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Executive Summary

Strategic Context

In a high functioning health system which is structured for patient centered care and services, patients with conditions requiring specialist surgical services would experience seamless and timely access to the information, care and service they need. Future Directions for Surgical Services in British Columbia focuses on improving timely access to appropriate surgical treatments and procedures built on five elements: understanding population and patient surgical health care needs; developing quality and sustainable surgical care delivery models; recruiting and retaining engaged, skilled health care providers; using IT/IM tools and processes as supports to allow innovation and effective coordination and delivery of surgical services; using financial models to support the achievement of intended health system outcomes; and using all of these elements across the province.

The recommendations of Future Directions align with the strategic direction for the health system in Setting Priorities for the B.C. Health System (Priorities 1, 4, and 7) and the areas of focus set out in the April 2014, the Ministry of Health published B.C. Health System Strategy Implementation: A Collaborative and Focused Approach. They also align with the three overarching goals of the Triple Aim (developed through the Institute of Health Improvement):

1. Improving the health of populations;
2. Improving the patient experience of care (including quality and satisfaction), to which B.C. has recognized the additional requirement of improving the experience of delivering care for providers and support staff as critical to patient-centred care built on efforts of those who deliver and support health services; and
3. Reducing the per capita cost of health by focusing on quality (especially effectiveness and appropriateness) and the efficiency of health care delivery.

The Case for Change

The health care needs of the population in B.C. are grouped into four areas: Staying Healthy, Getting Better, Living with Illness or Disability, and Coping with End of Life. Surgical services are reflected in the dimension of Getting Better which is defined as periods of short term illness requiring short term self-care, primary care, medical or surgical specialist care and services often supported by pharmaceutical medications and diagnostic services.

In 2013/14, approximately 541,886 publicly funded surgical procedures were performed in facilities across BC. Of the total surgical procedures in 2013/14, 78 percent were performed as day procedure cases and the remaining were as inpatient surgery cases. In 2013/14, a reported 5,503 publicly funded day care procedures were performed in private facilities.
A variety of factors are driving the increased demand for surgery. These include: a growing and aging population, a growing seniors’ population who enjoy increased longevity, an increasing prevalence of obesity, improvements in surgical procedures and technology which shorten length of stay in hospital and speed recovery following surgery, a trend towards more day procedures, and “preference” or choice in understanding the risks and benefits of surgery at different points in a person’s life. Examples of surgical procedures where this is occurring include hip and knee replacement surgery, cataract surgery, and surgery to repair hip fracture.

In the area of IMIT infrastructure to support the provision of surgical services in BC, while the Surgical Patient Registry (SPR) is the official registry of patients waiting for surgery in BC, it does not reflect the entire wait time as experienced by the patient. Furthermore, there continues to be considerable variability in the quality, quantity, and timeliness of the information provided for the consultation by the specialist, which affects wait times. There is a need to increase the use of electronic health records, electronically connect the surgeons’ offices with the hospital OR booking offices, the SPR, and Family Physicians, as well as having patients access their own health records. This would result in accurate, synchronized information on patients waiting based on their clinical urgency, and provide the requisite information for everyone involved in the care continuum.

BC, with a relatively small population spread over a very large geography experiences challenges with the distribution of surgical services needing to balance demand, volumes, access, and quality of care.

The lack of a comprehensive Health Human Resources strategy creates a range of issues on the surgical services front. Factors include an aging workforce, pending retirements, examples of both oversupply (orthopedic surgeons) and undersupply (anesthesiologists, specialty nurses), compensation models, and models for care delivery and team composition of nursing and allied health).

The Ministry of Health has used a range of funding strategies for surgical services including Pay for Performance and Activity Based Funding. While it appears there has been a small positive impact of these funding initiatives, careful analysis needs to occur to understand the impact of these initiatives on groups not covered by the funding policies.

In terms of capital resources, across the province there are 295 Main ORs with 82 percent (242.2) regularly staffed. Funding allocation was the reason most commonly cited for unstaffed ORs, although in a few cases health human resources (specifically anesthesiology) and insufficient patient demand also contributed.
Conclusions

In order to achieve the vision of increasing value for patients based on providing patient-centred, quality services, there are a number of areas in surgical services that require improvement or change. These areas are summarized below:

There are operational issues that lead to cancellations of surgeries, inefficient use of ORs, and shortages of required surgical care providers.

Patients need more understandable and accessible information about their condition, options, the surgical journey and process, and their status in the journey, as well as the steps to optimal recovery. For health human resources, the lack of an HHR strategy leads to constant shortages of care providers. Although technology can help with patient care, the lack of access to and inability to share patient information can lead to delays in, gaps and duplication of care. The current Surgical Patient Registry and Operating Room booking process could be redesigned to more effectively capture the entire patient journey and wait times and assist with more efficient booking and tracking of procedures. The current process also does not allow for comparability of data and robust analysis.

Regarding governance and leadership, there is very limited engagement of physicians in management of surgical services, and a lack of consistent and rigorous approach to planning, service delivery, cost management accounting, and performance monitoring. There is a need to carefully consider alternative models of physician compensation and practice; however, current policies lead to constraints in implementing other models.

The Next Steps - Better Meeting Surgical Demand

The recommendations put forward in this paper push the boundaries of what we have been doing so far and emphasize a need for timely, short and longer term action. I want to emphasize that we are putting forward a range of proposed actions that we think will improve our health services in a number of important areas and better position our health system to meet increasing demand from key patient populations. The actions proposed would be undertaken opportunistically building on initiatives and innovative service delivery already underway across B.C., but also will require a systematic approach to change that builds a truly patient-centred system of care (The British Columbia Patient-Centered Care Framework – hyperlink).

You may have different views on the proposed action, how to improve the system or how to implement these recommendations and that is precisely what we are testing out by posting these papers. Your feedback will be part of a healthy and thoughtful discussion of these recommendations. Over the coming three months my aim is for us to achieve a good level of consensus across key partner and stakeholder groups of what the final set of specific actions should be; and then, for us to move forward collaboratively to figure out the detail, the how and the timing of implementation.
linked to better meeting current and emerging needs in a timely way. Patients as Partners will be an important part of this process.

I want to assure you the implementation of the final set of recommendations will allow enough flexibility for a diversity of implementation approaches across communities but that I also intend to push us to create a truly integrated system of health care that works for patients and not just for us. Your input, creativity and innovation in shaping and implementing the final set of recommendations at the local, organizational and provincial levels will bring new solutions and enrich our B.C. health system.

A patient-centred and a cross health system approach is required to achieve significant improvement in timely access to appropriate surgical treatments and procedures to realize the vision of high quality, patient centered surgical care within a sustainable health system for the residents of British Columbia. The Institute for Health Improvement (IHI) Triple Aim principles will serve as a guide:

- Improving the health of the population
- Enhancing the patient experience of care (including quality, access, and reliability)
- Reducing, or at least controlling, the per capita cost of care.

The Provincial Surgery Executive Committee (PSEC) has been given the mandate and authority to drive a common vision and a comprehensive policy framework, inclusive of the entire surgical care continuum, that gives priority to improving the quality of surgical services and embed the philosophy of patient centered care into strategic and operational processes. PSEC will facilitate collaborative partnerships between patients, health authorities, physicians, the Ministry of Health, the BC Patient Safety Quality Council, the Doctors of BC and other relevant nursing and allied health stakeholders. Fundamental to the success of this work is the need for accurate and timely data and an effective and adequately resourced change management process that engages stakeholders and works effectively with the existing organization and professional cultures.

Specific policy directions and actions are assigned to the practice, organization, and provincial levels. These policy directions build on work that has been undertaken over the last several years and is currently underway through PSEC and the health authorities.
1. Practice Level - Service Delivery

1.1 Implementing a Patient and Family Centred Approach to Care

This starts with **acceptability and information**. Patients and their families need to be better informed of the potential benefits, risks and limitations attached to various surgical interventions linked to the presenting issue and related overall health status, especially with respect to elective surgeries. This should involve the patient (and family as appropriate or desired by the patient), the family physician and the surgical specialist. There will be a requirement for fully informed consent based on comprehensive, plain language material available on line and in printed format given to the patient along with fulsome discussion. The information will cover the full care pathway including appropriateness (potential benefits, risks, limitations in terms of outcomes), pre-operative preparation, surgical intervention, detailed post-operative recovery instructions and expected timelines through to being fully healthy back at home.

Equally important is to ensure there are easy to access and well known ways for patients to provide feedback during their journey in care, not exclusively at the end of their journey by focusing only on outcomes. Important lessons will be derived by listening to the patients’ voices on “the what and the how” pertaining to care and services.

“I am very excited to be working on this committee with a group of medical professionals who are so clearly dedicated to making BC’s medical system one that is truly patient-centered.

When I think of what I wish for as the outcome for the work we are doing here, it would be that patients will feel included in each step of the surgical process. From the first discussion with their GP to any post-surgical therapies that are required to attain full recovery.”

V., PSEC Patient representative, November 2014

Incrementally increase the amount of information available to patients on the surgical care pathway in terms of best practice standards for timely access, Wait One time (GP to Surgical Consult), Wait Two time (Access to Diagnostics), Wait Three time (Surgical Consult to Surgery Completed), and Wait Four time (Recovery).

Increase the amount of information available on hospital and surgeon performance quality indicators (including NSQIP reports made accessible in plain language).

Introduce standardized patient satisfaction surveys that are provided to patients as part of their discharge planning and are accessible on-line. Introduce standardized follow up calls by relevant nursing/ allied health staff to patients following their surgical procedures and use the same patient surveys across the province for outcome assessment, regardless of the location or the provider of the surgical services, in order to enhance comparability.
1.2 Implement Practice Guidelines for Consulting with Patients on Treatment Options
Consultation on whether surgery, or which type of surgery, is the best option is a key issue for a range of conditions and/or contingent on the age and/or other medical conditions of a patient. Consultation must take into account a range of circumstances:

- surgeries that are scheduled (elective) or unscheduled (emergency)
- high volume routine surgeries, more complex surgeries for patients with chronic conditions and co-morbidities that range from low to medium to high complexity; lower volume highly complex specialized surgery
- surgeries for patients across the age spectrum from neonates and paediatrics, through to adults and older adults.

Equipoise is defined medically as a state of genuine uncertainty about the relative benefits of alternative treatment options. How these options are discussed by the physicians amongst themselves and most importantly with the patient and their families is an important element in providing appropriate and acceptable care.

1.3 Encourage, Support and Implement Alternative Practice Models
The RebalanceMD model serves as an example of a new model of surgical care through diversion to alternative treatments and supports through surgery to rehabilitation and back to optimal functionality, provided by a team of surgeons working in partnership with a multidisciplinary team of relevant nursing and allied health professionals.

In Regina and Saskatoon surgical and diagnostic capacity has been increased in the publicly funded health system through the use of third-party facilities to offer a range of day procedures in the area of orthopedics, ophthalmology, dental, and ear/nose/throat. Consistently high patient satisfaction ratings illustrate that this service option is embraced by patients.

Team based practice (co-located or virtual), multidisciplinary teams (physician, nursing and allied health), and increased use of contracting (see below) can facilitate improved access and overall quality providing patients with an integrated care pathway.

Health Authorities will work together with surgeons, anesthesiologists, nursing and allied health professionals at a different level of collaboration than experienced to date, to opportunistically and systematically pursue these options as alternates to the current provider centric model. Tapping into the wisdom of the front line providers to create local solutions is one way to avoid the traditional hierarchical approach to implementing change. True engagement and collaboration is required to bring diverse views together to create a common and shared purpose in order to improve service for patients.
2. Organizational Level

2.1 Patient Engagement

Health authorities will ensure patient advisors or representatives are welcomed as members of the senior level Surgery Committee and Surgery Quality Council in each health authority to add their contribution to planning, implementation, and care delivery improvement. Patients will play an important role by participating as advisors on local quality, planning, service implementation, and care delivery committees. Involve patients in the development of education materials for their surgical care. Ask patients – “what do you need to know?” “How would you like to receive the information?”

2.2 Implement a Patient Centred System for Surgical Care

Health authorities working collaboratively with surgeons, anesthesiologists, nursing and allied health professionals will develop standardized care pathways and evidence-based timelines (including Wait Times One, Two, Three and Four) for specific surgical patient groupings linked to:

- High volume routine surgical procedures
- Complex high resource surgical procedures.

