-up on the results as they know the patient best and ultimately will have to take care of dealing with abnormal results; while others may prefer to have the anesthesiologist in the clinic deal with abnormal results to limit patient waits in the hospital.

3.e How do you ensure that the pre-operative test results are available at the time the patients are seen in the pre-operative clinic by the anesthesiologists?

Because each site is different, this will vary. However, it is important that each hospital has a system to ensure that tests are reviewed consistently. Some of the following scenarios may be helpful for your site:

- If tests are done in advance of the appointment then they should be accessible on the computer systems. If blood work is being done on the day of surgery, the nurses should do it early in the patient's visit. If another employee is able to do blood work and ECG, then nurses are relieved of this task and can focus on other assessment work. Other testing will likely need to be followed up (stress/ECHO/other notes) at a later date when they have been completed. Clerks can inform the anesthesiologist when these tests are booked (e.g. via email) so they are followed up on in a timely fashion. In this particular instance, the anesthesiologist who sees the patients in the clinic has ownership of following up on all results to simplify accountability for results.
- Ownership of all results at some sites is taken care of by the anesthesiologist in clinic at the time the test results become available.
- Anesthesia nursing colleagues who are consistently in the clinic may flag any abnormal test results to be reviewed by one of the available anesthesiologists. ECGs are reviewed immediately after they are conducted. Other tests may not be specifically available at the initial testing time because the decision around what tests are needed is not made until the patient is actually seen by anesthesia. The results are reviewed afterwards and can dramatically shorten the visit duration for patients.

3.f How can surgeons' concerns be approached about cases being cancelled if pre-operative tests are not ordered?

Some topics to discuss with the surgeons if they are worried about surgery cancellations due to tests not being ordered:

- That this is less likely because the anesthesiologists know which tests they want and will order accordingly.
- That it is easier to educate anesthesiologists as a group instead of trying to teach surgeons of different specialties what to order for which patient.
- That it is easier to achieve consensus if anesthesiologists decide on testing (see 3g below).
- That surgeons should still have the option to add any special/specific tests that they may want for surgical reasons.

3.g How can the concerns be addressed of anesthesiologists who prefer to have "standard" pre-operative tests ordered for every case?

Ultimately the anesthesia department as a whole will need to agree upon a consistent approach as the first step to implementing these recommendations. A unified voice will give greater strength to the efforts of the department to go Beyond the Mask and implement these evidence-based recommendations.

As part of making a department decision, it will be important to show your colleagues current peri-operative medical literature that supports CW's mandate to limit medically unnecessary investigations. You may also wish to show examples of hospitals that have implemented CAS CWC Recommendations with successful results.

3.h What are the medico-legal implications of having someone else order/review blood work and investigations?

There are a number of considerations with respect to medico-legal implications. Some of these are outlined, but no claim is being made that all possible considerations have been included. ***The response below is simply for information sharing purposes only. It has not been reviewed by legal counsel and is not to be considered as legal advice***.

- Medical directives allow non-physicians to order, review, and interpret tests in a hospital or clinic setting. The primary responsibility and liability for the test lies with the person authorizing the order; usually a physician or group of physicians. An example is the use of pre-printed order sets in an surgeon's office or pre-op clinic. Should staff (e.g. nurses, respiratory therapists) fail to follow a medical directive properly, they would share some liability.
- Standing orders typically exist in hospitals and require approval of all members of the physician group issuing the standing order. An example is the order sets with pre-ticked check boxes for managing post-operative epidural pump infusions. These standing orders allow nurses to manage pumps in several basic ways, sparing calls to physicians and improving the quality and responsiveness of care. The liability for standing order sets rests with the individual physician involved with the patient, for example, the original ordering physician or the acute pain service physician.
- Notification policies and procedures exist that, when not followed, may deflect liability to the hospital or "system".
- From the Canadian Medical Protective Association's (CMPA) perspective, liability typically arises from the ordering of tests that are NOT indicated. If no testing is

indicated, then there is no liability should an event or bad outcome occur, as the physician's "actions" can be medically and legally justified. The CMPA encounters many more issues where unnecessary tests reveal unexpected results that are then not addressed or followed. The CMPA supports CWC as physicians that show reasonable prudence in ordering tests, order fewer tests, and less ordering is associated with less liability. Furthermore, there is improved consistency in process when anesthesiologists create medical directives for testing that is ordered, reviewed, and acted on by anesthesiologists. Having a designated physician (in THP's case study, the anesthesiologist) to respond to abnormal results may improve patient safety and protect the ordering physician. When the physician who orders a test is different from the physician who reviews the result, liability issues are much more complex and patient safety can more readily be compromised.

3.i How can appropriate investigations be arranged for patients not assessed by an anesthesiologist?

The use of medical directives, such as decision matrices or grids, is an effective way to create a protocol with predetermined rules for investigations that are based on the nature of the surgical procedure and on patient factors or comorbidities. Note that patients undergoing low-risk surgery who are healthy enough not to require an anesthesia consultation, are frequently well enough not to require pre-op testing.

3.j How can this process work in a clinic where patients are seen by anesthesiologists and/or family physicians and/or internists?

The medical directive that directs testing should be created jointly with the leads of all services involved. Once the directive is created, it is signed by all members working in the clinic to indicate their approval, and allows for the delegation of those tasks. The medical directive should not be created independently for each service.

3.k How does this process work if the investigations are ordered after the assessment?

Even if a clinic uses a screening tool that lists co-morbidities, other medical issues are often discovered during the assessment. Ordering the investigations after the assessment ensures that all pertinent tests are performed in one sitting without having to repeat a visit by the patient to the laboratory. Although the results of the tests will not be available at the time of the assessment, a policy can be put in place ensuring that the results are reviewed by the physician working in the clinic later that day or on the next business day. Critically abnormal tests can also be forwarded to the on-call anesthesiologist after normal working hours. This provides safe patient care and medico-legal protection. Patients rarely need to be physically present to deal with abnormal test results.

Note that pertinent laboratory results are often already available. These tests may have been done as part of the work-up before the surgery or as part of investigations by a primary care physician or specialist. These can be examined before or during the assessment and may obviate the need for further testing.

3.l Can this process work if I use telemedicine?

Absolutely, this process has been used for many years. Orders for investigations can be sent to the distant site and results sent to the assessing service. Many investigations may already be available and complete and, with patient consent, should be obtained from treating physicians to avoid unnecessary duplication

3.m How could project progress be tracked (with minimal resources), with respect to:

3.m.i Introducing changes?

Once the purpose of the change has been identified, develop a measurement plan that will track the changes over time. Involving allied health leads from nursing and clerical staff will be important to developing any new local processes as well as to identifying resources to track the impact of the changes. For many institutions, successful implementation of the Recommendations will represent resource savings and so senior management may be willing to support these efforts with the minimal resources necessary to perform the quality assurance work to measure the impact of your efforts.

At the "Introducing Changes" phase, even anecdotal tracking of certain steps is acceptable. Examples of important milestones to track include: changes in senior management support for the project; development of a measurement plan, work plan, change plan or communication plan.

3.m.ii Tracking results once changes have been implemented?

The impact of local changes can be tracked in many different ways depending on the administrative structure of your hospital. Most laboratories monitor the cost centre with which tests are associated and can help you follow the overall testing rates before and after you implement changes. These data may not be easily separated by surgical procedure type and new quality assurance processes may be needed to capture the information locally.

Healthy Quality Ontario has identified implementation of the CAS CWC Recommendations as an opportunity to assist institutions with their quality improvement efforts. A provincial report (the Hospital Performance Series) has been developed that presents each hospital with its own local testing rates for pre-operative ECGs and chest X-rays specifically associated with low-risk surgeries. The data are presented over time to help track the impact of local change efforts and the report is freely available. While the report is currently limited to these two tests due to the availability of reliable data, the results represent a useful measure of the impact that new processes will have on overall testing behaviour.

3.n How can the Health Quality Ontario data be accessed?

Health Quality Ontario is currently releasing updates to the Hospital Performance Series on a regular basis. Copies of the first couple of reports were sent directly to the CEO of every institution in Ontario. The next report refresh will be released in late 2017 with subsequent releases every six months. Moving forward, direct distribution is available to all anesthesia department chiefs. It is recommended that the report be shared with the department QI leads. Any anesthesia department looking to implement the CAS CWC Recommendations will find the results informative.

Section 4
Case Studies

Hawkesbury and District General Hospital

North Bay Regional Health Centre

North York General Hospital

The Ottawa Hospital

Trillium Health Partners

Case Studies

This section is divided into two:

4.a Provides an overview of the case studies, describing how they were prepared, the sites featured, information about the different types of implementation, length of time since the implementation, measurement, and critical success factors; and,

4.b Features the five case studies.

4.a Overview

4.a.i How Case Studies were Prepared

Case studies have been developed based on the implementation experiences (or preparation for implementation) of the following Ontario hospitals:

- Hawkesbury and District General Hospital (HGH)
- North Bay Regional Health Centre (NBRHC)
- North York General Hospital (NYGH)
- The Ottawa Hospital (TOH)
- Trillium Health Partners (THP)

Note: HGH is in the process of streamlining processes to enable implementation of the CAS CWC Recommendations.

The case studies are based on interviews with various implementation team members whose names and job titles are provided in Appendix D. Each site has reviewed and signed off on its respective case study with the understanding and expectation that sharing their experiences will help others prepare for, and roll out, their own successful implementations.

The case studies have been prepared in a relatively standardized way so that they can be read and compared to each other. However, given the unique situations at each site, you will note that case studies are not identical to each other. Consistent information provided includes:

- Motivation for change;
- Team members and how they worked together;
- Implementation approach;
- Critical success factors;
- Change management;
- Measurements; and,
- Next steps.

Key points are highlighted. **All sites have provided a mix of sample tools, templates and medical directives (see Appendix A)** together with permission for these to be used, adapted, and/or customized by others. While this section provides basic summary information, the case studies themselves offer rich, detailed information to support your implementation efforts.

4.a.ii Overview of the Sites Featured

A range of different types of sites was selected so as to demonstrate a variety of potential implementation possibilities. For quick reference, information about each site and high level details about its process changes and CWC CAS Recommendation implementation are captured here:

General Information	*Size & Anesthesia Department*	*Tools Implemented*	*Measurement*
Hawkesbury and District General Hospital			
Community hospital on Ontario/Quebec border; some shared services with The Ottawa Hospital	69 beds (will increase to 100 beds ~ 2020); 6 GP anesthetists	Patient health history questionnaire in use; surgeon checklist and surgeon pre-op order sets under development.	Approach under development.
North Bay Regional Health Centre			
Northern, rural community hospital; acute care services	389 beds; 11 anesthesiologists	Patient pre-op questionnaire; pre-op testing ordered by medical directive under direction of Anesthesia.	Baseline established. Measurement via HQO data on ECG & X-rays; tracking of same day surgery cancellations & delays in surgery.
North York General Hospital			
Community teaching hospital; all types of surgery except cardiac and neurosurgery	426 beds; 29 anesthesiologists	Tests & consults grids; pre-op testing ordered by medical directive under direction of Anesthesia.	Baseline established. Measurement via HQO data; and number of pre-op visits; pre-op tests (routine blood work, ECG, chest X-ray); surgery no-shows; pre-op add-on requests.

