OPTIONS FOR LABORATORY TRANSFORMATION

Presented to British Columbia Ministry of Health, Medical Services and Health Human Resources Division
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1. EXECUTIVE SUMMARY

In May of 2012, the BC Ministry of Health initiated a review of medical laboratory services in British Columbia. There were several reasons for this review. The Ministry believes that there is room for BC’s laboratory delivery model to be optimized and that a strategy can be developed that could result with improved service delivery, increased sustainability, and lower overall costs of delivery.

In addition, the Ministry’s view was that the outcome of the Lower Mainland Consolidation\(^1\) project for laboratory services was mixed and that more work was needed in order to derive savings and efficiencies through greater alignment of business and technology processes associated with the overall delivery of these services.

The Ministry identified a need for a 3rd party, independent, comparator study of laboratory service delivery in jurisdictions in Canada and elsewhere, in order to identify best practices and options to inform the development of a strategy to improve BC’s laboratory service delivery. Consultation with BC’s laboratory stakeholders was also required so that comprehensive options could be proposed.

**Jurisdictional Analysis Findings**

A jurisdictional analysis study was conducted in order to identify laboratory systems that were comparable to British Columbia’s, to identify leading practices and lessons from transformations that could potentially inform BC’s laboratory strategy, and where possible, to compare performance.

Four Canadian and three international jurisdictions were selected for review. The selected jurisdictions were: Alberta, Manitoba, Ontario, Quebec, Australia, England, and New Zealand.

Two significant areas where different practices were observed between British Columbia and the other jurisdictions were the relationship structures between the payer and the public & private laboratories and the establishment of a body to provide provincial oversight and governance.

Three jurisdictions have established relationship structures between the payer and the public and private laboratories that could potentially be relevant to BC:

- In Edmonton, Alberta, public laboratories provide the majority of inpatient testing with funding through a block funded budget. There is a fixed price contract with a single private laboratory to provide all community outpatient and some inpatient services for the region.

\(^1\) In 2009/10 the Ministry initiated the Lower Mainland Consolidation project (“the LMC”) with the objective to consolidate corporate, clinical support and back office functions to achieve savings and efficiencies across the Fraser Health Authority, Provincial Health Services Authority, Vancouver Coastal Health Authority (and their affiliate Providence Health Care) in order to address budget pressures in those Health Authorities. While a significant portion of the LMC focussed on consolidation of non-clinical services for these three Health Authorities, work was also undertaken for some clinical areas including diagnostic imaging and laboratory services performed within the publically funded hospitals.
In Ontario, public laboratories provide all hospital-based inpatient and outpatient testing through a block funded budget. Private laboratories provide community-based outpatient testing with funding through fee-for-service with hard caps for each provider, based on historical market share.

In New Zealand, 6 health regions have contracted all laboratory testing (inpatient and outpatient) to private providers through a tendering process.

There was not consensus amongst the British Columbia stakeholders on whether elements of these arrangements could be beneficial to the BC laboratory system – for example most stakeholders were opposed to a single private provider system, while others suggested that a single provider should be used for all laboratory testing within a region.

Three jurisdictions featured various forms of provincial oversight and governance for the laboratory system that could potentially be relevant to BC:

- In Queensland, Australia, Pathology Queensland governs all public laboratory testing. Queensland has consolidated the majority of testing into one central laboratory and 8 regional hub laboratories.
- In Alberta, Alberta Health Services (AHS) separates control and funding of laboratory services from other healthcare service delivery. AHS funds public laboratory services and manages contracts with private laboratory providers.
- In Manitoba, Diagnostic Services of Manitoba (DSM) delivers public laboratory services (inpatient and outpatient) across the province. It is envisioned that DSM’s scope will be expanded to include responsibility for managing contracts with the private laboratories.

There was not consensus amongst the British Columbia stakeholders on whether elements of these arrangements could be beneficial to the BC laboratory system. While some felt that the lack of provincial oversight and governance was the primary challenge with the current laboratory system, others felt that such a body would create unnecessary bureaucracy.

**British Columbia Stakeholder Consultation Findings**

The broad stakeholder consultation was conducted with representatives from the Health Authority executive and laboratory management, private laboratories, laboratory medicine physicians and physician associations, regulatory bodies, the provincial accreditation body, a patient network group, the Medical Services Commission, and government. The consultations included a discussion of the strengths and weaknesses of the BC laboratory system. A preliminary list of perceived strengths and weaknesses was developed based on reviewing documentation and preliminary conversations. In the stakeholder interviews each perceived strength and weakness was reviewed, and the stakeholders provided their level of agreement with the strength/weakness and rationale. Two of the primary topics discussed were the quality and cost of the BC laboratory system.

There were mixed views on the effectiveness of existing quality programs, and whether anecdotal evidence (such as the lack of major incidents) suggests a high quality system was supported. The appropriateness and effectiveness of the Diagnostic Accreditation Program (DAP) as a quality control mechanism was a polarizing topic amongst the stakeholders. Most agreed that quality is not well-measured; however there were varying opinions on the implications – some were still confident of a high quality system, others felt that without measurement it was impossible to say. Most felt that appropriate checks and balances are in place, with the exception of pathologist interpretation, which was an area of concern for several stakeholders.
There were notable differences in opinion among stakeholders on the ability to realize cost savings in the BC laboratory system.

Generally, the private providers and BC Medical Association felt that current cost control mechanisms for outpatient services are effective.

There was not agreement amongst the regional Laboratory Medical Directors and British Columbia Association of Laboratory Physicians (BCALP):

- Some of the Medical Directors believe that there are significant cost saving opportunities within the public laboratories through changes to where tests are performed
- Other Medical Directors believe that the public system is already efficient, although there may be opportunities to increase individual laboratory efficiency / capacity through Lean and other techniques

Most Health Authority executive believed that there were opportunities to increase efficiency in the system, both within the public system, and in which tests are performed by public and private laboratories.

In addition to the recurring themes of quality and cost, consultations with stakeholders revealed a number of underlying concerns with respect to the current and past attempts at laboratory reform:

- Lack of clear understanding of key issues
- Lack of agreement on key priorities (among and within stakeholder groups)
- Differences in opinion on go-forward strategies (among and within stakeholder groups)
- Lack of trust among key stakeholders
- Belief that clinical and subject matter experts are not involved sufficiently in the process

**Future State Considerations**

**Vision and Goals**

The consultation process revealed that there is consensus among all stakeholders on the broader vision and high-level goals for the BC laboratory system. The challenge for all involved will likely be reaching agreement on the specifics and translating these goals into meaningful actions.

The overarching vision outlined in the Lillian Bayne & Associates report in 2003 resonated with all stakeholders that were interviewed:

“To create a patient-centered laboratory services system that is accountable for high quality, affordable and accessible services for British Columbians and which will be sustainable into the future”

In terms of goals, stakeholders reached consensus on the high-level themes (e.g. accuracy and timeliness), but differences in opinion began to emerge with respect to any detailed definitions of the goals. Broadly speaking, the goals that were discussed during the consultation can be classified into quality, cost and sustainability.
Achieving the Vision and Goals

While there is a small group of stakeholders that believes the status quo is acceptable and preferred, most stakeholders believe that some changes to the laboratory system are necessary if the desired goals are to be achieved. The key risks associated with the status quo and identified as part of this review include:

Risk #1: BC’s laboratory system is not immune to clinically significant laboratory errors

In fact, the current state assessment uncovered some clear gaps with existing quality controls:

- Absence of a formal peer-review mechanism for all pathologists across the province to ensure accuracy and consistency in interpretation and subsequent clinical decision making;
- Lack of controls to ensure continued training and skill advancement of key personnel (e.g. technologists), and lack of consensus on how to address this issue;
- Variability in accreditation practices across providers (e.g. in addition to DAP accreditation, some laboratories in BC are also College of American Pathologists (CAP) and/or International Organization for Standardization (ISO) certified, with some providers clearly expressing the need for improved accreditation standards; and
- Absence of a system-wide quality improvement framework for laboratories.

BC’s experience with quality in diagnostic imaging, and the subsequent Cochrane\(^2\) report, should serve as a catalyst for proactively improving quality within the laboratory system.

Risk #2: Difficulty meeting patient demand for laboratory services, within an increasingly constrained fiscal environment

Given the increasing budgetary pressure on government, meeting patient demand for laboratory services will be difficult within the status quo. The laboratory system needs to not only accommodate more tests (as a result of an aging population and a focus on disease prevention), but also expand as required the scope of tests offered to patients, in order to take advantage of new technologies and new diagnostic capabilities.

It should be clear then that from a system perspective, efficiencies within the existing pool of resources must be realized to accommodate some of the increased demand. In other words, the status quo is likely not adequate in finding efficiencies within the system that will free up the necessary capacity to take on an increased volume and scope of laboratory services.

Risk #3: Existing governance model for laboratory service delivery could be a major barrier to improvement

While the existing governance model for laboratory services may have been adequate in the past, it is now (arguably) the major barrier towards realizing the system goals.

On the inpatient side for laboratory services, the Health Authority governance structure was beneficial in achieving a level of service integration within the boundaries of each organization. However, as the integration efforts are now expanding beyond those boundaries, the governance structure likely needs to be

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\(^2\) In 2011, prompted by concerns regarding the quality of the interpretation of radiology images by three individuals in British Columbia, the Minister of Health Services requested an independent investigation into the credentialing of radiologists and medical imaging quality assurance in BC. This investigation, led by Dr. Douglas Cochrane, Provincial Patient Safety and Quality Officer and Chair of the BC Patient Safety & Quality Council, examined all aspects of the licensing and credentialing of radiologists in BC.
re-examined. In particular, the slow progress of the Lower Mainland Consolidation initiative demonstrates the need for a governance structure that can effectively span not only multiple institutions, but also multiple Health Authorities.

On the outpatient side for laboratory services, the Medical Services Commission (MSC) governance structure is entirely separate from the Health Authority governance structure and planning process. These separate structures limit integration or meaningful planning across both public and private sectors. Preserving the status quo would likely mean that these two sectors would continue to evolve separately.

Perhaps the most significant risk of preserving the existing governance structure is the inability to find additional efficiencies in the system. It can be argued that many of these efficiencies will not come from improved operations within an individual laboratory, but rather through integration and coordination of efforts across multiple laboratories, across multiple regions, and in some cases, across the entire province. To support this level of cross-institutional and cross-regional planning, improvements to the existing governance model are likely needed.

**Risk #4: Continued inability to demonstrate value for money within the BC laboratory system.**

First, increased transparency around laboratory system funding and costs are required to determine the actual investment in the BC laboratory system. This is especially true within the public system where funding and costs of inpatient services are largely unknown. In other words, hospital operations and costs are not separated by inpatient and outpatient services, even though they are funded through two separate streams. As a result, costs are very difficult to match to funding streams preventing a rigorous cost-based determination of funding levels.

Second, a provincial quality framework is required to help the government determine the value that is generated for patients and taxpayers from its investment in the BC laboratory system. The inability to accurately assess cost or quality leaves the laboratory system vulnerable from an audit perspective. Recent Auditor General reports have exposed similar accountability gaps in different parts of the health care system in different provinces.

**Targeted Improvements**

If the status quo is deemed inappropriate going forward, there are a few targeted initiatives within the laboratory system that the Ministry could explore further. The purpose of these potential initiatives would be to address some of the more systemic weaknesses identified in the current state assessment. While these potential initiatives would likely require significant change, they would likely not require the development of a new governance structure:

- **Potential Consideration #1:** Establish formal service contracts with each private provider to build the foundation for true system planning with the private sector and allow the Ministry to begin building in expectations for quality outcomes (e.g. patient wait times for specimen collection).

- **Potential Consideration #2:** Fund all public laboratory services through the hospital global budget to create a proper incentive structure within the public system, shifting the focus away from revenue generation and towards efficiencies and optimal resource deployment.
Potential Consideration #3: Pilot a value-based payment program for laboratory services to support the broader laboratory quality agenda by providing a platform to experiment with alternative, non-volume based, payment mechanisms.

**Governance Structures**

Stakeholder views were largely mixed on the need for major changes to the existing governance model. However, throughout the review it has been determined that the following principles and success factors should guide further exploration of alternative governance structures:

1. Ensuring the laboratory governance structure has appropriate medical leadership, and a clear reporting and accountability structure
2. Allowing for regional variability in service delivery and laboratory operations, but ensuring a framework for strategic direction on key system decisions exists
3. Establishing a proper baseline (e.g. defining and measuring key indicators) prior to the development of any new governance structures

Findings from the jurisdictional analysis suggest that two alternative approaches to laboratory system governance should be explored further to understand their appropriateness for the BC laboratory system: regional governance and provincial governance.

A **regional governance model** could result in the creation of new regional organizations that would have responsibility of governing laboratories within their respective regions. Within the BC context, this could result in the development of an organization that has final authority on key laboratory system decisions and is the single source of accountability within the Lower Mainland region.

The Eastern Ontario Regional Laboratory Association (EORLA) provides an example of a successful regional laboratory organization. EORLA’s governance structure consists of a Board of Directors that spans both administrative leadership (CEOs, VPs, CFOs) and medical leadership (Department of Pathology leads) from its member hospitals. In addition to the Board, EORLA is governed by a number of governance agreements with its member hospitals, including agreements on Membership, Service Levels, Human Resource Transition, Asset Transfer and Occupancy. EORLA is funded from global budgets of its member institutions, and cites its funding mechanism as one of the key success factors.

Given BC’s geography and existing laboratory governance structure through the Health Authorities, a regional governance model (that is similar to EORLA) would likely only make sense in the context of the Lower Mainland region.

A **provincial governance model** could result in the creation of a single organization responsible for governing the laboratory system across the entire province. In many ways, the key success factors of a regional governance structure are also applicable in a provincial governance model. Some of the stakeholders who supported a provincial governance model offered their perspectives on key success factors for a provincial governance model in BC:

1. A set of guiding principles, agreed upon by the key stakeholders in the laboratory system, should first be established to create buy-in and drive the transformation process;
2. A provincial agency should be developed with balanced representation from each Health Authority (one medical lead and one administrative lead), in an open forum designed to build trust; an alternative approach could be developed with one CEO, who is not affiliated with any of the Health Authorities, to ensure the agency is at arm’s length from (but accountable to) both Health Authorities and government;

3. The agency should set goals/expectations, make key funding decisions, and be the final authority on key provincial decisions such as the introduction of new esoteric or high-cost tests (although some decisions would likely have regional variation);

4. Health Authorities should continue to deliver laboratory services and be responsible for implementing the goals and direction (operational accountability would remain with the Health Authorities);

5. Measurement of key cost and quality indicators should be one of the first priorities to enable more informed decision making; and

6. The initial scope of the new agency should include only the public system, consistent with provincial governance models developed in other jurisdictions (Queensland, Manitoba).

The potential benefits of a provincial governance model are also similar to those expected from a regional governance model, but on a larger scale. In summary, a well-functioning provincial governance model would provide:

- Single source of accountability for the governance of the public laboratory system
- Clear roles and mandates for all key stakeholders in the public system
- Formalized structure for service delivery planning, quality measurement and improvement, and performance management
- Improved ability to standardize and disseminate best practices

As described in the jurisdictional analysis section, Pathology Queensland and Diagnostic Services of Manitoba offer examples of successful provincial governance models. Laboratory reform experiences of these and other jurisdictions offer a few key lessons:

- None of the jurisdictions that were studied have developed the ideal laboratory system – all jurisdictions are striving for continuous improvement and are at different stages of their laboratory reform journey
- Developing a new governance structure for laboratory services is a collaborative multi-stakeholder process that takes time; some initial progress (e.g. establishing a new organization) can be achieved within 3-5 years, but realizing the full benefits of governance redesign can take 10-15 years
- Some jurisdictions have been successful in building consensus among stakeholders by framing laboratory reform around quality improvement and capacity building, rather than strictly cost savings
- Certain elements of laboratory systems from other jurisdictions can be classified as successful, but identifying true best practices is not straightforward
  - Local factors (e.g. population density and distribution, geography, fiscal pressures) influence whether a specific model (governance, funding, or service delivery) will work in a specific jurisdiction

The jurisdictional analysis and stakeholder consultation provided some initial direction for the Ministry with respect to alternative governance models. The Ministry should further explore both regional and provincial governance structures within the BC context to develop an initial blueprint that can be shared and refined with the broader stakeholder community.
**Short-Term Opportunities**

Consultations with key stakeholders revealed three potential short-term opportunities that could benefit the broader laboratory system. These opportunities would likely not require broader changes to the system (e.g. new governance structure) and hence could be initiated in the short-term, but a multi-year time frame for completion would be anticipated. The three opportunities include:

1. **Improving ordering practices for laboratory tests.** The only consensus opportunity among all stakeholders was the need to vastly improve ordering practices, both in the hospital and in the community. Stakeholders cited: implementing intelligent order entry and decision support systems, improving education and training programs for both medical students and practicing physicians, and monitoring physician ordering patterns, as priorities going forward.

