

A Principled Approach to Advancing Specialized Health Services Through Ontario's Integrated Care Planning

NOVEMBER 2020

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1 Chairs' Note and Introduction

On behalf of the members of the Ontario Hospital Association's (OHA) Specialized Services Working Group, and as the joint Chairs leading this Working Group for the past year, we are delighted to submit this report to the OHA management team as our recommendations and thoughts on identifying, funding, and organizing specialized services in the context of integrated care.

When we began this work in the fall of 2019, we believed that by integrating care across the continuum, both within hospitals and across community care providers, we would be supporting a strong healthcare system with a focus on improved patient experience. As we developed this report on specialized services, the healthcare system experienced an unprecedented test with the COVID-19 pandemic, reaffirming our desire to integrate care across the continuum. The importance of careful planning and preparation has never been clearer – and hospitals have acted as an anchor to the sector's response to COVID-19 with their strong leadership.

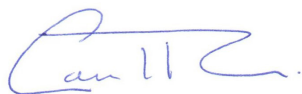
Although COVID-19 has revealed major fault lines throughout the system that need to be addressed, it has also accelerated integration across previously siloed sectors and organizations. This integration must continue at a rapid pace in order to provide the best care for patients across Ontario – we cannot be content with the status quo.

This educational report on specialized services aims to provide guidance and recommendations on the provision of specialized services through the transition to integrated care. The Working Group recognized the crucial importance and complexity of this topic, and identified the need for specialized services to receive thoughtful treatment in the transition to integrated care. The perspectives of hospitals and organizations from across the province and various care areas were included in this report. Understanding specialized services requires a broad perspective; this work should continue with the further engagement of sector partners. Specifically, further work is needed to understand community specialized services and their inclusion in new care and funding models.

The work does not stop at this report – this is the beginning of the conversation on specialized services and how they interrelate with other areas of the system. Moving forward, we strongly believe that government should engage patients and families on system redesign. With the right vision, and appropriate implementation, Ontarians can have access to a high-quality health system across the entire continuum of care. The importance of thoughtful change cannot be understated.

We look forward to the continued, and hastened, evolution of the system, in service to all Ontarians, and appreciate the opportunity to contribute these recommendations.

Sincerely,



Cameron Love
President and Chief Executive Officer
The Ottawa Hospital



Dr. Dan Cass
Executive Vice President and Chief Medical Executive
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2 Executive Summary

Overview of the Work of the Specialized Services Working Group

The organization and delivery of specialized services in Ontario is complex. There are many aspects to this complexity, including historical understandings of specialized services, the interconnectedness of care in a patient's journey, the regional delivery of care, and the governance and funding of these services. As Ontario transitions to Ontario Health Teams (OHTs), it is imperative that patients' experiences with specialized services are not unduly impacted, for instance through funding disruptions or additional administrative burden that affects access and quality of care.

The Ontario Hospital Association (OHA)'s Specialized Services Working Group (the Working Group) was tasked by the Minister of Health's Office to consider specialized services and how to stabilize them through the transition to OHTs (Working Group participants can be found in Appendix A).

To better contain the scope of this request, the Working Group agreed that the following would be in-scope:

- Defining specialized services in hospitals within the context of integrated patient care;
- Developing an understanding of services in hospitals, how they are distributed regionally, and how they are currently funded; and
- Understanding the academic (i.e. teaching and research) mandate of hospitals and their funding.

The Working Group also agreed that, although important in the transition to OHTs and integrated care, the following was out-of-scope at this time:

- Planning of individual OHTs;
- Health human resources planning;

- Planning of 'non-specialized' (as determined by the review) care services; and
- Understanding services not provided in hospitals.

The Working Group's primary focus was on stabilizing specialized services in Ontario; however, given the complexity of the work and the in-depth discussions associated with specialized services, the Working Group also contemplated how a new framework could help inform the future of these services.

Specialized services have not previously had a standard definition in Ontario, and the historical understanding typically excluded services outside of acute care. The Working Group developed a purpose statement (Section 3), completed a cross-jurisdictional scan and literature review (Section 4), and developed a vision statement for specialized services in Ontario (Section 5). The lens through which the Working Group considered this work was how best to organize a system to provide high quality care and promote positive patient outcomes; however, the Working Group clearly stated that government-led patient and community engagement efforts were needed in pursuing this transformation work. The Working Group based its discussions on the current understanding of OHTs: self-organized groups of providers that provide variable services to a population, with an eventual transition to shared governance and funding (risk-adjusted capitation, bundled care, and direct funding for specialized services).