The pathways will underpin and support the initiative to implement a Patient and Family Centred Approach to Care. They will follow guidelines and protocols for pre-operative testing that have been developed (Doctors of BC, Choosing Wisely Canada).

“As an overarching comment, I feel privileged to live in a province and country where I am able to access excellent medical care such as I have received. In my experience, if there is an area for improvement I would say that it would be in communication–better communication between GP and specialist, specialist and patient, and specialists to each. Better communication would have, in my case, sped up my diagnosis and treatment and removed some of the stress. I have already seen some evidence of improvement in communication. During my last visit to the specialist, he took out a piece of paper and wrote down all of the steps I am to follow until I am finished my treatment. It was very helpful and I was pleased to see it.”

J., PSEC patient representative, November 2014

LEAN methodology will be applied to the patient journey map for surgical care, including all the steps in the process, such as time for diagnostics and laboratory tests, and follow up care after discharge from hospital. The pathways will address patients living in a variety of geographic locations including urban, metropolitan, rural and remote settings. In this complex adaptive system of health, adoption of LEAN methodology must be developed from the ground up and not implemented in a dogmatic top down fashion. Specifically, health authorities will expand the use of tele health services for pre-surgical assessment and consultation, post-surgical follow-up visits, and education for rural and remote areas where possible.
Ensure a system-wide assessment is taken in order to connect all phases of care from the patient’s perspective to align screening programs with GPs and other stages of the diagnosis and treatment journey, including the surgery teams as warranted.

2.3 **Optimize Surgical Infrastructure, Eliminating Backlogs, Ensuring Flow Based on Appropriate Timelines**

Health Authorities will continue to move appropriate surgical procedures from the operating room to procedure rooms, from inpatient care to day care or short stay care, and to private surgical centres using public funds.

Using the tiers of service approach, and recommendations from the recent Review of Cardiac Services in the Lower Mainland, determine the location of surgical procedures in order to optimize patient outcomes and optimally use available resources.

Optimize the use of existing resources by analyzing the findings of the Operating Room utilization report as well as other surgical resources. Given the assessment that there is available unused capacity, extremely limited future capital investments, and in some cases underutilized physicians, it is imperative to use existing resources to the best advantage to improve access. Shift the thinking from the resources being owned by the providers, to viewing the resources as available to serve patients.

For some surgical services and locations, a case may be made for greater concentration of surgical services, in turn supporting more standardization and optimal use of available resources. To bring safe access closer requires analysis between consolidation and distribution of services, with the “reasonableness” lens applied. Getting clear on what service is appropriate to be provided where is a difficult conversation that needs to occur.

The surgical infrastructure will build on and support successful prototypes (e.g., Enhanced Recovery After Surgery, Fractured Hip collaborative) and Alternative Practice Models identified above. Introduce pooled referrals, central intake for referrals, and first available surgeon models in health authorities.

Further analysis will be completed of the inpatient cases that are one, two or three day length of stay for suitability for procedures to be provided through publicly funded private surgery centres. Methods used in Australia to develop a 23-hour service model of care for elective surgery could be followed to assist with determining suitability. In that model, high volume procedures, which were those occurring more than a minimum of 200 times over the course of a year and having a length of stay less than 48 hours 50 percent of the time could be identified as procedures suitable for an extended day surgery model.

The range of options adopted must address timely access, eliminate backlogs and mitigate over-capacity pressures from Emergency Departments and medical inpatient units that result in cancelling scheduled surgery.
2.4 Optimizing Surgical Supply Costs

Further leverage the use of Health Shared Services BC given the high importance of procurement of surgical supplies in service delivery.

2.5 Improve Quality Monitoring and Reporting

Introduce NSQIP to all hospitals in BC. Consistently report and monitor the quality indicators pertaining to surgery at the local and health authority level and provide provincial level reports to PSEC.

As NSQIP is just one source of quality outcome data relevant to surgical patients, it is prudent to introduce other available or emerging sources of data to enhance the picture of quality of care.

3.0 Provincial Level – System Based Enabling Support

3.1 Optimize Wait List Management

Determine how best to prepare and develop plans for the next five years, given the population growth projections, impact of an aging population, impact of managing patients who have complex chronic conditions, and the effect of advances in technology. Is this through more day surgery, reducing inpatient surgical care, or deeply engaging in a conversation about appropriateness?

Determine the optimal goal(s) and targets for wait time performance that will be in achieved within 5 years.

Define and rename “wait times” by using words that mean something to the patient such as “waiting to see my GP”, “waiting for tests”, “waiting to see the surgeon”, “waiting for my surgery”, “waiting until I can drive my car after surgery”.

The renamed wait times must be linked to data in order to provide meaningful information on access to surgery.

Rename surgery procedures as either “scheduled” or “unscheduled” events to more accurately reflect the nature of the procedures as experienced by the patients.

Determine optimal ways to best manage the surgical patient wait lists and introduce a standardized approach by 2016, such as the New Zealand model to triage patients. Review and revise the wait list management policy in 2016.

Adopt standardized wait list definitions and processes across all health authorities and surgeons’ offices to allow for comparability by 2016.
Complete the diagnosis prioritization code review work in 2015; plan for an audit of procedure codes to occur in late 2016.

Leverage the prioritization code information to determine the most appropriate locations for consolidation of specialized services.

3.2 Develop and Implement a Comprehensive Performance Measurement, Reporting, and Accountability Framework for Surgical Services

Define the optimal state of quality performance for surgical services, meaning “what will it look like in 5 years?” Use plain, easily understood language so that the general public and everyone in the health system understand what it means. This includes accurate, comprehensive, transparent performance data, including what the patients and providers say. The performance framework will outline how to use the data to ensure progress.

The Ministry of Health in collaboration with PSEC will establish public reporting, monitoring and impact/outcome assessment mechanisms for full deployment starting April 2016.

3.3 Implement a Surgical Health Human Resource Strategy

The Ministry of Health in collaboration with PSEC and Health Employers of BC (HEABC) will develop and implement a provincial surgical health human resources strategy. The strategy will need to use accurate data, and include the productive capacity of the members of the health care team (not simply raw numbers) by taking into account age, demographics, stages in career, location (urban/rural, etc.), and practice supports. The strategy will examine College regulations and scope of practice as warranted in order to enhance the use of available health human resources (e.g., anesthesia assistant scope and oversight; nurse practitioner scope of practice; registered nurse surgical first assist scope, specialty nurse scope, physician assistants). The strategy will implement alternative funding approaches for physician services in support of alternative practice models. In addition to the clinical care providers, the strategy needs to highlight the requirements for data analysts, quality leaders, and front line leadership in all venues that provide surgical services such as ORs, ambulatory clinics, and inpatient care areas.

It is critical that population health needs, as the core, will drive the health human resources strategy more so than has occurred in the past.

3.4 Implement a Provincial Surgical IM/IT and Technology Strategy

Establish the Surgical Enterprise Architecture model in 2015 as the solution for surgical wait list management, surgical booking, and synchronization of wait list data between the various stakeholders to create a single and reliable source of information for surgical services.

Complete the implementation plan to have a fully functional interoperable electronic health record (e.h.r.) across the province, including patients having access to their own records, in order to support patients and their care team, regardless of location.
Expand the use of tele health services for pre-surgical assessment and consultation, post-surgical follow up visits, and patient education.

Prototype electronic referrals between Family Physicians and surgeons.

Ensure alignment of the new vision and policy framework for surgical services with the Health Technology Review, an evidence-informed process used to assess and evaluate clinical health technologies (devices, diagnostics, and procedures) for use within health authorities.

The process scope includes the assessment and reassessment of technologies, including those relating to surgical services. Consistent with the vision of increasing value for patients by providing patient-centred, high quality care and services, the process helps ensure that providers are using technology that is proven to be safe and effective for patients.

Continue to strengthen the quality, robustness, and access of health related data in BC that results in evidence to improve policy, make health care stronger, and enhance the health of the population.

3.5 **Align Funding and Costing Strategies to Support Policy Directions**

Building on the analysis of the existing funding approaches currently underway (PNBF, ABF, and Pay for Performance) align funding methods to support the policy directions. Over the next two years analyze options where funding follows the patient or where the patient directs the funding.

Introduce a costing methodology in BC to quantify costs of care along the surgical care continuum. This methodology will inform decision making and support planning for future services.

3.6 **Align Legislation, Regulation, and Policy**

In an effort to support select surgical services being performed outside of the acute care hospital setting by private surgery centres using public funds, changes will be required to the *Hospital Act*. Improved access to surgical services may include performing select surgical procedures which have length of stay up to three days, in private surgery centres using public funds. These changes will require regulatory/legislative amendments.

Establish a link with the private surgery facilities to enhance dialogue and planning as it pertains to surgical services and options available to patients to support their own choices.

3.7 **Provincial Surgery Executive Committee Role**

PSEC will drive a common vision and a comprehensive policy framework, inclusive of the entire surgical care continuum, that gives priority to improving the quality of surgical services and embed the philosophy of patient centred care into strategic and operational processes. It will facilitate a cross health authority network of administrators, physicians, patients, nurses and allied health professionals to share lessons, spread improvement and drive innovation.
PSEC will lead a consultation process on this paper, and by June 2015, develop through the Standing Committee on Population and Health Services reporting to Leadership Council, an initial two year action plan to make substantive progress on the final set of policy directions, including milestones, targets, objectives and outcomes for the directions set out in the final version of this paper. It will report out on progress in April of the two subsequent years. In March 2017, PSEC will set out a three year action plan on the next steps and targets to continue to improve surgical services in BC.

The Ministry of Health will establish a Surgical Services Secretariat to support and facilitate this direction.
**Introduction**

In a high functioning health system, patients with conditions requiring specialist surgical services would experience seamless and timely access to the care and service they need. While progress has been made during the past several years, there is a need to continue to increase timely access to evidence informed care, further reducing wait times for elective surgery. This work will be built on the vision of increasing value for patients based on providing patient-centred, quality services (access, acceptability, appropriateness, safety) that achieve health outcomes known to accomplish intended results and that matter to patients and their families (effectiveness)\(^1\).

*Future Directions for Surgical Services in British Columbia* is a planning and action framework that will be used to drive the policy direction which will be built on five elements: understanding population and patient surgical health care needs; developing quality and sustainable surgical care delivery models; recruiting and retaining engaged, skilled health care providers; using IT/IM tools and processes as supports to allow innovation and effective coordination and delivery of surgical services; using financial models to support the achievement of intended health system outcomes; and using all of these elements across the province. It will also take into consideration the three overarching goals of the *Triple Aim* (developed through the Institute for Health Improvement):

1. Improving the health of populations;
2. Improving the patient experience of care (including quality and satisfaction), to which B.C. has recognized the additional requirement of improving the experience of delivering care for providers and support staff as critical to patient-centred care built on efforts of those who deliver and support health services; and
3. Reducing the per capita cost of health by focusing on quality (especially effectiveness and appropriateness) and the efficiency of health care delivery.

The policy direction with be executed in a disciplined and systematic approach through five phases:

- Phase 1: Policy Development (including stakeholder consultation and engagement)
- Phase 2: Accountability, Action Planning and Communication
- Phase 3: Implementation
- Phase 4: Reporting and Monitoring
- Phase 5: Impact and Outcome Assessment.

*Future Directions for Surgical Services in British Columbia* was collaboratively developed through the Provincial Surgical Executive Committee with contributions from the BC Ministry of Health, health authorities, patient representatives, Doctors of BC, and the BC Patient Safety and Quality Council. A stakeholder consultation process which will take place during January and February 2015 will provide further opportunity for a wider review of the policy direction framework.

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\(^1\) BC Ministry of Health (April 2014, p.3). *B.C. Health System Strategy Implementation*. 
This policy framework will be used by the Provincial Surgical Executive Committee to consult and obtain further feedback and ideas with health authorities, surgeons, anesthesiologists, surgical teams (consisting of nursing and allied health professionals), patients, and other key partners and stakeholders before being used to improve the design and delivery of surgical services in the province starting in the spring of 2015. The policy framework will then be used by the managers, physicians and nursing/allied health staff to implement change and continuous improvement. Under the leadership of the Provincial Surgical Executive Committee, the policy framework will undergo further development over time based on real life experience from implementation and continued engagement with patients and health professionals.