2. **Developing a provincial quality framework.** There are generally mixed views on the effectiveness of existing quality programs and strategies for strengthening quality within the laboratory sector. However, many stakeholders expressed support for the development of an overarching provincial quality framework.
   
   Also, in light of the Cochrane report, many stakeholders believe that developing controls to ensure accuracy in pathologist interpretation, especially in Anatomic Pathology, is a significant area of opportunity and should be embedded in the provincial quality framework. The establishment of a formal peer-review program for all pathologists was deemed a priority initiative by many pathologists who participated in the consultations.

3. **Conducting a detailed cost study.** A detailed cost study was also identified as a potential short-term opportunity. This study would aim to determine and compare the actual costs of collecting specimens and conducting specific laboratory tests across different public and private labs in BC. While many believe that a detailed cost study would require a significant effort and investment of resources from multiple institutions, they also recognize that it would provide very valuable information to each organization and the broader laboratory system.

**Next Steps**

While this report attempts to articulate the perspectives expressed by different stakeholders and provide some initial direction, a more involved process is required to begin developing trust and reaching consensus on key priorities going forward.

To support this objective, the Ministry could establish a Laboratory Services Expert Panel. The Laboratory Services Expert Panel would have a long-term role, providing recommendations to the Ministry of Health’s Chief Operating Officer on key system reform priorities and subsequently playing an ongoing monitoring role for the delivery of laboratory services. As an initial mandate, the Expert Panel could examine the opportunities presented in the Future State Considerations and Short-Term Opportunities sections of this report.

Many jurisdictions (including Ontario and the UK) have found the Expert Panel approach to be helpful in channelling the expertise of clinicians and subject matter experts to build consensus on complex system issues, and adding legitimacy to proposed recommendations and next steps.
2. INTRODUCTION

In May 2012, the BC Ministry of Health initiated a review of medical laboratory services\(^3\) in British Columbia. There were several reasons for this review. Previous Ministry reviews indicated that there is room for BC's laboratory delivery model to be optimized and that a strategy can be developed that could result with improved service delivery, increased sustainability, and lower overall costs of delivery.

In addition, the Ministry’s view was that the outcome of the Lower Mainland Consolidation\(^4\) project for laboratory services was mixed and that more work was needed in order to derive savings and efficiencies through greater alignment of business and technology processes associated with the overall delivery of these services.

The Ministry identified a need for a 3rd party, independent, comparator study of laboratory service delivery in jurisdictions in Canada and elsewhere, in order to identify best practices and options to inform the development of a strategy to improve BC's laboratory service delivery. Consultation with BC's laboratory stakeholders was also required so that comprehensive options could be proposed.

The Ministry engaged SECOR Consulting to complete the study. The scope of the work included research and interviews regarding the laboratory systems in four Canadian and three international jurisdictions, extensive consultation with stakeholders of the BC laboratory system, the development of strategic options, and this final report.

The sections included in this report are as follows:

- Report Methodology – The approach used to complete the Jurisdictional Analysis Study and Stakeholder Consultation
- Overview of the BC Laboratory System – A brief overview of the BC Laboratory System, including service delivery, funding, and governance
- Jurisdictional Analysis Summary – A summary of the key features of the laboratory systems in the participating jurisdictions, and the key implications for BC
- Stakeholder Feedback on the BC Laboratory System – A summary of the feedback on the BC laboratory system collected during stakeholder consultation
- Future State Considerations – Commentary on the vision and goals for BC laboratory services, and options to inform the strategy to improve laboratory service delivery

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\(^3\) For the purposes of this review, laboratory medicine is the clinical service provided through pathology, the branch of medicine that studies the causes, nature and effects of diseases.

\(^4\) In 2009/10 the Ministry initiated the Lower Mainland Consolidation project (“the LMC”) with the objective to consolidate corporate, clinical support and back office functions to achieve savings and efficiencies across the Fraser Health Authority, Provincial Health Services Authority, Vancouver Coastal Health Authority (and their affiliate Providence Health Care) in order to address budget pressures in those Health Authorities. While a significant portion of the LMC focussed on consolidation of non-clinical services for these three Health Authorities, work was also undertaken for some clinical areas including diagnostic imaging and laboratory services performed within the publically funded hospitals.
Options for Laboratory Transformation

- Short-term Opportunities – Several opportunities, which could be initiated in the short-term, which may improve the BC laboratory system
- Conclusion – Closing comments
- Appendix I: Jurisdictional Analysis – Further details collected from the seven participating jurisdictions
- Appendix II: Stakeholder Engagement Participants – Full list of stakeholder consultation participants
- Appendix III: Pathologist Survey Results – Summarized results from electronic survey distributed to all BC Pathologists.
3. REPORT METHODOLOGY

The laboratory review included two main information collection work streams – a review of laboratory practices in other Canadian and international jurisdictions, and extensive consultation with stakeholders of the BC laboratory system.

JURISDICTIONAL ANALYSIS APPROACH

OBJECTIVE

The objective for jurisdictional analysis was to identify laboratory systems that were comparable to British Columbia’s, to identify leading practices and lessons from transformations that could potentially inform BC’s laboratory strategy, and where possible, to compare performance.

PARTICIPATING JURISDICTIONS

Based on the requirements of the Ministry of Health, four Canadian and three international jurisdictions were selected for analysis. The selected jurisdictions were:

Canada
- Alberta
- Manitoba
- Ontario
- Quebec

International
- Australia
- England
- New Zealand

METHODOLOGY

The jurisdictional analysis focused on three key areas:
- Service Delivery Model (use of public and private providers)
- Funding Model
- Governance
In addition, when available, metrics to quantify the cost and quality of the laboratory systems were collected. For each jurisdiction, previous research was used, supplemented with publically available information, to develop a draft fact base. Contacts for each jurisdiction were identified and interviews were conducted to validate and update the fact base and collect additional detail.

**STAKEHOLDER CONSULTATION APPROACH**

**OBJECTIVE**

The objective of stakeholder consultation was to understand the perspectives of a broad group of stakeholders to inform the development of strategic options for the BC laboratory system.

**PARTICIPATING STAKEHOLDER GROUPS**

The stakeholder consultation included in-person or telephone meetings with representatives from the following groups (see full list of participants in Appendix II).

**Table 1: Stakeholders**

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<th>CATEGORY</th>
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<td>Patients</td>
<td>Patient Voices Network</td>
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<td>Physicians</td>
<td>British Columbia Medical Association</td>
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<td>BC Society of General Practitioners</td>
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<td>BC Society of Specialist Physicians &amp; Surgeons</td>
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<td>Pathologists</td>
<td>BC Association of Laboratory Physicians</td>
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<td>BC Pathologists and Laboratory Physicians (via electronic survey)</td>
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<td>Laboratory Management</td>
<td>Laboratory Managers and Directors from all 6 Health Authorities, and Lower Mainland Laboratory Consolidation</td>
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<td>Health Employers Association of BC</td>
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<td>CATEGORY</td>
<td>STAKEHOLDER GROUP</td>
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| Private Laboratories | LifeLabs Medical Laboratory Services  
          | Valley Medical Laboratories  
          | BC Biomedical Laboratories |
| Academia      | UBC Faculty of Medicine  
          | UBC Department of Pathology  
          | BC Institute of Technology  
          | College of New Caledonia  
          | BC Society of Laboratory Science |
| Government    | Ministry of Health  
          | Ministry of Advanced Education |
| Commission    | Medical Services Commission |
| Colleges      | College of Physicians and Surgeons of BC  
          | College of Dental Surgeons of BC  
          | College of Registered Nurses of BC  
          | College of Midwives of BC |
| Accreditation | Diagnostic Accreditation Program |

**Methodology**

Facilitation material was developed and validated with the Ministry of Health and distributed to the participants in advance. Each interview covered the following topics:

- Introduction (purpose of consultation, review of stakeholder engagement plan, and overview of the BC laboratory system)
- Strengths and Weaknesses of the BC Laboratory System (lists of perceived strengths and weaknesses of the BC laboratory system were reviewed, and the stakeholders commented on their agreement and rationale, and provided additional strengths and weaknesses)
- Vision and Goals of the BC Laboratory System (a vision and goals for the BC laboratory system were reviewed, and the stakeholders commented on their agreement and rationale, and provided additional strengths and weaknesses)
- Opportunities (six initiatives which could be beneficial to the BC laboratory system were reviewed, and the stakeholders provided commentary on whether they felt the initiatives would be beneficial, and why)
- System Changes (six practices from other jurisdictions, related to public/private provide scope, and provincial governance/coordination were reviewed, and the stakeholders provided commentary on whether they felt elements of the practices could be beneficial to the BC laboratory system, and why)

In addition, a voluntary electronic survey covering similar topics was distributed to all BC pathologists and laboratory medicine physicians (See survey results in Appendix III).

A group of patients was consulted through the Patient Voices Network, a patient advocacy group. The patient consultation focused on the strengths and weaknesses of the laboratory system from a patient perspective, including access to service, timeliness of service, accuracy, and overall satisfaction.
4. OVERVIEW OF THE BC LABORATORY SYSTEM

SERVICE DELIVERY

In British Columbia the laboratory system includes both public and private providers. All inpatient testing is performed by public providers, while community-based testing on outpatients is performed by both public and private providers. Note that in this report, that outpatient testing is referred to as “hospital-based” if the specimen was collected at the hospital (e.g. patient was attending a clinic at the hospital and had a specimen collected at the outpatient laboratory) and “community-based” if the specimen was collected at a collection site, which could be either public (run by a Health Authority) or private.

Figure 1: BC Health Authorities
There are 106 public laboratories in hospitals in BC. These laboratories are run by the 6 Health Authorities (HAs), including five regional HAs (Northern, Interior, Vancouver Island, Vancouver Coastal, and Fraser), and the Provincial Health Services Authority, which coordinates and provides provincial programs and specialized services, such as BC Children’s and Women’s Hospital and the BC Cancer Agency. All inpatient testing is performed in these public laboratories. In addition, the Health Authorities run 38 public collection sites for outpatients in the community (specimen collection for outpatients is also available at the vast majority of hospitals). Most complex testing is performed by public laboratories.

There are three main private providers in BC. These providers perform only community-based outpatient testing. The private providers, LifeLabs Medical Laboratory Services (LifeLabs), BC Biomedical Laboratories (BC Bio), and Valley Medical Laboratories, operate 137 collection sites, primarily in urban areas. The majority of LifeLab’s collection sites are located in the Lower Mainland and Vancouver Island, while BC Bio’s sites are in the Lower Mainland and Valley Medical’s sites are in the Interior. The private laboratories provide primarily routine testing.

**FUNDING**

Outpatient testing is funded through the Medical Services Plan fee-for-service mechanism (FFS). Inpatient testing is funded through the global budgets from the Health Authorities (part of each hospital’s operating budget). Since private laboratories provide only outpatient testing, they are funded exclusively by FFS. Public laboratories, which provide both inpatient and outpatient testing, are funded by both a global budget and FFS.

In the 2010/11 fiscal year, inpatient funding for laboratories was approximately $316M. Outpatient funding was approximately $307M, of which 68% went to private laboratories and 32% to public laboratories.

Since 2006/07, several mechanisms were introduced through negotiated agreements between the Government of British Columbia and the British Columbia Medical Association to manage outpatient testing costs and to better reflect the economies of scale for routine tests. Discounts are applied to a set of routine tests, once certain volume thresholds are met (thresholds and discount rates are applied to each individual private provider, and to each Health Authority). In addition, annual expenditure targets are specified, and if expenditures deviate by a margin of +/- 3% (now +/- 1%), corrective action is taken. As well, specific fee reductions and new billing rules were implemented for some tests.

**GOVERNANCE**

Outpatient diagnostic services, which include outpatient laboratory services provided by public and private providers, are governed by the *Medicare Protection Act (the Act)*. The Act establishes the Medical Services Commission (MSC) with responsibility to administer the Act, including the establishment and approval of diagnostic facilities to provide services. Under the Act, the MSC is also responsible for administering and monitoring all aspects of British Columbia’s Medical Services Plan (MSP), which includes the provision and payment of benefits rendered in approved diagnostic facilities by licensed medical practitioners.
Additional legislative oversight is provided for in the “Medical and Health Care Services Regulation”, which gives further specificity to the laboratory application process, the criteria for approval and any limitations that may be imposed by the Commission on a laboratory.

Hospital inpatient laboratory services are insured through the Hospital Insurance Act, and administered and delivered by the Health Authorities. The Health Authorities are funded through global budgets from the Ministry of Health for these inpatient services.

The College of Physicians and Surgeons of BC’s bylaws made under the Health Professions Act include a section for the “Diagnostic Accreditation Program”. The section specifies that every diagnostic facility must be accredited by the Diagnostic Accreditation Program Committee, a committee of the College, before it can render a diagnostic service. The committee is responsible to determine if a diagnostic facility should be accredited to provide a diagnostic service. In addition, the bylaws state that registrants of the College may not practise in a diagnostic facility in British Columbia unless the facility is accredited by the Diagnostic Accreditation Program.

The MSP requires that all diagnostic facilities be accredited by the Diagnostic Accreditation Program and have a valid certificate of approval from the Medical Services Commission in order to submit claims to the Medical Services Plan. A certificate of approval will not be issued without prior accreditation by the Diagnostic Accreditation Program. The bylaws of the College of Physicians and Surgeons of British Columbia made under the Health Professions Act specify that every diagnostic facility must appoint a medical director (a laboratory physician), who is responsible for, and has control over, the standards, delivery, and all matters pertaining to procedures and medical care in the diagnostic facility.

5. JURISDICTIONAL ANALYSIS SUMMARY

The jurisdiction analysis study focused on the service delivery model, funding model, and governance structure used in other jurisdictions. In identifying possible future state options for BC’s laboratory system, several insights can be drawn from the way other provinces and international jurisdictions structure their laboratory systems.

Canadian jurisdictions consulted included Alberta, Manitoba, Ontario, and Quebec. Australia (specifically the state of Queensland), England, and New Zealand were also profiled to gather international findings. This section summarizes the key features of each jurisdiction and describes some key features which could be beneficial to the BC laboratory system (along with feedback from stakeholder consultation). All Canadian jurisdictions consulted with that had public-funded laboratory services provided by private laboratories had contracts or service agreements with the private providers. Full write-ups of each jurisdiction are included in Appendix I.

SECOR
Alberta’s laboratory services have undergone a series of major restructurings since 1997 that has impacted the entire laboratory services delivery system. In 1995/1996, the budget for laboratory services was reduced by 40% in an effort to reduce health care costs that had widespread repercussions. In 2008 Alberta’s healthcare system was restructured into a single health authority, Alberta Health Services (AHS), which is divided into 5 health zones (Calgary, Edmonton, North, Central, and South). AHS has the responsibility of determining the laboratory service delivery model, which varies by zone, as well as managing contracts with private providers.