The Working Group's vision for specialized services in Ontario stated: "Ontarians have access to equitable and high-quality patient-centred specialized care as close to the patient's home as possible that is focused on patient experience and outcomes." This vision would be supported by the following enablers:

- A health human resources strategy that ensures a sufficient number and appropriate distribution of skilled healthcare professionals;

- Engagement of patients and families with lived experience;
- Appropriate governance and oversight that considers patient experiences and outcomes, as well as provincial and regional needs;
- A thoughtful and appropriate quality framework, including:
 - Evidence-based care
 - Robust data and analytics
 - Standardized performance metrics
 - Collaboration between organizations and providers
- Appropriate and well-resourced technology and equipment; and
- The academic mandate in hospitals, i.e. education, research, and innovation.

The major task of the Working Group was to craft principles and criteria that would help identify specialized services to stabilize them through the medium-term transition to an OHT or integrated care model. These principles and criteria, along with a complementary data methodology, create a framework that can be used to develop a list of appropriate services that would be considered specialized (further detailed in Section 6). The principles and criteria include:

Principle 1: Expertise

1. An interprofessional team with a focused skill set is required to safely provide the specialized service, without which there is a significant risk of mortality, morbidity, or functional impairment.
2. Specialized teams provide the service to a critical mass¹ of patients using the best available evidence.
3. Service provision requires clinical coherence and interdependencies with other programs (both specialized and non-specialized) and is established within the context of a coordinated network and system of care across the continuum.

Principle 2: Resources

1. The specialized service requires extensive capital (i.e. technology, equipment and/or specialized infrastructure) and/or operating resources (i.e. labour, supplies and other unique operating resources to ensure 24/7 coverage) that must be organized efficiently and effectively across the province for economies of scale, individually and clustered with other services.
2. The service requires planning at the regional and/or provincial levels to proactively monitor and manage service demand and equity over time, and allows for the natural evolution of services based on demand.

These principles and criteria led to a broad-scoping definition of a specialized service:

A specialized health service is a service that provides highly focused care to a small proportion of patients within a defined geographical area, and which requires specific clinical expertise and resources in order to provide high-quality care promoting positive patient outcomes and experiences. A specialized service is inextricably linked to other services and requires broader planning at the regional or provincial level.

Although the Working Group was not tasked with creating a list of all specialized services in the province, the framework was applied to a number of services to determine if they would be classified as specialized. These examples are provided in Appendix B, along with details on the data methodology.

Some additional areas were considered as principles early in the Working Group's work, including quality, access and equity, and the academic mandate. These were later determined to be important for all services, not just specialized services, and could not be used to identify specialized services exclusively. High quality and equitable care were understood as foundational components of an excellent health system, and the academic mandate of hospitals is crucial to enhancing patients' experience and promoting better patient outcomes. This also includes a broader definition of health, inclusive of

¹ Critical mass, in this context, is defined as the number of patients that demonstrate the need for the service to be provided with an adequate volume to maintain clinical competence in order to provide safe, high-quality care.

social determinants. The Working Group engaged stakeholders in this work to ensure there was an inclusive understanding of many aspects of the healthcare system, including in child health, mental health and addiction, complex continuing care and rehabilitation, francophone health services, and Indigenous health services.

Although the principles and criteria are broadly applicable, there are nuances in various service areas that require due consideration. These have been expanded upon in Section 8 to highlight their importance. Some additional thoughts of the Working Group were included, particularly around technology and data (e.g. virtual care) and patient engagement.

The differentiation between provincial and regional services, and how specialized services are categorized (Section 7), received a great deal of attention from the Working Group. Due to vast regional variability across the province, services may be provided in different structures depending on the region and population needs. The regionalization of a service may be due to the needs or attributes of a region, and not an inherent quality of the service itself, meaning that not all regional services are specialized just because of their larger service area. Provincial, regional, and local services are all interconnected, in that there are natural referrals that occur between them. There are also variations between regions in how these services are connected, requiring regional oversight in clinical service planning.

Importantly, the distinction between provincial and regional services would depend on an OHT structure that has some consistency in the services offered. An ideal structure would promote accountability in each OHT for a core group of services for their attributed population, such as all primary and secondary care. Each OHT would have oversight of their local services and the integration of these services across the continuum, allowing the OHT to focus on integrating the continuum of care across the majority of services to improve patients' experiences. Specialized services will take various forms depending on the organization of OHTs in a region. They could be set up independently or be part of a local or regional OHT, but in all cases they will be focused on linking patients across a region and to the next phase of care.