**Strategic Context**

**Ministry of Health Strategy**

In February 2014, the Ministry of Health set out a refreshed strategic direction for the health system in *Setting Priorities for the B.C. Health System*. In April 2014, the Ministry of Health published *B.C. Health System Strategy Implementation: A Collaborative and Focused Approach*. This follow-up document set out three key areas of focus linked to the eight priorities:

- Delivering patient centred services and care
- Driving performance management through continuous improvement across service and operational accountabilities
- Driving a cross sector focus on five key patient population and service delivery areas that are critical to both quality and sustainability and are linked to the eight priorities:

1) Cost-effectively and significantly improve patient outcomes in the community to reduce the flow of three key medical patient populations (complex chronic illness, frail elderly, and moderate to severe mentally ill patients) into emergency departments and through to medical inpatient beds, and residential care.
2) Achieve significant improvement in timely access to appropriate medical treatments and procedures.
3) Achieve significant improvement in timely access to appropriate surgical treatments and procedures.
4) Radically rethink and reposition hospital care.
5) Ensure access to an appropriate continuum of residential care.

Over the summer and fall of 2014 the Ministry of Health initiated the development of a range of policy papers to give more detailed direction to the key areas of focus, including: strengthening primary and community services; better meeting surgical demand; implementing a health human resource planning and management strategy; better using Information Management/Information Technology (IM/IT) to support and improve services; realigning funding strategies to better meet emerging health
care needs. This paper focuses on improving timely access to appropriate surgical treatments and procedures. There are a number of objectives linked to this area of focus:

- Ensuring the measurement of improvement is based on the time of the patient’s problem presentation to a General Practitioner (GP) or Emergency Department (ED), through diagnosis, then timely and functionally efficacious care and treatment, and through to functional recovery.
- Ensuring an effective regional and provincial system of surgical service delivery across the four geographic service areas – metro, urban/rural, rural and remote.
- Improving capacity through the cost-effective and quality provision of these services outside the current hospital structure where appropriate.

**Understanding Population Health and Patient Health Care Needs**

**British Columbia Demographics**

BC’s population is estimated at 4.71 million as of April 1, 2014. Figure 1 shows the population distribution by Health Authority (HA). Fraser Health (FHA) and Vancouver Coastal Health (VCHA) show the highest populations which have both experienced a 6.2 percent increase in population between 2008/09 and 2012/13.

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3 Health Data Warehouse, People 2013. Components of Growth.
In 2014, approximately 950,000 British Columbians are under 20 years of age, the 20 to 64 year old population is approximately three million and the senior population, defined as 65 and older, is almost 800,000. The male and female populations are relatively equal. The provincial life expectancy is 82.25 years.\footnote{BC Stats, Ministry of Technology, Innovation and Citizens’ Services, Deaths - Vital Statistics, Ministry of Health Population - BC Stats, Ministry of Technology, Innovation and Citizens’ Services (April 2014).}

In BC 4.8 percent of the population reported an Aboriginal identity\footnote{Included in the Aboriginal identity population are those persons who reported identifying with at least one Aboriginal group; that is, North American Indian, Métis or Inuit, and/or those who reported being a Treaty Indian or a Registered Indian, as defined by the Indian Act of Canada, and/or those who reported they were members of an Indian band or First Nation.} in the 2006 Census.\footnote{http://www.bcstats.gov.bc.ca/StatisticsBySubject/AboriginalPeoples/ArticlesResources.aspx} The median age of Aboriginal people in BC is 28 years, compared to 41 years of age in the non-Aboriginal population.

The BC population is expected to grow six percent in the next five years (2014 – 2019) as demonstrated in Figure 2. The growth is expected to be in the population 65 years of age and older, growing at 21 percent compared to only 3 percent for the under 65 population.
Patient Health Care Needs

The health care needs of the population and individual patients in B.C. are grouped into four areas linked to the life span of all individuals: Staying Healthy, Getting Better, Living with Illness or Disability, and Coping with End of Life.

Surgical services are reflected in the dimension of Getting Better which is defined as periods of short term illness experienced across the life cycle requiring short term self-care, primary care, medical or surgical specialist care and services often supported by pharmaceutical medications and diagnostic services.

Understanding BC’s surgical patient health care needs can occur at a basic level by analyzing raw demand for surgeries. Over the past five fiscal years the number of cases identified as requiring surgery at a given point in time has not changed significantly, ranging between 70,102 and 72,391; however the volume of surgeries completed in the province has risen from 491,870 in 2008/09 to 541,886 in 2013/14, representing an approximate 10 percent increase over 6 years. Comparing past growth in surgical volumes to the anticipated population growth, specifically those in the age 65 and older category, is one very important component in determining the future of surgical services in BC.

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Patients with surgical health care needs are categorized as requiring a scheduled (elective) surgery or urgent/emergent (unscheduled) surgical intervention:

- **Elective**: patients who are on an elective booking list and/or patients who have a scheduled admission for treatment and/or assessment
- **Urgent/Emergent**: patients who have a life-threatening condition or require immediate assessment and treatment.

In 2013/14 there were 59,978 urgent/emergent surgeries and 481,908 elective surgeries.

The raw numbers only give partial insight into need. Advances in both surgical procedures and supporting technologies have made a range of elective surgical procedures more attractive to patients as they weigh the cost benefit. This applies across all age sectors with a growing number of elective surgeries now being undertaken when patients are into their 80s. Often referred to as “preference-sensitive conditions”, much of the demand for surgery depends on patient preferences.

While the demand for emergency surgery has dropped slightly from a 2008/09 level of 68,145 to 59,978 in 2013/14, the number of elective surgeries has increased from 423,725 to 481,908 in the same period. A key sub-driver of this increase has been the growth of day procedures or surgeries as opposed to those requiring multi-day stays in hospital. In 2013/14 of the 541,886 surgeries completed 422,583 or 78 percent were performed as day procedures. The safety and convenience of these surgeries can be a key factor in driving demand.

A global example of a growing surgical demand driven by procedural and technology improvements is cataract surgery. The World Health Organization estimates that by 2020, 32 million cataract operations will be performed, up from 12 million in 2000 – a 167 percent increase. Baby boomers who develop cataracts are seeking lens replacement surgery to allow them to have good to excellent eyesight in order to continue to participate in modern life (i.e., usage of computers, tablets, cell phones, etc.).

Another example is joint replacement surgery. There are three broad types of hip replacement surgery: total hip replacement; partial hip replacement, typically performed following an acute hip fracture; and hip resurfacing. In 2012/13 in B.C. there were 6926 hip surgery procedures performed, of which 75.6 percent were total hip replacement, 24 percent partial hip replacement, and 0.4 percent hip resurfacing. National data indicates the age group with the highest rate of total hip replacement was 75 to 84 years (432.7 and 566.9 per 100,000 for males and females, respectively). Partial hip replacements in females older than 85 was 735.0 per 100,000, more than 1.5 times the rate for males. Factors such as a growing seniors’ population enjoying increased longevity, increasing prevalence of obesity, and sports related injuries from a more active sub-population, combined with improvements

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8 Cataract surgery projected to rapidly grow in next 10 years in Europe. November 2011.
in procedures and technology are driving increased demand for hip and knee joint replacement surgery. Further, hip and knee replacements now occur more often in younger people. Joint prostheses, which are expected to last between 10 to 20 years, increasingly require replacement within the lifetime of the patient. Known as revision surgery, renewing an artificial hip or knee joint is more complicated than the original operation, takes longer to complete, and has a greater risk of complications. 10 The Canadian Institute of Health Information (CIHI)11 reported that in 2012/13 for every nine primary hip replacement surgeries performed in BC, one revision surgery was performed (a 9:1 ratio). For every knee replacement surgery, the ratio was 13:1. It is expected that the number of revision surgeries will continue to increase as those who underwent primary hip replacement surgery earlier in life outlive their original or primary implant.

The increasing longevity of the seniors’ population is a key driver of surgical repair following hip fracture. The elderly are at a higher risk of fracture from falls due to poorer vision, poorer coordination and reduced strength. Risk factors for hip fracture are numerous including: gender, heredity, smoking and alcohol use, poor nutrition, osteoporosis and other medical conditions including dementia.12 As the 85 year old plus age group increases, the demand for hip replacement following fracture will increase, particularly in the female population.

Another dimension of “preference” or choice is an understanding of the potential risks and benefits of surgery at different points in a person’s life. The underlying health status of the patient is a key issue underscored by the increased access to surgeries by an aging population. Aging is strongly linked to an increasing incidence of chronic illness and/or disability. The population living with illness or disability now accounts for over 40 percent of the population and almost 50 percent of all health system expenditures accounted for in the BC Health System Matrix ($5.2 billion). From a health service delivery perspective, the focus for this group is three-fold: to help manage their health conditions as best as possible over time; to help prevent their condition from becoming more severe or complicated; and if possible, to return them to their optimal level of health. This group requires significant, sustained, and coordinated efforts on the part of health service providers to achieve the best possible health outcomes. The Living with Illness or Disability dimension is subdivided as follows:

- Low Complex Chronic Conditions (29 percent of population)
- Medium Complex Chronic Conditions (9 percent of population)
- High Complex Chronic Conditions (4 percent of population)

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10 ch.com/hip-replacement/surgery/
• Mental Health and Substance Use (2 percent of population)
• Cancer (1 percent of population).

The interface of surgery for patients who have other underlying medical conditions, frailty of the patient, and the need for full patient engagement points to other important considerations when determining appropriateness of surgery.

The reality is that understanding access to surgery encompasses many factors and is more complex than might at first seem apparent. Access is more than simply demand, and quality is more than access and the associated issue of wait times. In opting for elective surgery, one must consider the issue of appropriateness which involves a complex balance between the potential benefits and potential costs to the patient, as well as the issue of safety.

Furthermore effectiveness is more than successfully coming through a surgical procedure; it also encompasses longer term functionality and benefits to overall health status as defined by the patient. This policy paper sets out to examine these quality dimensions – access, safety, appropriateness, acceptability, and effectiveness - using a patient and family centred care approach.

**Status of Surgical Services and Care in BC**

**Surgical Patient Journey**

The term patient will be used throughout this paper; the term is intended to include the patient and their family, as a key objective is to ensure family are included as important members of the care team.

The current surgical service delivery structure viewed from a patient perspective, as shown in Figure 3 below, is a multi-staged care process that is collectively referred to as the peri-operative process. From a system perspective this process is generally tracked from the time a decision has been made for the patient to be scheduled for surgery through to discharge from hospital. In practice and from a patient’s perspective, the entire surgical journey starts much earlier, when the patient who has previously been healthy at home identifies a problem that leads to assessment by the family physician/nurse practitioner and referral to a surgical specialist. This journey commonly involves a series of additional diagnostic tests and procedures that may need to be performed before the decision for surgery is made. In some instances, the decision may be to wait a period of time to determine the optimal time to schedule surgery. The request or booking for surgery is submitted to the hospital once the determination is made that the patient is “ready, willing, and able”. Once the surgical date is determined, the patient receives pre-surgical assessment, undergoes the surgical procedure, receives care post-operatively, and is discharged to their home for continuing recovery, with the goal of optimal functionality following the surgical procedure. This is the patient journey for elective or scheduled surgery; an unscheduled or emergency surgical procedure will follow some of the process steps albeit in an accelerated time frame.
Even with this, the surgical patient journey reflected in Figure 3 is merely episodic, with the surgical procedure only one part of a very complicated journey for a patient who for example has a cancer diagnosis and may require several surgical procedures as part of their overall cancer treatment plan.

Figure 3: System Perspective with Surgical Patient Focus

During the patient’s surgical journey, processes and issues affecting quality along the continuum of care can occur. Because the stages of care along the patient’s journey are co-dependent, a problem in one stage can affect others, which in turn can cause delays, surgical procedure cancellations, and complications. For example, delays in accessing diagnostic tests such as laboratory or medical imaging tests can slow down the decision-making process for surgery. Similarly, timely access to the results of the diagnostic tests and other medical consultations is required for the patient and the specialist to make the best decision about surgery. Factors including Operating Room (OR) and post-surgical bed availability can also impact access to surgery. Finally, appropriate patient supports after discharge can have an impact on a patient’s surgical journey experience and health outcomes.13

A key area of focus throughout this journey is on wait times for surgery which are divided (non-sequentially at the present time) into three segments:

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Currently in BC
- Wait One: the time period from the referral by the general practitioner for specialist consultation to the date of the specialist consult visit
- Wait Two: the time period from the hospital’s receipt of the operating room booking form from the specialist to the date of the surgery and;

Some jurisdictions have
- Wait Three: the time for diagnostics to be completed to make the decision for surgery or not. Note: this wait time depends on access to available resources such as CT Scans, MRI scans, laboratory tests and other diagnostic tests.