Alberta’s laboratory system is a mix of public and private providers. The largest private provider, DynaLifeDX, is contracted by AHS to provide all community outpatient testing for the Edmonton zone and some inpatient testing (as well as some outpatient testing in the more rural North and Central zones). The remainder of inpatient testing in the Edmonton zone is provided by public laboratories. Another private provider, Medicine Hat Diagnostic Laboratory (MHDL), operates a laboratory with 4 collection sites in the South zone. Calgary Laboratory Services (CLS), a wholly-owned subsidiary of AHS provides all laboratory testing in the Calgary zone. All inpatient and most outpatient testing in the North, Central, and South zones is provided by public laboratories.

The public laboratories and CLS are funded via global budgets from AHS (separated from budgets for other healthcare delivery). DynaLifeDX is funded via fee-for-service with a hard cap (as of April 2012). MHDL is funded via fee-for-service with a soft cap (discounted rates after a threshold has been reached).

Manitoba’s laboratory system is predominantly public, with one major private laboratory and several other small private providers. Public laboratory services are provided by Diagnostic Services of Manitoba (DSM), a not-for-profit corporation responsible for all hospital-based testing (inpatient and outpatient) and community outpatient testing in rural areas. Gamma Dynacare, the primary private laboratory, provides community outpatient testing in Winnipeg and Brandon. In addition there are several other small private laboratories, which each operate one or two collection sites.

DSM is funded through a global budget. Private laboratory providers are under contract to the provincial government department Manitoba Health and are funded based on fee-for-service with a hard cap (once the cap is reached tests are no longer reimbursed), these contracts are with Manitoba Health. This cap has resulted in annual savings that have averaged 12%, with significant variation year by year.
ONTARIO

Laboratory services in Ontario are provided by both public hospital laboratories, and community laboratories owned by private companies. Public laboratories are responsible for all hospital-based testing (inpatient and outpatient), while private laboratories are responsible for all community-based testing (outpatient). There are nine private laboratories in Ontario, and three of them, Gamma-Dynacare, LifeLabs, and CML provide over 95% of community laboratory test volumes.

Public laboratories in hospitals are funded via hospital global budgets. Private laboratories are funded through fee-for-service based on a service, funding and accountability agreement between Ontario’s Ministry of Health and Long Term Care and the Ontario Association of Medical Laboratories. Each private provider has a hard cap on annual billings, which is based on their historical market share (as of 1996/97). There are exceptions to the hard cap, such as introduction of new tests and pilot projects.

QUEBEC

In Quebec, all publicly-funded laboratory services (inpatient and outpatient) are provided by public laboratories. There are private laboratories in Quebec (the largest two are Biron and Gamma-Dynacare), whose services are paid out-of-pocket or through private insurance plans.

Public laboratories are funded through block funding provided to each of the 18 Regional Health Boards by the Quebec Ministry of Health and Social Services. Laboratory services are funded within the overall block for all healthcare services.

AUSTRALIA

Australia has a dual public/private healthcare system. Laboratories in private hospitals are separated from the public system. Within the public system, inpatient and hospital-based outpatient testing is performed by public laboratories within the hospitals. Community-based outpatient testing is performed by private laboratories (there are three large private laboratories and a number of smaller laboratories, some of which are “boutique” laboratories that provide particular specialized services).

Community-based outpatient testing is funded with a capped fee-for-service system through the federal Medicare Benefits Schedule (MBS). MBS only covers a portion of the fee and the remainder is paid for by the patient (or covered by private health insurance). MBS uses “episode coning”, where only the three highest cost tests from each patient episode are paid for, to reflect the economies of laboratory testing. Patients may also be referred to the public laboratories for outpatient testing, in which case the public hospital receives the MBS rate. Hospitals are funded by their state or territory government, and laboratories are funded as part of the global budgets.
**Transformation Case Study: Queensland, Australia**

Queensland’s extremely similar geography and population profile, as well as its success in laboratory transformation make it an ideal example for British Columbia. The state of Queensland is now a high-functioning, fully integrated jurisdiction for laboratory services.

Prior to transformation efforts, only one third of laboratories in Queensland were accredited. Quality of service was poor outside of urban areas and was a key driver for change and consolidation. Equipment was sub-par and turnaround times were very poor.

Pathology Queensland, a provincial agency tasked with funding and managing the entire public laboratory system in the state was created in 1996/97 as one of the first major laboratory reforms in the state. Transformation efforts then included a state-wide IT system completed in 1999 that gives equitable access to rural areas. All laboratories, clinical users within hospitals, and collection centers have access to a common Laboratory Information System (LIS). The LIS does not currently include electronic order entry, but laboratory results are available online to ordering physicians. The system now includes 200 handheld iStat analyzers which can upload data from any hospital into the system, giving even the most remote locations (e.g. Thursday Island) high quality access to the system. Consolidation of individual laboratory budgets into a central budget was also a pivotal step in allowing other aspects of transformation to progress. The crowning achievement was the construction and creation of the central laboratory in Brisbane that receives all specialized non-STAT tests from the entire state – a process that took 10 years to complete.

The most relevant barriers to transformation came from certain hospitals that were reluctant to give up their services, or where multiple hospitals were vying to be the hub of a given area. Motivated, persistent medical leadership helped solve these problems. The success of the central laboratory also brought most critics onboard.

The current system, which consists of one central laboratory in the Brisbane area, 8 regional laboratories and 24 district laboratories (33 in total), has increased access in all areas including urban laboratories that provided high quality services pre-transformation. Turnaround times improved in all areas: remote, rural and urban.

**England**

Laboratory services (inpatient and outpatient) in England are primarily provided in National Health Services (NHS) public hospitals. Private laboratories are only present in private hospitals and represent a small portion of the laboratory system (in 2006, less than 10% of the UK population had private health insurance).

Private laboratory services are funded by private insurance or out-of-pocket in private hospitals. Public laboratories within NHS hospitals are funded through Primary Care Trusts. The Primary Care Trusts use a payment by results system, where hospitals are compensated for each episode of care rather than through global budgets. Laboratory services are funded as part of the overall hospital funding for an “episode of care” although a portion of the funding is not explicitly designated for the laboratory. Primary Care Trusts
also fund community-based laboratory services, although the funding mechanism varies by region (including fixed contracts, cost-per-head, fee-for-service, etc.).

NEW ZEALAND

New Zealand, with a population of less than 4.4M people, is divided into 20 District Health Boards (DHBs). Each DHB determines their laboratory service delivery model. Most DHBs use public laboratories in hospitals for inpatient and hospital-based outpatient services and private laboratories for community-based outpatient services in urban areas. However, several regions have contracted out all laboratory services to private laboratories through tendering processes. There are 8 private laboratory providers in New Zealand; some are present only in one or two DHBs, while others have coverage across most of the country.

Funding for laboratory services is provided from the DHBs, who are funded by the Ministry of Health. In regions where public providers are used, they are funded by global budgets. Private laboratory funding varies by DHB – in some cases (where laboratory services have been contracted out), there is a fixed funding amount. In other cases private laboratories are funded by fee-for-service.

KEY FEATURES: SERVICE DELIVERY MODEL

Several of the jurisdictions featured different relationship structures between the payer and the public/private laboratories. Three jurisdictions were highlighted and reviewed with British Columbia stakeholders.

EDMONTON ZONE, ALBERTA

In the Edmonton zone in Alberta (Population: 782,439), public laboratories provide the majority of inpatient testing with funding through a block funded budget. There is a fixed price contract with a single private laboratory to provide all community outpatient and some inpatient services for the region (inpatient tests not on public laboratory test menus are performed by the private laboratory).

ONTARIO

In Ontario (Population: 13,372,996), public laboratories provide all hospital-based inpatient and outpatient testing through a block funded budget. Private laboratories (95% of testing volume is from 3 laboratories) are contracted to provide community-based outpatient testing with funding through fee-for-service with hard caps for each provider, based on historical market share.
In New Zealand, 6 health regions have contracted all laboratory testing (inpatient and outpatient) to private providers through a tendering process.

In three of the regions the arrangements have been successful and the targeted benefits have been achieved. However, in one region, Auckland, after the transition to the private provider there were significant system failures, resulting in poor service and hundreds of complaints. Service has since improved.

**Implications for BC**

There are different incentives from providers and payers with a hard cap or fixed budget compared to fee-for-service, and appropriate service level agreements may be needed to ensure sustainability.

Most British Columbia stakeholders were opposed to a single private provider and felt that competition encourages innovation and customer service. Some suggested that for certain regions (primarily outside of the Lower Mainland), a single provider for all testing (outpatient and inpatient) could be advantageous.

Most (but not all) stakeholders felt that there is a role for both public and private laboratories in BC.

Some stakeholders felt that, in cases where it made sense (from patient care, quality, turnaround time, and efficiency perspectives), certain inpatient tests could be contracted out to private laboratories. Others disagreed strongly with this idea.

**Key Features: Provincial Oversight and Governance**

Several of the jurisdictions featured various forms of provincial oversight and governance for the laboratory system. Three jurisdictions were highlighted and reviewed with British Columbia stakeholders.

**Queensland, Australia**

In Queensland, Australia (Population: 4,580,700), Pathology Queensland (separate from other healthcare service delivery) governs all public laboratory testing (inpatient and hospital-based outpatients), based on block funding.

Queensland has consolidated the majority of testing into 1 central laboratory in Brisbane and 8 regional hub laboratories, despite providing coverage to 4.5M people in an area almost twice the size of British Columbia. As described in the above study, the consolidation was achieved over 10+ years and has been enabled by strong medical leadership, a single, integrated Laboratory Information System, a robust transportation network, and use of Point of Care testing in remote regions.

Pathology Queensland does not have oversight of the 3 private laboratories that provide community outpatient testing in the region.
Options for Laboratory Transformation

ALBERTA

In Alberta (Population: 3,584,304), Alberta Health Services (the equivalent of a single health authority for the province) separates control and funding of laboratory services from other healthcare service delivery.

AHS funds public laboratory services, including a wholly-owned, not-for-profit subsidiary, Calgary Laboratory Services, who provides laboratory services to the Calgary zone.

AHS also manages contracts with private laboratory providers, based on fixed price contracts for defined scopes of service.

MANITOBA

In Manitoba (Population: 1,250,484), the Diagnostic Services of Manitoba (DSM) organization has been created to deliver public laboratory services (inpatient and outpatient) across the province.

In addition, one primary private laboratory, and several other smaller private laboratories provide outpatient services in some areas, with funding by fee-for-service with a hard cap. It is envisioned that DSM’s scope will one day be expanded to include responsibility for managing contracts with the private laboratories.

IMPLICATIONS FOR BC

Some stakeholders felt that it could be beneficial to establish a provincial organization with responsibilities for funding and oversight of the BC laboratory system (although most stakeholders felt that this could only work if operational and budget accountability remained with the Health Authorities and laboratories). This type of arrangement is seen in Queensland, where local laboratories have control over budgets, staffing, and operations, while discipline control is centralized. The pathologists who were supportive of this idea felt it was essential that the provincial organization have strong medical leadership.

Most stakeholders were opposed to the idea of separating laboratory staff from others in the Health Authorities (as with DSM in Manitoba).
6. Stakeholder Feedback on the BC Laboratory System

The stakeholder consultation included a discussion of the strengths and weaknesses of the BC laboratory system.

A preliminary list of perceived strengths and weaknesses was developed based on reviewing documentation and preliminary conversations. In the stakeholder interviews each perceived strength and weakness was reviewed, and the stakeholders provided their level of agreement with the strength/weakness and rationale. The findings of this exercise are summarized in this section. Representative comments from the laboratory medicine physician survey that covered these perceived strengths and weaknesses are also covered in this section – for full survey results see Appendix III.

Perception of Quality of the BC Laboratory System

The discussion on quality was prefaced with the following statement, which stakeholders were asked to comment on:

"Anecdotal evidence suggests that BC has a high quality laboratory system for patients. However, other than the DAP accreditation mechanism, BC does not have a provincial framework for quality, or a means for assessing the quality of its laboratories."

There were mixed views on the effectiveness of existing quality programs, and whether anecdotal evidence (such as the lack of major incidents) suggests a high quality system was supported. The appropriateness and effectiveness of the Diagnostic Accreditation Program (DAP) as a quality control mechanism was a polarizing topic amongst the stakeholders. Most agreed that quality is not well-measured; however there were varying opinions on the implications – some were still confident of a high quality system, others felt that without measurement it was impossible to say. Most felt that appropriate checks and balances are in place, with the exception of pathologist interpretation, which was an area of concern for several stakeholders. Comments included:

- The DAP shows that we have a high quality system
- The DAP is very robust, with high standards
- The DAP is the best accreditation program in the country, but it is focused on processes, not people. Continuing education is required for all laboratory staff
- The DAP used to be effective, but organizational changes have reduced its value
- The DAP is not sufficient – some laboratories use other quality standards that they feel are more appropriate
- This is a high quality system due to internal checks and balances, and quality assurance measures are in place
- We have a high quality system, but don’t have a good handle on measurement or agreement on indicators
Options for Laboratory Transformation

- This is a high quality system because physicians take responsibility
- Not sure if BC has a high quality system without measurement
- There is no evidence that the system is poor – an indicator that our system is high quality is that it is “invisible”
- Health authorities and regions do measure quality, but improved provincial coordination could be beneficial
- Data on quality exists, but standardization and comparability is the issue
- Transfusion Medicine is a good example of standards and procedures that have been established and spread across the province
- For a provincial quality framework, descriptive standards are required since needs vary across the province
- With the current peer review process we have been lucky to avoid a crisis
- Laboratories have been impacted by Cochrane Report⁵ – they have good quality assurance practices but need more resources to fully comply
- Need manpower and financial support to improve measurement
- Need to reduce variability in system, with more provincial standards

Perception of Cost of the BC Laboratory System

There were notable differences in opinion among stakeholders on the ability to realize cost savings in the BC laboratory system.

Generally, the private providers and BC Medical Association felt that current cost control mechanisms for outpatient services are effective. Key points expressed include:

- The Laboratory Agreement is essentially a hard cap for outpatient laboratory services, as total MSP funding for laboratories regularly falls short of negotiated targets. The most recent Laboratory Agreement has further strengthened the restrictions on the total funding for outpatient services. (see Perceived weakness: Only uncapped fee-for-service funding model in Canada)
- Inefficiencies in the public laboratory system should be the government’s priority going forward, and a potential source of cost savings
- One of the private laboratories suggested that per capita cost differences for outpatient laboratory funding between Ontario and BC (BC costs were 37% higher in FY2010-11) were largely explained by differences in what services are covered by funding, labour costs, and frequency of collection site visits (there are more collection site visits per capita in BC than in Ontario)

⁵ In 2011, prompted by concerns regarding the quality of the interpretation of radiology images by three individuals in British Columbia, the Minister of Health Services requested an independent investigation into the credentialing of radiologists and medical imaging quality assurance in BC. This investigation, led by Dr. Douglas Cochrane, Provincial Patient Safety and Quality Officer and Chair of the BC Patient Safety & Quality Council, examined all aspects of the licensing and credentialing of radiologists in BC.
There was not agreement amongst the regional Laboratory Medical Directors and BCALP:

- Some of the Medical Directors believe that there are significant cost saving opportunities within the public laboratories through changes to where tests are performed.
- Other Medical Directors believe that the public system is already efficient, although there may be opportunities to increase individual laboratory efficiency / capacity through Lean and other techniques.

Most Health Authority executives believed that there were opportunities to increase efficiency in the system, both through changes to the delineation of tests across public and private laboratories, and through operational improvements within the public system.