The Ottawa Hospital			
Urban academic hospital; 3 sites; all surgical types except pediatric & cardiac	1,122 beds; ~90 anesthesiologists	Patient health history questionnaire; surgeon's checklist; pre-order sets for surgeons; pre-op testing ordered by medical directive under direction of Anesthesia.	Baseline not established. Measurement via HQO data on ECG & X-rays.
Trillium Health Partners			
Urban, academic affiliated community hospital; 3 sites; all surgical types	870 beds; ~50 anesthesiologists	Pre-op patient questionnaire; testing grid & pre-op order set for surgeons; pre-op testing ordered by medical directive is under direction of Anesthesia.	Baseline established. Measurement of number of pre-op tests.

4.a.iii Type of Implementation

Each site has implemented or will implement (in the case of HGH) CAS CWC Recommendations in a unique way based on a number of innate site factors. In addition to the size of the hospital, number of anesthesiologists, surgeries, types of surgeries, and numbers of beds, the implementations are categorized in this *Implementation Guide* as 'phased' or 'one step.'

- A **one step approach** (NYGH, TOH) implementation indicates a method that included numerous changes made simultaneously. This may include the introduction of a patient health history questionnaire as well as pre-op tests ordered via medical directive under the direction of anesthesia.
- A **phased approach** (HGH, NBRHC, THP) indicates that initially-planned implementation changes were made, and then after a period of time and/or evaluation of the changes, another change(s) was introduced. This may, for example, include the introduction of a patient health history questionnaire and testing grid in the surgeon's office or in the pre-op clinic, and subsequently, the introduction of pre-op test ordering via medical directive in the anesthesia clinic. Sometimes the phased approach is introduced by default when the initial one step approach does not yield the expected or sustainable results.

Reasons for the different types of implementations are provided in the case studies.

4.a.iv Recency of Implementation

The sites featured in the *Implementation Guide* have a range of experience with their implementation changes, from being in the planning stages (HGH) to within the past two years (NBRHC, NYGH, THP) to very experienced (roll out was over 5 years ago and now in maintenance phase - TOH). This range of experience provides you with different perspectives to consider in determining your own implementation change needs and requirements.

4.a.v Measurement

As per the information provided on measurement (in Sections 2c and 2f), the sites interviewed have stressed that the ability to collect measures will vary. A range of approaches to measurement are highlighted:

- Baseline measurement established and measurement plan defined in advance of implementation, having sought input and advice from medical informatics and/or others (NYGH, NBRHC, THP);
- No formal measurement plan developed (TOH) given that other, more pressing concerns took over that prevented performance measurement. Changes were undertaken to provide best patient care defined as standardization of pre-op processes; hence, success was assumed once these processes had been standardized;
- Measurement approach under development (HGH).

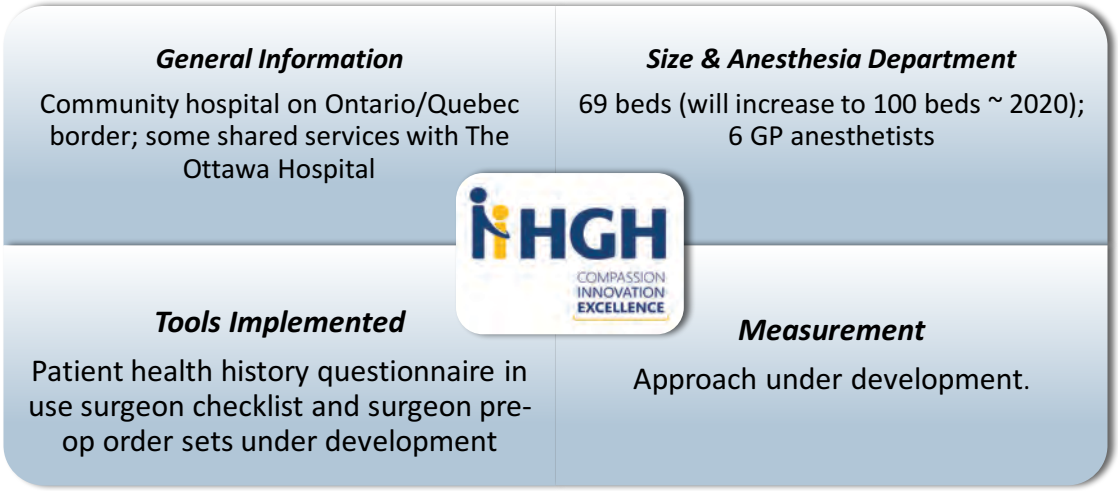
While some sites indicate they do not have formal measurement mechanisms, they are utilizing Health Quality Ontario data on pre-op testing to measure the reduction in ECGs and chest X-rays as a gauge of the success of their implementation.

4.b. Case Studies

Appendices A and D provide listings of sample tools, templates and medical directives available from each site as well as the individuals interviewed. Within each case study, specific vocabulary used (such as pre-op, pre-admission unit, etc.,) has been preserved.

4.b.i Hawkesbury and District General Hospital (HGH)

4.b.i.i Hospital Demographics



4.b.i.ii Overview

The process changes that Hawkesbury and District General Hospital (HGH) is currently undertaking will facilitate the future implementation of the CAS CWC Recommendations and offers a fresh perspective as process changes began in February, 2017. HGH provides an interesting case study as:

- the entire anesthesiology department is comprised of GP anesthetists;
- bed numbers will increase by some 50% over the next two years; and,
- it services a mixed patient demographic being located close to the Ontario-Quebec border.

The GP anesthetists assess patients classified as ASA1, ASA2, and sometimes ASA3. Ventilated critical care beds will be introduced as part of the expansion.

Given the impending growth, the timing is strategic for increasing efficiencies in pre-op preparation now, before a number of other changes are undertaken. In addition, there are a number of issues to be addressed given the current lack of standardization with respect to pre-op tools and screening of patients, for example:

- miscommunications with patients;
- surgical delays because of incomplete documentation;
- delays in OR start time because of incomplete or missing consents; and,
- surgical cancellations because of incomplete testing or reporting of results before surgery

HGH and TOH are in close proximity (about 100 km apart) and sometimes share patient cases, with some medical staff working at both hospitals. Standardizing pre-op processes at HGH based on TOH's implementation of the CAS CWC Recommendations is rational and beneficial. It is not unusual for a patient to consult the surgeon at TOH and have surgery at HGH. Use of

the same pre-op tools and processes would clearly streamline the process for patients and healthcare teams.

Implementation of process changes at HGH is facilitated by factors including:

- small size;
- few layers of bureaucracy; and,
- a relatively small number of staff members directly impacted by the changes, making discussion and education about changes easier to facilitate

Notwithstanding these factors, as with other case studies, the implementation team still built support to allow roll out of multiple initiatives in parallel.

4.b.i.iii The Team and Working Together

In July 2014, HGH underwent a consultant review of the pre-op clinic. However, the recommendations were not immediately acted upon due to competing priorities and a transition of leadership within the clinical team. In January 2015, a new Director of Professional Practice was appointed who had served as the project leader of TOH's Pre-Admission Clinic transformation (which took place before CWC was established but was aligned with CW principles). She has been able to bring her experiences and learning to HGH to assist the team with the pre-op transformation.

A site visit to TOH's General Campus Pre-Admission Unit was undertaken by HGH's peri-operative medical and nursing leadership. A subsequent presentation, given to the peri-operative inter-professional team (September 2015) by the Chief of Perioperative Services, Clinical Director and Manager of Perioperative Services, and the Director of Professional Practice, helped to gain commitment for the pre-op transformation. Also key to enabling this process was the ability to connect the HGH Chief of Peri-Operative Services with the Corporate Medical Director and anesthesia lead for the CAS CWC Recommendation implementation at TOH, providing a collaborative link for expert advice from the medical (anesthesiology) perspective.

The HGH implementation team was mobilized formally as a working group in July 2016, brought together by the Director of Professional Practice. The team includes an anesthesia champion, the Chief of Peri-Operative Services, a surgeon champion for ambulatory care, the Clinical Director of Peri-Operative Services, Clinical Managers of Ambulatory Care and Perioperative services, and nurse champions for both Ambulatory Care and Pre-op.

"The will is there from everyone, just every change is new."

The implementation team members are considered the temporary leads of the implementation process until the implementation is complete, at which time the project will be formally transitioned to, and owned by, HGH's Peri-Operative Committee. Of importance, prior to July 2016, the Peri-Operative Committee had been re-structured to include key members of the Peri-Operative, Ambulatory Care and Family Birthing Centre team, which makes it an ideal venue to move this work forward.

4.b.i.iv Approach

The implementation approach being undertaken at HGH is influenced by the Director of Professional Practice's previous experiences and lessons learned from her time at TOH. In summary, the approach will include:

- adoption of best practices from TOH to enable consistency between the two organizations;
- simultaneously introducing pre-op and ambulatory care changes; and,
- implementing changes in phases.

As previously mentioned, HGH's anesthesiology department is comprised of GP anesthetists, and currently all pre-op patients see an anesthetist and a registered nurse. While anesthetists tend to compensate for incomplete documentation (e.g. consent, writing scripts for antibiotics, etc.), nurses' knowledge and skills are not being optimized to full scope. The decision to implement an enhanced patient health history questionnaire for both pre-operative and ambulatory settings has been motivated by a lack of standardization of the pre-op assessment. The patient healthy history questionnaires for pre-op and ambulatory care are based on TOH's validated pre-op patient health history questionnaire with minor translation changes. These changes have been made to suit the patient demographic at HGH as well as to ensure the document made sense from the surgeons' perspective as it relates to the surgical plan of care.

The team has decided to mobilize both ambulatory and pre-op changes simultaneously. As an example of customizing the new Ambulatory Care Health History tool, key information is now collected and acted upon from a preventive approach in the ambulatory care setting. This includes gathering information on smoking and screening patients for high-risk medication and risk of pregnancy before minor procedures. Responses to the patient questionnaire enable nurses to follow up appropriately with smoking cessation education and appropriate interventions and assessment. Ultimately these changes are projected to impact patient care positively from both quality and patient safety perspectives. The changes will also contribute to an effective and efficient patient-centered experience in which patients are part of the team with respect to their care.

The team ensures that patients can understand the questions in the questionnaire and if they do not or if they are not able to read, assistance is provided to them in the clinic. This enables the health care team to compensate for any literacy gap as part of the patient's care plan. Although these new questionnaires offer a much more elaborate assessment than the former questionnaire, the time requirement has been managed by requesting patients to arrive before their scheduled visit to complete the questionnaire (for reference: 6 pages for the new questionnaire versus 1 page for former questionnaire).

"Ensure that your implementation team reviews the entire process carefully to determine that all players have the resources they require to carry out the changes. These include simple things such as ensuring surgeons have forms printed out, nursing staff has clipboards and pens, etc."

Specific to the Ambulatory Care Patient Health History, again the innovation is to standardize patient information collection and screening so it is consistent and makes the best use of the

clinic's health care provider resources. Previously patients saw a physician and proceeded straight to pre-admission. Now patients are screened by nurses with the health history questionnaire to enable a more targeted evaluation and concise charting of information. The physician interaction is then more efficient, focusing on key questions and examinations that are most relevant to the patient visit, rather than repeating what the nurse has already asked/done. The process is more respectful of patients' time, reducing the need to repeat the same information to multiple providers. The questionnaire ensures that no topics are missed and that the patient receives the appropriate educational pamphlets, assessment, or tools.