Similarly, from a governance perspective, specialized services could be funded separately or funded through an OHT. These services would also consider longitudinal and complex care needs, beyond episodic acute care. In all cases, regions will need to consider the model for governance and organization within the context of the region's OHT structure.

As discussed in Section 7, at present the Ministry has indicated that those services identified as 'specialized' may receive direct funding, outside of the proposed risk-adjusted capitation and bundled payment models in the OHT structure. Historically, these services have either been identified as a Provincial Program and funded directly or funded through global budgets within hospitals, limited by the definition of a specialized service. Once appropriate services are identified, a thoughtful approach to funding these services is required. This may require a multi-phased approach in order to stabilize specialized services through the transition to OHTs, and then address the concerns around access, equity, quality, and the academic mandate.

Changes to the funding of specialized services (and all services) involve administrative burden. This burden would be increased with the inclusion of specialized services in a capitation funding model, as service providers would then have to charge back the cost of the service to specific OHTs for the patients within their attributed population. This should be avoided in any funding changes, such as through alternate funding models for specialized services and the thoughtful implementation of capitation.

Overview of the Recommendations of the Specialized Services Working Group

The Working Group appreciates the opportunity to put forward a list of recommendations to the Minister of Health's Office and Ministry of Health on stabilizing specialized services through the transition to OHTs. Like many things in healthcare, this topic is highly complex with many considerations. The Working Group reflected on many of these considerations and received feedback from a broad range of stakeholders on how specialized services can be stabilized in the short-to-medium-term, as well as how they can be enhanced in the long-term in an

integrated care environment. This report is intended to be the beginning of the conversation on specialized services, and the Working Group hopes that this report and its recommendations will support the continued evolution in the identification, governance, and funding of these services to better serve the needs of Ontarians.

Recommendations

The recommendations put forward by the Working Group, and further detailed throughout this report, include the following:

Stabilizing Specialized Services in Ontario

1. Identify specialized services using specific principles and a data methodology that incorporates appropriate services across the continuum of care while remaining flexible to the various local contexts across Ontario.
 - i. Principles in identifying specialized services include expertise and the resources required to provide the service (as described in Section 6). These principles have specific criteria for decision-making, where a specialized service would need to meet all of these criteria in order to be considered specialized.
 - ii. A quantitative method must incorporate high quality data to promote a high quality of care and evaluate overall performance, which will require improving data quality across many aspects of the system.
2. Structure provincial and regional specialized services with appropriate provincial or regional accountability and coordination. This coordination considers regional differences and alternative care models.
 - i. The OHT(s) offers a core group of services. Outside of those core services, regional specialized services will typically serve multiple OHTs and provincial specialized services serve multiple regions.
 - ii. Specialized services are reviewed regularly through a centralized decision-making process, as services and care pathways change over time and programs may evolve to support the growth in regions.

3. Fund specialized services through direct funding.
 - i. Stabilize specialized services through the transition to OHTs using a funding approach that considers historical utilization and demographic data in a global budget.

Enhancing Specialized Services in Ontario

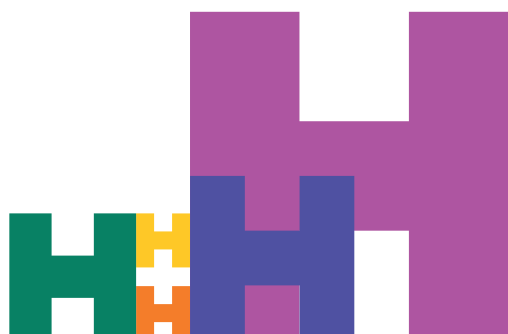
4. Develop a robust quality framework for specialized services that ensures appropriate, evidence-based care is provided using uniform performance and quality metrics across the province.
 - i. Establish oversight mechanisms to ensure consistent, high-quality care for populations for whom fragmentation will result in reductions of quality and access.
 - ii. Seamlessly transition care between providers along the continuum to provide patients with unobstructed care along their integrated care pathway.
5. Consider regional variability in planning and implementing specialized services and how this variability inequitably impacts access to services.
 - i. Utilize evidence-based, innovative care models and develop additional programs in regions that have the appropriate critical mass of patients in order to improve access throughout the province.
6. Ensure the sustainability of the delivery of specialized services.
 - i. As the funding of specialized services evolves over the long-term, funding approaches should consider service growth, access, equity, care quality, and the sustainability of the academic mandate.
 - ii. Consider the sustainability of the research and education mandates associated with specialized services in identifying, organizing, and funding these services, as the academic mandate helps ensure the best possible care.