PERCEIVED STRENGTHS OF THE BC LABORATORY SYSTEM

PERCEIVED STRENGTH: EXCELLENT RELATIONSHIPS WITHIN THE LABORATORY COMMUNITY, AND WITH PRIMARY CARE PHYSICIANS AND SPECIALISTS

This perceived strength was supported by almost all stakeholders (with some caveats), with emphasis on physician interaction. 67% of laboratory physicians agreed or strongly agreed, while 11% disagreed or strongly disagreed. Comments included:

- Good relations with GPs, specialists, patients, and nurses.
- A key to the success of the laboratory system is that laboratory physicians in BC are on equal footing with the rest of the physicians in the province.
- Overall relationships are strong, but there is variation across the province.
- Relationships within a Health Authority are strong, but challenges across Health Authorities.
- Strong relationships developed over the years with the current laboratory structure – being locally provided allows for consistent contact and communication.
- Good relationships but not excellent.
- Strong from a scientific / medical perspective.
- Some tensions between public and private laboratories.
- Interplay between clinicians and laboratory physicians is limited in anatomic pathology – the pathologists are under pressure to sign out cases and usually do not have time to discuss cases with the clinician.
- Some relationships are excellent and some are poor – different remuneration systems result in marked income disparities and result in different groups having different agendas.
- In some cases there is a reluctance to work together.
**PERCEIVED STRENGTH: STRONG MEDICAL LEADERSHIP AND OVERSIGHT, WITH LINKAGES TO ACADEMIA.**
This perceived strength was supported by most stakeholders, although some felt that this area is a weakness, specifically from a system leadership perspective and challenges with academic linkages. 47% of laboratory physicians agreed or strongly agreed, while 23% disagreed or strongly disagreed. Comments included:

- Laboratory medicine is a medical practice with strong physicians
- Medical leadership is a strength for BC relative to the rest of Canada (referring to Microbiology & Infectious Disease)
- The Diagnostic Accreditation Program has strong medical leadership (through advisory committees)
- In some Health Authorities medical leadership is very strong and there is rational coordination of testing and strong oversight
- Strong medical oversight of laboratory services in larger centres however oversight is lacking in smaller laboratories (where general pathologists are often too busy with anatomic pathology workload and lacking in subspecialty expertise to provide adequate oversight of the clinical pathology disciplines)
- Strong leadership from a medical perspective, but not from an overall system leadership perspective
- Medical leadership is sorely lacking – labs are largely run by non-physicians
- Within the Lower Mainland the medical leadership is primarily reactive rather than proactive – there is not enough long-term strategic planning and the service heads are suspicious of one another and are trying to maintain their own resources rather than cooperating
- Medical leadership has been impeded by repeated re-organizations, which have added bureaucracy and taken away resources from the front line
- It is increasingly difficult to maintain an academic mandate with the regional clinical workload – not enough protected time
- Linkage to academia is a challenge, demands are too high and activities are under-funded

**PERCEIVED STRENGTH: SEVERAL SUCCESSFUL EXAMPLES OF RATIONALIZED TESTING THROUGH SERVICE INTEGRATION EFFORTS.**
Although most stakeholders agreed that there had been examples of service integration within Health Authorities, many pointed out that there are still significant opportunities to improve the service delivery model and that efforts across Health Authorities have not yet been successful. Some stakeholders indicated there had been no examples of success. 49% of laboratory physicians agreed or strongly agreed, while 16% disagreed or strongly disagreed. Key themes from the comments included:

- Most Health Authorities pointed to examples within their region that have been successful
- Laboratory medical leadership suggested that successful integration efforts are medically led, not by a top-down bureaucratic model
- Pathologists generally felt that services were appropriately rationalized within their regional Health Authority (or noted successful provincial testing performed by the PHSA)
- Health Authority executive mostly felt that there are further opportunities to improve the service delivery model, and that there are no cross-Health Authority examples
- Consolidation initiatives, including Lower Mainland Consolidation (LMC) and Health Shared Services BC have not been seen as successes, with turf wars, top-down approaches, and lack of medical oversight
Options for Laboratory Transformation

cited as challenges (improved LIS integration was identified as a positive outcome from the LMC initiative)

- In some rural regions political agendas are a barrier to improving the service delivery model
- No evidence has been provided to show that previous integration efforts have been successful from a financial or patient care perspective
- Past rationalized efforts have been reversed due to inefficiency, delays, substandard quality control, and increased costs

**Perceived strength: High quality education and training programs for medical students, residents, technologists, and laboratory assistants**

Again, most stakeholders agreed that education and training are strengths of the BC laboratory system, although some issues were identified. 65% of laboratory physicians agreed or strongly agreed, while 17% disagreed or strongly disagreed. Key themes from the comments included:

- Strong education of laboratory medical students, and strong continuing medical education for pathologists
- Strong Technologist education programs, although Continuing Medical Education for technologists is not always available and maintaining competencies is a challenge
- Lack of a regulatory body for Technologists was specified as a major challenge by the BC Society for Laboratory Science and education institutions
- Some strong Laboratory Assistant education programs, although certain institutions do not properly prepare Laboratory Assistants for job demands
- Education of other medical students about Laboratory Medicine was mostly thought of as a weakness, and a contributor to utilization management challenges (some suggested that the education on how to interpret test results is strong, but education on when to use laboratory tests is weak)
- Most felt that demands on existing staff to support education has increased, one group of pathologists suggested that the demands had increased to the point where they are not achievable, and education should now be considered a weakness
- Some pathologists felt that medical students get little exposure to the roles in the laboratory and do not see it as a medical role and as a result do not consider laboratory medicine as a career

**Perceived strength: A role for both the public and private sector in service delivery**

Stakeholders generally agreed that there is a role for both the public and private sector in service delivery. However many were not convinced that BC currently has the right mix, and some suggested that the model is flawed. 56% of laboratory physicians agreed or strongly agreed, while 12% disagreed or strongly disagreed. Comments/general themes included:

- Both the private sector and public sector laboratories are very good at what they do
- Healthy to have other options to hospitals for laboratories – private laboratories are entrepreneurial and drive technological advances
- Some stakeholders from the public laboratory system were concerned that the private laboratories “cherry pick” the simple / high volume tests, and that the public laboratories are left with complex tests
Options for Laboratory Transformation

- Several suggested that there is a role for both the public and private laboratories, but the current system isn’t correct
- Both the public and private laboratories have brought many benefits to the delivery of laboratory services in BC, but the lack of integration between the two sectors compromises quality and is overly expensive
- Most favoured having multiple private laboratories as opposed to a single provider / monopoly. However there was some support for having a single service provider in each region (which could be public or private)
- There are opportunities to improve the coordination between public and private laboratories – currently the patient and physician experiences are not seamless
- Private involvement is a conflict of interest, and only makes sense if government is reaping cost savings from private involvement. Private involvement has created fragmentation, confusion, and duplication
- Publicly-delivered laboratory services should be protected, and hospital-based outpatient testing should be enhanced

OTHER STRENGTHS:
Stakeholders suggested other strengths of the BC laboratory system, including:

- An innovative system
- A strong medical practice
- The public laboratories have been adaptable and flexible to absorb impacts, such as new clinical programs, fee cuts, etc.
- Electronic integration for providers and patients (still room for improvement)
- Dedicated, resourceful staff, with low absenteeism rates
- Good results distribution system and adoption of electronic records
- Equipment is fairly current (in some laboratories)
- Strong patient focus
- Good access for patients
- Strong hospital-based governance for hospital laboratories, which respect site-specific clinical needs
- An appropriate degree of redundancy to accommodate major infrastructure alterations or disasters
- Constructive competition that promotes innovation and customer service
- Laboratory services are accessible (including mobile laboratory services offered by some laboratories)
- Laboratories contribute to the best health outcomes in Canada
- Cooperative relationship between pathologists and the Ministry of Health
- Relatively efficient system
PERCEIVED WEAKNESSES OF THE BC LABORATORY SYSTEM

PERCEIVED WEAKNESS: LACK OF OVERARCHING PROVINCIAL STRATEGY FOR MANAGING THE QUALITY AND EFFICIENCY OF THE LABORATORY SYSTEM

PERCEIVED WEAKNESS: ABSENCE OF A GOVERNANCE STRUCTURE THAT HAS A MANDATE FOR OVERSEEING SERVICE DELIVERY PLANNING AND ENSURING OPTIMAL DEPLOYMENT OF RESOURCES

These two perceived weaknesses generated a wide range of responses. While some saw the lack of a provincial strategy and governance structure as the main weakness of the laboratory system in BC, others felt that provincial planning is not needed (and that the absence is a strength). 40% of laboratory physicians agreed or strongly agreed with both perceived weakness, while 32% and 38% disagreed or strongly disagreed, respectively. Comments included:

- This is a weakness because no planning is done that spans the entire laboratory system – inpatient and outpatient testing, public and private providers
- A provincial oversight body would improve the laboratory system, but a set of guiding principles needs to be set first
- A provincial strategy should not attempt to manage – the strategy should set goals, management is better accomplished on-site in a distributed fashion
- There should be a provincial agency that makes public laboratory funding decisions, as well as other decisions that are provincial in nature. Operational and budget accountability should remain with the Health Authorities
- There should be a provincial agency with balanced representation from the Health Authorities, including both medical and administrative leaders
- The provincial agency should include discipline-specific expert panels
- There should be a provincial agency but it should not be controlled by the Ministry of Health – a setup like the BC Provincial Renal Agency could potentially work
- In a true cost-accounted and transparent system with proven identification of the lowest cost quality provider such a strategy would be a relief
- A provincial quality framework should be incorporated into the strategy and governance model
- The system needs to remain responsive to local needs
- Laboratory is a medical service, not a commodity – a provincial strategy and governance model is not needed
- It is not clear that a provincial strategy and governance structure would be beneficial. What is the problem that the Ministry is trying to solve?
- Provincial management is too far from the ground and would stifle innovation. It could be beneficial to set targets and expectations and let the regions worry about delivery
- Current structure within the Health Authorities is reasonable and an extra layer of bureaucracy is not needed
Options for Laboratory Transformation

- Such a strategy would be an expensive waste of time and effort that would invite additional bureaucracy and not improve patient care
- Some strategic thinking can be done at a provincial level, but implementation must be local
- These perceived issues are manufactured and have nothing to do with making patient quality better. “Provincial” approach did not work in Lower Mainland with consolidation efforts
- Having provincial oversight of service delivery planning is the wrong direction to take

**PERCEIVED WEAKNESS: LACK OF FORMAL AGREEMENTS THAT ESTABLISH SERVICE LEVEL AND PERFORMANCE EXPECTATIONS FOR LABORATORY PROVIDERS**

A slight majority of stakeholders agreed that this was a weakness, although many pointed out that most areas of healthcare don’t use formal agreements. Those who did feel that there should be formal agreements thought that they should cover both the public and private laboratories. Those who opposed the idea (primarily Medical Directors) suggested that formal agreements are appropriate for factories / commodities, not for a medical service. 43% of laboratory physicians agreed or strongly agreed, while 29% disagreed or strongly disagreed. Those who disagreed tended to be more vocal, and many respondents in disagreement noted the same comments. Comments included:

- Formal agreements are needed – should apply to both the public and the private laboratories
- Formal agreements are needed and absent – but this is true of the entire healthcare system
- Past work from the Provincial Laboratory Coordinating Office (PLCO) defined the medical requirements for laboratories in communities of different sizes – this work could be leveraged in establishing agreements
- Formal agreements should be in place to ensure stability and fairness for all groups
- Agreements would be challenging to implement due to variation in local needs and specialized laboratories
- With proper strategy and governance, formal agreements aren’t needed
- Formal agreements are not applicable for a medical service – laboratory medicine is not a commodity
- As the current system is able to deliver quality results in a timely manner, instituting agreements would have no beneficial effect
- Service level agreements should be determined by clinical programs, not by government
- Formal agreements between payers and providers setting service level expectations are not in the spirit of patient-centered service and care

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6 The Provincial Laboratory Coordinating Office (PLCO) was established with a five year mandate to act as the coordinating body of the Ministry of Health Services and oversee the development of an improved system for managing and delivering high-quality, best practice laboratory services. The PLCO supported a range of initiatives including utilisation management, innovation, lean management, quality assurance, information technology and educational placements for medical laboratory technologists. The PLCO term concluded in 2008.
PERCEIVED WEAKNESS: REDUNDANT INFRASTRUCTURE (COLLECTION SITES, TRANSPORTATION NETWORKS, TESTING, AND INFORMATION SYSTEMS), PRIMARILY IN URBAN AREAS

There were mixed opinions about redundant infrastructure. Most Health Authority executive agreed (focussing on redundancy in the Lower Mainland); however several of the Medical Leadership disagreed regarding some areas of redundancy. 38% of laboratory physicians agreed or strongly agreed, while 29% disagreed or strongly disagreed.

Comments included:

- Not necessarily redundant, but infrastructure is uncoordinated and has been developed opportunistically
- Esoteric testing is offered in too many locations
- There are too many collection sites in the Lower Mainland
- This is THE major weakness of the current system and has led to testing overcapacity, excessive repeat testing, and fragmentation of patient care through different laboratory information systems
- Redundancy in rural areas is necessary – consolidation makes less sense in larger geographic regions outside of the Lower Mainland
- There is some redundancy in the public sector in the greater Vancouver area, such as flow cytometry and cytogenetics, which could be consolidated
- Redundancy between private and public laboratories with an opportunity for savings if all testing was done in public laboratories
- Public laboratories competing for community outpatient testing has the wrong incentive
- There is redundancy in transportation networks – could be better coordinated
- In order to increase system reliability, redundancy is needed. If testing is consolidated into a single site the chances of system failure increases
- Medical testing requires “redundant infrastructure” because it is a mission-critical system
- Information System redundancy is improving – Provincial Laboratory Information Solution7 (PLIS) is a success
- More collection sites are needed, there are always lineups
- All major hospitals need full laboratory services – laboratories need to be where the clinical demand is
- Free market forces take care of redundancy for private laboratories and collection sites

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7 PLIS is a provincial repository of consolidated diagnostic laboratory test results that are accessible to authorized caregivers across British Columbia
Regarding collection sites and redundancy, information was collected from the Canadian jurisdictions who participated in the jurisdictional analysis study. This information includes all locations where outpatient specimen collection is available, including publicly and privately run collection sites, and hospitals.

As a province, BC has more collection sites per capita than Alberta and Ontario, similar numbers to Quebec, and fewer than Manitoba (Manitoba’s population density is less than half that of BC’s).

**Figure 2: Collection Sites per Capita, Provinces**
The concerns around redundancy and collection sites were primarily referring to urban areas. The following graph compares the collection sites per capita in the 11 Canadian cities with populations over 500,000.

Vancouver has the second highest number of sites per capita, and more than three times as many sites per capita as Montreal, Toronto, Calgary, and Brampton. (* Note that Montreal and Quebec numbers are from a previous study completed in 2005)

Figure 3: Collection Sites per Capita, Cities

**PERCEIVED WEAKNESS: ABSENCE OF CLEAR ACCOUNTABILITY STRUCTURES AND PRACTICE PLANS FOR ACADEMIC MANDATES**

Many of the stakeholders did not comment on this perceived weakness. The majority of those who did comment agreed with the weakness, with the absence of academic funding plans being the primary driver of the challenge. 53% of laboratory physicians agreed or strongly agreed, while 19% disagreed or strongly disagreed. Comments included:

- Funding issues need to be fixed – academic activities need to be acknowledged and separated
- Academic side is a “big black hole”
Options for Laboratory Transformation

- It would be appropriate to have clear guidelines as to how much time is devoted to research and what the end results of that research should be and if those end results were met in a timely fashion
- This is currently a weakness but is actively being worked on by UBC Department of Pathology
- There isn’t enough infrastructure to support the medical school expansion
- Measuring academic performance is not simple
- With absence of academic funding plans it is hard to have accountability – this is a fundamental issue for all medical departments at UBC
- The physicians in academic institutions are not accountable to anyone; least transparent system in Canada
- Most other provinces have a hybrid funding model for academic physicians – this could be beneficial in BC
- There is accountability on education – the Faculty of Medicine requires evidence that teaching activities have been delivered. The challenge relates more to research activities.
- Academic activities also have implications on technologists – effort is required to support research and this isn’t funded
- Academic physicians understand their expectations and obligations – there is a lack of trust from the Ministry of Health
- The academic output of BC laboratory physicians is disproportionately high relative to their number and resources – things are working well and don’t need additional bureaucracy

PERCEIVED WEAKNESS: ONLY UNCAPPED FEE-FOR-SERVICE FUNDING MODEL IN CANADA
Many of the stakeholders disagreed with this weakness, based on the Laboratory Agreement and volume discounting, which they feel effectively controls costs. Those who agreed with the weakness feel that costs can be better controlled with a different funding model. A total of 25% of laboratory physicians agreed or strongly agreed, while 38% disagreed or strongly disagreed. Comments included:

- There are trust issues between the Ministry of Health and providers with a fee-for-service model. With a capped model in Ontario, their Ministry interacts with the private laboratories as trusted partners
- There are benefits to a competitive fee-for-service structure
- The Laboratory Agreement and Laboratory Volume Discounting effectively control costs
- The target MSP remuneration and laboratory volume discounting give BC a capped fee-for-service funding model
- In some areas (e.g. cytogenetics) there are minimal economies of scale and a capped model is not appropriate
- The soft cap that has been in place for several years has saved millions of dollars – hard caps would handicap ongoing development and innovation of the system
- This is not a weakness if fees are appropriate; the current cost control mechanisms are working
As the Figure 4: Annual Outpatient Spending shows, Laboratory Volume Discounting has reduced outpatient costs by $15-32M annually over the past five years. Outpatient testing was slightly below (less than 1.42% to 0.13%) targets for 2007/08 through 2010/11 and exceeded the target by 0.26% in 2011/12.