In the first week of process change implementation, select chart audits were undertaken to identify specific areas in which the inter-professional team might require help. Rounds have been undertaken with physicians and staff to better understand any challenges and solutions, and to help the teams gain more familiarity with the questionnaires, new tools and processes. There is recognition that the questionnaires and new processes have initially increased time for each patient visit for the surgeons and teams. These times are decreasing as the teams become used to and more comfortable with the tools and processes.

4.b.i.v Measurement

As outlined above, the choice has been made to implement process changes that will then facilitate implementation of CAS CWC Recommendations. These process changes are being made slowly, deliberately, and in phases (initially affecting general surgery, endoscopy, and some of the ambulatory care specialty clinics such as the Medical Day Care Unit) so as to control and evaluate the process from a broader perspective beyond the peri-operative program. The implementation team plans to meet regularly (approximately every 2-3 weeks initially) to monitor changes and make adjustments as required. There is also a plan to re-evaluate the changes after three months (end of May 2017).

Given that HGH's current data system presents challenges related to the collection of statistics for specific measurements, the team has not developed a measurement plan. However, in approximately two years, a new informatics system will be implemented, so specific tracking related metrics are being determined. The pre-op and ambulatory care implementation is phased to be slow and to afford for the potential design of a research study to examine specific quality improvement measures and outcomes, both for staff and for patients.

4.b.i.vi Success Factors

A willingness to change at HGH has been fostered through the provision of support and in some cases, mentorship to individuals affected by the change. For example, linking established practitioners to colleagues at other centres who have undertaken similar process changes has proven to be incredibly effective. Introducing the Chief of Anesthesia to TOH's CAS CWC anesthesia lead and providing other opportunities for colleagues from HGH and TOH to share information about implementing the CAS CWC Recommendations has helped showcase the work of anesthesia, nursing and medical as leaders of inter-professional practice.

These process changes are new territory for everyone involved and have required teamwork, persistence and passion as well as the use of available data, to move forward. Ensuring that someone leads or 'pushes' the project has been critical as has been the identification of

champions in all professions (i.e., the implementation team members) with the dedicated time to make this initiative a priority.

4.b.i.vii Lessons Learned

The team learned that an earlier consultation with the Medical Advisory Committee about the process change tools would have been beneficial with respect to building physician support and engagement. In addition, from a data-gathering standpoint, there were a number of physicians who thought more mental health questions in the health history questionnaires would have increased the value of the data for other departments.

4.b.i.viii Next Steps

There are plans for additional pre-op changes as the site works towards full implementation of the CAS CWC Recommendations. Currently the implementation team is working on a surgeon's checklist and pre-op order sets for surgery that are aligned with tools developed at TOH. These tools will ensure that all information for patients is collected pre-operatively, makes ordering of tests easier for the surgeons, and, for tests that have been ordered previously, ensures review by the pre-op clinic team. Other opportunities include customizing the pre-op screening questionnaire and order sets for elective C-sections and select pediatric cases (more than 2 years in age) as part of the complete pre-op package.

For all pre-op tests, the team currently uses the Ontario Pre-Operative Testing Grid[16] as a guide. This will change when HGH implements the CAS CWC Recommendations. HGH will also develop more formalized guidelines around how often tests must be ordered, so that if a patient requires a pre-op test but has recently had the same test, the latter test results can be considered valid (similar to TOH's case study).

While all pre-op patients currently see both the anesthetist and a registered nurse, it is acknowledged that as the hospital grows, this model may change. For example, by categorizing patients who require different types of pre-op visits based on co-morbidities and surgical risk in addition to social and preventive screening. Other changes under consideration include:

- the introduction of a nurse-led pre-op model with anesthesia governance;
- more formal relations and support from peer hospitals related to knowledge translation and sharing of best practice; and,
- improved role clarity based on scope of practice.

There are plans to review the latest cardiology guidelines for pre-op investigations to determine how these could become part of the continued phased CW efforts. For the ambulatory care questionnaire, as resources and time permit, the team will undertake customization to increase the value of the information collected for other specialties.

The planned renovations and upgrades present a number of strategic opportunities to enhance the team's process change efforts. With the implementation of the new informatics system, patient questionnaires may be completed on a tablet while in the waiting room, auto-populating the electronic health record for review by the surgeon and team. Additionally, optimal physical placement of these tools is under consideration as part of the plan of care in designing the new double-sized ambulatory care facility.

4.b.ii North Bay Regional Health Centre (NBRHC)

4.b.ii.i Hospital Demographics

General Information	***Size & Anesthesia Department***
Northern, rural community hospital; acute care services	389 beds; 11 anesthesiologists
Tools Implemented	***Measurement***
Patient pre-op questionnaire; pre-op testing ordered by medical directive under direction of Anesthesia.	Baseline established. Measurement via HQO data on ECG & X-rays; same day surgery cancellations & delays in surgery.

Note: NBRHC is one of four major acute care hospitals serving northeast Ontario (others are Sault Area Hospital, Timmins and District Hospital and Health Sciences North (Sudbury)); and this area is also served by small community hospitals such as Mattawa and West Nipissing General hospitals.

4.b.ii.ii Overview

Like many hospitals, the North Bay Regional Health Centre (NBRHC) has been faced with budget constraints and has recently implemented Lean Six Sigma thinking. The timing was right at NBRHC for the implementation of the CAS CWC Recommendations. Word had spread: the Medical Director of Peri-Operative Services had attended a talk at the OA conference and the Manager of Peri-Operative Services had read about the CAS CWC Recommendations online. Further, a number of issues/opportunities had surfaced including:

- opportunities for pre-admission efficiency identified through a collaborative review of internal processes;
- concerns about the volume of pre-op testing given staff were unable to keep up with filing for the blood work; and
- the large number of normal ECGs requiring review given all patients over the age of 50 years was getting an ECG pre-operatively. This was noted by a visiting internist who later became a team member.

4.b.ii.iii The Team and Working Together

The implementation team initially consisted of the Chief of Anesthesiology, the Manager of Peri-Operative Services, an internist, a clinical nurse educator, and the Medical Director of Peri-Operative Services. Subsequently, another anesthesiologist joined the team and remains engaged. The members of the team had previously been successful in several other change management projects so knew each other well, and chose to move forward without formalizing a project charter. Instead, they adopted a “just do it” approach.

The team was interested in determining the root cause of over-ordering routine diagnostic tests before low-risk elective surgery. After many discussions with surgeons, it was determined that they were ordering routine pre-op testing because they believed that anesthesia needed these tests and that failure to have these test results available might result in cancellations on the day of surgery.

This insight demonstrated a clear discrepancy in what anesthesia and surgeons wanted from pre-op testing and motivated the team to move the implementation forward.

The nurse educator on the implementation team showcased the work as part of her Master's research project, initially reviewing the literature and reaching out to her national colleagues via email with respect to pre-op testing guidelines. The team used the literature search, five (5) medical directives shared with the nurse educator by her national colleagues, as well as the current pre-op testing recommendations (Ontario Pre-operative Testing Grid[16]), to devise their approach to the implementation of the CAS CWC Recommendations.

4.b.ii.iv Approach

The Chief of Anesthesiology was integral in helping secure support from the anesthesiologists for the changes, while the Manager of Peri-Operative Services was the driving force in the Department of Surgery. The nurse educator took ownership of creating the medical directive, the pre-anesthetic questionnaire and educating nurses about the changes. The team first devised a pre-surgical algorithm for tests based on surgery classification (minor or major), patient co-morbidities and patient medications. The anesthesiologist, who later joined the implementation team, presented and discussed the idea with surgeons and anesthesiologists to create interest in the project as well as identify any potential barriers. The team approached three surgeons to participate in the pilot project, knowing they were interested in the proposed changes. The surgeons agreed to use the algorithm to determine what blood work and diagnostic tests to order pre-operatively.

"Choosing Wisely is a unique initiative in that it is not being mandated, but physicians are taking this up because it is 'what's right for patients and the healthcare system'."

The pilot occurred in 2016, and after three months, the team examined results and obtained feedback from their surgeon colleagues. They determined that while incremental changes had been made by the surgeons using the pre-surgical algorithm to order tests, there was still inconsistency in the tests being ordered. There was also some confusion with respect to who was receiving and reviewing the lab results. It was decided that the best approach to achieve consistency in pre-op testing would be to move the responsibility for ordering all testing to the pre-admission clinic.

In order to undertake phase two of the project, the team created a medical directive to delegate the ordering of testing to registered nurses in the pre-admission clinic. This directive required the nurse to pre-screen the patient's pre-op questionnaire, and to review co-morbidities and medications. Based on this information, the nurse would then select any required tests as well as the patient's appointment type: either in person, over the telephone, or via telemedicine. When testing is necessary, the pre-admission clinic staff aims to limit unnecessary travel for patients by arranging for testing in their home community.

The nurse educator drafted the medical directive to correspond with the patients' surgical booking documentation and responses to the pre-op questionnaire. Department of Surgery support was obtained over time, via meetings and discussion with surgeons to build their understanding of the algorithm and the process. The Medical Director, who is also an anesthesiologist, met with all of the surgeons, leveraging his relationships with them to help them understand why change was important. In the end, the surgeons were agreeable to relinquishing the ordering of tests, but continued to fear that surgeries would be canceled due to missing pre-op test results. It was emphasized that surgeons could still order specific tests required for surgical management.

Nurses within the pre-admission clinic expressed concern about their new responsibilities for ordering pre-operative testing and questioned whether this was part of their scope of practice. The College of Nurses of Ontario Practice Guideline: Authorizing Mechanisms[17] was reviewed with the nursing staff and an orientation plan was established to ease concerns. Along with the medical directive, a competency test (available in Appendix A) was developed for nurses to ascertain their understanding of the content and expectations when working with the directive. To assist with establishing clear communication patterns between anesthesia and nurses, it was decided that on a daily basis, one nurse would be assigned the role of unit leader. This ensured all patient concerns were addressed daily with the anesthesiologist by one individual. At the current time, the pre-admission nurses order all pre-op testing (blood work, ECGs and X-rays), and the anesthesiologists in the clinic are responsible for following up on any abnormal results.

In summary, the team rolled out the project in two three-month phases, re-adjusted the initial implementation for a second phase, resulting in the program changes being fully implemented over a total of seven months.

4.b.ii.v Measurement

Given NBRHC does not currently have an electronic health record system in place, accessing some of the desired metrics is not feasible. Therefore, the implementation team chose to use the recent Health Quality Ontario data on pre-op testing to measure the reduction in ECGs and chest X-rays as a feedback mechanism. The team is also tracking same-day cancellations and any delays in surgery to ensure the changes in pre-op testing do not have unintended consequences. To date, there have been no increases in surgical delays, cancellations or poor outcomes as a result of eliminating unnecessary pre-op tests.

4.b.ii.vi Change Management

As to be expected, there were a few barriers encountered in the implementation of the CWC CAS Recommendations:

- The anesthesiologists were concerned that the medical directive had them taking on too much responsibility. Even though the anesthesiologists in the pre-op clinic were informally following up on abnormal test results, when this became a formal responsibility, there was unanticipated pushback. The Chief Anesthesiologist helped his colleagues understand that they had always owned the test results in the pre-op clinic and that they were simply moving to a system where fewer patients would be tested with the right tests, so the current large volumes of blood work would decrease drastically.