The Surgical Patient Registry (SPR) is the official registry of patients waiting for surgery in BC. The SPR was launched in 2007 and focused on Wait Two times. The Ministry of Health has gathered and publicly reported on surgical Wait Two times in BC since 2010. The SPR started collecting Wait One time data effective April 1, 2014 and that data will be reported via the SPR in early 2015. Wait Three times are not currently collected or distinctly differentiated. Wait Four time represents a hypothesized time from after the surgery to functional recovery and optimization, and is not currently collected. As such, the SPR does not include the entire wait time as experienced by the patient.

It must be noted that there continues to be considerable variability in the quantity, quality, and timeliness of information provided for the consultation by the specialist, in turn affecting wait times. This will be a focus for improvement discussed later in this policy paper.

In 2010, the Ministry of Health led a collaborative process to develop a diagnosis based patient prioritization tool which links a patient’s diagnosis and individual clinical condition to a recommended maximum wait time target. Five priority categories were identified with targets ranging from two weeks for more urgent patients to twenty-six weeks. A comprehensive listing of the diagnosis descriptions/patient conditions and their associated priority levels was produced. Every elective surgical booking has a prioritization code that specifies the urgency/prioritization category. It should be noted that the prioritization codes were developed based on expert opinion with limited peer reviewed evidence; as such a future review of the codes and how they are used will be required.

Surgical Specialties

The BC health system delivers a full continuum of surgical services for adults and children in the following specialties:
- General Surgery
- Bariatric Surgery
- Cardiac Surgery
- Otolaryngology
- Plastic Surgery
- Thoracic Surgery
Surgeons in BC provide diagnosis and treatment for a broad spectrum of conditions, many of which require surgery as well as non-operative care, frequently within a collaborative care team of nurses and allied health professionals. Surgical specialists and subspecialists, including some examples noted above, receive training in programs that are certified or recognized by the Royal College of Physicians and Surgeons of Canada. Surgeons participate in maintenance of competence programs administered by the Royal College of Physicians and Surgeons of Canada.

Anesthesiologists are key partners for surgical services as are a range of general practitioners who undertake the role of surgical assistants.

The Perioperative Nurse is also a collaborative member of the surgical team providing preoperative, intraoperative, and postoperative care during the patient’s journey.

A key service challenge for BC, with a relatively small population spread over a very large geography, is the distribution of these services balancing demand, volumes, access, and quality of care. The local environment is a significant factor when considering the delivery of surgical services. The level of surgical services available in tertiary centres within metropolitan areas differs from that found in urban or rural locations. This then affects access to care as well as the patients’ experiences. For example, in some locations in the province, surgical services are maintained primarily to support the provision of maternity services.

**Surgical Volumes and Distribution**

In BC the Discharge Abstract Database (DAD) provides information on volumes and types of surgical services. In 2013/14, approximately 541,886 publicly funded surgical procedures were performed in facilities across BC. Five year data trends show a gradual decline in the demand for emergency services but a significant increase in the demand for elective procedures. As reported previously, of the total surgical procedures in 2013/14, approximately 422,583 or 78 percent were performed as day procedure cases and the remaining 119,303 procedures as inpatient surgery cases. In 2013/14, a reported 5503 publicly funded day care procedures were performed in private facilities. The use of private facilities is discussed later in the paper.

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14 BC Ministry of Health. Discharge Abstract Database
Figure 4 illustrates provincial volumes of procedures with a differentiation between paediatric cases (0-17 years of age) and adults, and a further distinction for those aged 65 and older. Of note, 60-65% of paediatric surgery for children aged 0-18 years is performed outside of the BC Childrens’ Hospital.

**Figure 4: Trend in Day Care Procedures and Inpatient Surgical Cases**

![Table](image)

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15 ibid
Figure 4: Trend in Day Care Procedures and Inpatient Surgical Cases\textsuperscript{16} continued...

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Inpatient Surgical Case Total

Total Surgical Procedures for 2013/14

\textsuperscript{16} ibid
Surgical Wait Times

The focus on wait times in general was driven in Canada by its 10-Year Plan to Strengthen Health Care, where five priority areas were identified for wait time reductions: cancer care, cardiac care, diagnostic imaging, joint replacement and sight restoration. In 2005, evidence-based pan-Canadian benchmarks were established against which jurisdictions measured and reported on their wait times for non-emergency cases:

- Radiation therapy for cancer (Within 4 weeks of patients being ready for treatment)
- Hip/knee replacement (Within 26 weeks)
- Cataract surgery (Within 16 weeks)
- Cardiac bypass surgery (Level 1 within 2 weeks; Level 2 within 6 weeks; Level 3 within 26 weeks)
- Pan-Canadian benchmarks for diagnostic imaging (not yet determined).

In BC the percentage of patients meeting the benchmarks for surgical procedures (April to September 2013) were:

- Hip replacement 76% (no substantial change in percentage meeting benchmark since 2011)
- Knee replacement 65% (no substantial change in percentage meeting benchmark since 2011)
- Hip fracture repair 83% (at least a 5% point increase in percentage meeting benchmark since 2011)
- Cataract surgery 81% (at least a 5% point increase in percentage meeting benchmark since 2011).

As noted by CIHI, across Canada (including BC) the biggest increases were seen in the first few years after the priorities were set, from 2004–2005 to 2006–2007 following which growth levelled off as shown by the numbers above. A key initiative in BC was an investment of $25 million in 2006/07 for the Centre for Surgical Innovation at UBC Hospital and the Osteoarthritis Service Integration System (OASIS) that provided an additional 1,600 hip/knee joint replacement surgeries.

Over this same period BC increasingly focused on better understanding the full spectrum of surgical waitlists and introduced the Surgical Patient Registry as previously described.

It is important to understand that the number of cases waiting in the SPR is reported as a snapshot on a particular date. This number fluctuates throughout the year, peaking in summer and Christmas, coinciding with vacation schedules and seasonal OR closures.

While as noted above the volume of elective procedures has increased significantly, the number of cases waiting at the end of the past five fiscal years has not changed significantly, ranging between 70,102 and 72,391 (see Figure 5). In addition, the amount of time patients wait on the waitlist has decreased. The median time patients waited decreased from 11.3 weeks in 2009/10 to 10.7 weeks in 2013/14. The 90th percentile time patients waited decreased from 52.6 to 39.6 weeks. This change
coincided with the Ministry’s implementation of a Pay for Performance funding model and targets for percentage of patients who were waiting 52 weeks or longer for surgery.\textsuperscript{17}

**Figure 5: Number of Cases Waiting (at March 31st) and the Amount of Time (weeks) Waited in BC (Adult)\textsuperscript{18}**

While overall this appears to be a positive direction, it is important to recognize that wait times for surgery vary across surgical speciality groups and procedures. Figure 6 shows procedures with the longest wait times.

**Figure 6: Procedures with longest wait times for cases waiting.\textsuperscript{19}**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>No. of cases</th>
<th>50\textsuperscript{th} (Weeks)</th>
<th>90\textsuperscript{th} (Weeks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bariatric Surgery</td>
<td>171</td>
<td>58.6</td>
<td>174.9</td>
</tr>
<tr>
<td>Varicose Veins ligation / Stripping</td>
<td>1,459</td>
<td>35.9</td>
<td>134.7</td>
</tr>
<tr>
<td>Vascular Bypass Graft - Non Cardiac</td>
<td>165</td>
<td>16.9</td>
<td>88.4</td>
</tr>
<tr>
<td>Endarterectomy</td>
<td>150</td>
<td>16.0</td>
<td>86.5</td>
</tr>
<tr>
<td>Sinus Surgery</td>
<td>1,064</td>
<td>20.4</td>
<td>73.6</td>
</tr>
<tr>
<td>Hernia Repair - Hiatal</td>
<td>162</td>
<td>25.3</td>
<td>58.8</td>
</tr>
<tr>
<td>Nasal Surgery</td>
<td>1,666</td>
<td>14.9</td>
<td>50.7</td>
</tr>
<tr>
<td>Shoulder Surgery</td>
<td>1,995</td>
<td>15.4</td>
<td>49.3</td>
</tr>
</tbody>
</table>

\textsuperscript{17} BASO, HSPID (Aug 15, 2014). *Surgical Wait Time (SWT) Standard Report, 5 Year Summary - Cases Waiting by Procedure Grouping, Ambulatory and Surgical Care Team.*

\textsuperscript{18} BASO, HSPID (Aug 15, 2014). *Surgical Wait Time (SWT) Standard Report, 5 Year Summary - Cases Waiting, Ambulatory and Surgical Care Team.*

\textsuperscript{19} BASO, HSPID (Aug 15, 2014). *Surgical Wait Time (SWT) Standard Report, 5 Year Summary - Cases Waiting, Ambulatory and Surgical Care Team.*
As described earlier this data only captures Wait Two time and not Wait One time. Some early results from the collection of Wait One time present a fuller representation of wait times in BC (see Figure 7).

Figure 7: Wait One Data by Physician Speciality

Surgical Health Human Resources

The current design of surgical care teams in British Columbia is very traditional. It includes surgeons, physician surgical assistants, anesthesiologists, anesthesia assistants, and nurses for the majority of surgical procedures. Some surgical teams include other health care practitioners such as perfusionists, however these are a minority of cases.

In Canada, the model of care is very much based on physician autonomy with structures such as Medical Staff Bylaws and Fee For Service compensation models enabling its continuance. There is a belief that OR time is owned by the surgeons, and this in turn creates challenges for health authorities when appropriate changes to OR allocation are undertaken.

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20 SWTP (July 2014). *Wait One Compliance and Wait Times (weeks)* Report, All Ages - By Booking Form Received Date, 2014/2015. Source: [site ID 119]. Data extracted on August 14, 2014.
Figure 8 below shows the current distribution of surgical specialists and anesthesiologists across the province.

**Figure 8: Specialist Provincial Distribution**

<table>
<thead>
<tr>
<th>SPECIALTY</th>
<th>BC</th>
<th>Interior</th>
<th>Fraser</th>
<th>Vanc Coastal</th>
<th>Vanc Island</th>
<th>Northern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ophthalmology</td>
<td>211</td>
<td>28</td>
<td>51</td>
<td>79</td>
<td>46</td>
<td>7</td>
</tr>
<tr>
<td>Otolaryngology</td>
<td>90</td>
<td>15</td>
<td>18</td>
<td>42</td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>General Surgery</td>
<td>232</td>
<td>47</td>
<td>57</td>
<td>72</td>
<td>38</td>
<td>18</td>
</tr>
<tr>
<td>Neurosurgery</td>
<td>37</td>
<td>9</td>
<td>6</td>
<td>12</td>
<td>10</td>
<td>-</td>
</tr>
<tr>
<td>Orthopedic Surgery</td>
<td>233</td>
<td>41</td>
<td>65</td>
<td>76</td>
<td>39</td>
<td>12</td>
</tr>
<tr>
<td>Plastic Surgery</td>
<td>84</td>
<td>12</td>
<td>22</td>
<td>28</td>
<td>19</td>
<td>3</td>
</tr>
<tr>
<td>Cardiac Surgery</td>
<td>26</td>
<td>2</td>
<td>4</td>
<td>17</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>Urology</td>
<td>93</td>
<td>16</td>
<td>19</td>
<td>32</td>
<td>20</td>
<td>6</td>
</tr>
<tr>
<td>Vascular Surgery</td>
<td>31</td>
<td>5</td>
<td>5</td>
<td>13</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Thoracic Surgery</td>
<td>12</td>
<td>2</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>Anesthesiology</td>
<td>502</td>
<td>89</td>
<td>120</td>
<td>191</td>
<td>85</td>
<td>17</td>
</tr>
<tr>
<td>General Practice</td>
<td>171</td>
<td>68</td>
<td>16</td>
<td>26</td>
<td>24</td>
<td>37</td>
</tr>
</tbody>
</table>

Of course, these raw numbers alone do not paint the entire story. One needs to consider age, gender, the point in one’s career, and practice supports, among other factors.