In summary, Ontario's hospitals are invested in providing high-quality specialized services to Ontarians. As the province transitions to integrated care, and namely Ontario Health Teams, there needs to be further thought on identifying, organizing, and funding specialized services, and greater engagement of patients and communities in this transformation effort.

Identification of services should be broad-reaching, and, where appropriate, should be inclusive of services in areas like mental health and addiction, complex continuing care and rehabilitation, and the child health system, and consider the interconnectedness of social determinants of health. These diverse care areas have nuances that require further understanding in developing the Ontario Health Team model. Services should also be organized through regional or provincial clinical service plans that directly address care quality, access and equity, and the sustainability of the academic mandate.

Further, continuity should be provided for patients through a standard understanding of an Ontario Health Team and the services that are offered (i.e. primary and secondary care), allowing for consistent structures throughout the province and reduced quality differentials based on regions. This oversight should be flexible in nature, allowing for the natural evolution of services based on population need, equity, and the need for oversight.

These services, in the medium-term, need predictable funding to ensure they are stabilized in the transition to a new care model. They would then require further thought as to how they are funded that appropriately considers demographics, access and equity, care quality, and the academic mandate. In pursuing the above recommendations, and understanding the complexities outlined in this report, Ontario can move towards integrated care that incorporates a high-quality, coordinated continuum inclusive of all services that improves the quality of care and experience of patients throughout the health system.



3 Purpose of the OHA's Specialized Services Working Group

The Ontario Hospital Association (OHA)'s Specialized Services Working Group was formed in November 2019. Its membership consisted of OHA members (Ontario's hospitals) from across the province, bringing a strong clinical and operational expertise on specialized services in Ontario. The Specialized Services Working Group developed a statement that encompassed the scope of their work:

The purpose of the Specialized Services Working Group is to provide the Minister of Health with recommendations and a framework for identifying, structuring, and funding specialized services in Ontario. Focused on positive outcomes for patients, the report provides guidance on developing integrated care models across Ontario.

The Working Group met several times between November 2019 and October 2020 in order to fulfil this mandate, and the OHA also facilitated additional opportunities for meaningful engagement with OHA members and external stakeholders to ensure experiences and insights were heard from across the continuum of specialized care in Ontario. Although extensive, these engagement opportunities were not inclusive of patients and families with lived experience in accessing specialized services, and the Working Group advises that these perspectives should be included by government in further system planning. A list of Working Group members and those who were consulted are included in Appendix A.

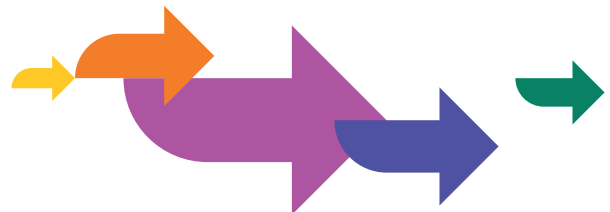
The Working Group agreed that the following was in-scope for this work:

- Defining specialized services in hospitals within the context of integrated patient care
- Developing an understanding of services in hospitals, how they are distributed regionally, and how they are currently funded
- Understanding the academic (i.e. teaching and research) mandate of hospitals and their funding

The Working Group also agreed that, although important in the transition to Ontario Health Teams (OHTs) and integrated care, the following was out-of-scope at this time:

- Planning of individual OHTs
- Health human resources planning
- Planning of 'non-specialized' (as determined by the review) care services
- Understanding services not provided in hospitals

Some of these out-of-scope elements are highlighted further in Section 8: Future Work due to their importance but may not have formal recommendations as additional work is needed.



4 Overview of the Current State of Specialized Services

In order to propose recommendations on a future state for Ontario's specialized services, a review of the current state in Ontario and other jurisdictions was completed. This section includes a brief review² of how specialized services are currently considered in Ontario, as well as how they are considered in jurisdictions like the United Kingdom (U.K.) (National Health Service (NHS)), British Columbia (B.C.), and accountable care organizations in the United States (U.S.). A brief gap analysis for Ontario is also presented, along with the importance of this work moving forward.