- The post-anesthetic care nurses were concerned about the drastic decrease in blood work and that patients were being put at risk as a result. Although these nurses received an initial overview of the project prior to implementation, they were concerned about the possibility of poor patient outcomes because of minimal and in some cases, no testing. The Medical Director provided a second education opportunity to review the CW principles and stressed how these changes were made on evidence-based recommendations from a variety of reputable stakeholders.

Overall, the implementation of the CAS CWC Recommendations did not change the flow of patients from the surgeon's office to the pre-op clinic. North Bay is a rural location and all patients receive a pre-op appointment on the phone, in person or via telemedicine. At the pre-op visit, patients are seen by a nurse and an anesthesiologist and/or internist (note: the latter is at the discretion of the surgeon). The nurse educator created a reference chart (available in Appendix A) to help the surgeons decide whether or not patients need to see an internist. Booking clerks are instrumental in coordinating testing to be done in the patient's own community to make the process easier for the patient, even though additional work is often required to fax and locate the results.

4.b.ii.vii Lessons Learned

The implementation team stressed the importance of helping everyone in the surgical flow, from beginning to end, understand the rationale behind the changes. Having been through the implementation of Lean thinking with its focus on efficiencies and cost savings, implementing the CAS CWC Recommendations was seen as an opportunity for a different approach, an approach that placed the patient and any risk to that individual, firmly at the centre of decision making. Thus, the stated goal of implementing the CAS CWC Recommendations was to improve patient care and to demonstrate leadership in patient-centred approaches. The reduction in filing of diagnostic results while welcomed, did not deliver significant cost savings for the pre-admission unit.

"Feel we are now making decisions based on patients and not procedures."

The team is of the opinion that the concerns raised by the post-operative group could have been prevented by educating them, along with all other stakeholders, at the beginning of the process.

The team took a calculated phased approach to the implementation process after carefully reviewing initial pilot results. Providing numerous educational sessions, one-on-one discussions, and even retrospective chart reviews assisted in demonstrating the rationale and evidence to support this change in practice.

4.b.ii.viii Next Steps

The team's nurse educator continues to build on these initial changes through the imminent roll out of a learning tool called the Case Study Board to pre-admin clinic nurses. The Case Study Board involves two steps:

- Each nurse reviewing a chart that he/she screened for pre-op test requirements against the requirements of the medical directive;
- A discussion ensuing among the nursing team to determine whether or not, in the event of errors, changes are needed to current processes and/or forms.

In addition, aligned with CW principles, the implementation team is working with the hematology department to update the maximum surgical blood order set (MSBOS) to ensure it is current and based on recent data.

4.b.iii North York General Hospital (NYGH)

4.b.iii.i Hospital Demographics

General Information

Community teaching hospital; all types of surgery except cardiac and neurosurgery

Size & Anesthesia Department

426 beds; 29 anesthesiologists

NORTH YORK GENERAL
Making a World of Difference

Tools Implemented

Tests & consults grids; pre-op testing ordered by medical directive under direction of Anesthesia.

Measurement

Baseline established. Measurement via HQO data; and the number of pre-op visits; pre-op tests (routine blood work, ECG, chest X-ray); surgery no-shows; pre-op add-on requests.

4.b.iii.ii Overview

Implementation of the CAS CWC Recommendations (in early 2015) by the North York General Hospital (NYGH) has been showcased in CWC's *Drop the Pre-Op Toolkit[14]*. The approach of this case study is to examine specific areas of implementation that NYGH is uniquely positioned to comment on given the maturity of its implementation, including enhanced descriptions of process, measurement, and lessons learned.

When CW was first gaining momentum in 2013-2014, there was an organic conversation that started amongst NYGH hospital staff about the CW principles before becoming a more deliberative process amongst the Senior Leadership Team. This led to the Senior Leadership Team engaging all Department Chiefs in the examination of their related CWC recommendations in order to determine and move forward those that could be implemented feasibly at that time.

Early investigations indicated that more than 70% of the elective surgery cases seen in the pre-op clinic received medically unnecessary investigations and assessments.

As it happened, during the 2014 annual review of the pre-op program, the Chief of Surgery and Program Medical Director, the Chief of Anesthesia, and the Surgical Program Director questioned the number of pre-op clinic visits as difficulties were being experienced in accommodating urgent patients. They recognized an opportunity to restructure the pre-op clinic using the CW principles to implement recommendations related to unnecessary lab tests. The project was formalized in 2014. Like many of the other case studies in this *Implementation Guide*, the site used the Lean Six Sigma approach, seeking to reduce pre-op testing in low risk patients undergoing low risk surgical procedures.

4.b.iii.iii The Team and Working Together

The quality initiative project has been led by an anesthesiologist, appointed by the Chief of Anaesthesia and supported by the Chief of Surgery and Program Director. The team included the Surgical Program Director, a lead anesthesiologist, pre-op nurses and administrative assistants, a quality improvement specialist, nurse managers, and the Chief of Surgery. A quality improvement specialist was dedicated to the project team and contributed expertise through developing a project charter, creating robust documentation, and standardizing metrics before and after implementation.

"It's important to gently challenge people – is it evidence-based or by habit?"

Over the one-year preparation period prior to the implementation launch, the project team met once or twice a month. During that time, the anesthesia lead helped the team examine the pre-op clinic processes using an evidence-based approach. This included understanding the patients that came through the clinic and the investigations undertaken. Through a literature review, the anesthesia lead developed, and the team contributed input and feedback into, the tests and consults grid that are included in the *Drop the Pre-Op Toolkit[14]* available on CWC's website.

Post-implementation launch, the project team held daily debriefs with pre-op nurses given that the nurses now follow a medical directive that significantly impacted their role. However, meetings became less frequent or necessary with time. The anesthesia lead regularly checked in with the surgeons and anesthesiologists at rounds or in the morning's informal rounds to build relationships and answer any concerns and questions.

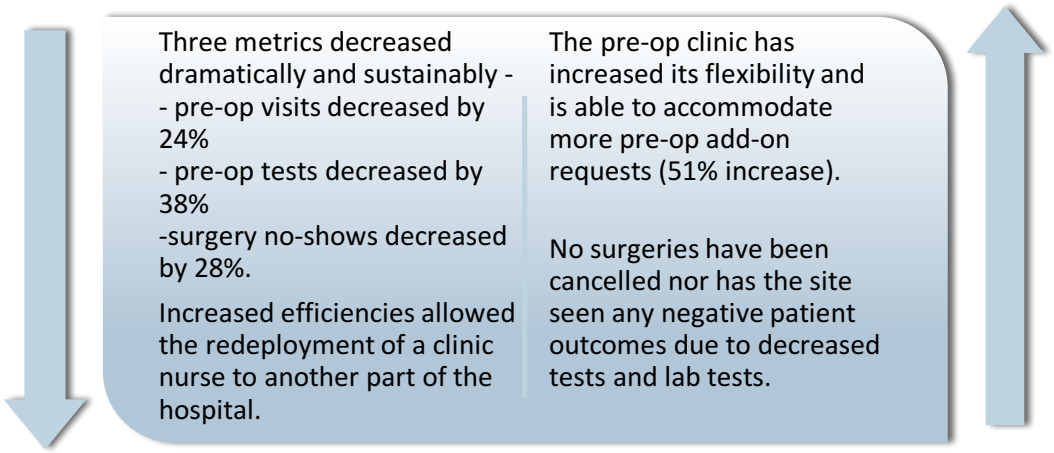
4.b.iii.iv Results, Measurement and Maintenance

The site has now passed the two-year post-implementation mark, during which time results have been sustained (discussed below in more detail). Given the evidence-based approach to the process changes, a similar approach was followed to ensure continued support and success.

The project team worked with the site's medical informatics team to ensure that objective evidence to support change would be collected, and to establish baseline and post-implementation metrics. *The project team suggests that if your site does not have a medical informatics team or these capabilities, you consider collecting simple metrics that are feasible at your site (such as patients/month or tests/month).* You may also want to consult your site's Health Quality Ontario data to help establish baseline data.

Initially the results were reviewed monthly by the Surgical Program Quality Committee; reviews are now twice annually. The site is choosing to collect and monitor metrics on numbers of:

- pre-op visits (including how many patients see the anesthesiologist, nurse and/or internist);
- pre-op tests (routine blood work, ECG, chest X-ray);
- surgery no-shows; and,
- pre-op add-on requests.



The anesthesia lead continues to monitor the data from the implementation, ensuring with colleagues that there are no regressions in performance. If the anesthesia lead notices, for example, that a particular surgeon is reverting back to referring healthy patients to the clinic, he will have an informal conversation with that surgeon. In practice, few of these conversations have been necessary since implementation. Furthermore, the pre-op and OR managers monitor the processes and if issues arise, these issues are discussed with the Chiefs of Surgery and Anesthesia and/or brought to the OR Problem Solving Committee and/or the Surgical Program Quality Committee.

4.b.iii.v Success Factors

The project team felt that a major success factor was the engagement and enthusiasm of staff to accept changes to process, supported by the Chief of Surgery, Chief of Anesthesia, Program Director, managers and senior leadership. The project team went to great efforts to ensure that all stakeholders were engaged, including office secretaries. Some recommendations made by the project team with respect to achieving success are clustered below in themes:

Leadership

- *Support from and alignment of the Chiefs of Surgery and Anesthesia*: their relationship and messaging alignment is important in bringing their respective departments on side. Their support of the extra time required to enable and maintain practice changes is critical.

"One change really affects the whole system."

- *Leadership of the CAS CWC Recommendations by an anesthesiologist:* takes the onus off surgeons who may not be fully comfortable with pre-op medical evaluation.
- *Anesthesia and surgeon champions*.

Communication and engagement

- *Engagement of all stakeholders* (including, administrators, surgeons, anesthesia, admin assistants, staff):
    - Messaging of project reasoning and justification must be tailored appropriately to each stakeholder group. For example, physicians respond to evidence and objectivity so data are required when presenting to them.

- Staff affected by the implementation changes must be able to take ownership as they develop new processes, rather than have new processes handed down/dictated to them.

- *Transparency*: achieved through education of stakeholders, including provision of information on how the changes align with the organization's strategic initiatives.
- *Frequent follow-up meetings* with surgeons and their admin assistants: enables the implementation team to learn first-hand what is working, and how the process can be streamlined.
- *Daily meetings* with pre-op and day surgery staff: to discuss both challenges and concerns.
- *Timely response to addressing questions and concerns*: remain consistent with messaging to support and reinforce the new process.
- *Engagement of patient advisors*: for example, to help with patient education forms and brochures.
- *Celebrating achievements and success*: helps keep the efforts top of mind.

Use of evidence

- *Collection of metrics*: shows stakeholders that the implementation is evidence-based and effective. This may include working with your site's IT department or determining pre-implementation what measurements can be easily collected, as well as ensuring that baseline metrics are established.

Like other sites featured in this *Implementation Guide*, the NYGH project team members feel that CW principles have become part of the staff's daily work – they are more mindful of resources, for example, reviewing the perceived need for tests with a critical lens.