Over the past several years there have been a range of issues on the surgical health human resources front similar to those experienced across the broader health human resources area including an aging workforce, pending retirements, examples of both over supply (orthopedic surgeons) and undersupply (anesthesiologists).

Many other jurisdictions are using different surgical care team models. These include:

1. The increased use of Licenced Practical Nurses (LPN) and perioperative registered nurses

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2. The use of Advanced Practice Registered Nurses (RN) to administer anesthesia and RNs to perform surgical assists (Registered Nurse First Assist)
3. The use of physician assistants in all aspects of the patient surgical journey
4. The use of other professional and certified technical staff (anesthesiologist assistant) in the surgical journey
5. More or alternative surgical service delivery settings.

These are examples of how BC might approach an evidence-based redesign of its surgical services model. By leveraging the skills of alternative health care providers, and matching them to the service needs of individuals requiring surgery, the effectiveness and efficiency of our surgical services can be enhanced. Once this redesign is complete, an appropriate health human resources plan can be developed.

A surgical health human resources plan must consider the entire provincial profile of surgical services. A plan which includes part of the system, but not all of it, runs the risk of significant failure. For example, there are surgical services provided outside the acute care system which must be taken into account when human resources plans are developed. Examples include surgical procedures provided in private surgery centres using public funds, and post-acute rehabilitation aimed at optimizing the patient’s goals. This should also capture the movement of health care providers between acute care and other sectors, a factor related to differing working conditions, wages and benefits.

The surgical health human resources plan must consider that health service providers working in surgery teams are also used in settings beyond the Operating Rooms. Examples of this include anesthesiologists working in pain clinics and perfusionists supporting extra corporeal membrane oxygenation (ECMO) services in critical care units. Therefore, one cannot assume that providers with surgical related specialties are exclusively available for deployment to surgical teams.

**Current Status of IM/IT and Technology**

Health care organizations strive to implement clinical information systems that enable them deliver high quality and error free 21st century medical services. Creating a single health record for each patient will promote high quality care and improve health outcomes by ensuring clinicians have a greater level of accurate and consistent patient information. A single electronic health record per patient across the continuum of care (acute, ambulatory, and residential integrated with lab, medical imaging, health information, and pharmacy) will streamline the care process, improve the safety and efficiency of patient care, and provide clinicians with a longitudinal view of a patient’s medical history for better care decisions.

The BC health authorities have started working on a couple of projects to establish a common standardized, integrated, end-to-end clinical information system and environment which are using the Cerner software, including the Clinical and Systems Transformation project – initiated by the Provincial Health Services Authority, Vancouver Coastal Health Authority and Providence Health Care – and the
iHealth project of the Vancouver Island Health Authority. They will enable the standardization of administration functions, such as referrals, scheduling, and registration. They will also enable the health organizations to better manage and measure wait times as well as provide comparable and timely data for efficient resource management.

These projects aim to deliver real-time health information to clinicians and researchers in a way the current heterogeneous systems do not. In time these and similar projects will be expanded to allow British Columbia to better manage future health care costs while improving the quality of patient care.

**Surgical Booking**

As previously described, the official registry of patients waiting for surgery in BC is the Surgical Patient Registry (SPR) which feeds the public website on surgical wait times and is used by the Ministry of Health for monitoring wait lists and setting targets. While the SPR has been a significant step forward, surgical stakeholders have identified issues of accessibility, inaccuracy, and inefficiencies and delays in the overall surgical booking process.

It has been agreed there is a need for a solution to electronically connect the surgeons’ offices with the hospital OR booking offices and the SPR. This would result in accurate, synchronized information on patients waiting and their clinical urgency. Ideally this solution would have decision support tools to assist with optimal scheduling; be easily accessible for all users (including patients for their individual booking); is the primary source of information for wait list management and scheduling; and reflective that any changes made by one user would be immediately apparent to all.

The solution would negate the need for wait list audits and reduce the work of OR booking offices and surgeons’ office staff. Surgical enterprise architecture was developed in 2014 including a current state assessment of how surgical procedure booking occurs today, deficiencies, related issues, and the future state vision. This vision has been endorsed by the Provincial Surgical Executive Committee and the IMIT Executive Committee. A central component of the future state vision is a “surgical booking and wait listing hub”, which would mediate the processes of booking and wait listing between surgeons’ offices and health authorities and provide accurate up-to-date information for the SPR. Booking packages and other information would be exchanged electronically between surgeons’ offices, the hub, and health authorities using standard coding schemes for key information such as procedure codes.

Steps in the process over the next 2-3 years are to procure a vendor-based solution supporting the surgical booking and wait listing hub; implement the solution; and integrate it with the electronic medical records (EMRs) in the surgeons’ offices and the clinical information systems in the health authorities.
Telehealth

Telehealth is an overarching term used to describe information and communication technologies used to connect health care providers, patients and educators over distance, to enable:

- clinical consultation;
- health care management;
- general health promotion; and
- continuing professional education.

Telehealth services are currently available in approximately 20 clinical program areas including thoracic surgery (Telethoracic):

- Telethoracic services provide residents of BC and the Yukon with access to pre/post thoracic surgical care through videoconferencing technology.
- This program alone eliminated 8.4 million kilometers of travel for patients between 2003 and 2013.

The potential use of telehealth services for improved pre- and post-operative surgical care is a key area for development over the coming years.

Technology

Advanced and emerging technology continues to impact the evolution and nature of surgical services. Examples include state of the art equipment in ORs and enhanced devices implanted in patients. Using newer technology can mean a shorter length of hospital stay for patients. It can also mean that patients who would not be eligible for very long and complex surgical procedures may be offered a procedure using technologically advanced equipment that modifies the surgical procedure.

The Health Technology Review, an evidence-informed process will be used to assess and evaluate new health technologies (devices, diagnostics, and procedures) for use within health authorities.

Funding

The Ministry of Health primarily uses a Population Needs-Based Funding (PNBF) model to equitably allocate operating funding to health authorities with other additional targeted funding mechanisms (Activity Based Funding, Patient Focused Funding, Pay for Performance) to drive specific activity in a service area such as improving surgical access and reducing wait times. Physician services are paid through the Medical Services Plan.

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22 Health IT Strategy Branch (January 20, 2014). Fact Sheet.
Population Needs-Based Funding

The Population Needs-Based Funding (PNBF) model is the primary approach the Ministry uses to allocate operating funding to the five regional health authorities (i.e., Fraser, Interior, Northern, Vancouver Coastal and Island Health). The PNBF model is not used to allocate funding to the Provincial Health Services Authority (PHSA).

It is important to note that the PNBF model is used to allocate a pre-determined pool of available operating funds equitably among the regional health authorities. The PNBF model does not determine the amount of the Ministry’s operating budget or the amount of total operating funds available for allocation to the regional health authorities.

The PNBF model does not specify or restrict health authorities as to how they use the funding allocated via the PNBF model. Health authorities have flexibility to allocate their PNBF funding among the health sectors (i.e. acute care; residential care; community care; etc.) and to programs and services (including to improve access to surgeries and reduce surgery waitlists).

Targeted Funding to Reduce Surgical Wait Times

As noted above, at the 2004 First Ministers’ Meeting (FMM), a commitment was made to improve access and reduce wait times in five priority areas; cancer treatment, cardiac care, hips and knees (joint replacement and hip fracture fixation), sight restoration, and diagnostics screening. In 2005 provincial and territorial governments announced national wait time benchmarks in those five priority areas. To help meet the benchmarks, in 2006 the BC Government announced a wait time management strategy, including an investment of $25 million in 2006/07 for the Centre for Surgical Innovation (CSI) at UBC Hospital and the Osteoarthritis Service Integration System (OASIS). The purpose of CSI was to help clear the patient backlog for hip and knee joint replacement surgery by completing an additional 1,600 hip and knee joint replacement surgeries annually. In addition, CSI was to share with other HAs the best practices of various surgical and operational processes in order to promote efficiency and maximize resources within the provincial health care system.

In addition, the Ministry has used a range of funding strategies starting in 2008 that have included activity based funding (ABF), patient focused funding (PFF) and most recently pay for performance funding to improve access and reduce wait times for elective procedures:

- In 2009/10, the Ministry revised its ABF methodology for hip/knee joint replacement surgeries and cataract surgeries to also include a direct link between funding and wait times. An ABF amount was identified within each regional HA’s overall funding allocation, and in order to receive the full ABF amount each HA was required to achieve targets for both surgery case volumes and wait times.
• In 2011/12, hip/knee joint replacement surgeries and cataract surgeries became part of PFF. Regional health authorities earned $11 million in PFF for additional hip/knee joint replacement and cataract surgeries. The surgical focus of this initiative included:
  o Procedural Care Contracts with HAs to perform additional procedures in areas with long wait lists or increasing demand;
  o Incenting HAs to undertake more same day procedures where appropriate;
  o Increasing the volume of MRI procedures; and,
  o Introducing quality performance methodologies for surgical practice improvement in selected hospitals (see below NSQIP).
• In 2013/14, the Ministry used Pay for Performance to target, among other areas:
  o Percent of non-emergency surgery patients waiting 52 weeks or more
  o Percent of hip fracture fixations completed within 48 hours
  o Rate of medical and surgical patients 55 years of age or older who had a Nursing Sensitive Adverse Event per 1,000 inpatient cases.

Overall, it is reasonable to say that there has been a small positive impact of these funding initiatives in focusing health authority attention on key areas. A May 2012 UBC Centre for Health Services and Policy Research bulletin concluded that increases in the volume of hip and knee replacement surgeries, although small, appeared to align with implementation of Activity Based Funding. However in a February bulletin the Centre also noted that surgical utilization trends overall did not yet provide convincing evidence of the program’s effect on the health system. Overall the Centre advised caution in reading too much into the results at that time. When assessing the effectiveness of a funding approach, it is important to assess the impact on groups not covered by the funding in that they may experience longer wait times for surgery. As noted earlier, the recent use of Pay for Performance focused on reducing the percentage of patients waiting 52 weeks or longer for surgery did have a significant impact with wait times decreasing from 52.6 to 39.6 weeks. The issue of using funding strategies to drive health system strategies is part of a broader funding review.

**Capital Infrastructure and Utilization**

The dominant organizations within the surgical delivery structure are the province’s five regional health authorities (HAs) and one Provincial Health Services Authority (PHSA). Distributed within the HAs are 89 Acute Care facilities that have at least one acute care bed. Twenty-five of the facilities serve the HAs, while the remaining five reside within PHSA. Figure 9 shows the geographical distribution of acute care facilities throughout the province.

**Figure 9: Geographic Distribution of Acute Care Facilities**

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25 Acute Care Facilities in BC (April 2014). Facts and figures for planning purposes only.
26 Health Sector Planning and Innovation Division (April, 2014). Acute Care Facilities in BC. Facts and figures for planning purposes only.
In the spring of 2014, GE Healthcare conducted an analysis of surgical volumes and operating room (OR) inventory in BC. The intent of the inventory was to provide a baseline understanding of the physical, staffed and funded OR capacity provincially, regionally and by HA. Some of the key findings of that analysis are presented in this section.

For the purposes of the inventory, a Main OR is defined as an OR located within a traditional OR department. Minor OR is defined as a room that provides for minor surgical procedures performed under topical, local or regional anesthesia without pre-operative sedation. Procedure Room is defined as a room that provides for minor or major surgical procedures in conjunction with oral, parenteral, or intravenous sedation, or under analgesic or dissociative drugs, excluding Cardiac, Interventional Radiology and Angiography procedure rooms.

Figure 10 provides an overview of the approximate OR capacity by HA based on 2011/12 information.

\[ \text{Figure 10: Approximate OR Capacity in BC – 2011/12}^27 \]

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27 GE Healthcare (March 14, 2014). BC Perioperative Excellence: An Analysis of Surgical Volumes and Physical Operating Room Inventory in BC. Based on information collected from 2011/12.
Across the province there are 295 Main ORs with 82 percent (242.2) regularly staffed. Funding allocation was the reason most commonly cited for unstaffed ORs, although in a few cases health human resources (specifically anesthesiology) and insufficient patient demand also contributed. Relatively few ORs operate on evenings and weekends beyond being on-call and those that do are typically staffed to handle urgent and/or emergent cases only. In terms of Main OR closures, an estimated seven percent of day-time OR capacity is closed annually across the province due to Christmas, Spring Break and summer holidays, with the highest period of closure occurring in the summer when an estimated 23 percent of day-time OR capacity is closed. In addition to the Main ORs, there are also 19 Procedure Rooms, 87 percent (16.6) which are regularly staffed, and 64 Minor ORs, 82 percent (52.2) which are regularly staffed.