**PERCEIVED WEAKNESS: ABSENCE OF A RESPONSIVE MECHANISM TO ENSURE FEES ARE IN LINE WITH ACTUAL COSTS OF DELIVERY THE SERVICE**

Most stakeholders agreed that this is a weakness of the current system. Comments included:

- A more rigorous and continuous review process is needed
- There is a mechanism but it is non-responsive – too slow and bureaucratic
- There are efforts, such as volume discounting and removing old tests, but they are not timely
- This is a weakness, but not unique to laboratories, or unique to BC
- This is a weakness, as is the lack of timeliness of the process to introduce new tests
- Laboratories have a good understanding of their costs – there is a lack of trust from the Ministry of Health and the Health Authorities
- Current MSP fees are based upon an extensive costing study and the volume discounting mechanism accounts for economies of scale
This is addressed by the new Laboratory Agreement, which has a committee to review fees

In clinical laboratories the professional fee component is not appropriate

The MSC process ensures that fees are in line with costs

PERCEIVED WEAKNESS: ABSENCE OF A RESPONSIVE MECHANISM TO MANAGE UTILIZATION AND ENSURE UNNECESSARY TESTING IS MINIMIZED

This was the only perceived weakness that had unanimous agreement from stakeholders. There was acknowledgement of existing initiatives, mostly at the local level. Most felt that this area is not solely the responsibility of the laboratories. Comments included:

- Need Computerized Physician Order Entry (CPOE) with rules and guidelines built in to make any progress in controlling utilization
- Laboratories think that they can control utilization but they can’t
- Need access to historical test results to reduce duplicate test ordering
- There is also the issue of under-utilization – the weakness should be re-phrased as “… and assure that appropriate testing is performed”
- The cost impact of re-testing is not well understood
- Guideline committees exist, but more could be done
- There are lots of ordering guidelines in hospitals, but these need to be monitored, updated, and enforced
- In the absence of decision support, could add incentives (e.g. make a portion of laboratory tests come out of the ordering department’s budget)
- GPs order more tests when they are new (they are unsure of their performance and use tests as a way to check their diagnoses). Over time they become more confident and order fewer tests.
- Physician ordering behaviour varies significantly
- Utilization management cannot be achieved at a central, provincial level – it is a hospital-by-hospital or even test-by-test concept
- Although utilization is a challenge, volume growth has decreased recently (outpatient volume growth has slowed to under 4% for the previous three years)

OTHER WEAKNESSES:

Stakeholders suggested other weaknesses of the BC laboratory system, including:

- Ministry of Health doesn’t recognize laboratory as a medical practice
- Ministry of Health over-spends on consultants to analyze the laboratory system rather than investing directly in the system
- The relentless pursuit of consolidation and integration has damaged staff morale
- Reform initiatives are not transparent and viewed with suspicion
- There is an aging workforce and insufficient HHR planning
- Multiple fiefdoms in the public sector prevent cooperation
Options for Laboratory Transformation

- Lack of a province-wide integrated laboratory information system
- Government policy of favouring public laboratories over privates rather than providing funding and licenses in a fair and open manner based on efficiency, quality, and merit
- The laboratory doesn’t have enough input and consideration for new clinical programs, which often impact laboratory volumes without funding adjustments
- Empowerment of communities – when politicians get involved there is pressure for sub-optimal service delivery
- The short duration of “contracts” to supply laboratory services is destabilizing and does not permit the laboratories an adequate horizon to make significant capital investments
- There is a lack of standards for Laboratory Assistant education, and ongoing education for Laboratory Assistants and Techs
- There is a lack of will to make substantial changes to the laboratory system
- Laboratory services are allocated funds separately from other medical services – this sets up a lack of appreciation of laboratory costs by the users of the services (users should be “paying” for laboratory services out of their budgets)
- There aren’t good mechanisms for peer review
- It is difficult to change the locations of collection sites
- There is too much diversity in the funding mechanisms for pathologists
- Capital is not deployed effectively in public laboratories
- There is a lack of cross-over for pathologists between the public system and LifeLabs
- There is a lack of a regulatory body for technologists
- Province-wide testing programs could be run more effectively
- There should be better access to test data
- Excelleris should be adopted more broadly

Patient Perspectives on the BC Laboratory System

A focus group was conducted with five users of the community laboratory system in BC via the Patient Voices Network, a patient advocacy group. The patients were frequent users of the community laboratory system and featured members from Vernon, Vancouver Island, Burnaby (2) and Penticton.

Overall, the patient group was satisfied with the laboratory system and rated it as performing at or better than other health services in BC. The group was satisfied with access to collection sites (in terms of locations) and the hours of operation and generally trusted the BC laboratory system. Of the patients that had access to the Excelleris’ My eHealth product, they were satisfied with its performance.

However, there were some common concerns shared by the group. They voiced concerns related to long wait times for specimen collection, inefficient patient identification processes with unnecessary redundancy, and a lack of confidentiality in the patient identification and specimen collection processes (due to questions being
asked with other patients in close proximity). The biggest concerns regarding wait times were from the patients with chronic diseases who were tested regularly and were required to fast in advance of their tests.

One patient shared a frustrating experience where, instead of the staff from the collection site following up with the ordering physician to resolve an issue, the patient had to go back to their GP for clarification and then return to the collection site another day.

The patient group had recommendations for the laboratory system including computerized requisition systems, a quality assurance program and a separate check in desk and expedited process for frequent users.
7. FUTURE STATE CONSIDERATIONS

VISION AND GOALS

The consultation process revealed that there is consensus among all stakeholders on the broader vision and high-level goals for the BC laboratory system. The challenge for all involved will likely be reaching agreement on the specifics and translating these goals into meaningful actions.

The overarching vision outlined in the Lillian Bayne & Associates report in 2003 resonated with all stakeholders that were interviewed:

“To create a patient-centered laboratory services system that is accountable for high quality, affordable and accessible services for British Columbians and which will be sustainable into the future”

Many stakeholders stressed the importance of the ‘patient-centered’ aspect of the vision, with many emphasizing that a patient-focused system should be the ultimate goal. Stakeholders also commented on a patient-centered system not only in terms of service levels (e.g. wait times, result turnaround times), but also in terms of providing patients with the full suite of diagnostic capabilities (especially in the context of continuous advances in technology).

In terms of goals, stakeholders reached consensus on the high-level themes (e.g. accuracy and timeliness), but differences in opinion began to emerge with respect to any detailed definitions of the goals. Broadly speaking, the goals that were discussed during the consultation can be classified into three groups: Quality, Cost and Sustainability.

QUALITY

A high quality laboratory system was clearly identified as one of the goals, and one that directly supports the notion of a patient-centered laboratory system. Most stakeholders also generally agreed with the most important elements of quality, those being:

- Appropriateness: ensuring that the tests being ordered are not only appropriate, but also meaningful and effective – i.e. providing value in clinical decision making
- Accessibility: ensuring that all BC residents have appropriate access to laboratory services
- Timeliness: ensuring that patients receive timely service and obtain test results in a timely manner
- Accuracy: ensuring that test results are accurate

It should be noted that the four dimensions outlined above and the associated definitions are preliminary and should only serve as a starting point in a broader, more exhaustive discussion of quality in the laboratory system context. While there is agreement that quality is one of the pillars of the vision, there is a lack of
agreement on how quality should be defined in the laboratory system context (as discussed in the Stakeholder Feedback section).

As will be further described in the Short-Term Opportunities section, a broader provincial quality framework initiative could be used as a catalyst for developing quality definitions and associated methodologies that are unanimously supported by all stakeholders.

The BC Patient Safety and Quality Council should likely be one of the key partners in the development of agreed-upon definitions for quality within the laboratory context. The dimensions of quality as defined in the BC Health Quality Matrix should likely serve as a guiding framework for the development of laboratory-specific definitions of quality. These broader quality dimensions as defined by the BC Patient Safety and Quality Council include:

- Acceptability: Care that is respectful to patient and family needs, preferences, and values;
- Appropriateness: Care provided is evidence-based and specific to individual clinical needs;
- Accessibility: Ease with which health services are reached;
- Safety: Avoiding harm resulting from care;
- Effectiveness: Care that is known to achieve intended outcomes;
- Equity: Distribution of health care and its benefits fairly according to population need; and
- Efficiency: Optimal use of resources to yield maximum benefits and results.

Cost

Cost was also identified as one of the high-level goals of the BC laboratory system. Many stakeholders described cost not only in terms of efficiency to ensure optimal use of available resources (one of the BC Patient Safety and Quality Council quality dimensions), but also in terms of the value generated for patients and taxpayers from the investment in BC’s laboratory system.

An extension of the cost-effective goal is ensuring that the BC laboratory system is in line with best practices in other jurisdictions with respect to laboratory system costs and the value generated from the investment. Further, cost is also an important part of the value for money equation. As discussed in a subsequent section of the report, in an era of increasing fiscal accountability, delivering value for money has become a priority for governments.

Some stakeholders also believe that there is a trade-off between cost and quality. However, to properly assess whether, or to what extent this trade-off exists, there needs to be an improved understanding of laboratory costs and a significantly improved understanding of quality at the system level.
SUSTAINABILITY

Finally, stakeholders identified sustainability as one of the broader goals for the BC laboratory system. Different stakeholders had different priorities and perspectives on sustainability, but nonetheless the following key definitions of sustainability emerged – a sustainable system is:

- Proactive, rather than reactive, continually seeking to take advantage of new technologies to deliver improved diagnostic capabilities and services to patients;
- Cost-effective and efficient, to ensure that improved diagnostic capabilities can be delivered within increasing budgetary constraints;
- Flexible, to allow some local differences in service delivery and operating model design given that a one-size-fits-all solution is not appropriate within BC’s geographical context;
- Forward-looking, to ensure that health human resource requirements are properly planned and supported;
- Provider-attentive, to ensure providers feel valued and engaged in system planning; and
- Integrated with the broader health system, to ensure laboratory services are appropriately used by clinicians and deliver valuable results to patients.

KEY SUCCESS FACTORS

In addition to identifying the high-level goals of the BC laboratory system, some stakeholders identified the key success factors for not only defining more specific goals, but also subsequently achieving those goals. These success factors include:

- An accountability structure that ensures the laboratory system goals are being achieved;
- Buy-in and full engagement from the key stakeholders;
- More meaningful and broader engagement of patients (perhaps similar to the Divisions of Family Practice patient engagement model);
- A clear definition of academic roles and responsibilities (i.e. academic and clinical expectations of physicians working in academic centers); and
- A more comprehensive view of the laboratory system that includes not only the diagnostic component, but also examines the role of laboratories in monitoring, surveillance, and environmental activities.

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8 World class, modern, and innovative were also words that were used to describe a sustainable system, but are all implied in the ‘proactive’ definition
WILL THE STATUS QUO ACHIEVE THE DESIRED VISION AND GOALS?

While there is a small group of stakeholders that believes the status quo is acceptable and preferred, most stakeholders believe that some changes to the laboratory system are necessary if the desired goals are to be achieved. This section describes the key risks associated with the status quo.

Risk #1: BC’s laboratory system is not immune to clinically significant laboratory errors

Proponents of the status quo would argue that “if it ain’t broke, don’t fix it.” While it is certainly true that the BC laboratory system has not experienced any clinically significant events like laboratory systems in some of the other jurisdictions or other areas of healthcare have, this success should not imply that existing quality control mechanisms are sufficient.

In fact, the current state assessment uncovered some clear gaps with existing quality controls:

- Absence of a formal peer-review mechanism for all pathologists across the province to ensure accuracy and consistency in interpretation and subsequent clinical decision making;
- Lack of controls to ensure continued training and skill advancement of key personnel (e.g. technologists), and lack of consensus on how to address this issue;
- Variability in accreditation practices across providers (e.g. in addition to DAP accreditation, some laboratories in BC are also College of American Pathologists (CAP) and/or International Organization for Standardization (ISO) certified), with some providers clearly expressing the need for improved accreditation standards; and
- Absence of a system-wide quality improvement framework for laboratories.

BC’s experience with quality in diagnostic imaging, and the subsequent Cochrane report, should serve as a catalyst for proactively improving quality within the laboratory system.

Risk #2: Difficulty meeting patient demand for laboratory services, within an increasingly constrained fiscal environment

Growth in the demand for laboratory services is being fuelled by three primary factors:

1. **Increasing focus on disease prevention and early detection.** Public policy direction has reinforced the focus on prevention and early detection, which rely significantly on the capabilities of diagnostic services.

2. **Innovation in the fields of molecular biology and genetics.** Fairly recent advancements in these fields have created an entirely new and complimentary array of potential diagnostic laboratory techniques.

3. **Aging population.** The well documented trend of an aging population has a profound impact on utilization of medical laboratory services.

Given the increasing budgetary pressure on government, meeting patient demand for laboratory services will be difficult within the status quo. The laboratory system needs to not only accommodate more tests (as a result of an aging population and a focus on disease prevention), but also expand as required the scope of tests offered to patients, in order to take advantage of new technologies and new diagnostic capabilities. This, of course would be consistent with the previously identified vision and goals of quality and sustainability.
It should be clear then that from a system perspective, efficiencies within the existing pool of resources must be realized to accommodate some of the increased demand. In other words, the status quo is likely not adequate in finding efficiencies within the system that will free up the necessary capacity to take on an increased volume and scope of laboratory services.

**Risk #3: Existing governance model for laboratory service delivery could be a major barrier to improvement**

While the existing governance model for laboratory services may have been adequate in the past, it is now (arguably) the major barrier towards realizing the system goals.

On the inpatient side for laboratory services, the Health Authority governance structure was beneficial in achieving a level of service integration within the boundaries of each organization. However, as the integration efforts are now expanding beyond those boundaries, the governance structure likely needs to be re-examined. In particular, the slow progress of the Lower Mainland Consolidation initiative demonstrates the need for a governance structure that can effectively span not only multiple institutions, but also multiple Health Authorities.

On the outpatient side for laboratory services, the MSC governance structure is entirely separate from the Health Authority governance structure and planning process. These two separate structures limit integration or meaningful planning across both public and private sectors. Preserving the status quo would likely mean that these two sectors would continue to evolve separately.

Perhaps the most significant risk of preserving the existing governance structure is the inability to find additional efficiencies in the system (as discussed under Risk #2). It can be argued that many of these efficiencies will not come from improved operations within an individual laboratory, but rather through integration and coordination of efforts across multiple laboratories, across multiple regions, and in some cases, across the entire province. To support this level of cross-institutional and cross-regional planning, improvements to the existing governance model are likely needed.