Specialized Services in Ontario

Historically, specialized services in Ontario have been inconsistently defined. Some definitions have included all tertiary and quaternary hospital services, only 'catastrophic' care, or services tied to incentives or strategies with goals like improving wait times. Further, these definitions have typically excluded many 'non-traditional' services, such as those in mental health and addiction, complex continuing care, rehabilitation, and paediatrics, or longitudinal services for patients with complex, long-term needs.

Traditionally, services that are considered 'specialized' are offered or performed in specialized centres, such as tertiary/quaternary hospitals. For example, a patient receiving a lung transplant is only able to receive this care at the University Health Network in Toronto due to the clinical expertise and critical mass of patients required for quality service provision.

Specialized services are typically funded through volume-based or targeted funding (using a formula of rate (\$ per patient) x volume (# of patients)) or through global funding. Some of these services have historically been overseen by provincial agencies, such as the Trillium Gift of Life Network in the example of solid-organ transplants, or Provincial Programs Branch through the Ministry

of Health, while others have no provincially organized governance. The diverse methods of governance, funding, and program delivery make categorizing services as 'specialized' more challenging.

Provincial Programs

Per Ontario's Ministry of Health (2019), "Provincial programs are life-saving, highly specialized and emerging clinical health services that require provincial leadership, governance and coordination to meet the healthcare needs of Ontarians. Provincial Programs Branch (PPB) provides funding and oversight for organizations that support these services and works with health system experts and stakeholders to inform best practices, produce efficiencies, promote greater accountability and enhance patient access for provincial programs." PPB also outlined five major criteria for the inclusion of a service as a Provincial Program:

1. Expert oversight required,
2. Unique expertise/infrastructure,
3. A specialized population,
4. Provincial financial oversight, and
5. Provincial coordination required (Ministry of Health, 2019).

Some examples of Provincial Programs include highly specialized services such as organ transplantation, emerging services such as left ventricular assist devices, critical care services such as those overseen by Critical Care Services Ontario, and those with provincial governance such as Cancer Care Ontario (Ministry of Health, 2019). The focus of PPB is primarily on services that would be considered "highly" specialized; however, many specialized services could fit the criteria laid out above. This points to a need for a deeper understanding of what services are considered specialized, and what oversight they require at a regional or provincial level.

² This review was informed by a search of academic and grey literature, as well as interviews with key informants.

Understanding the Context in Ontario

Provincial agencies and Local Health Integration Networks (LHINs) merged into a single provincial agency, Ontario Health, as per Bill 74 (The People's Health Care Act, 2019). Additionally, to promote an integrated patient care model, Ontario Health Teams (OHTs) are voluntarily forming across the province to cover geographical areas or patient populations. The current understanding of OHTs is that they will be self-organized groups of providers that provide variable services to local populations across Ontario, with an eventual transition to shared governance and funding (risk-adjusted capitation, bundled care, and direct funding for specialized services). The future of this new governance and care delivery structure and its relationship to specialized services is unclear; however, there will likely be impacts on how specialized services are defined, identified, funded, and delivered in Ontario in an integrated model.

In order to understand the current and historical context of specialized services in Ontario, numerous provincial sources were sought. The Working Group considered work completed through:

- Provincial Programs at the Ministry of Health;
- Provincial plans at Cancer Care Ontario;
- Trillium Gift of Life Network;
- Previous hospital accountability agreements and the work of the LHINs;
- Historical work done through the Health Services Restructuring Commission (2000) and The Hay Group's work on Level of Care (2001);
- The role of CritiCall in specialized care; and
- Current work on OHTs.

Further, the Working Group had extensive discussions about the current and historical context in Ontario from their own experience and that of their respective organizations, which fed into the development of the Working Group's recommendations.

The current system of care in Ontario includes a broad continuum of services, between primary care and community services, secondary services (e.g. in local

hospitals), and tertiary and quaternary services across regions and the province. In exploring specialized services, the Working Group explored differentiators between regional and provincial services, and the meaningful differences in how they are organized and funded.

Regional variability also affects service provision across Ontario and requires due consideration when moving forward with integrated care models; for instance, regional and provincial services would typically serve multiple OHTs and therefore require deep thought as to how these services are truly integrated across multiple OHTs. An appropriate, home-grown integrated model requires understanding of current referral patterns and natural partnerships between services to help stabilize and then enable these linkages to continue without additional bureaucracy or hardship, with broader accountability than just within individual hospital programs.