Main OR volumes and other surgical volumes have both contributed to the overall increase in surgical volumes, with increases of 3.8 percent and 11.1 percent respectively. About 60 percent of Main OR volumes are performed on a day surgery basis and about 77 percent of all surgical volumes are performed on a day surgery basis, with both percentages having increased by approximately two percent over the period 2009/10 to 2011/12.

Province-wide in 2011/12, 18.1 percent of Main OR cases were unscheduled, down from 20.1 percent in 2009/10. This reduction could be associated with health authorities moving more surgeries away from highly resourced Main ORs where appropriate. Finally, the province has seen a small (0.5 percent) increase in Caesarian section volumes for the period 2009/10 to 2011/12 (from 13,477 to 13,542) with approximately 55 percent of Caesarian sections performed in Main ORs.

HAs currently contract for a small amount of surgical procedures through private surgery centres in order to create capacity in the hospitals for procedures that can only be done in hospitals (due to patient complexity, length of stay > 24 hours etc.). Typically these contracts are for short periods of time and appear to be incented in part by HAs striving to maximize pay for performance funding. These short term contracts can create issues in terms of insufficient lead time for surgeon scheduling and lack of sustainability for the private surgery centres. Figure 11 shows by HA the volume of surgical procedures performed in private facilities.

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28 Excluding Interior Health Authority, which was not able to provide this information.
29 Excluding Interior Health Authority, which was not able to provide this information.
30 Excluding Interior Health Authority, which was not able to provide this information.
31 Other locations include: Endoscopic Room (including GI Unit), Nursing Unit, Outpatient Department, Therapeutic Abortion Unit, Diagnostic Imaging Department, Emergency Department, Cardiac Catheterization Room, Ambulatory OR (or Treatment Room), Obstetrics Case Room or Obstetrical OR, or other intervention locations.
Another critical component in the delivery of surgical services is medical device reprocessing, which includes the cleaning and sterilization of the equipment that is used during surgical procedures. In addition to the medical device reprocessing departments located within hospitals, trained staff are required to perform the cleaning and reprocessing functions according to established provincial standards. Any discussion about increasing surgical capacity, either within existing hospitals or through private surgery centres, needs to factor an increase in resources for reprocessing medical devices.

Newer Models of Surgical Services in BC

More progressive and holistic service models are beginning to gain attention while at the same time challenging the status quo approach to the provision of surgical services in BC. ReBalanceMD opened in Victoria in November 2012. ReBalanceMD has a goal of reducing wait times and improving quality of care for musculoskeletal patients living on Vancouver Island through pooled referrals, adoption of triage to first available surgeon model, and the use of allied health providers to support enhanced patient access and quality of care through to optimal function. ReBalanceMD receives referrals and consults now at a steady rate of approximately 1150 per month with a conversion rate to surgery of approximately 30 percent.

Since 2012, Wait One time for all services provided at ReBalanceMD has been reduced from an average of 24 weeks to an average of eight weeks, with the wait time for consultation with an orthopedic surgeon averaging four weeks. However, without the flow through to surgical access, Wait Two time has increased from an average of 27 weeks to 36 weeks between 2012 and 2014. In this case, increased surgical access with innovative service delivery could point the way to a sustainable

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strategy to reduce wait times while at the same time improving the overall quality of care, including appropriateness, from GP/NP referral through to optimal health back at home for this patient population. Other groups are now beginning to explore other prototypes for pooled referral models.

Another example is the provincial bariatric surgery strategy. Developed in 2013, the bariatric surgery strategy is meant to improve access to bariatric surgery for the morbidly obese or obese patients with co-morbid conditions. This includes a phased approach to increase the number of surgeries completed in the province using a standardized clinical pathway with central referral and consistent eligibility criteria, guidelines and standards.

The Ministry’s priority of ensuring timely access to medical and surgical speciality consultation and treatment across all service areas can be achieved through exploring the wider use of different models of providing surgical care, including increased contracting of services outside of hospital settings.

**Surgical Service Delivery Trends, Innovations and Best practices in Canada and Abroad with Potential Application for B.C.**

Understanding the successes and failures of international strategies may inform efforts to improve access to care in BC. In CIHI’s Wait Time Reduction Programs: International and Canadian Perspectives, the point is made that Canada is by no means the only country to experience issues with access to care. Around the globe, a wide range of strategies have been implemented to reduce wait times and improve access. A recent study by the Organization for Economic Co-operation and Development (OECD) reviewed a sample of these programs in several countries and highlighted three common strategies:

- **Increased funding**: Adding funding to health providers is often used to clear backlogs and improve a system’s capacity to treat patients, thereby reducing wait times. However, the OECD concluded that this increase in funds “has almost invariably been unsuccessful in bringing down waiting times over the long term.” The funding often leads to a short-term reduction in wait times, but the effect tends to last only until the funding ends. For example, in Australia, additional funding was provided to reduce wait times for elective surgical procedures. After four years, many additional procedures had been completed; however, wait times had not been reduced.

- **Wait time guarantees**: These provide a maximum wait time for certain procedures, with sanctions for providers if the targets are not met and alternative ways for patients to receive timely care. Guarantees put pressure on system managers and physicians to provide care within the target time frame. The OECD found that guarantees were most effective when enforced. In Portugal, for example, once patients have waited three-quarters of the guaranteed time, they are provided with a voucher allowing them to transfer to another provider. Consequently, the original provider loses the funding associated with treating these patients. In the UK patients have the legal right to start their NHS consultant-led treatment
within a maximum of 18 weeks from referral, unless an individual chooses to wait longer or it is clinically appropriate that the patient waits longer.

- **Clinical prioritization tools:** These tools appear to be a promising approach. They allow patients to be triaged based on need, ensuring that timely care is provided to those who need it most, and they allow for more effective wait list management and improved public transparency. Countries like New Zealand and Norway have successfully introduced such tools, which triage patients based on both objective and subjective clinical criteria.

Across Canada, there have been many programs and strategies for reducing waits in the acute care sector and beyond. One critique, however, has been the excessive use of pilots which though many have shown promising results, have not been formally evaluated or had their funding built into routine annual multiyear funding streams. A number of common approaches include:

**Prioritization Programs**

- **Central intake models:** Providing one location for patients to access care. An orthopedic referral system in Newfoundland and Labrador refers patients to the next available surgeon depending on their level of urgency.

- **Establishing Specialized Surgical Services:** There are multiple examples of this approach from across Canada but the Alberta Bone and Joint Health Institute (ABJHI) has been identified as becoming a national leader in transforming bone and joint health care to produce better patient outcomes and more efficient service delivery. Through a singular area of focus, the Institute was able to drive services, practices, protocols, devices, drugs, medical facilities with full engagement of orthopedic surgeons, rheumatologists and other health care professionals who deliver and manage musculoskeletal care. The initiative brought together the clinicians, managers, policymakers and researchers whose collaboration is necessary to bring about improvement and efficiency.

The Institute pursued an “integrated” approach by developing care pathways that brought together different health care professionals to work in a multidisciplinary partnership with the patient firmly at the centre, rather than handing off the patient from one care provider to the next. Integrated care is critical because most disorders that attack the bones and joints are chronic, meaning they require ongoing, possibly long-term, treatment that is multifaceted and involves different medical and health disciplines.

The Institute also focused on Measurement Frameworks built around six essential dimensions of health care quality: safety, effectiveness, efficiency, accessibility, appropriateness and acceptability. By collecting and analyzing data in these dimensions, ABJHI builds a picture of performance in areas such as post-surgery complications, surgery time, length of stay in hospital, waiting time for surgery, and patient mobilization comparing the results with the benchmarks.
• **Wait list management**: Manage and prioritize wait lists to provide timely care. A province-wide initiative in Saskatchewan aims to provide surgery to all patients within three months of their booking date. This approach is set out in more detail below as a model of a comprehensive approach across the province to improve surgical care. The initiative involves targeted funding, development of patient pathways, pooling of surgical referrals and additional training for operating room nurses. A Surgical Access Management Strategy was adopted in New Brunswick to provide recent wait time data to health authorities and practitioners to manage wait times for surgery patients. Nova Scotia is currently piloting an e-referral project to improve waits for specialist care.

**Efficiency Programs**

• **Lean programs**: Systematically eliminate inefficiencies in health care. Health PEI has developed an advanced clinical access (ACA) program to reduce wait times for a family physician. It also established collaborative teams that offer services such as education, health promotion and chronic disease prevention/management.

• **Operating room efficiency**: Allows more patients to be treated in less time. Ontario has developed performance indicators related to surgical process efficiency that are reported by every hospital.

The Saskatchewan initiative is interesting as a total system approach to improving surgical health services and is therefore worth looking at in more detail given the intention of this policy paper to pursue a cross sector system wide improvement for surgical care in BC (see Figure 12). The initiative has pursued a number of system level innovations:

**Pooling Referrals**

The use of 14 groups of specialists pooling referrals in Saskatchewan has contributed to shortening the time patients wait to see a specialist in that province. Another seven groups are working toward implementing this model. Patients have the option of seeing the first available specialist or waiting to see a particular specialist if they prefer. This has more evenly distributed the workload amongst a group of specialists.

**Figure 12: Saskatchewan Surgical Initiative 2010-2014**

An Online Specialist Directory
The Directory provides patients and their referring providers with a valuable tool to help tailor referral options based on the criteria that are important to the individual patient, whether it is the location of a surgical specialist or the length of the wait to see them. The Specialist Directory lists relevant information on every surgeon practicing in the province, and has been accessed over 88,000 times through the Saskatchewan Surgical Initiative website: sasksurgery.ca.

Training Additional Operating Room Nurses
Through the perioperative nurse training program at the Saskatchewan Institute of Applied Science and Technology (SIAST) the number of core funded seats at SIAST will double from 18 to 36 in 2014-15 to help ensure the supply of operating room nurses meets the needs of the health system in the future. This will allow health regions to continue to perform a higher volume of surgeries and improve use of their operating rooms.

Use Third-Party Providers
To increase surgical and diagnostic capacity in the publicly-funded health system, in Regina and Saskatoon third-party facilities offer a range of day procedures in the areas of orthopedics, ophthalmology, dental, and ear/nose/throat. Consistently high patient satisfaction ratings illustrate that this service option is embraced by patients.
The Case for Change

Quality of Surgical Services Analysis

The BC Health Quality Matrix includes five Dimensions of Quality which focus on the patient experience from both the individual as well as the population perspective. These dimensions are:

- **Accessibility:** Ease with which health services are reached which also includes the notion of equity in terms of the distribution of health care and its benefits fairly according to population needs
- ** Appropriateness:** Care that is provided is evidence based and specific to individual clinical needs
- **Acceptability:** Care that is respectful to patients and family preferences, needs and values
- **Safety:** Avoiding harm resulting from care
- **Effectiveness:** Care that is known to achieve intended outcomes.\(^{34}\)

These quality dimensions are balanced with the need for effective budget and cost management linked to striving for efficiency through the optimal use of resources to yield maximum benefits and results.

The above is linked to a focus on increasingly delivering patient and family-centred care. From a patient as consumer perspective, information about the dimensions of quality of surgical services is neither robust nor easily accessible. At a local level, there are pockets of very good and excellent care provided for patients requiring surgical services. In addition, at a local level, assessment of some indicators of quality occurs, such as using the National Surgical Quality Improvement Program (NSQIP) data to inform practice. Developed by the U.S. Department of Veteran Affairs, and sponsored by the American College of Surgeons, this comprehensive surgical database and quality improvement program provides actionable data that is used to drive improvement and shows where to focus effort and energy. NSQIP is highly regarded due to its rigor in statistical risk adjusted results of outcomes and reliance on clinical data from chart reviews. The program uses a peer-controlled, validated database to measure pre-operative risk factors, intra-operative variables and 30 day post-operative outcomes. This information helps organizations and hospitals measure and understand their own outcomes, and validly compare their outcomes to benchmarks and almost 400 participating hospitals around the world.