Improvements to the existing governance model would also be expected to benefit quality improvement initiatives by creating a stronger platform for quality and a mandate for a provincial quality framework.

**Risk #4: Continued inability to demonstrate value for money within the BC laboratory system**

In an era of increasing fiscal accountability, determining value for money has become a priority for governments. Health Canada has adopted a framework from the 2009 Treasury Board Policy on Evaluation that helps the federal government assess the value generated (for taxpayers and patients) from investments in the health care system.

One of the requirements of this framework is a demonstration of efficiency and economy, which is defined as an “assessment of resource utilization in relation to the production of outputs and progress toward expected outcomes.” Based on this definition, it is currently difficult to assess the efficiency and economy (and by extension value for money) of the BC laboratory system.
First, increased transparency around laboratory system funding and costs are required to determine the actual investment in the BC laboratory system. This is especially true within the public system where funding and costs of inpatient services are largely unknown. In other words, hospital operations and costs are not separated by inpatient and outpatient services, even though they are funded through two separate streams. As a result, costs are very difficult to match to funding streams preventing a rigorous cost-based determination of funding levels.

Second, as described in the current state assessments, a provincial quality framework is required to help the government determine the value that is generated for patients and taxpayers from its investment in the BC laboratory system.

The inability to accurately assess cost or quality leaves the laboratory system vulnerable from an audit perspective. Recent Auditor General reports have exposed similar accountability gaps in different parts of the health care system in different provinces.

**Should the Ministry Explore Targeted Improvements Within the Laboratory System?**

If the status quo is deemed inappropriate going forward, there are a few targeted initiatives within the laboratory system that the Ministry could explore further. The purpose of these potential initiatives would be to address some of the more systemic weaknesses identified in the current state assessment. While these potential initiatives would likely require significant change, they would likely not require the development of a new governance structure.

**Potential Consideration #1: Establish formal service contracts with each private provider**

The potential rationale for establishing formal service contracts could include the following:

- Existing funding mechanisms for private laboratory providers are entirely volume-based, thus limiting the Ministry’s ability to influence service levels or develop any requirements for private providers; and,

- Among the jurisdictions studied, with the exception of Quebec, BC is the only jurisdiction that does not have formal agreements with its private laboratory providers. Jurisdictions such as Ontario and Australia have formal agreements with each provider that enable them to be partners in service delivery planning (e.g. defining service level expectations, discussing capabilities, defining appropriate scope).

One of the potential benefits of developing service contracts with providers is that it could build the foundation for true system planning with the private sector. This planning capability would allow the system to be more proactive – consistent with the goals that were previously outlined – by for example, discussing capabilities of private providers to absorb potential increases in the demand for new tests.

Another potential benefit is that service contracts would allow the Ministry to begin building in expectations for quality outcomes (e.g. patient wait times for specimen collection). These expectations would be aligned to the broader provincial quality framework, and would allow the system to begin developing a consistent set of quality standards across both public and private providers.
From the provider perspective, service contracts would offer the potential of long-term certainty. While the contract details would dictate the effectiveness of this approach, certainty on future revenues would simplify capital planning and potentially encourage investment in new technologies. The goal of these investments would be to support innovation that would ideally result in improved efficiencies and the addition of new diagnostic capabilities.

The risk of this initiative is that not all stakeholders supported the idea of implementing service contracts with private providers. While specific concerns were not raised during the consultation, follow-up discussions would be required to understand the potential negative impacts of transitioning to service contracts.

**Potential Consideration #2: Fund all public laboratory services through the hospital global budget**

The Ministry could consider removing the ability of public laboratories to bill MSP for outpatient work (for samples collected in both hospital-based and community-based collection stations), with an associated increase in global budget funding to absorb the additional costs of outpatient laboratory testing. The rationale for this approach includes the following:

1. Laboratory services, along with other diagnostic services, are an outlier within BC, as the only major hospital service that is not a cost center, but rather a revenue generator for the hospital;\(^9\)
2. BC is an outlier externally, as the only jurisdiction that funds hospital outpatient services on a fee-for-service basis, and only jurisdiction that has dual sources of funding for hospital laboratory services; and
3. As the distinction of inpatient and outpatient services becomes less clear with community based care becoming more prevalent, more and more hospital services traditionally funded by the global budget can be defined as outpatient services.

The major implication of this approach is that it creates conflicting incentives for hospitals. As such, many hospitals view their outpatient laboratory work as a source of revenue rather than cost. This is in contrast to how most other departments in the hospital are operated.

By funding all hospital laboratory services through the global budget, a proper incentive structure for public laboratories could be created, and the focus would likely shift away from revenue generation and towards efficiencies and optimal resource deployment. As a result, hospitals and/or HAs would have the necessary incentive to explore alternative delivery mechanisms, including the outsourcing of some of the routine outpatient testing. The benefit of these approaches could result in the freeing up of valuable laboratory resources that could be redeployed elsewhere to address other laboratory-related priorities.

The key risk associated with this option is that the revenue generated from outpatient laboratory services is frequently used to fund other areas of the hospital. By removing this revenue source, other programs within the hospital could be negatively impacted. To ensure these impacts are neutralized, an adequate increase in global budget funding would be required. Such an exercise would have to be carefully planned and likely\(^9\) Hospital laboratories bill the Medical Services Plan on a fee-for-service basis for any outpatient testing that is performed by the laboratory. This funding is in addition to the laboratory funding that is provided through the hospital’s global budget.
executed on a hospital-by-hospital basis, taking into account the difficulty in matching inpatient and outpatient operating costs to the two existing funding streams.

_Potential Consideration #3: Pilot a value-based payment program for laboratory services_

A value-based payment program for laboratory services could support the broader laboratory quality agenda by providing a platform to experiment with alternative, non-volume based, payment mechanisms. The key benefit of this pilot program would be to accelerate the process of defining quality measures and desired outcomes within the laboratory system. Piloting this program at a number of institutions across the province would allow the laboratory system to identify the variables and incentives that are most impactful delivering improved outcomes.

This type of pilot program could have longer-term impacts. Results of the pilot could provide an important input into future decision-making, especially in the design of potential alternative laboratory funding mechanisms that could focus less on volume and more on patient service levels and outcomes.

The obvious risk for this type of program would be a lack of improved outcomes despite the increased investment in the laboratory system. This risk could be mitigated by first conducting an extensive review of existing outcome-based payment models for laboratory services, developing pilot payment models that are evidence-based, and selecting pilot sites that have well documented data and existing processes for measuring outcomes.

**Should the Ministry Explore New Governance Structures for Laboratory Services?**

While stakeholder views were largely mixed on the need for major changes to the existing governance model, there are significant risks associated with maintain the status quo. As described previously in this section:

> Perhaps the most significant risk of preserving the existing governance structure is the inability to find additional efficiencies in the system. It is evident that many of these efficiencies will not come from improved operations within an individual laboratory, but rather through integration and coordination of efforts across multiple laboratories, across multiple regions, and in some cases, across the entire province. To support this level of cross-institutional and cross-regional planning, improvements to the existing governance model are likely needed.

The stakeholder consultation revealed three major concerns with the development of a new governance model for laboratory services. These concerns included:

- A bureaucratic, top-down approach that slows down planning and stifles innovation
- An inflexible, one-size-fits-all approach that is not responsive to local needs
- No evidence that a new governance structure would lead to better outcomes
These concerns suggest that the following principles and success factors should guide further exploration of alternative governance structures:

1. **Ensuring the laboratory governance structure has appropriate medical leadership**, and a clear reporting and accountability structure
2. **Allowing for regional variability in service delivery and laboratory operations**, but ensuring a framework for strategic direction on key system decisions exists
3. **Establishing a proper baseline (e.g. defining and measuring key indicators)** prior to the development of any new governance structures

Findings from the jurisdictional analysis suggest that two alternative approaches to laboratory system governance should be explored further to understand their appropriateness for the BC laboratory system: *regional governance and provincial governance*. The key benefits and risks associated with these two models are described in the remainder of this section.

**REGIONAL GOVERNANCE MODEL**

A regional governance model could result in the creation of new regional organizations that would have responsibility of governing laboratories within their respective regions. Within the BC context, this could result in the development of an organization that has final authority on key laboratory system decisions and is the single source of accountability within the Lower Mainland region.

The Eastern Ontario Regional Laboratory Association (EORLA) provides an example of a successful regional laboratory organization. EORLA is a not-for-profit organization, owned by its member hospitals. It provides roughly 12 million tests per year (for both inpatients and outpatients) through its network of 19 acute-care, hospital-based clinical laboratories in the Champlain Local Health Integration Network (CLHIN) of Eastern Ontario.\(^{10}\)

Given BC’s geography and existing laboratory governance structure through the Health Authorities, a regional governance model (that is similar to EORLA) would likely only make sense in the context of the Lower Mainland region.

EORLA hospitals include a pediatric center (Children’s Hospital of Eastern Ontario), a francophone institution (Hôpital Montfort), a major academic health sciences centre (The Ottawa Hospital), and a number of community hospitals ranging from small hospitals in rural communities (St. Francis Memorial Hospital) to large community hospitals (Queensway Carleton Hospital).

EORLA’s governance structure consists of a Board of Directors that spans both administrative leadership (CEOs, VPs, CFOs) and medical leadership (Department of Pathology leads) from its member hospitals. In addition to the Board, EORLA is governed by a number of governance agreements with its member hospitals.

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\(^{10}\) [http://www.eorla.ca/about-us](http://www.eorla.ca/about-us)
hospitals, including agreements on Membership, Service Levels, Human Resource Transition, Asset Transfer and Occupancy.\(^\text{11}\)

EORLA is funded from global budgets of its member institutions, and cites its funding mechanism as one of the key success factors. In fact, as described on the EORLA website:

> The funding mechanism allows EORLA to maintain operational flexibility while lowering expenses and retaining savings gains through operational efficiency. It is designed to meet the requirements of EORLA member organizations as both owners and customers. From an owner perspective, members are assured of continuing delivery of laboratory services with sufficient operating funds. As customers, members will benefit from an integrated system of service delivery that enhances quality and generates savings over time through improving efficiency of service and the gradual lowering of costs per test.

Benefits of the EORLA structure extend to patients, staff and physicians:

> For laboratory clients, the successful adoption of the EORLA integration will result in enhanced quality care through standardization and improved portability of laboratory results. For laboratory employees, the transition to a single employer model will provide greater opportunities through a focus on staff retention, career mobility opportunities and strong professional development.

> Policies, processes and procedures will be aligned for all laboratories, as part of a comprehensive regional quality management program including standardization of test menus and test methodologies and the implementation of a common Laboratory Information System "LIS" allowing patient laboratory test data to be accessed by all physicians served by EORLA.

While the potential benefits of a regional structure are clear from the EORLA case study, the major challenge with the development of any new governance organization is obtaining buy-in from stakeholders and reaching consensus on the key issues. As a result, new governance structures are not created overnight, but rather take time through a collaborative process with the key partners. EORLA, for instance, was first conceived in 2000, but full integration will only be achieved this year – a span of 12 years. This long journey is consistent with other successful examples of regional and provincial structures (e.g. Calgary Laboratory Services, Pathology Queensland, and Diagnostic Services of Manitoba).

**Provincial Governance Model**

A provincial governance model could result in the creation of a single organization responsible for governing the laboratory system across the entire province.

In many ways, the key success factors of a regional governance structure are also applicable in a provincial governance model. Some of the stakeholders who supported a provincial governance model offered their perspectives on key success factors and approaches to a provincial governance model in BC:

Options for Laboratory Transformation

1. A set of guiding principles, agreed upon by the key stakeholders in the laboratory system, should first be established to create buy-in and drive the transformation process;

2. A provincial agency should be developed with balanced representation from each Health Authority (one medical lead and one administrative lead), in an open forum designed to build trust; an alternative approach could be developed with one CEO, who is not affiliated with any of the Health Authorities, to ensure the agency is at arm’s length from (but accountable to) both Health Authorities and government;

3. The agency should set goals/expectations, make key funding decisions, and be the final authority on key provincial decisions such as the introduction of new esoteric or high-cost tests (although some decisions would likely have regional variation);

4. Health Authorities should continue to deliver laboratory services and be responsible for implementing the goals and direction (operational accountability would remain with the Health Authorities);

5. Measurement of key cost and quality indicators should be one of the first priorities to enable more informed decision making; and

6. The initial scope of the new agency should include only the public system, consistent with provincial governance models developed in other jurisdictions (Queensland, Manitoba).

The potential benefits of a provincial governance model are also similar to those expected from a regional governance model, but on a larger scale. In summary, a well-functioning provincial governance model would provide:

- Single source of accountability for the governance of the public laboratory system
- Clear roles and mandates for all key stakeholders in the public system
- Formalized structure for service delivery planning, quality measurement and improvement, and performance management
- Improved ability to standardize and disseminate best practices

As described in the jurisdictional analysis section, Pathology Queensland and Diagnostic Services of Manitoba offer examples of successful provincial governance models. While there are many similarities with these two models, there are some important differences that should be taken into consideration.

Diagnostic Services of Manitoba was established as a not-for-profit corporation with its own Board of Directors (similar to EORLA). This aspect of the organization is consistent with some of the key success factors that have been outlined by stakeholders for a potential new governance structure for BC, most notably a separate entity with its own Board of Directors that is accountable to (but at arm’s length from) the government. On the other hand, Pathology Queensland is a branch of Clinical and Statewide Services, within Queensland Health. While this structure might not be the most desirable one within the BC context, other governance features of Pathology Queensland could be of interest, including regional representation within the reporting structure and medical representation among the leadership of the organization.

The jurisdictional analysis and stakeholder consultation provided some initial direction for the Ministry with respect to alternative governance models. The Ministry should further explore both regional and provincial governance structures within the BC context to develop an initial blueprint that can be shared and refined with the broader stakeholder community.
8. **SHORT-TERM OPPORTUNITIES**

Consultations with key stakeholders revealed three potential short-term opportunities that could benefit the broader laboratory system. These opportunities would likely not require broader changes to the system (e.g. new governance structure), and hence could be initiated in the short-term. However, given that all of these opportunities would require participation and input from a broad group of stakeholders, a multi-year time frame for completion would be anticipated.

The three opportunities include:

- Improving ordering practices for laboratory tests
- Developing a provincial quality framework program
- Conducting a detailed cost study

**IMPROVING ORDERING PRACTICES FOR LABORATORY TESTS**

The only consensus opportunity among all stakeholders was the need to vastly improve ordering practices, both in the hospital and in the community. Stakeholders were unanimous in their belief that this was not only an important issue that could have significant impact on laboratory test utilization, but also an issue that extends beyond the laboratory system.

The need to improve ordering practices stems from a variety of challenges with the current utilization of laboratory services. These challenges include: ordering unnecessary tests or tests that provide limited value in clinical decision making, ordering duplicate tests, relying on outdated standing orders, and in some cases, not ordering tests that have been deemed appropriate (e.g. due to poor compliance to chronic disease management guidelines).

Specific opportunities that were mentioned by stakeholders included:

**Implementing intelligent order entry and decision support systems.** Many stakeholders expressed a strong belief that intelligent order entry systems should be a top priority initiative for addressing utilization management issues. While this opportunity might require a significant up-front investment, many believe that it would have substantial impact in the long run. One of the risks associated with this solution is that not all primary care physicians have the IT infrastructure that would be required to implement intelligent order entry systems (roughly 65% of all primary care physicians in BC have adopted EMRs).

**Improving education and training programs for both medical students and practicing physicians.** Many stakeholders believe that medical students need to be better educated on the appropriateness of specific laboratory tests. Further, many also believe that practicing physicians need to receive continued training as new evidence /guidelines emerge for existing tests and as new laboratory diagnostic capabilities become available.
Monitoring physician ordering patterns. Some stakeholders also supported the idea of monitoring physician ordering patterns to find potential outliers – for instance, physicians who clearly exceed the norms for ordering specific laboratory tests. These physicians would be high-priority candidates for increased training programs and appropriateness guidelines. This initiative could be an extension of the activities that are currently undertaken by the Collaborative Utilization System Improvement Committee (CUSIC)\textsuperscript{12}.