4.b.iii.vi Next Steps – Internal to NYGH

There is now a hospital-wide CW Committee, reporting to the Quality Committee, the Vice Presidents and Senior Leadership and the Medical Advisory Council, to oversee all changes with respect to CW principles within NYGH. The Committee has a Terms of Reference and a dedicated project manager. Chaired by the Vice President Medical & Academic Affairs, the Surgical Program Director is a member together with most Chiefs.

The project team continues to work with other departments in the hospital to use the CW principles to identify other types of projects (for example, in the emergency room, urinary catheters, review of order sets and medical directives).

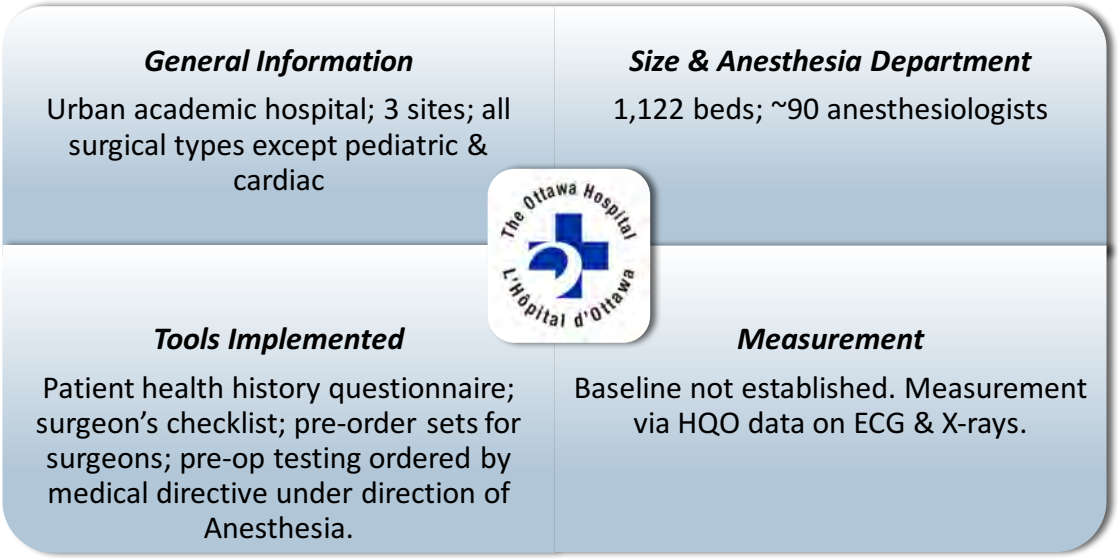
4.b.iii.vii Next Steps – External to NYGH

The NYGH CW team members are actively sharing their experiences of implementing the CAS CWC Recommendations with other organizations: initially through the development of the *Drop the Pre-Op Toolkit[14];* and now through this *Implementation Guide*; various public presentations; and, via an Adopting Research to Improve Care (ARTIC) grant that enables them to support five large community hospitals engaged in implementing the Recommendations.

The team is also working to expand the CW initiative to the Ontario Telemedicine Network, recognizing the value of applying the CW principles to the provision of patient care in Northern Ontario.

4.b.iv The Ottawa Hospital (TOH)

4.b.iv.i Hospital Demographics



The Ottawa Hospital was formed in 1998 through the merger of the Civic, General and Riverside Hospitals

4.b.iv.ii Overview

Implementing the CAS CWC Recommendations at The Ottawa Hospital (TOH) was facilitated by changes made to the pre-op processes in 2011 (i.e., prior to release of the CAS CWC Recommendations).

A review of the pre-op process was requested in May 2011. A mixed methods approach was used by the Clinical Manager Pre-Admission Unit/Surgical Day Care Unit/Post Anesthetic Care Unit at the time that included:

- 31 interviews with key stakeholders;
- a survey of surgeons/offices;
- a literature review; and,
- an appreciative inquiry/action research approach to help uncover solutions rather than only problems.

The review report, released in July 2011 and circulated to the Peri-Operative Committee Executive as well as its target audience (nurses, surgeons, anesthesiologists), helped create the motivation for change. The findings, which included:

- an anesthesia resource issue;
- constant over-bookings;
- inappropriate bookings in the pre-admission unit; and,
- many last-minute cancellations,

validated the frustrations experienced by team members and the challenges associated with having two different models in place: anesthesia at the Civic, and GP and anesthesia at the General and Riverside campuses.

An action plan was developed and a dedicated project manager was seconded to the project (i.e. the Clinical Manager Pre-Admission Unit/Surgical Day Care Unit/Post Anesthetic Care Unit who conducted the review). The purpose of the project was to standardize the pre-op clinic model across the three campuses: Civic, General, and Riverside. At the start, different models for the pre-op visit were in use across the sites. The goal was to provide savings, efficiencies, and improved patient-centred care by standardizing the model based on targeting the issues identified in the review.

4.b.iv.iii The Team and Working Together

Team members for the implementation included: project lead/nurse manager champion, corporate PAU medical director/anesthesia champion, and a surgeon champion. Executive leadership and guidance occurred via informal coaching from the Chief of Surgery, Chief of Anesthesia (research team), and VP Clinical Programs. Other staff important to helping the team implement changes included the nurse managers, PAU medical directors, admitting manager/supervisors, education lead/champion (3 months), nurse educators at the three campuses, the division chiefs of the 11 surgical services, and the anesthesia site chiefs.
The clinician-nurse manager dyad (that is, the anesthesia champion and the project lead/nurse manager champion) was in constant communication throughout all phases of the project. They met with key stakeholders as required and managed all aspects of the inter-professional team responsibility associated with the implementation. Project oversight was provided by the Corporate Peri-Operative Committee.

The project leader, reporting as an employee to the Director of Peri-Operative Services, played a critical role:

- working in close collaboration with the PAU Medical Director on the project;
- bringing her credibility and experience within the hospital; and,
- acting as a neutral facilitator during implementation.

As part of the project leader's research and action planning, an acronym was created for the implementation: PRE-OP. PRE-OP stands for the goals that were used to guide the implementation: Patient preparation, Risk stratification, Evidence-based practice, Optimization, Proactive, and Plan of care.

4.b.iv.iv Approach

The design and implementation work was staged over 18 months and the project, related tools, and processes have been sustained in practice at TOH since November 2012. The project and implementation approach were built on evidence-based leadership and change management principles. Perhaps most importantly, the project was designed, implemented and led by anesthesia and nursing leadership.

The initiative created pre-op procedure changes that affected the patient's visit, starting with the surgeon appointment through to the pre-op-clinic appointment, and all the way to the day of surgery.

A number of tools were created and implemented: a surgeon's checklist, pre-op order sets, and a health history questionnaire. The anesthesia medical directive was updated - pre-op testing was eliminated from the clinical pathways and placed solely in the medical directive.

In this new model, team members now examine risks associated with their expertise: surgeons examine surgical risk, anesthesiologists examine co-morbidities, and nurses examine social risk

- *The surgeon's checklist* is a communication tool sheet that is attached to the request for admission prior to scheduling a pre-op clinic visit. It involves checking off information about the priority of the request; required documentation; referrals to be initiated and arranged by surgeon's office (including dates requested); the pre-op visit type; and, information on discharge planning. The checklist standardizes basic information about the surgery to make it accessible at a glance.
- *Pre-op order sets for surgeons* include headers and bullets that indicate testing will be done according to the medical directive. The surgeon signs off that the medical directive will decide what tests will be required. As with other case studies in this Implementation Guide, surgeons may still order other tests for surgical management, with the understanding that any testing ordered is above and beyond the medical directive, and therefore not acted on by anesthesia.
- *The health history questionnaire* is completed by the patient at his/her surgeon visit. The comorbidities and the surgical risk detected in this questionnaire, stream the patient into a pre-op visit-type: nurse only; nurse and anesthesiologist; or, phone call with a nurse (healthy patients with no major issues). If patients are located in a rural hospital setting for which TOH is providing services, telemedicine may be used. If a patient insists, a consult with an anesthesiologist is permitted (for example, there may be cases where patients are nervous, pediatric cases at an adult hospital, etc.).

In the new model, GPs, who played different roles in two of the three sites, were removed. This limited the number of physicians assessing a single patient and allowed nurses to work to the fullest of their scope of practice while anesthesiologists could focus on seeing more complex patients as required.

In the pre-op clinic, before a nurse orders tests according to the medical directive, s/he looks up the patient's recent test results. All three sites share an information system and the provincial eHealth Ontario Portal allows access to community labs. A guideline has been created around timeframes for test results, and if a patient has had a test within the designated timeframe, those test results are referred to rather than ordering a duplicative test. The anesthesiologists in the clinic act on abnormal results for all patients seen in the clinic by their colleagues, not just those who are their own patients.

With this process in place, implementing the CAS CWC Recommendations was much easier. Only the medical directive needed to be changed (sample included in Appendix A) to reflect both the content as well as the language of the CAS CWC Recommendations to build consistency and to ensure that there is no room for multiple interpretations. As an example, previously all patients over 65 years of age received ECGs pre-op - a requirement now eliminated. Blood work was already limited to specific comorbidities and surgeries but is now further restrained for low risk day care procedures.

4.b.iv.v Results

The tools implemented and described above (health history questionnaire, surgeon's checklist and pre-op order sets) have been created to be printed by physicians in their offices. It is important to note that something as simple as the ability to print these forms may be a barrier. Having electronic documentation allows changes to be made more easily than with a central printing and distribution centre.

"While not necessarily highlighted through the other case studies, it is important to consider simple logistics for implementation such as requiring support for form printing, etc. "

The site has created a variety of public-facing tools for patients who are preparing for surgery and their family members. One of these tools is the comprehensive my Surgery website[18] which walks the reader through what to expect before, during, and after surgery. A video called *Meet the Team* is on the site (and on Youtube)[19] in which specific healthcare providers introduce themselves and provide detailed explanations of their roles in the process. These tools provide additional information to patients and are available in multiple formats (visual, downloadable booklets, etc.) that are easily accessible and understandable.
In addition to the changes described above, TOH has eliminated type and screens for certain procedures unless the patient is found to be anemic based on newly-implemented in-clinic point of care testing for hemoglobin, and removed Sickle Cell Anemia testing. The reduction in type and screen testing is a CWC recommendation from the Canadian Society for Transfusion Medicine.

4.b.iv.vi Measurement

In retrospect, the implementation team identifies a shortcoming of the implementation plan in its lack of specific pre- and post-implementation measurements. There was no original plan to measure the changes and other priorities took over during staffing changes. They do have access to patient satisfaction surveys and monitor the Health Quality Ontario data - but these are not true, direct measures of the implementation.

Informal audits have been conducted when nurses detected extra tests being ordered by surgeons. In early 2017, a plan was developed to compare cancellation rates and delays after implementing changes to testing for day care procedures. The recommendation from the TOH team is to build regular audits and measurements into the process from the outset.

4.b.iv.vii Success Factors and Change Management

Given the evidence-based approach, research was a critical piece of this site's implementation plan and important in obtaining surgeon support with respect to the health history questionnaire. A retrospective chart review of 600 patients undertaken to prove that the health history questionnaire was effective, demonstrated that the anesthesiologist agreed with the tool's results in 90% of cases. Some changes were made to the questionnaire based on this audit. Anesthesiologists were concerned "what if we miss something" by not doing a test, which was addressed by providing evidence from literature, guidelines, communications, listening to and respecting these concerns, and one-on-one discussions.