In 2006, three sites in Fraser Health were the first facilities in BC to enroll in NSQIP. By 2011, NSQIP has been implemented in 24 sites across BC as the key measurement tool to improve surgical quality. Urinary tract infection was the first identified area for improvement across most

sites. Multidisciplinary teams implemented local solutions and were able to reduce urinary tract infections by 25% across 10 hospitals. Currently the NSQIP sites are working on reducing surgical site infections. Methods include the Comprehensive Unit-based Safety Programs (CUSP) in 8 hospitals and The Productive Operating Theatre (TPOT) in 3 hospitals.

Notwithstanding the above, it is not currently possible to look at all of the dimensions of quality as they pertain to surgical services in one view. At times, patients experience less than optimal or expected outcomes when the steps to optimize their recovery at home after the surgical procedure are not consistently well mapped out before surgery. This is one example of unwarranted variation in a patient’s experience of care. From an efficiency perspective while there have been significant gains made by HAs through the delivery of well-organized day care procedures, there is inadequate cost management accounting.

Quality is achieved when all of the dimensions of quality are satisfied across the continuum of surgical care from GP assessment and referral to the patient being fully healthy back at home.

**Local Practice or Service Delivery Level**

There is common acknowledgement that the current health system is not patient centred, rather, it is provider-centric. Citing Jeffrey Simpson’s *Chronic Condition* (2012) “what seems to have happened is that a system supposed to be designed for patients has become one designed for and by the providers.” He goes on further to say, “complex public systems, unless pushed in another direction by politicians, the media or some external force, tend to coalesce around the interests of providers/producers.” From a patient’s viewpoint, the journey is fragmented, with gaps in some stages and duplication in others. Care is seen as episodic, not as part of a continuum of care to support their health needs. Patients say “they don’t know me as a person”. Further, the system is too complex and confusing for patients to navigate.

The BC system is still built predominantly around individual surgeon practices interfacing with a complex array of surgical supports that includes a wide range of health care providers, physical resources (hospitals, operating rooms, clinics, inpatient services, among others), laboratory and diagnostic services, technology, specialized equipment and pharmaceuticals. Given the number of puzzle pieces that need to come together for a surgical procedure, it is not surprising that gaps and duplication are present.

At the local level it is recognized that existing Operating Room (OR) capacity is not used in the most efficient and effective way to optimize access to surgical services nor are surgical services organized in metro areas, with multiple hospital resources, in a manner that would drive quality, efficiency and through-put.
Inadequate surgical health human resource management can also create additional challenges through shortages of required care providers (surgeons, anesthesiologists, specialized nurses, perfusionists, among others) or over supply of others.

Additionally, hospitals which experience over-capacity pressures in their Emergency Department and medical inpatient units may resort to cancelling scheduled surgery to accommodate patients who need to be admitted to hospital. An increase in unscheduled (emergency) surgery will have a negative impact on scheduled (elective) surgery. It goes without saying that cancellation of scheduled surgery is extremely disruptive for the patient and their family who have made plans around the scheduled procedure, as well as for the care team.

Finally, there is incomplete information for the patient about the steps in their surgical journey, leading to the “black hole” phenomenon about what will happen, when, and by whom. Education for patients about the various choices available to them, including options to defer or delay surgery while optimizing medical management, is not viewed as comprehensive as it should be. The flow of information between Family Physicians and Specialists about their patients - both ways - can be a mix of paper and electronic records and is not ideal. This all results in patients experiencing uncertainty, reduced confidence in the system, and decreased ownership in their health. While electronic health records (EHR) are in use, generally there are a variety of EHRs which may or may not interface between the various care providers including Family Physicians, Surgeons, and health authorities. Managing the surgical wait list occurs in surgeons’ offices, may be provider specific, and may be paper based. Because of this fragmentation, it is not possible to determine the entire wait time for the patient.

“I had a bad experience lately where she was rushed into emergency surgery in Nanaimo following a surgery she had in Vancouver ten days earlier. She was bleeding heavily. The surgeon in Nanaimo was unable to access any of her records from her surgery in Vancouver and could not find a number to contact the surgeon in Vancouver. My sister said, ‘The surgeon in Nanaimo was frustrated by not being able to find out anything about her previous surgery. It is hard to believe that, in this day and age, the surgeon in Nanaimo could not access her health records online.’”

J., Patient representative, November 2014

Organization and Cross-Organization Level

Health authorities have surgical executive committees, with representation from physicians, administrators, and nurses and a mandate to manage surgical services. These committees are reported as generally functioning well, but challenges with physician engagement are noted. There is a need to engage with teams locally in a better and different way than has often occurred in the past.

At the organizational level, surgical services follows a relatively traditional approach in the province, with most services provided in acute care hospital settings. As noted earlier, health authorities utilize contracting out of surgical procedures to private surgery centres for only a very small percentage of
surgeries provided. Their utilization is further constrained by current policy in BC on which procedures can be done outside a hospital setting (patient complexity, length of stay etc.). Also typically these contracts are for a short period of time in order to meet a financial target such as pay for performance. These short term contracts can create issues of insufficient lead time for surgeon scheduling and lack of sustainability for the private surgery centres.

From a cross health authority perspective, models of care that use a provincial approach to planning, service delivery, and performance monitoring (e.g., cardiac services, thoracic surgery) show benefit in terms of consistency and meeting the needs of patients across the vast geography of the province.

Comparability of data from various sources is a challenge in that reports from the Surgical Patient Registry do not match reports that are produced from the Discharge Abstract Database (DAD). Delays in report production are another area that hampers timely feedback on performance. Robust analysis of the data, to convert it into meaningful and useful information for care providers, administrators and patients, is another area that needs attention.

**Provincial Level**

At the provincial level, the Provincial Surgery Executive Committee (PSEC), which was refreshed in July 2014 and now includes patient representatives, is BC’s strategic oversight committee for the planning of surgical services across the continuum of care for British Columbians with a vision statement for pursuing high quality, patient centered surgical care within a sustainable health system for the residents of British Columbia.

PSEC’s work is aligned with the Ministry of Health strategies and priorities, and uses a patient centered approach to provide advice and recommendations to, and receive strategic direction from, the Ministry with the goal of improving surgical care in accordance with the dimensions of quality. The scope of PSEC’s mandate encompasses strategic direction, planning and engagement, policy formation, and recommendation setting that is provincial in nature involving surgical services. Service delivery is the responsibility of the respective health authorities.

While there are now key elements coming into place, there is a need for a comprehensive surgical quality framework to track performance. This is equally the case for a surgical health human resources strategy addressing education and training, compensation, supply, recruitment and retention of skilled health care team members (physician, nursing and allied health) who are a necessary component in the provision of surgical services. Specifically in terms of surgeon and anaesthesiologist practice and compensation, the current emphasis on individual practices and a fee for service model requires active review and change. Some of the emerging group practice and inter-disciplinary models (e.g. RN surgical first assist, anesthesia assistants, NP anesthetists), are promising as is the growing interest in alternate compensation models including salaried, contract and blended payment models.
As identified, there are issues with accessibility and accuracy of the information in the SPR. There is agreement on the need for a solution to electronically connect the surgeons’ offices with the hospital OR booking offices and the SPR. The result would be accurate synchronized information on patients waiting and their clinical urgency. Ideally the solution would also have decision support tools to assist with optimal scheduling.

As described, the Ministry of Health primarily uses a Population Needs-Based Funding (PNBF) model to equitably allocate operating funding to health authorities, supplemented by a range of targeted funding mechanisms over the last number of years including Activity Based Funding, Pay for Performance, Patient Focused Funding. Better understanding the impact of and then aligning enabling funding strategies to the proposed action plan will be required.
The Next Steps: What We Propose to Do, When and How It Can Be Achieved

The recommendations put forward in this paper push the boundaries of what we have been doing so far and emphasize a need for timely, short and longer term action. I want to emphasize that we are putting forward a range of proposed actions that we think will improve our health services in a number of important areas and better position our health system to meet increasing demand from key patient populations. The actions proposed would be undertaken opportunistically building on initiatives and innovative service delivery already underway across B.C., but also will require a systematic approach to change that builds a truly patient-centred system of care (The British Columbia Patient-Centered Care Framework – hyperlink).

You may have different views on the proposed action, how to improve the system or how to implement these recommendations and that is precisely what we are testing out by posting these papers. Your feedback will be part of a healthy and thoughtful discussion of these recommendations. Over the coming three months my aim is for us to achieve a good level of consensus across key partner and stakeholder groups of what the final set of specific actions should be; and then, for us to move forward collaboratively to figure out the detail, the how and the timing of implementation linked to better meeting current and emerging needs in a timely way. Patients as Partners will be an important part of this process.

I want to assure you the implementation of the final set of recommendations will allow enough flexibility for a diversity of implementation approaches across communities but that I also intend to push us to create a truly integrated system of health care that works for patients and not just for us. Your input, creativity and innovation in shaping and implementing the final set of recommendations at the local, organizational and provincial levels will bring new solutions and enrich our B.C. health system.

A patient-centred and a cross health system approach is required to achieve significant improvement in timely access to appropriate surgical treatments and procedures to realize the vision of high quality, patient centered surgical care within a sustainable health system for the residents of British Columbia. The Institute for Health Improvement (IHI) Triple Aim principles will serve as a guide:

- Improving the health of the population
- Enhancing the patient experience of care (including quality, access, and reliability)
- Reducing, or at least controlling, the per capita cost of care.

The Provincial Surgery Executive Committee (PSEC) has been given the mandate and authority to drive the identification and implementation of surgical improvement actions built on the principle of a collaborative partnership between patients, the health authorities and physicians supported and
enabled by the Ministry of Health, the BC Patient Safety & Quality Council, relevant health professional Colleges, the Doctors of BC and relevant unions. Fundamental to the success of this work will be the need for accurate and timely data and an effective and adequately resourced change management process that engages stakeholders and works effectively with the existing organization and professional cultures.

Specific policy directions and actions are assigned to the practice, organization, and provincial levels. These policy directions build on work that has been undertaken over the last several years and is currently underway through PSEC and the health authorities.

As outlined earlier in this paper, the policy direction will be enacted in a systematic and disciplined approach through five phases. In order to complete phase one (policy development), this draft policy paper on surgical services will be used during stakeholder consultation and engagement sessions in January and February 2015. Finalization of the policy paper is expected to occur in March 2015, with the action plan developed for 2015 – 2017.

There is a need to interface with the other policy papers that are currently in development or have recently been completed, such as Health Human Resources, Community, and Rural Health in order to integrate the strategies into a comprehensive system based plan that meets the current and future needs of the residents of British Columbia.

1. Practice Level - Service Delivery

1.1 Implementing a Patient and Family Centred Approach to Care

This starts with acceptability and information. Patients and their families need to be better informed of the potential benefits, risks and limitations attached to various surgical interventions linked to the presenting issue and related overall health status, especially with respect to elective surgeries. This should involve the patient (and family as appropriate or desired by the patient), the family physician and the surgical specialist. There will be a requirement for fully informed consent based on comprehensive, plain language material available on line and in printed format given to the patient along with fulsome discussion. The information will cover the full care pathway including appropriateness (potential benefits, risks, limitations in terms of outcomes), pre-operative preparation, surgical intervention, detailed post-operative recovery instructions and expected timelines through to being fully healthy back at home.

Equally important is to ensure there are easy to access and well known ways for patients to provide feedback during their journey in care, not exclusively at the end of their journey by focusing only on outcomes. Important lessons will be derived by listening to the patients’ voices on “the what and the how” pertaining to care and services.
"I am very excited to be working on this committee with a group of medical professionals who are so clearly dedicated to making BC's medical system one that is truly patient-centered.

When I think of what I wish for as the outcome for the work we are doing here, it would be that patients will feel included in each step of the surgical process. From the first discussion with their GP to any post-surgical therapies that are required to attain full recovery.”

V., PSEC Patient representative, November 2014

Incrementally increase the amount of information available to patients on the surgical care pathway in terms of best practice standards for timely access, Wait One time (GP to Surgical Consult), Wait Two time (Access to Diagnostics), Wait Three time (Surgical Consult to Surgery Completed), and Wait Four time (Recovery).

Increase the amount of information available on hospital and surgeon performance quality indicators (including NSQIP reports made accessible in plain language).

Introduce standardized patient satisfaction surveys that are provided to patients as part of their discharge planning and are accessible on-line. Introduce standardized follow up calls by relevant nursing/ allied health staff to patients following their surgical procedures and use the same patient surveys across the province for outcome assessment, regardless of the location or the provider of the surgical services, in order to enhance comparability.