Cross-Jurisdictional Scan

The Working Group completed a cross-jurisdictional scan to determine how specialized services are considered in other regions. This included a search for guiding principles, decision-making criteria, definitions of specialized services, insights into how these services are structured or governed elsewhere, how specialized services relate to or are integrated with other services, and insights into specialized services outside of traditional acute care. Three key jurisdictions are highlighted here: the National Health Service (NHS) England, which had the most extensive resource-base on this topic; the approach in British Columbia; and Accountable Care Organizations in the United States. It was challenging to find information on specialized services publicly, so the OHA discussed the topic directly with representatives in some jurisdictions.

National Health Service (NHS) England, United Kingdom

The NHS England has a well-defined, extensive example of planning specialized services on a broader scale. Through their Specialised Commissioning Directorate, they have created a Manual for Prescribed Specialised Services (NHS England, 2018a) that is routinely updated and was first published in 2012. This Manual describes which elements of specialized services are commissioned by NHS England, versus their more regional Clinical Commissioning Groups

(CCGs). It outlines an extensive list of services, including a summary of the service or condition, how it is organized, what the NHS England commissions versus the CCGs, and why it is commissioned nationally. It also outlines how they collect data related to the service to support their decision to commission nationally or through CCGs. They utilize a principle-based approach in determining whether a service is commissioned by NHS England, with four specific principles used in decision-making:

1. The number of individuals who require the service;
2. The cost of providing the service or facility;
3. The number of people able to provide the service or facility; and
4. The financial implications for CCGs if they were required to arrange for provision of the service or facility themselves (NHS England, 2018b).

NHS England also has a subset of services that are outlined in a separate document specifically for highly specialized services (NHS England, 2018b).

Some of the services commissioned nationally are outlined in related legislation; however, the decision-making process for commissioning services is primarily through a prioritization framework that outlines principles that are consistently applied across all service proposals, ensuring the decision-making is fair and transparent (Black, 2018). Commissioning requires multiple phases in policy development, including a clinically-led process to develop the initial proposal, review evidence, draft a policy through a working group, and vet the policy through a clinical panel. The policy is then analyzed to identify financial and operational impacts, and is subject to public consultation. Finally, the policy is approved or denied based on the clinical benefit and cost (Black, 2018).

The Clinical Priorities Advisory Group (CPAG) reviews all proposed treatments independently to determine their clinical benefits and costs, then proposes a recommendation to the Board of NHS England for a final decision. Proposals are prioritized based on a grid of their incremental cost vs. incremental benefit, and the

highest priority proposals are targeted first (low cost, high benefit). Clinical Reference Groups (CRGs) provide clinical advice, standards of quality, and lead the development of commissioning policies. Examples of the CRGs include internal medicine, mental health, cancer, trauma, women and children, and blood and infection. The work from the CRGs feed into the CPAG for review (Black, 2018).

Per NHS England, continuing the work of the Specialised Commissioning Directorate requires the involvement of approximately 40 CRGs and approximately 400 FTE of staff support. This work is a massive undertaking that requires extensive clinical consultation and ongoing support to ensure the appropriate administration of the list of services.

The Working Group felt that the high-level principles used by the NHS could help to guide and inform the approach and recommendations; however, the massive infrastructure investment that would be required to operationalize this model in the Ontario context was prohibitive.

British Columbia

In British Columbia (B.C.), specialized services are primarily organized through the Provincial Health Services Authority (PHSA). PHSA operates at a provincial level in a coordinating function, ensuring B.C. residents have access to high-quality specialized services (PHSA, 2020). These services are provided across the province through specialized centres and regional health authorities; examples of services include certain specialized services within paediatric care, mental health, cardiac, trauma, perinatal, and stroke services.

The mandate of PHSA is outlined in a foundational document that specifically references “highly specialized services” as a core part of the clinical policy and service delivery components of PHSA, and the document names specific services as within PHSA’s purview due to the need for provincial coordination and oversight (Adrian Dix, BC Minister of Health, 2018). These services are funded based on cost escalation and volume estimates, and PHSA distributes the funds to the regions for cardiac, renal, and some cancer services depending on volume.

PHSA services are determined through a set of criteria, including services that:

1. Are low volume/high acuity;
2. Are highly technical (e.g. cardiac care);
3. Are costly (e.g. renal and cancer services, expensive drugs for rare procedures);
4. Require medical specialists in a finite resource pool (e.g. highly specialized paediatric care, forensic mental health, B.C. Centre for Disease Control); and
5. Require provincial coordination and integration.