The key challenge associated with all three of these opportunities is that it would require extensive consultation with a number of stakeholders both within and beyond the laboratory system. Some of the work associated with the development and refinement of physician ordering guidelines could be led by the Guidelines and Protocols Advisory Committee (GPAC)\textsuperscript{13}.

**DEVELOPING A PROVINCIAL QUALITY FRAMEWORK PROGRAM**

As described in the Current State Assessment section, there are generally mixed views on the effectiveness of existing quality programs and strategies for strengthening quality within the laboratory sector. However, many stakeholders expressed support for the development of an overarching provincial quality framework. In fact, 70\% of respondents to the laboratory medicine physician survey agree or strongly agree that developing a provincial quality assessment and improvement program presents an opportunity for the BC laboratory system.

Those who did not support the development of a provincial quality framework suggested that the DAP is an adequate mechanism for ensuring quality within the laboratory system. However, while accreditation ensures a minimum quality standard is met for licensing purposes, it is not a sufficient mechanism for promoting continuous quality improvement and the drive to quality excellence.

The first step in building a provincial quality framework would be defining the dimensions of quality within the laboratory system. As described in the previous section, these laboratory-specific quality definitions should be aligned with the quality dimensions developed by the BC Patient Safety and Quality Council, and developed by clinical experts in collaboration with key stakeholders to ensure maximum buy-in.

To reiterate from the previous section, a robust quality framework for the laboratory system would incorporate all of the following dimensions (and be part of a broader quality framework for the entire health system):

- **Acceptability**: Care that is respectful to patient and family needs, preferences, and values;
- **Appropriateness**: Care provided is evidence-based and specific to individual clinical needs;
- **Accessibility**: Ease with which health services are reached;

\textsuperscript{12} CUSIC is committee of the Laboratory Medicine Fee Agreement to provide a vehicle where Government, BCMA/BCALP, and Health Authorities can work together on matters affecting the provision of services by laboratory physicians in BC, including laboratory integration and redesign.

\textsuperscript{13} GPAC is a joint committee of the BCMA and the Ministry of Health with the role of evaluating clinical evidence, and publishing clinical practice guidelines on numerous conditions, with particular focus on circumstances in British Columbia.
Options for Laboratory Transformation

- Safety: Avoiding harm resulting from care;
- Effectiveness: Care that is known to achieve intended outcomes;
- Equity: Distribution of health care and its benefits fairly according to population need; and
- Efficiency: Optimal use of resources to yield maximum benefits and results.

With clearly defined quality dimensions, specific quality indicators and associated targets can be defined for each dimension. Moreover, uniform methodologies for measuring each quality indicator must be defined and adopted by all stakeholders. Again, for this initiative to succeed it must be designed collaboratively by building on existing local and HA quality structures, recognizing that different institutions and regions have different needs and are at different places in the quality improvement journey.

Stakeholders were somewhat supportive of developing standardized operating procedures and guidelines across all institutions. A total of 66% of respondents to the laboratory medicine physician survey agree or strongly agree that developing and leveraging standardized operating guidelines/best practices presents an opportunity for the BC laboratory system. Many stakeholders believe that there would be value in developing a library or database of acceptable procedures and best-practices that can be shared provincially. However, there were mixed views on the degree of standardization of these procedures and guidelines. Regardless, the development of operating procedures and best-practices would likely be within the scope of the mandate of a provincial quality framework program.

Stakeholders also identified the development of a formal process to introduce new technologies and tests as a potential opportunity. In fact, 77% of respondents to the laboratory medicine physician survey believe that developing an evidence-based, objective process to introduce new technologies and new tests presents an opportunity for the BC laboratory system (in the context of providing guidance and recommendations to government and providers for deploying new technologies).

Finally, in light of the Cochrane report, many stakeholders believe that developing controls to ensure accuracy in pathologist interpretation, especially in Anatomic Pathology, is a significant area of opportunity. The establishment of a formal peer-review program for all pathologists was deemed a priority initiative by many pathologists who participated in the consultations. This initiative would require appropriate funding and resources to ensure its success.

**Conducting a Detailed Cost Study**

A detailed cost study was also identified as a potential short-term opportunity. In fact, 56% of respondents to the laboratory medicine physician survey agree or strongly agree that a detailed cost study presents an opportunity for the BC laboratory system.

This study would aim to determine and compare the actual costs of collecting specimens and conducting specific laboratory tests across different public and private laboratories in BC.\(^{14}\) While many believe that a

\(^{14}\) This study would not be intended to compare Ministry laboratory costs across jurisdictions, but rather the actual costs of delivering laboratory services (at the test level) across multiple institutions within BC.
detailed cost study would require a significant effort and investment of resources from multiple institutions, they also recognize that it would provide very valuable information to each organization and the broader laboratory system.

The potential benefits of having access to detailed costing information include the ability to:

- make more informed operating decisions, at the laboratory level;
- benchmark laboratory costs across the province and identify potential areas of improvement within each laboratory;
- develop a baseline that can be used to inform regional or provincial initiatives;
- identify areas that are over- or under-funded; and
- develop accurate costing estimates at the system level, to serve as an input into the value for money measurement (described further in the previous section).

A cost study was a pivotal first step for the Toronto-area laboratory integration initiative. The costing analysis and comparison across key public institutions was necessary for developing a fact-base to guide the process.

The major risk of undertaking a detailed cost study is developing data that is not accurate or comparable across institutions. To mitigate this risk, the costing methodology would have to be carefully developed and take into account differences in operating structures across different types of hospitals (e.g. private laboratories vs. academic centers vs. small community hospitals). Respondents to the laboratory medicine physician survey also noted that such a cost study would have to account for both direct and indirect costs, ensuring that costs shared with other departments are accurately captured and attributed.
9. **Next Steps**

Consultations with stakeholders revealed a number of underlying concerns with respect to the current and past attempts at laboratory reform:

- Lack of clear understanding of key issues
- Lack of agreement on key priorities (among and within stakeholder groups)
- Differences in opinion on go-forward strategies (among and within stakeholder groups)
- Lack of trust among key stakeholders
- Belief that clinical and subject matter experts are not involved sufficiently in the process

While this report attempts to articulate the perspectives expressed by different stakeholders and provide some initial direction, a more involved process is required to begin developing trust and reaching consensus on key priorities going forward.

To support this objective, the Ministry could establish a Laboratory Services Expert Panel. The Laboratory Services Expert Panel would have a long-term role, providing recommendations to the Ministry of Health’s Chief Operating Officer on key system reform priorities and subsequently playing an ongoing monitoring role for the delivery of laboratory services.

As an initial mandate, the Expert Panel could examine the opportunities presented in the Future State Considerations and Short-Term Opportunities sections of this report. During this initial period, the panel should convene on a monthly basis for three-hour sessions.

The panel should include approximately 20-25 individuals spanning multiple stakeholder groups, organizations, and perspectives. Roughly half of the spots on the Expert Panel should be reserved for clinicians.

As such, the following breakdown of representation by each stakeholder group is suggested:

- Health Authority medical directors, one from each HA (6 individuals)
- Subject matter experts, with no Health Authority affiliation (2 individuals)
- Ordering physicians, one community and one hospital (2 individuals)
- Health Authority and hospital leadership, e.g. CEOs, VPs, Chiefs of Staff (4 individuals)
- Academia, including UBC and BCIT (2 individuals)
- Unions (2 individuals)
- Ministry of Health (2 individuals)
- BCMA (2 individuals)
- BCALP (1 individual)
- Private providers (2 individuals)
Many jurisdictions (including Ontario and the UK) have found the Expert Panel approach to be helpful in channelling the expertise of clinicians and subject matter experts to build consensus on complex system issues, and adding legitimacy to proposed recommendations and next steps.
APPENDIX I: JURISDICTIONAL ANALYSIS

ALBERTA

Alberta has a population of approximately 3.6 million (2011) and spent $16.2 billion on healthcare in 2011/2012. Alberta’s service delivery model for healthcare has undergone changes, and in 2008 Alberta was restructured into 5 zones (North, Central, South, Edmonton, and Calgary) that report to a central health authority, Alberta Health Services (AHS) (see Figure 6).

Alberta’s laboratory services have gone through a series of major restructurings since 1997 that has impacted the entire laboratory services delivery system. In 1995/1996, the budget for laboratory services was reduced by 40% in an effort to reduce health care costs that had widespread repercussions. Laboratory operating costs in 2011/12 were approximately $550 million, not including laboratory services provided by Covenant Health,
a Catholic healthcare provider who runs 16 hospitals and health centres, and pathologist compensation within the public laboratories (these costs not included in the total represent no more than an additional 10% in costs).

Alberta’s laboratory system has both public and private providers. The delivery model varies by zone:

- In the Calgary zone, in 1994 a public-private partnership, Calgary Laboratory Services (CLS), was established to provide all laboratory services (inpatient and outpatient) for the then Calgary Health Region. CLS continues to provide all laboratory services for the Calgary zone, although through the departure of the private partner and restructuring, CLS is now a wholly-owned subsidiary of AHS.

- In the Edmonton zone, public laboratories in hospitals provide the majority inpatient and hospital-based outpatient testing. A single private provider, DynaLifeDX, is contracted to provide all community outpatient testing and some inpatient testing (tests that are not on the test menus of the public laboratories).

- In the North and Central zones, all inpatient and most outpatient testing is provided by public laboratories. DynaLifeDX has a small number of collection sites in the zones, but laboratory services are primarily public.

- In the South zone, all inpatient and most outpatient testing is provided by public laboratories. A private provider, Medicine Hat Diagnostic Laboratory (MHDL), operates a laboratory with 4 collection sites in Medicine Hat. The remainder of laboratory services in the zone are publicly delivered.

Alberta Health (the equivalent of the Ministry of Health) funds Alberta Health Services to deliver healthcare services. AHS separates the laboratory budget from the rest of the funding for healthcare service delivery. AHS funds the public laboratories and CLS with global budgets. AHS also funds the private laboratories: DynaLifeDX is funded via fee-for-service with a hard cap (as of April 2012). MHDL is funded via fee-for-service with a soft cap (with discounted rates after a threshold has been reached). AHS is responsible for determining the service delivery model and manages contracts with private providers.

The laboratory system is accredited by the College of Physicians and Surgeons of Alberta with required renewed every four years. Pathologists are licensed by the College of Physicians and Surgeons of Alberta and laboratory technologists are regulated by the College of Medical Laboratory Technologists of Alberta.
Manitoba has a population of approximately 1.2 million and spends approximately $4.7 billion annually on healthcare (3.1 billion to RHAs). The province is divided for healthcare purposes into five Regional Health Authorities (RHAs) (see Figure 7). Prior to consolidation in April 2012, there were 11 RHAs in Manitoba.

Over the past five years, provincial laboratory funding has slowed compared to the growth of the overall healthcare budget. Laboratory spending in Manitoba is approximately $123 million. Diagnostic Services Manitoba (DSM) is a provincial agency that has been appointed to manage laboratory services for the entire province. This includes directly managing public laboratories and integrating community laboratories into a comprehensive laboratory service sector.

The laboratory system in Manitoba consists of both public and private laboratory providers. Laboratory services in Manitoba are predominately provided by public laboratories - 70% by volume.

The public sector is funded by Manitoba Health and run by DSM. Public providers receive approximately $90 million in block funding annually (three to four times private funding). Annual funding is based on historical budgets with adjustments for expected technological changes and new testing requirements.

Private laboratory providers are funded through a capped FFS model by Manitoba Health. The funding amounts are reviewed and adjusted quarterly to avoid funding jumps. Private laboratories provide high-volume, routine testing in urban community laboratories and do not significantly compete with public laboratories that provide more complex tests. The only major private provider is Gamma-Dynacare Laboratories operating in Winnipeg and Brandon.
Public laboratory providers are accredited by the College of Physicians and Surgeons of Manitoba under the Manitoba Quality Assurance Program (MANQAP). MANQAP has adopted BC Diagnostic Accreditation Program standards. All private laboratories must use an external quality control program as part of the MANQAP program. Private collection sites are accredited by Manitoba Health.

ONTARIO

Ontario has a population of approximately 13 million (2011), and allocates roughly $47 billion annually to healthcare. The province is organized into 14 Local Health Integration Networks (LHINs) responsible for coordinating and planning healthcare service delivery with service providers (see Figure 8). Funding and decision making for Ontario’s laboratory system rests with the Ministry of Health and Long Term Care (MOHLTC).

Laboratory volumes in Ontario are split nearly evenly between community laboratory services and hospital laboratory services. Laboratory services have not undergone significant changes since 1996/97 when an industry wide hard cap was established to contain growth of community laboratory services. In 2010/11, the
industry wide cap for community laboratory services was set at approximately $650 million with some exclusions (e.g. new tests, pilot projects).

Ontario’s laboratory system has both public and private providers. Private providers are wholly responsible for community laboratory services, while public (hospital) laboratories perform all inpatient and some outpatient laboratory services. Both public and private laboratory providers are funded directly by the MOHLTC, however, the funding mechanisms are different.

Private provider funding is managed by a capped FFS system. The industry wide cap is negotiated every two to three years by the Ontario Association of Medical Laboratories (OAML) and the MOHLTC. Market share among private providers within the industry cap was fixed based on the year 1996/97. Market shares have changed only marginally since. The industry wide and corporate caps no longer allow competition over market share, and have changed providers’ incentives from volume increases to efficiency and cost optimization. Three companies provide approximately 95% of community laboratory service volumes: Gamma-Dynacare Laboratories, LifeLabs Medical Laboratory Services, and CML Healthcare Inc.

The MOHLTC funds public (hospital) laboratories with global budgets. These funds are used for both inpatient and outpatient services performed at hospital laboratories.

Quality and accreditation of the laboratory system in Ontario is accomplished by the Ontario Medical Association (OMA) through the Quality Management Program – Laboratory Services (QMP-LS). All licensed laboratories require accreditation every five years. The QMP-LS provides some best practice services beyond its accreditation role. Ontario has also established a performance agreement with private providers that may be incorporated into the next service agreement.
QUEBEC

Quebec has a population of approximately 8 million (2011). For healthcare purposes, Quebec is divided into 18 Regional Health Boards (see Figure 9), 95 Centres de Santé et Services Sociaux (CSSS) and 147 Locale de Services Communautaires (CLSCs).

Although Quebec’s laboratory system has both public and private laboratory providers, public funds from the Quebec Ministry of Health and Social Services (MSSS) are used to fund only public laboratories. Laboratory services are funded within the overall block for all healthcare services. Recent laboratory spending growth has not been a significant issue as in other provinces. The Regional Health Boards and 95 CSSS determine how funding is distributed and used at hospitals and CLSCs.

The small private laboratory system in Quebec is held mainly by Biron, a company with 125 collection centers attached to GP clinics, a very sophisticated transportation network and one large laboratory. The private system is supported by patients who choose to have their specimen taken immediately at their GP clinic, and choose to send their specimen to a private laboratory. Private funding comes from a patient’s private insurance or out of pocket spending.
Quality control in Quebec is undertaken by the Laboratoire de Santé Publique de Quebec (LSPQ). The LSPQ is responsible for performing targeted “phantom” testing across Quebec’s laboratories, both public and private. Quebec’s public laboratories must now adhere to ISO laboratory procedure standards. Ordering guidelines formerly developed at the regional level are now standardized and enforced at the provincial level.

AUSTRALIA

Australia is home to approximately 23 million people. The Department of Health and Ageing (DoHA) administers national health policy, with elements of healthcare overseen by the individual states and territories (see Figure 10).