1.2 Implement Practice Guidelines for Consulting with Patients on Treatment Options

Consultation on whether surgery, or which type of surgery, is the best option is a key issue for a range of conditions and/or contingent on the age and/or other medical conditions of a patient. Consultation must take into account a range of circumstances:

- surgeries that are scheduled (elective) or unscheduled (emergency)
- high volume routine surgeries, more complex surgeries for patients with chronic conditions and co-morbidities that range from low to medium to high complexity; lower volume highly complex specialized surgery
- surgeries for patients across the age spectrum from neonates and paediatrics, through to adults and older adults.

Equipoise is defined medically as a state of genuine uncertainty about the relative benefits of alternative treatment options. How these options are discussed by the physicians amongst themselves and most importantly with the patient and their families is an important element in providing appropriate and acceptable care.

1.3 Encourage, Support and Implement Alternative Practice Models

The RebalanceMD model serves as an example of a new model of surgical care through diversion to alternative treatments and supports through surgery to rehabilitation and back to optimal
functionality, provided by a team of surgeons working in partnership with a multidisciplinary team of relevant nursing and allied health professionals.

In Regina and Saskatoon surgical and diagnostic capacity has been increased in the publicly funded health system through the use of third-party facilities to offer a range of day procedures in the area of orthopedics, ophthalmology, dental, and ear/nose/throat. Consistently high patient satisfaction ratings illustrate that this service option is embraced by patients.

Team based practice (co-located or virtual), multidisciplinary teams (physician, nursing and allied health), and increased use of contracting (see below) can facilitate improved access and overall quality providing patients with an integrated care pathway.

Health Authorities will work together with surgeons, anesthesiologists, nursing and allied health professionals at a different level of collaboration than experienced to date, to opportunistically and systematically pursue these options as alternates to the current provider centric model. Tapping into the wisdom of the front line providers to create local solutions is one way to avoid the traditional hierarchical approach to implementing change. True engagement and collaboration is required to bring diverse views together to create a common and shared purpose in order to improve service for patients.

2. Organizational Level

2.1 Patient Engagement

Health authorities will ensure patient advisors or representatives are welcomed as members of the senior level Surgery Committee and Surgery Quality Council in each health authority to add their contribution to planning, implementation, and care delivery improvement. Patients will play an important role by participating as advisors on local quality, planning, service implementation, and care delivery committees. Involve patients in the development of education materials for their surgical care. Ask patients – “what do you need to know?” “How would you like to receive the information?”

2.2 Implement a Patient Centred System for Surgical Care

Health authorities working collaboratively with surgeons, anesthesiologists, nursing and allied health professionals will develop standardized care pathways and evidence-based timelines (including Wait Times One, Two, Three and Four) for specific surgical patient groupings linked to:

- High volume routine surgical procedures
- Complex high resource surgical procedures.
The pathways will underpin and support the initiative to implement a Patient and Family Centred Approach to Care. They will follow guidelines and protocols for pre-operative testing that have been developed (Doctors of BC, Choosing Wisely Canada).

“As an overarching comment, I feel privileged to live in a province and country where I am able to access excellent medical care such as I have received. In my experience, if there is an area for improvement I would say that it would be in communication--better communication between GP and specialist, specialist and patient, and specialists to each. Better communication would have, in my case, sped up my diagnosis and treatment and removed some of the stress. I have already seen some evidence of improvement in communication. During my last visit to the specialist, he took out a piece of paper and wrote down all of the steps I am to follow until I am finished my treatment. It was very helpful and I was pleased to see it.”

J., PSEC patient representative, November 2014

LEAN methodology will be applied to the patient journey map for surgical care, including all the steps in the process, such as time for diagnostics and laboratory tests, and follow up care after discharge from hospital. The pathways will address patients living in a variety of geographic locations including urban, metropolitan, rural and remote settings. In this complex adaptive system of health, adoption of LEAN methodology must be developed from the ground up and not implemented in a dogmatic top down fashion. Specifically, health authorities will expand the use of tele health services for pre-surgical assessment and consultation, post-surgical follow-up visits, and education for rural and remote areas where possible.

Ensure a system-wide assessment is taken in order to connect all phases of care from the patient’s perspective to align screening programs with GPs and other stages of the diagnosis and treatment journey, including the surgery teams as warranted.
2.3 Optimize Surgical Infrastructure, Eliminating Backlogs, Ensuring Flow Based on Appropriate Timelines

Health Authorities will continue to move appropriate surgical procedures from the operating room to procedure rooms, from inpatient care to day care or short stay care, and to private surgical centres using public funds.

Using the tiers of service approach, and recommendations from the recent Review of Cardiac Services in the Lower Mainland, determine the location of surgical procedures in order to optimize patient outcomes and optimally use available resources.

Optimize the use of existing resources by analyzing the findings of the Operating Room utilization report as well as other surgical resources. Given the assessment that there is available unused capacity, extremely limited future capital investments, and in some cases underutilized physicians, it is imperative to use existing resources to the best advantage to improve access. Shift the thinking from the resources being owned by the providers, to viewing the resources as available to serve patients.

For some surgical services and locations, a case may be made for greater concentration of surgical services, in turn supporting more standardization and optimal use of available resources. To bring safe access closer requires analysis between consolidation and distribution of services, with the “reasonableness” lens applied. Getting clear on what service is appropriate to be provided where is a difficult conversation that needs to occur.

The surgical infrastructure will build on and support successful prototypes (e.g., Enhanced Recovery After Surgery, Fractured Hip collaborative) and Alternative Practice Models identified above. Introduce pooled referrals, central intake for referrals, and first available surgeon models in health authorities.

Further analysis will be completed of the inpatient cases that are one, two or three day length of stay for suitability for procedures to be provided through publicly funded private surgery centres. Methods used in Australia to develop a 23-hour service model of care for elective surgery could be followed to assist with determining suitability. In that model, high volume procedures, which were those occurring more than a minimum of 200 times over the course of a year and having a length of stay less than 48 hours 50 percent of the time could be identified as procedures suitable for an extended day surgery model.

The range of options adopted must address timely access, eliminate backlogs and mitigate overcapacity pressures from Emergency Departments and medical inpatient units that result in cancelling scheduled surgery.

2.4 Optimizing Surgical Supply Costs
Further leverage the use of Health Shared Services BC given the high importance of procurement of surgical supplies in service delivery.

2.5 Improve Quality Monitoring and Reporting

Introduce NSQIP to all hospitals in BC. Consistently report and monitor the quality indicators pertaining to surgery at the local and health authority level and provide provincial level reports to PSEC.

As NSQIP is just one source of quality outcome data relevant to surgical patients, it is prudent to introduce other available or emerging sources of data to enhance the picture of quality of care.

3.0 Provincial Level – System Based Enabling Support

3.1 Optimize Wait List Management

Determine how best to prepare and develop plans for the next five years, given the population growth projections, impact of an aging population, impact of managing patients who have complex chronic conditions, and the effect of advances in technology. Is this through more day surgery, reducing inpatient surgical care, or deeply engaging in a conversation about appropriateness?

Determine the optimal goal(s) and targets for wait time performance that will be achieved within 5 years.

Define and rename “wait times” by using words that mean something to the patient such as “waiting to see my GP”, “waiting for tests”, “waiting to see the surgeon”, “waiting for my surgery”, “waiting until I can drive my car after surgery”.

The renamed wait times must be linked to data in order to provide meaningful information on access to surgery.

Rename surgery procedures as either “scheduled” or “unscheduled” events to more accurately reflect the nature of the procedures as experienced by the patients.

Determine optimal ways to best manage the surgical patient wait lists and introduce a standardized approach by 2016, such as the New Zealand model to triage patients. Review and revise the wait list management policy in 2016.

Adopt standardized wait list definitions and processes across all health authorities and surgeons’ offices to allow for comparability by 2016.

Complete the diagnosis prioritization code review work in 2015; plan for an audit of procedure codes to occur in late 2016.
Leverage the prioritization code information to determine the most appropriate locations for consolidation of specialized services.

3.2 Develop and Implement a Comprehensive Performance Measurement, Reporting, and Accountability Framework for Surgical Services

Define the optimal state of quality performance for surgical services, meaning “what will it look like in 5 years?” Use plain, easily understood language so that the general public and everyone in the health system understand what it means. This includes accurate, comprehensive, transparent performance data, including what the patients and providers say. The performance framework will outline how to use the data to ensure progress.

The Ministry of Health in collaboration with PSEC will establish public reporting, monitoring and impact/outcome assessment mechanisms for full deployment starting April 2016.

3.3 Implement a Surgical Health Human Resource Strategy

The Ministry of Health in collaboration with PSEC and Health Employers of BC (HEABC) will develop and implement a provincial surgical health human resources strategy. The strategy will need to use accurate data, and include the productive capacity of the members of the health care team (not simply raw numbers) by taking into account age, demographics, stages in career, location (urban/rural, etc.), and practice supports. The strategy will examine College regulations and scope of practice as warranted in order to enhance the use of available health human resources (e.g., anesthesia assistant scope and oversight; nurse practitioner scope of practice; registered nurse surgical first assist scope, specialty nurse scope, physician assistants). The strategy will implement alternative funding approaches for physician services in support of alternative practice models. In addition to the clinical care providers, the strategy needs to highlight the requirements for data analysts, quality leaders, and front line leadership in all venues that provide surgical services such as ORs, ambulatory clinics, and inpatient care areas.

It is critical that population health needs, as the core, will drive the health human resources strategy more so than has occurred in the past.

3.4 Implement a Provincial Surgical IM/IT and Technology Strategy

Establish the Surgical Enterprise Architecture model in 2015 as the solution for surgical wait list management, surgical booking, and synchronization of wait list data between the various stakeholders to create a single and reliable source of information for surgical services.

Complete the implementation plan to have a fully functional interoperable electronic health record (e.h.r.) across the province, including patients having access to their own records, in order to support patients and their care team, regardless of location.
Expand the use of tele health services for pre-surgical assessment and consultation, post-surgical follow up visits, and patient education.

Prototype electronic referrals between Family Physicians and surgeons.

Ensure alignment of the new vision and policy framework for surgical services with the Health Technology Review, an evidence-informed process used to assess and evaluate clinical health technologies (devices, diagnostics, and procedures) for use within health authorities.

The process scope includes the assessment and reassessment of technologies, including those relating to surgical services. Consistent with the vision of increasing value for patients by providing patient-centred, high quality care and services, the process helps ensure that providers are using technology that is proven to be safe and effective for patients.

Continue to strengthen the quality, robustness, and access of health related data in BC that results in evidence to improve policy, make health care stronger, and enhance the health of the population.

3.5 Align Funding and Costing Strategies to Support Policy Directions
Building on the analysis of the existing funding approaches currently underway (PNBF, ABF, and Pay for Performance) align funding methods to support the policy directions. Over the next two years analyze options where funding follows the patient or where the patient directs the funding.

Introduce a costing methodology in BC to quantify costs of care along the surgical care continuum. This methodology will inform decision making and support planning for future services.

3.6 Align Legislation, Regulation, and Policy
In an effort to support select surgical services being performed outside of the acute care hospital setting by private surgery centres using public funds, changes will be required to the Hospital Act. Improved access to surgical services may include performing select surgical procedures which have length of stay up to three days, in private surgery centres using public funds. These changes will require regulatory/legislative amendments.

Establish a link with the private surgery facilities to enhance dialogue and planning as it pertains to surgical services and options available to patients to support their own choices.

3.7 Provincial Surgery Executive Committee Role
PSEC will drive a common vision and a comprehensive policy framework, inclusive of the entire surgical care continuum, that gives priority to improving the quality of surgical services and embed the philosophy of patient centred care into strategic and operational processes. It will facilitate a cross health authority network of administrators, physicians, patients, nurses and allied health professionals to share lessons, spread improvement and drive innovation.
PSEC will lead a consultation process on this paper, and by June 2015, develop through the Standing Committee on Population and Health Services reporting to Leadership Council, an initial two year action plan to make substantive progress on the final set of policy directions, including milestones, targets, objectives and outcomes for the directions set out in the final version of this paper. It will report out on progress in April of the two subsequent years. In March 2017, PSEC will set out a three year action plan on the next steps and targets to continue to improve surgical services in BC.

The Ministry of Health will establish a Surgical Services Secretariat to support and facilitate this direction.