According to its Ministry of Health, B.C. does not have specific criteria for determining which services are governed provincially versus regionally; however regional services are generally those that are high volume/low-to-medium acuity. These services are funded through the Population Needs-Based Funding (PNBF) formula, which considers population growth, aging, and other health demographics, and adjusts for costs related to the academic mandate and rural/remote care. Specialized services are delivered by PHSA directly, such as paediatric care at B.C. Children's Hospital, forensic mental health, B.C. Cancer Agency and B.C. Centre for Disease Control, to name a few. These direct services are funded separately.

Each PHSA program has an executive (i.e. Executive Director, Vice President, or President depending on the size and scope of the program and whether it is a planning, coordinating and commissioning program or direct delivery). These executives report to the CEO of PHSA, who sits at a provincial table with the Regional CEOs and the B.C. Ministry of Health, providing provincial oversight.

Although there are some provincial differences, the Working Group appreciated the well-developed governance of specialized programs in B.C., as well as the funding methodology that incorporated population growth and demographics, which could be adopted in a new Ontario integrated care model.

Accountable Care Organizations in the United States

Accountable Care Organizations (ACOs) in the United States were created to promote risk and gain sharing and efficiency in care delivery, and incorporate networks of hospitals, physicians, community organizations, etc. (Peckham, et al., 2018). The literature is limited in describing details as to how specialized services have been incorporated in ACO planning, however it is broadly stated that ACOs improve coordination between a patient's primary care doctor and other specialty care providers. Payments for services are linked to value and quality, instead of volume. Outcomes-focused payments incent ACOs to meet quality goals and ensure accountability in delivering high-quality care (Summers, de Lisle, Ness, Birchfield Kennedy, & Muhlestein, 2015). Public ACOs typically receive funding based on their attributed population's case-mix, and they are able to retain any surplus funding if they are under budget; however, they are also responsible for any deficits beyond their annual funding. Savings are dependent on meeting care quality benchmarks in addition to financial efficiencies (Peckham, et al., 2018). Some key traits of ACOs, namely the focus on quality care and positive patient outcomes, could be adopted in a future model in Ontario.

There are also "innovative models" within accountable care that includes some specialized services, such as the Comprehensive End-Stage Renal Disease (ESRD) Care (CEC) Model. The CEC Model forms networks of providers (e.g. dialysis clinics, nephrologists, etc.) to coordinate care for patients with ESRD; these providers are accountable for clinical quality outcomes as well as financial outcomes (Centers for Medicare & Medicaid Services, 2020). In the first two performance years of the CEC Model, there has been some evidence of a reduction in costs and utilization alongside some improvements in care quality metrics (The Lewin Group, Inc., 2019), demonstrating the potential for such models. This may highlight differences between services that could be considered regional or provincial, requiring broader coordination and oversight.

Opportunities for Improvement and the Impetus for Action

The current model of identifying, organizing, and funding specialized services in Ontario has some opportunities for improvement. In an environment of system transformation and fiscal austerity, there is a drive to improve the access to and quality of these services in order to improve the outcomes and experiences of patients in the system. There is also a corresponding drive to provide high value, efficiently coordinated services across the province, ensuring a high-functioning health system. The unprecedented response to COVID-19 has demonstrated the adaptability of the hospital and healthcare sector and the need for the system to work together regionally; however, COVID-19 has also exposed gaps in access and equity, particularly among marginalized and racialized communities.

While discussing specialized services in Ontario, and the potential future for these services in an OHT or integrated care environment, the Working Group and broader OHA membership raised many issues that need to be addressed. These issues are discussed in more detail in Section 8: Future Work, however some considerations are outlined here as they have impacted the recommendations brought forward by the Working Group.

Information and Data Gaps

Various information gaps have made it challenging to determine recommendations on specialized services, particularly in an environment of transformation. For instance, it is challenging to discuss recommendations on stabilizing specialized services when OHTs (specifically, their governance and funding) have not been formalized; the impetus for stabilizing specialized services stems from the transition to an OHT model. Additionally, the gaps in data, particularly in non-traditional specialized services (e.g. outpatient services), highlight a need for robust, comprehensive data that would better inform service planning discussions. The Working Group has put forward recommendations with this context in mind.