![Figure 10 – Australian States and Territories](image)

Australia’s laboratory services are provided by three provider classes: public hospitals, private hospitals, and private community laboratories. Significant recent changes in the industry include the relaxation of community specimen collection centre regulations, allowing competitive forces to determine the appropriate number of SCC locations. This initially resulted in a dramatic increase in SCCs, but the number of locations has since equilibrated to a sustainable level.

Laboratory funding in Australia is split into public and private streams. The federal government, through the DoHA, funds public laboratories with state and territory block funding. States and territories are then tasked with distributing these funds to public hospitals in their regions.

Private laboratories are funded through a capped FFS system through the Medical Benefits Schedule (MBS), also originating from the DoHA. The current Pathology Funding Agreement creates acceptable expenditure ranges through annual outlay targets with an associated annual growth rate cap and floor. MBS covers 75% of private inpatient fees, and 85% of private outpatient fees for all services listed in the Pathology Services Table.
Options for Laboratory Transformation

(PST). Approximately 45% of Australians have private health insurance to cover the non-insured amounts. The three largest private pathology providers in Australia are Sonic Healthcare Ltd., Primary Healthcare, and Healthscope.

All laboratories in Australia must receive and maintain necessary accreditation from the National Association of Testing Authorities (NATA). The ongoing quality assurance program includes site audits conducted by NATA, as well as a broad range of external quality assurance programs across all disciplines conducted by the Royal College of Physicians of Australia (RCPA).

ENGLAND

England is a country of approximately 51 million people. The National Health Service (NHS) is the publicly funded system in England, ensuring the population receives comprehensive, free point-of-use health services. Total healthcare spending in England is approximately £110 billion, £2.5 billion of which is spent on laboratory services.

England’s health system is currently in a major state of flux as it restructures the country from Primary Care Trusts (PCTs) as commissioners of health services to GP-led Clinical Commissioning Groups (CCGs). The laboratory system in England is also in a state of change, focusing on consolidation efforts to reduce laboratory costs and improve efficiencies. Laboratory costs in England have grown at an annual growth rate of 10% from 2001 to 2006. Consolidation efforts are targeting between 10-20% of the overall laboratory budget as savings through a number of initiatives. The main consolidation movements are the creation of pathology networks – integrated management networks across a geographic area that includes many PCTs.

The majority of laboratories in England are publicly operated through NHS hospital trusts, with only a small private sector presence affiliated with teaching hospitals in large urban areas.

Within the public NHS system, pathology services can be accessed in NHS hospitals or through community based primary care providers. Hospital services are funded through a “Payment by Results” (PbR) system. In this system, the costs are determined for thousands of “episodes of care”. Hospitals are then funded based on estimated volumes of each episode. Pathology tests are funded within each episode of care, and are therefore not specifically identified. Community-based pathology is funded separately by each PCT and varies across trusts. Lord Carter’s second review of NHS Pathology services in England recommends applying a similar national costing approach to funding community-based pathology services.

Peripheral private sector involvement is mainly a result of small, short term contracts for laboratory services that have not attracted significant interest from international private laboratory corporations. Private sector interest in England’s laboratory system is expected to increase with consolidation efforts that are projected to decrease the number of laboratories in England from roughly 300 to 60-80 in coming years. Moreover, the new Health and Social Care Act that states that “any willing provider” can be commissioned to provide healthcare services, removing any exclusivity the NHS previously held for public providers. An example of the small, but growing private sector involvement in England’s laboratory system is a joint venture between a private corporation and large NHS teaching hospitals. “GSTS Pathology” is a JV between Serco Group, a
publicly-traded government services firm, Guy’s and St Thomas’ NHS Foundation Trust and King’s College Hospital Foundation Trust. The goal of the JV is to combine the clinical and scientific excellence of the hospitals trusts with the service and business excellence of the private company. The addition of King’s to the pathology partnership in September 2010 created the UK’s leading single pathology provider – providing over 10 million individual tests per year.

All health providers, including laboratories must be registered with the Care Quality Commission (CQC). The majority of laboratories are also registered by Clinical Pathology Accreditation (CPA), a non-governmental regulatory body that accredits clinical pathology services and provides a means to external quality assessment (EQA) schemes. England is moving towards all laboratories not only being registered, but also fully accredited with the CPA. This was another recommendation of the Carter reviews.

NEW ZEALAND

New Zealand is a country of approximately 4.4 million people and spent $13 billion on healthcare in 2010. For healthcare purposes, New Zealand is divided into 20 independent health care regions called District Health Boards (DHB’s) (see Figure 11).

Each DHB in New Zealand has undergone significant service delivery restructuring since 1988. Some DHB’s have opted to contract all testing (inpatient and outpatient) to the private sector with varying results. Other regions have decided to contract all outpatient services to a single private provider.
New Zealand’s laboratory system is independently run by each DHB after it receives funding from the NZ Ministry of Health, and service delivery models vary significantly from region to region. Across the country, laboratory services are provided by both public and private providers. Private laboratories operate mainly in urban areas. They serve about half of the outpatient population.

Most private providers are funded by block amounts for long term contracts ranging from 5 – 10 years. Each contract is negotiated independently by each DHB, or by multiple in cases where DHBs have jointly contracted out laboratory services. The longer term contracts significantly reduce the risks for private providers, incentivizing greater investment in equipment and reducing total system costs. However, a potential downside of New Zealand’s approach is the monopoly position that a private provider would hold after contract expiration.

Quality and accreditation for laboratory services is governed by the International Accreditation New Zealand (IANZ) which requires laboratories to meet ISO 15189 standards (NZS ISO 15189 Medical Laboratories – Particular Requirements for Quality and Competence).
## APPENDIX II: STAKEHOLDER CONSULTATION PARTICIPANTS

### British Columbia Stakeholder Participants

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>STAKEHOLDER GROUP</th>
<th>INDIVIDUAL</th>
<th>ROLE</th>
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<tr>
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<tr>
<td>Physicians</td>
<td>British Columbia Medical Association</td>
<td>Jim Aikman</td>
<td>Executive Director of Economics and Policy</td>
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<td></td>
<td>BC Society of General Practitioners</td>
<td>Cathy Cordell</td>
<td>General Counsel</td>
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<td></td>
<td>BC Society of Specialist Physicians &amp; Surgeons</td>
<td>Dr. Cathy Clelland</td>
<td>Executive Director</td>
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<td></td>
<td>Dr. Andrew Attwell</td>
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<td>Incoming President</td>
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<td>Pathologists</td>
<td>BC Association of Laboratory Physicians</td>
<td>Dr. Christopher Sherlock</td>
<td>President</td>
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<td></td>
<td>Vancouver Island Health Authority</td>
<td>Dr. Gordon Hoag</td>
<td>Medical Director of Laboratory Medicine</td>
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<td></td>
<td>Dr. Jim Hutchinson</td>
<td></td>
<td>Medical Microbiologist</td>
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<td></td>
<td>Dr Aref Tabarsi</td>
<td></td>
<td>General Pathologist &amp; Site Chief, Campbell River Hospital</td>
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<td>Fraser Health Authority</td>
<td>Dr. Arun Garg</td>
<td>Medical Director, Laboratory Services, Fraser Health</td>
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<td></td>
<td>Dr. Lawrence Haley</td>
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<td>Hematopathologist, Royal Columbian Hospital</td>
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<td>Dr. Sam Crickler</td>
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<td>Director, Department of Laboratory Medicine and Pathology, Surrey Memorial Hospital</td>
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<td></td>
<td>Dr. Allan Gates</td>
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<td>Anatomical Pathologist, Abbotsford Regional Hospital</td>
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<td>Interior Health Authority</td>
<td>Gerry James</td>
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<td>Provincial Health Services Authority</td>
<td>Dr. Deborah McFadden</td>
<td>Head, Division of Anatomical Pathology</td>
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<td>Head, Department of Pathology &amp; Laboratory Medicine</td>
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<td></td>
<td>Dr. Judy Isaac-Renton</td>
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<td>Medical Director, Laboratory Services, BC Centre for Disease Control</td>
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<td>Vancouver Coastal Health Authority</td>
<td>Dr. Bob Coupland</td>
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<td>Regional Medical Director, Pathology &amp; Laboratory Medicine</td>
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## Jurisdictional Analysis Participants

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<td>Ontario</td>
<td>Susan Fitzpatrick</td>
<td>Assistant Deputy Minister, Negotiations and Accountability</td>
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<td>Sandy Nutall</td>
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<td>Niki Degendorfer</td>
<td>Senior Corporate Planning Coordinator, University Health Network</td>
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<tr>
<td>Quebec</td>
<td>Phillipe Couillard</td>
<td>Former Health Minister, Province of Quebec</td>
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<td>Dr. Ewa Sidorowicz</td>
<td>Director of Professional Services, McGill University Health Centre</td>
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<td>Manitoba</td>
<td>Teresa Mrozek</td>
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<td>Tammy Hofer</td>
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<td>England</td>
<td>Dr Ian Barnes</td>
<td>National Clinical Director for Pathology, National Health Service</td>
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<td>Dr Mark Tandy</td>
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<tr>
<td>New Zealand</td>
<td>Dr Chris Wong</td>
<td>National Clinical Director Screening, National Health Board, Ministry of Health</td>
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A voluntary electronic survey addressing the British Columbia laboratory system strengths and weaknesses, vision and goals, and near-term opportunities was distributed to all BC pathologists and laboratory medicine physicians. The survey was distributed to approximately 250 pathologists and 131 responded. The detailed results of the survey are presented below.

**Current System Assessment: Strengths**

Please indicate how strongly you agree or disagree that the following are strengths of BC’s current laboratory system.

Q1. Excellent relationships within the laboratory community, and with primary care physicians and specialists

**Percentage of respondents who agreed/disagreed with the above statement**

<table>
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<th>Percentage of respondents</th>
<th>n=131</th>
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<td>10%</td>
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<td>Neither agree nor disagree</td>
<td>22%</td>
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<tr>
<td>Agree</td>
<td>40%</td>
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<tr>
<td>Strongly agree</td>
<td>27%</td>
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Q2. Strong medical leadership and oversight, and strong linkages with academia

Percentage of respondents who agreed/disagreed with the above statement
% of respondents, n=131

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<th>Neither agree nor disagree</th>
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<td>5%</td>
<td>18%</td>
<td>29%</td>
<td>34%</td>
<td>13%</td>
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<td>35%</td>
<td>46</td>
<td>32%</td>
<td>17%</td>
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<tr>
<td>Agree</td>
<td></td>
<td></td>
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<td>Strongly agree</td>
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Q3. Several successful examples of rationalized testing through service integration efforts

Percentage of respondents who agreed/disagreed with the above statement
% of respondents, n=131

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<td>12%</td>
<td>35%</td>
<td>32%</td>
<td>17%</td>
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<tr>
<td>Disagree</td>
<td>5</td>
<td>16</td>
<td>46</td>
<td>42</td>
<td></td>
</tr>
<tr>
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<td>Agree</td>
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<tr>
<td>Strongly agree</td>
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Q4. **Quality education and training programs** for medical students, residents, technologists and laboratory assistants

**Percentage of respondents who agreed/disagreed with the above statement**  
% of respondents, n=131

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<td>2%</td>
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<td>3</td>
<td>19</td>
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<td>23</td>
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Q5. **A role for both the public and private sector** in service delivery

**Percentage of respondents who agreed/disagreed with the above statement**  
% of respondents, n=131

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<td>5</td>
<td>11</td>
<td>41</td>
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Options for Laboratory Transformation

**Current System Assessment: Weaknesses**

Please indicate how strongly you agree or disagree that the following are weaknesses of BC’s current laboratory system.

Q6. **Lack of overarching provincial strategy** for managing the laboratory system

**Percentage of respondents who agreed/disagreed with the above statement**

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<td>36%</td>
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<td>Agree</td>
<td>22%</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>18%</td>
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Q7. **Absence of a governance structure** that has a mandate for overseeing service delivery planning, ensuring optimal deployment of resources, funding new tests and removal of old tests

**Percentage of respondents who agreed/disagreed with the above statement**

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<td>23%</td>
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<td>17%</td>
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Q8. Lack of formal agreements that govern the relationship between payer and provider, in setting service level and performance expectations

Percentage of respondents who agreed/disagreed with the above statement

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<td>Agree</td>
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<tr>
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Q9. Redundant infrastructure (collection sites, transportation networks, testing, and information systems), primarily in urban areas

Percentage of respondents who agreed/disagreed with the above statement

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Q10. Absence of clear accountability structures and practice plans for academic mandates

Percentage of respondents who agreed/disagreed with the above statement

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<tr>
<td>Agree</td>
<td>40</td>
</tr>
<tr>
<td>Strongly agree</td>
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Q11. Only uncapped fee-for-service funding model in Canada

Percentage of respondents who agreed/disagreed with the above statement

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<tr>
<td>Strongly agree</td>
<td>10</td>
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Q12. Absence of a responsive mechanism to manage utilization and ensure fees are in line with actual costs of delivering the service

Percentage of respondents who agreed/disagreed with the above statement
% of respondents, n=131

- Strongly disagree: 10 (8%)
- Disagree: 22 (17%)
- Neither agree nor disagree: 38 (29%)
- Agree: 44 (34%)
- Strongly agree: 16 (12%)

Vision and Goals

Q13. Please allocate a total of 100 points across the following to indicate your opinion on the relative importance of the following goals of the BC laboratory system

Relative importance of each goal
% of respondents, n=124
**Near Term Opportunities**

Please indicate how strongly you agree or disagree that the following are opportunities for BC’s laboratory system.

Q14. Developing a provincial quality assessment and improvement program to ensure access to quality diagnostic work no matter where service is provided

**Percentage of respondents who agreed/disagreed with the above statement**

<table>
<thead>
<tr>
<th></th>
<th>% of respondents, n=131</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>6</td>
</tr>
<tr>
<td>Disagree</td>
<td>14</td>
</tr>
<tr>
<td>Neither agree nor disagree</td>
<td>18</td>
</tr>
<tr>
<td>Agree</td>
<td>46</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>37%</td>
</tr>
</tbody>
</table>

Q15. Developing and leveraging standardized operating guidelines/best practices to ensure uniform high quality service delivery across the province

**Percentage of respondents who agreed/disagreed with the above statement**

<table>
<thead>
<tr>
<th></th>
<th>% of respondents, n=131</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>5</td>
</tr>
<tr>
<td>Disagree</td>
<td>15</td>
</tr>
<tr>
<td>Neither agree nor disagree</td>
<td>22</td>
</tr>
<tr>
<td>Agree</td>
<td>51</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>26%</td>
</tr>
</tbody>
</table>
Q16. Developing a balanced set of metrics aligned to the laboratory system goals to help understand performance at the laboratory, regional, and provincial level

**Percentage of respondents who agreed/disagreed with the above statement**

% of respondents, n=131

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neither agree nor disagree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>5% 6</td>
<td>10% 12</td>
<td>26% 33</td>
<td>36%</td>
<td>24% 30</td>
</tr>
</tbody>
</table>

Q17. Introduce an evidence-based, objective process to introduce new technologies and new tests, which would provide guidance and recommendations to government and providers for deploying new technologies

**Percentage of respondents who agreed/disagreed with the above statement**

% of respondents, n=131

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neither agree nor disagree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>4% 5</td>
<td>4% 5</td>
<td>15% 19</td>
<td>45%</td>
<td>32% 40</td>
</tr>
</tbody>
</table>
Q18. Conduct a detailed cost study to: determine costs of individual laboratory tests, as part of a business analytics exercise within the public system; establish a cost framework to serve as an input into future fee setting processes and negotiations

**Percentage of respondents who agreed/disagreed with the above statement**

<table>
<thead>
<tr>
<th></th>
<th>% of respondents, n=131</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>4% (5)</td>
</tr>
<tr>
<td>Disagree</td>
<td>10% (13)</td>
</tr>
<tr>
<td>Neither agree nor disagree</td>
<td>30% (38)</td>
</tr>
<tr>
<td>Agree</td>
<td>35% (44)</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>21% (26)</td>
</tr>
</tbody>
</table>