Upon reflection, the team identified a few things were key to implementation:

- Backing from leadership and the Chiefs;
- Provision of evidence; and,
- Developing a clear approach and accompanying communication.

While the implementation team did not have a formal project charter, upon reflection, the project leader at the time (who has since moved to HGH) suggested one *"be mandatory for a project of this scope."*

A large site, especially one that is comprised of three separate campuses, adds to the difficulty and complexity of implementing changes. Even when the team thought it was doing well with changes, continuous audits indicated 'leaks' in the system needing to be addressed (for example, through one-on-one conversations with surgeons who continue to order tests, etc.).

To build staff support, numerous presentations were given throughout the project's 18-month lifespan to key stakeholders such as: OR committees (at each site), peri-operative executive leadership, surgical/anesthesia grand rounds, surgical division meetings, nursing committees, and the Medical Advisory Committee (MAC). Education was provided for nurses, admitting, the surgeons' office admin assistants and surgical clinic teams; and all feedback was welcomed. When concern about the implementation was expressed, the project leader responded either with clarifying written communication or through in-person meetings. Much time and energy went into communicating the implementation plan and reasons for change to affected departments and stakeholders. Importantly, messages were tailored and presentations delivered by the most relevant champion (e.g. nurse, physician, surgeon, etc.) for the specific audience.

Lastly, the CAS CWC Recommendations have become part of TOH's routine business of providing an improved patient experience. Once physicians were provided with and accepted the evidence, the largest challenge has been to ensure the process follows the Recommendations routinely unless contra-indicated. No longer a large stand-alone project, the implementation has introduced new norms into TOH's practice that question care processes to determine what is really needed to provide optimal patient-centered care and the best patient outcomes.

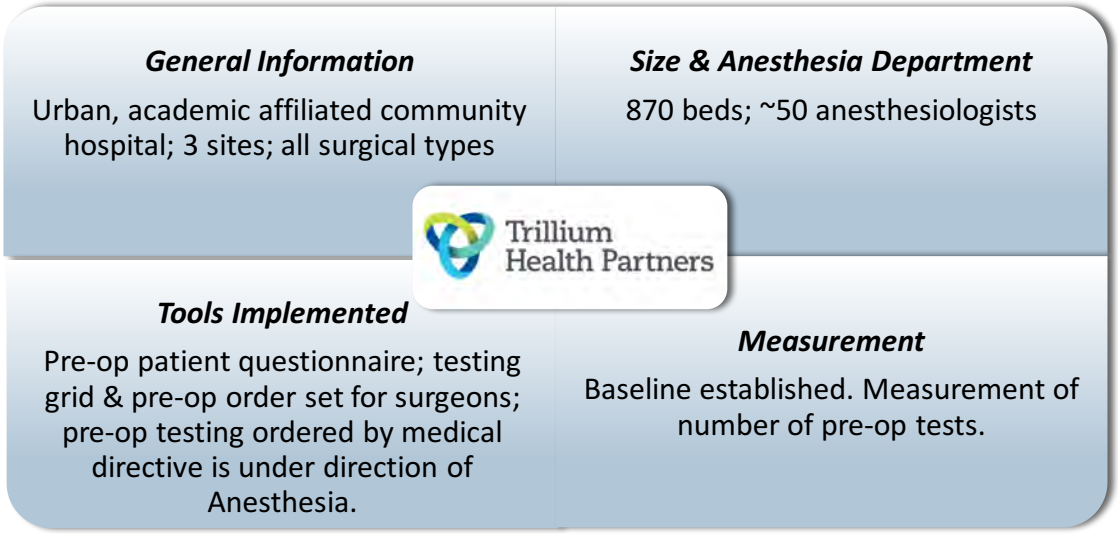
"Creating a standardized process where one group is responsible and accountable for the ordering of the test based on an agreed upon set of directives that can be updated easily is the best way to ensure consistent application of evidence-based medicine."

4.b.iv.viii Next Steps

The project will continue to evolve based on new research and best practice. In 2017, changes will be introduced for testing day care procedures defined as low-risk. The team recognizes that the implementation of CAS CWC Recommendations promoted more patient-centered care by contributing to building a culture that examines why tests are ordered on an ongoing basis.

4.b.v Trillium Health Partners (THP)

4.b.v.i Hospital Demographics



4.b.v.ii Overview

Trillium Health Centre (THC) (comprised of the Mississauga Hospital (MH) and the Queensway Health Centre (QHC)) amalgamated with the Credit Valley Hospital (CVH) in 2011, to create Trillium Health Partners (THP). Initially, Trillium Health Centre and CVH maintained separate processes for the pre-op clinics. Approximately six years ago, a Lean Six Sigma consultation at the MH pre-op clinic examined unnecessary blood work. However, the amount of work required to undertake the recommended changes and a lack of funding prevented action at that time.

CVH undertook pre-operative clinic changes in 2004 and 2008. While these were carried out prior to the official CWC roll out, the changes introduced were aligned with the CW principles.

In 2015, the environment at THC shifted to enable change. The new Nursing Director for Surgical Services provided leadership support as well as resources to carry out the implementation. With the ultimate vision of one pre-operative clinic at the QHC for all three sites, an initial goal of standardizing pre-operative processes between the two sites providing surgical services (MH/QHC and CVH) and decreasing wasteful extra testing was set. Initially, given the changes already introduced at CVH, the focus was on making changes at the MH/QHC site, starting in March 2016. Over time, a phased approach was used with different tools and process changes being tested at one site, before being implemented across all sites.

4.b.v.iii The Team and Working Together

THP's CW implementation team at the QHC pre-op clinic (serving QHC and MH) consisted of an anesthesiologist (who reported back to the Anesthesia Department and had the Chief's support), the pre-operative manager and members of the pre-operative nursing staff, who had executive leadership support through the Director of Surgical Health Systems. The team members had been together since 2010 and were supportive of decreasing unnecessary

blood work and X-rays. They also received support from the CVH site. Given that some pre-operative process changes had already been implemented there, CVH staff provided mentorship for the MH/QHC nursing implementation team members which included a day-long site visit.

4.b.v.iv Approach

Overall a phased approach has been taken to implementing the CAS CWC Recommendations. The testing grid used by CVH since 2008 was rolled out in 2016 at MH/QHC. An updated pre-op questionnaire was rolled out first at the MH/QHC pre-op clinic, and then shared with the CVH site about 6-8 months later, replacing the simple pre-op questionnaire that had been in place at CVH since 2004. Having consistent forms in place was helpful for physicians working across THP. While anesthesiologists have privileges at both MH/QHC and CVH, they work mainly at one dedicated site, filling in for each other when required. In contrast, some of the surgical specialties regularly work at both the MH and CVH.

While the overall flow of patients from the surgeon clinic visit to the operating room has not changed at MH/QHC, the processes within that flow have changed. While the surgeons formerly made the decisions about which tests to order and if the patient required a pre-op visit (as well as who they should see during the pre-op visit), their decisions are now guided by the new additions to the surgical package (described above): a pre-op questionnaire (filled out by the patient), and the combined testing grid and pre-op order set (filled out by the surgeon).

Based on the answers to the questionnaire, the patient is streamed into one of three routes:

- does not require a pre-op clinic visit (going directly to the operating room without testing);
- requires a nursing assessment only; or,
- requires a nursing assessment, education and an anesthesia consult.

The first page of the patient's questionnaire includes key questions that will help prompt surgeons to send appropriate patients to see an anesthesiologist. Any questions that have "yes" responses on the first page of the questionnaire require an anesthesia consult, nursing and education – including for same day admissions. The only exception to the new system of stratification for pre-op appointments is for cardiac surgery patients who must all have a pre-op clinic appointment with a cardiac anesthesiologist.

The testing grid includes patient history information to identify required testing. In the pre-op clinic, a nurse reviews the patient questionnaire and testing grid to ensure that pre-op tests ordered by the surgeon will suffice or if additional blood work is needed. Through medical directives, nurses can add additional blood work or cancel unnecessary tests as required.

A lab technician now performs the tests (blood work and ECGs) in the pre-op clinic previously performed by nurses. The lab technician was hired approximately three months into the CW implementation as a result of patient volume increases. Anesthesiologists follow up on abnormal pre-op testing for their own patients and address any abnormal results of patients who are seen by nurses only. Any patient who does not require an anesthesia or nursing visit (such as a patient with controlled hypertension for day surgery), and has abnormal blood work

results ordered by the surgeon is the responsibility of the surgeon. Healthy patients who do not require blood work go to the OR without a pre-op clinic visit.

At the time of the writing this *Implementation Guide*, THP is rolling out the next phase of this implementation, working towards a model where the surgeons will only order pre-op testing for a patient's surgical management. Otherwise the pre-op clinic nurses, under the direction of anesthesia, will select and order the required tests. Anesthesiologists will follow up on test results and address any abnormalities for those patients going through the pre-op clinic.

Communication was enabled by the attendance of implementation team members at a variety of meetings to which they were privy through their roles, including the weekly anesthetic meetings, the surgeons' monthly meetings, and meetings with nursing staff. In addition, implementation team members visited the surgeons' offices in person and hosted 'lunch and learns' with the surgeons' admin assistants. Clinical educators brought the changes forward to the surgical unit, day surgery, etc.

"There is room for ongoing education and improvement – take the small victories and then move on from that."

4.b.v.v Results and Measurement

The implementation was designed to enable the collection of information on patients and their tests throughout the pre-op process. Specifically, the implementation team recognized the importance of measuring changes through collecting readily available statistics such as volume/flow of patients in the pre-op clinic and numbers of specific tests. The nurse managers had documented the number of tests and chest X-rays before implementation so they could compare them to post-implementation numbers.

- √ Overall blood work for any pre-op testing decreased by 31%, year on year (comparing Q1, 2015/16 pre-implementation of the grid and Q1, 2016/17 post-implementation of the grid).
  - Enabled by the use of the grid
- √ The clinic's efficiency has increased and nurses now see all same day admissions where previously they did not.
  - Enabled by the pre-op patient questionnaire that makes surgeons more aware as to which patients require a pre-op clinic visit
  - A lab tech was hired to undertake blood work and ECG duties that formerly were completed by the pre-op nurses
- √ Anesthesia's clinic load has increased (resulting in increased staffing requirements), but not as much as that of nursing staff
  - Anesthesiologists now see fewer unjustified consults and more patients that should have come to the clinic previously but did not.
- √ This results in better patient care, including better optimization of resources
  - Certain cases can now be booked earlier in the day such as patients with sleep apnea and diabetes.

The team has observed some regression post-implementation, for example, some surgeons have continued to insist on certain tests being done pre-op. However, they also note: "this is a guide- some people will take the guides as hard and fast rules while others will not."

4.b.v.vi Change Management, Success Factors, and Lessons Learned

The MH/QHC implementation team underscored the importance of:

- The right timing for change;
- Leadership support;
- Support from surgeons;
- Building relationships with the surgeons' secretaries/administrative support; and,
- Ensuring that all stakeholders affected by change understood the changes.

The implementation team believes that the phased approach chosen has made the changes easier to accept. That being said, there has been feedback along the lines that just as people are becoming used to the changes associated with the questionnaire and testing grid, additional changes (such as, the medical directive) were added which made things more difficult and/or confusing.

This team has emphasized the importance of education, awareness, and relationship building with all areas of the hospitals affected by the implementation.

The MH/QHC implementation team has not formally undertaken to educate patients about the CW principles. However, young, healthy patients who do not require testing, are reported to be delighted with how quickly they are in and out of the clinic.

While the anesthesia department did not take much convincing to accept the proposed changes, a lot of work was done with the surgeons and their offices to ensure smooth implementation. Some surgeons initially described a loss of control when asked to use the pre-op questionnaire and testing grid. The surgeons being responsible for an additional questionnaire was also a tough sell. However, since the initial implementation, surgeons and anesthesiologists have come to an understanding about the importance of anesthesia ordering all pre-op tests, except for those that are related to surgical management, of which the pre-op team may be unaware. Discussions between the anesthesia lead and individual surgeons have helped smooth the transition. The pre-op nurses on the team stressed the relationships and individual attention they have provided to the surgeons' admin assistants to answer questions, provide clarification, listen to concerns, and empathize.

Finally, the large size of THP as a care centre and the differences between the sites created complexity when trying to develop one common process. The importance of leadership support and clear communications were highlighted in this regard.

4.b.v.vii Next Steps

Other initiatives have been introduced as a result of the implementation of the CAS CWC Recommendations. These include changes to the doctor's history and physical form. Another change that has been implemented at MH is the use of a surgical booklet that patients keep with them throughout the journey from surgeon's office to the operating room. Along with provision of information about what to expect before and after surgery, the booklet is a place to keep all paperwork and is updated by various members of the pre-op team.

Section 5
Lessons Learned & Experiences Shared

Lessons Learned & Experiences Shared

In each of the case studies, a number of experiences and lessons learned are shared. These have been summarized here under the headings of Kotter's Change Management Model[20]:

5.a Create Urgency

5.a.i Implementing the CAS CWC Recommendations may not result in major savings for a hospital given the scale of the change. However, implementing these recommendations provides a number of opportunities, depending on the hospital, to create more understanding of, and comfort with, change processes by:

- linking these changes with such organizational priorities as: being more patient-focused, increasing efficiencies, standardizing and streamlining processes, increasing access, and working at full scope
- developing a course of action based on the individual rather than the procedure to improve patient care; and
- enhancing collaboration between healthcare professionals.

5.a.ii Typically, a champion is needed to galvanize the change. Given that there is more communication and information about all the CW Recommendations circulating among administrators and physicians, the champion might emerge from either group.

- A senior administrator has the opportunity to leverage the existing discussion on this topic among peers, linking the CAS CWC Recommendations to the organization's strategy
- A physician leader creates a sense of urgency by mobilizing the relevant medical chiefs and with their support, bringing senior management on board.

5.b Form a Powerful Coalition

5.b.i Support is required from a number of places and levels within the hospital to drive change that will lead to a successful implementation

5.b.ii Team members must be credible amongst their colleagues so that their comments and explanation can be heard about the implementation, the reasons for the change and the appropriateness of the implementation approach.

- Leadership from an anesthesiologist will facilitate gaining support from both surgery and anesthesia colleagues.
- A nursing lead secures support from nursing colleagues by emphasizing how the implementation will result in more efficient processes and improved patient care.

5.c Create a Vision for Change

5.c.i Generate a clear statement of the expectations of the change, the reasons it is being undertaken and what success will look like. Capturing this information in a Project Charter is recommended to enable formal recognition of the project as well as the level of hospital resources tied to the implementation. Without this in place, project leads may struggle to access resources and/or to gain the necessary commitments

5.c.ii Support for this statement/project charter is required from leadership of the hospital (including administrative leadership) and the Department Chiefs (Anesthesia, Surgery).

- Even though there may be recognition that the proposed changes will contribute to enhancing patient care, unless there is explicit support from leadership and across many departments, change is unlikely to occur;
- Without support from the higher levels within the hospital, there may be a perception that the project is not a priority or of sufficient importance.

5.c.iii Understand the type of reporting related to implementation – as well as the level of proof – required by senior management and ensure that the vision statement appropriately communicates how success will be measured.

5.d Communicate the Vision

5.d.i Knowing that the leadership of the hospital and departments supports the implementation provides many staff members with the appropriate case for change, for doing things differently.

5.d.ii The audience for this communication is all stakeholders including, but not limited to: surgeons, surgeon admin assistants, nurses in the pre-op clinic, anesthesiologists and related administrators.

5.d.iii Mechanisms that might help build support include:

- Clear communications that provide evidence for change (for example, that surgeries will not be cancelled or that patient outcomes will not be affected because of a lack of pre-op testing);
- Relationship-building with groups such as surgeons' admin assistants; and,
- Educational sessions (for example, for nurses about a medical directive being within their scope of practice).

5.d.iv Listen carefully to concerns, feedback and input from all groups affected by the change. These individuals will feel included in the process when they know their feedback is taken into account.

5.e Remove Obstacles

5.e.i Allocate sufficient time for team members to work with their colleagues to gain support for the processes, and help troubleshoot and collect feedback.

5.e.ii Consider dedicating some resources (for example, a project leader was seconded at one site, and a lab technician was hired at another site).

- Not all sites had dedicated resources available and this was often a reason cited for implementation delay or initial lack of momentum, or potentially why a phased approach to implementation was developed.

5.e.iii Many sites started their implementation with tools that were developed and used successfully at other sites. Having access to tools that were already proven to work reduced the time required by the implementing site to tailor them to their own specific needs and capabilities.

- Encourage changes to tools over time (e.g., after a pilot based on feedback and input from staff; or to match language in the CAS CWC Recommendations).

5.e.iv Some of the sites mentioned very simple things to consider for a smoother implementation. Some of these suggestions include:

- Ensure you have the ability to communicate with surgeons and their administrative assistants via email; and that you know whether they have read your communication;
- Allow a few more minutes for surgeon appointments (for example if questionnaires are added that will require more time);
- Ensure surgeons can access, download, and print the forms they will be required to fill out; or have the forms printed and delivered;
- Determine if other supplies are required (for example, ensuring there are clipboards and pens in the surgeons' offices or the pre-op clinic for health history questionnaires being filled out by patients);
- Identify if patients need assistance to read the forms (or may require additional help) so they may be asked to come to their pre-op appointment early to have a staff member help with filling in the forms;
- Help staff that are not used to working on computers;
- Ensure the timing of implementation roll out does not coincide with a major holiday season/event (unless done purposefully); and
- Build enough time into the project plan to include obtain approval from the Forms Committee, or equivalent, of all forms created for the pre-op clinic.

5.f Create Short-Term Wins

5.f.i Select an approach that matches the resources and capability of your site.

5.f.ii Take into account when identifying your approach and initial pilot as to where the major champions of the initiative are located.

5.f.iii Conduct a thorough current situation assessment to enable appropriate targets to be established

- Establish a measurement plan; or, at minimum, include in your vision how success will be identified/measured.

5.f.iv Do not underestimate the time required to:

- Gather and form the team to determine the plan for implementation;
- Create links and mentorship with sites that have already carried out their own implementation or with anesthesia leaders/mentors; and,
- Educate colleagues on the plans for implementation as well as listening to and taking their feedback into consideration.

5.g Build on the Change

5.g.i Sustain the gains by continuing to monitor results once the initiative has been fully implemented and to follow up expeditiously should deviations in results be observed.

5.g.ii Share the new capability of the implementation team with other departments wanting to implement CWC Recommendations.

5.h Anchor the Changes in Corporate Culture

5.h.i Celebrate and recognize achievements associated with the implementation, such as through communications or in-person events. Acknowledge milestones including when measures of success have been collected (for example via communication or celebration of decreased number of tests, etc.).

5.h.ii Encourage questioning of the need for certain pre-op tests as well as of other interventions and procedures in order to provide improved patient care with a more efficient use of resources.

Sections 6-9

6. Feedback and/or Questions
7. The Implementation Guide Team
8. Abbreviations/Acronyms
9. References

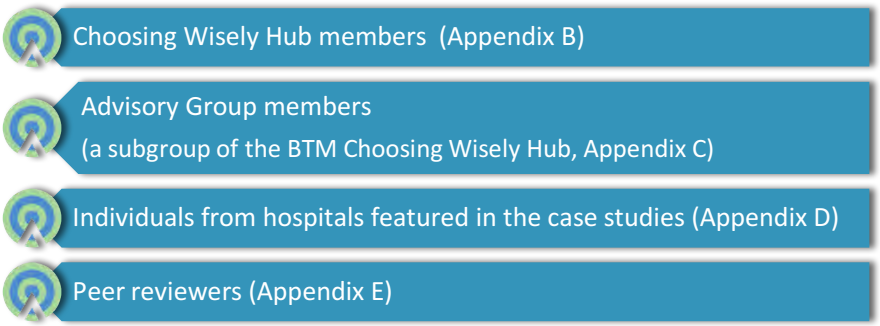
6. Feedback and/or Questions

This *Implementation Guide* has been created to share experiences, lessons learned and sample tools, templates and medical directives from a number of different sites. As you move forward with your own implementation, please do share your story on the Discussion Thread within the Resource Centre; and share any tools, templates and medical directives developed by uploading them to the Resource Centre.

Should you wish to ask questions of one of the sites featured in this *Implementation Guide*, require some advice with respect to your proposed implementation approach, or be placed on the *HQO Hospital Performance Report* distribution list, please contact: info@ontariosanesthesiologists.ca.

7. The Implementation Guide Team

A number of individuals have contributed to the creation of this OA *Implementation Guide*, including:



8. Abbreviations/Acronyms

This section lists abbreviations and acronyms appearing in the *Implementation Guide*, the case studies and the Appendices.

AIBM	American Internal Board of Medicine	**MH**	Mississauga Hospital
ASA1	American Society of Anesthesiologists physical status 1	**MSBOS**	Maximum Surgical Blood Order Set
ASA2	American Society of Anesthesiologists physical status 2	**NBRHC**	North Bay Regional Health Centre
ASA3	American Society of Anesthesiologists physical status 3	**NYGH**	North York General Hospital
BTM	Beyond the Mask	**OA**	Ontario's Anesthesiologists
C-Section	Caesarean Section	**OMA**	Ontario Medical Association
CAS	Canadian Anesthesiologists' Society	**OR**	Operating Room
CMPA	Canadian Medical Protective Association	**PAU**	Pre-Admission Unit
CWC	Choosing Wisely Canada	**PFT**	Pulmonary function tests
CW	Choosing Wisely	**Pre-op**	Pre-operative
CVH	Credit Valley Hospital	**Peri-op**	Peri-operative
GP	General Physician	**QHC**	Queensway Health Centre
HGH	Hawkesbury and District General Hospital	**THC**	Trillium Health Centre
HQO	Health Quality Ontario	**THP**	Trillium Health Partners
ICU	Intensive Care Unit	**TOH**	The Ottawa Hospital

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Section 10
Appendix

Appendix

Appendix A – Sample Tools, Templates and Medical Directives

The following is a table of documents that the case study sites have provided for sharing, use, and customization by other sites wishing to undertake their own implementation of the CAS CWC Recommendations. These documents can be accessed by clicking anywhere in the document line.

These tools, templates and medical directives have enabled the case study sites to implement change and address their local QI objectives. They may require modification to be applicable at other institutions and may not always align perfectly with the CAS CWC Recommendations.

Case Study/Site	Description	Cross Reference to Process Section
HGH	Ambulatory care patient health history questionnaire	N/A as tool designed for changes in Ambulatory Care
HGH	Pre-op patient health history questionnaire, January 2017	2.d.iii Identifying investigations for pre-operative testing
NBRHC	Initiation of pre-operative laboratory and diagnostic tests for patients by RNs in the preadmission clinic competency quiz, 2013	2.d.iii Identifying investigations for pre-operative testing
NBRHC	Clinical services patient pre-op questionnaire, November 2016	2.d.iii Identifying investigations for pre-operative testing
NBRHC	Medical directive for pre-op lab and diagnostic tests by RNs	2.d.iii Identifying investigations for pre-operative testing
NBRHC	Reference chart to help guide pre-op consultations	2.d.ii Identifying who patients should see for a pre-operative clinic visit
NYGH	Presentation as part of Health Quality Ontario's Hospital Performance Series of NYGH's CAS CWC experience, including measurements, January 2017	2. Implementing the CAS CWC Recommendations
TOH	Medical Directive Template: Pre-admission Diagnostic Testing for Elective Surgery/Diagnostic Neuroradiology Procedures, May 2017	2.d.iii Identifying investigations for pre-operative testing
TOH	French pre-op patient health history questionnaire, 2014	2.d.ii Identifying who patients should see for a pre-operative clinic visit
TOH	Pre-op patient health history questionnaire	2.d.ii Identifying who patients should see for a pre-operative clinic visit

TOH	Anesthesiologist pre-op orders & plan of care medical directive	2.d.ii Identifying who patients should see for a pre-operative clinic visit
TOH	Pre-op orders	2.d.iii Identifying investigations for pre-operative testing
TOH	Pre-op orders (orthopaedics)	2.d.iii Identifying investigations for pre-operative testing
TOH	Surgeon pre-admission checklist	2.d.ii Identifying who patients should see for a pre-operative clinic visit
THP	Patient health history questionnaire, March 2016	2.d.iii Identifying investigations for pre-operative testing
THP	Pre-op testing medical directive, July 2016	2.d.iii Identifying investigations for pre-operative testing
THP	Pre-operative Adult Clinical Order Sets, June 2017	2.d.iii Identifying investigations for pre-operative testing
THP	Preoperative testing grid, for use by nurses in pre-operative assessment clinic and day surgery only	2.d.iii Identifying investigations for pre-operative testing

Appendix B – Advisory Group Members

Name	Title and Affiliation
Sylvain Gagne, MD	Anesthesiologist, Corporate Medical Director Preoperative Assessment Unit, The Ottawa Hospital
Kyle Kirkham, MD	Chair, Canadian Anesthesiologists' Society Choosing Wisely Committee Medical Director, Acute Pain Services, Toronto Western Hospital and Medical Director, Anesthesia Preadmission Services, Women's College Hospital
Rohit Kumar, MD	Anesthesiologist, Trillium Health Partners
Rachel Meyer, MD	Anesthesiologist, Scarborough Centenary
Aaron Mocon, MD	Anesthesiologist, Choosing Wisely Lead, North York General Hospital Lecturer, Department of Anesthesia, University of Toronto
Monica Olsen, MD	Anesthesiologist, Trillium Health Partners

Support from the OA was provided by:

- Dawn Richards, PhD (Implementation Guide Writer)
- Jane Cooke-Lauder, DM (Strategic Consultant)
- Emily Hill (Communications and Administration Coordinator)

Appendix C - Beyond the Mask Choosing Wisely Hub Members

Name	Title and Affiliation
Stephen Brown, MD	Anesthesiologist, William Osler Health System
Natalie Clavel, MD	Anesthesiologist, Toronto Western Hospital – University Health Network
Chris Coutinho, MD	Anesthesiologist, Southlake Hospital
Sylvain Gagne, MD	Anesthesiologist, Corporate Medical Director Preoperative Assessment Unit, The Ottawa Hospital
Christopher Harle, MD	Consultant Anesthesiologist, London Health Sciences Centre
Kyle Kirkham, MD	Chair, Canadian Anesthesiologists' Society Choosing Wisely Committee Medical Director, Acute Pain Services, Toronto Western Hospital and Medical Director, Anesthesia Preadmission Services, Women's College Hospital
Rohit Kumar, MD	Anesthesiologist, Trillium Health Partners
Rachel Meyer, MD	Anesthesiologist, Scarborough Centenary
Aaron Mocon, MD	Anesthesiologist, Choosing Wisely Lead, North York General Hospital Lecturer, Department of Anesthesia, University of Toronto
Gita Raghavan, MD	Resident, Queen's University
Anita Rao, MD	Anesthesiologist, Trillium Health Partners Lecturer, Department of Anesthesia, University of Toronto
Senthil Thiyagarajan, MD	Consultant Anesthesiologist, Niagara Health System
Catherine Wong, MD	Staff Anesthesiologist, Department of Anesthesia, St. Joseph's Hospital. Lecturer, Department of Anesthesia, University of Toronto

Appendix D - Interviewees at Sites

Hawkesbury and District General Hospital

- Barb Crawford Newton, RN, BScN, MA, Director Professional Practice
- Dan LeBreux, RN, BScN, MBA, Director of Peri-Operative Services and Family Birthing Centre
- Richard McCall, BSc, MSc, MD, CCFP (FPA), Chief of Anesthesiology and Peri-Operative Services
- Marie-Claude Paradis, RN Lead/Champion for Ambulatory Care
- Guylaine Raymond, RN, Clinical Manager Ambulatory Care and Rehabilitation

North Bay Regional Health Centre

- Chantal Gagne, RN, BScN, MScN, CPN(c), Manager of Operating Room, Day Surgery, PACU & Preadmission Clinic
- Kevin Gagne, MD, MSc, FRCPC, Medical Director of Surgery
- Melissa Parker, RN, BScN, OR Clinical Nurse Educator

North York General Hospital

- Linda Jussaume, RN, BScN, MBA, Surgical Program Director
- Donna McRitchie, BSc, MD, MSc, FRCSC, Vice President Medical & Academic Affairs, General Surgeon and Intensivist, Assistant Professor, Department of Surgery, University of Toronto
- Aaron Mocon, HBSc, MD, FRCPC, Anesthesiologist, Choosing Wisely Lead, Lecturer, Department of Anesthesia, University of Toronto

The Ottawa Hospital

- Barbara Crawford, RN, BScN, MA Leadership, Former Project Leader and previous Clinical Manager Pre-Admission Unit/Surgical Day Care Unit/Post Anesthetic Care Unit
- Sylvain Gagne, MD, FRCPC (Anesthesia), Corporate Medical Director PAU, Department of Anesthesiology and Pain Medicine, Assistant Professor (University of Ottawa)
- Marnie Houlahan, RN, BScN, Pre-Admission Unit/Surgical Day Care Unit/Post Anesthetic Care Unit Clinical Manager
- Sonia Mathieu, RN

Trillium Health Partners

- Susan Crawford, RN, BA, ACPF, Staff Nurse, Pre-Op Centre (*note, was Charge Nurse until January 2015)
- Rohit Kumar, MD, FRCP(C), Anesthesiologist
- Julie Pereira, RN, Charge Nurse, Pre-Op Centre

Appendix E - Peer Reviewers

Susan Bell	BScN, MEd, Surgical Services Program Manager, Women's College Hospital
André M. Bernard	MD, MSc, FRCPC, Medical Director, Preop Clinics, QEII Health Sciences Centre, Nova Scotia Health Authority; Assistant Professor, Department of Anesthesia, Pain Management & Perioperative Medicine, Dalhousie University
Kyle Gorman	MD, FRCPC, Anesthesiologist, Regina Qu'Appelle Health Region
Nancy Groff	RN, BScN, Clinical Manager Surgical Services, Women's College Hospital
Thomas Mutter	MD, MSc, FRCPC, Assistant Professor, University of Manitoba Department of Anesthesia and Perioperative Medicine; Medical Manager of Quality Assurance, Winnipeg Regional Health Authority

Appendix F- Evidence Guiding the CWC Recommendations

- In the New England Journal of Medicine in 2000, Schein et al randomized 18 000 patients for cataract surgery to receive either routine testing or no testing[8]. They found no difference between the two groups in terms of adverse events even when they stratified the data by co-existing disease and ASA status. They concluded that pre-op tests should only be ordered based on history or physical exam findings and that there will be cost savings, without negative effect on patients, if routine pre-op tests for this population are eliminated. They suggested that these data be extrapolated to patients undergoing other minor procedures.
- In 2006, Bryson et al conducted a retrospective review of 300 charts for same day surgery[9]. They found that although there were abnormal results in one-third of all tests ordered, only 2.6% of all tests ordered that were abnormal prompted a change in management. Despite abnormal tests, clinicians remained willing to proceed with surgery and as such, the authors stated that a lot of pre-op testing could be eliminated without changing clinical care.
- A randomized control trial by Chung in 2009 examined the elimination of pre-op testing for ambulatory surgery[10]. Over 1 000 ambulatory surgical patients who were relatively healthy were randomized to receive pre-op tests according to the current Ontario guidelines or no tests at all. They found no difference in the rate of intra-operative and post-operative adverse events in the patients who had standard pre-op tests compared to patients who had no tests. This finding remained true even in the presence of pre-existing disease. There was no change in care attributed to an abnormal test with the exception of 1 patient (i.e. 0.1%). They concluded that a large proportion of pre-op testing even in patients with co-morbidities is of questionable benefit and can be eliminated without adverse consequences. Several other studies support these findings. Specifically, Kaplan et al[11] found that only 0.2% of pre-op testing abnormalities had management implications and none were acted upon and

Smetana et al[12] found that abnormal test results change management in only 2.6% of cases.

- The Annals of Surgery published data from the National Surgical Quality Improvement Program database in 2012, examining pre-op testing in patients undergoing elective hernia repair[13]. All surgeries included in this database went ahead despite approximately two-thirds of all patients having at least one abnormal test. There was actually a higher incidence of complications in patients who had pre-op tests, and abnormal test results were not predictive of complication rates.
- Lastly, Kirkham et al published a paper in the CMAJ in 2015[2] that determined utilization rates of pre-op ECG, echocardiogram, stress test and chest X-ray before low risk surgical procedures in Ontario, over a 5-year period. 1.5 million cases were reviewed, with ECGs ordered in 31% and chest X-rays in 10% of all cases. These rates are quite high. Although the specific indication for each test could not be determined, the 30-fold variation seen between institutions suggests many tests were unnecessary. There was a small decrease in rates before ophthalmologic surgery after 2010 when the provincial governments changed fee codes to eliminate reimbursement for chest X-ray and ECG before cataract procedures. The major drivers of pre-op testing were age, procedure, and institution, but not co-morbidities. This study demonstrates the significant need to educate and change the attitudes of physicians, patients, nurses and office staff. Ordering decisions and clinical pathways must be re-evaluated when preparing patients for low-risk procedures.

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