An Integrated System and Patient Engagement

The integration between community care and the hospital sector is incredibly important; however, there is an ongoing gap in understanding how community providers deliver specialized care in the community due to a lack of data and often a lack of integration. Community services, such as home-based palliative care, paediatric home care, or some community-based mental health and addiction services, may be considered specialized. Services outside of hospitals were out-of-scope for the Working Group, however community-based services were discussed as an integral part of the care continuum and in need of further exploration beyond the Working Group's mandate.

Further, patient and family engagement in system transformation is incredibly important in this work. Although this level of engagement was out-of-scope for this educational report, the Working Group highlighted the importance of patient and family engagement in shaping the future of Ontario's system, and more specifically the key contributions that lived experiences can provide in stabilizing and enhancing specialized services in a patient-centred manner. This engagement should be done in a meaningful manner by government.

The Importance of Health Human Resources

Although discussed within the Group as vitally important for this work, health human resources planning was considered out-of-scope for the Working Group's mandate. Health human resources are a crucial part of delivering specialized services, and indeed healthcare in general, and this was highlighted by the Working Group as needing additional consideration in the form of a robust health human resources plan for the province.

With acknowledged information gaps, the Working Group made some assumptions on how the OHT model would work, as well as how a future state of integrated care could be successful. The recommendations are based on these assumptions and could therefore change if the model of care were to change moving forward.

5 A Vision for Specialized Services in Ontario

Specialized services in Ontario provide necessary care to patients across the province, and there is a need to imagine the future of these services with the transition to integrated care. The Working Group imagined an improved future state, where patients have the best possible health outcomes and experiences, and the health system is organized for success. Current transformation efforts provide a unique opportunity to refocus efforts on designing the system with patients at the centre. This vision is aligned with, and underscores the importance of, the Institute for Healthcare Improvement (IHI)'s Quadruple Aim (IHI, 2020) and six dimensions of quality (IHI, 2001). This vision is:

Ontarians have access to equitable and high-quality patient-centred specialized care as close to the patient's home as possible that is focused on patient experience and outcomes.

This vision will be supported by enablers such as:

- A health human resources strategy that ensures a sufficient number and appropriate distribution of skilled healthcare professionals;
- Engagement of patients and families with lived experience;
- Appropriate governance and oversight that considers patient experiences and outcomes, as well as provincial and regional needs;
- A thoughtful and appropriate quality framework, including:
 - Evidence-based care
 - Robust data and analytics
 - Standardized performance metrics
 - Collaboration between organizations and providers
- Appropriate and well-resourced technology and equipment; and
- The academic mandate in hospitals, i.e. education, research and innovation.

These enablers are key in evolving the system into an integrated, high-quality, equitable system across OHTs and specialized services. Although outside the Working Group's mandate, skilled providers were highlighted consistently as key in delivering high-quality services to Ontarians and are central to this work. As demonstrated through the NHS model, clinicians are crucial in understanding specialized services, as well as determining how those services are governed and funded. Further, technology and appropriate equipment are key in providing specialized care as close to the patient's home as possible while maintaining high quality. Many crucial services would not be provided without these resources.

The academic mandate of many hospitals, which includes the mandates for education, research and innovation, are important components of specialized services. Many specialized services have a symbiotic relationship with the academic mandate; the services provide a fertile ground for research and teaching and depend on research and teaching for innovation and service provision.

Although some of these enablers are not differentiators of specialized services, they are wholly important in the provision of these services. A rigorous quality framework, including evidence-based care, data and analytics, consistent performance metrics across the province, and deep collaboration between organizations, is required to ensure services are high-quality and promote the best patient outcomes. Further, strong governance and patient engagement is needed to manage regional variabilities and provide oversight of service quality. These will require further consideration as the system moves to integrated care.

6 Principles for Identifying Specialized Services

In order to provide a framework with which to identify specialized services in Ontario, the Working Group discussed broad principles that could assist with decision-making. These principles were informed by broad OHA membership consultation (see Appendix A) and a review of previous work in this area, for instance through the Ministry's Provincial Programs Branch, previous accountability agreements, Cancer Care Ontario, and work from other jurisdictions (e.g. the NHS), to name a few (see Figure 6A).

explanatory criteria that specialized services would need to meet in order to be considered specialized. **These principles and their specific criteria are to be taken together as a comprehensive set; in other words, a service would have to meet all the criteria under each principle to be considered specialized.**

Principles and Criteria

Principle 1: Expertise

1. An interprofessional team with a focused skill set is required to safely provide the specialized service, without which there is a significant risk of mortality, morbidity, or functional impairment.
2. Specialized teams provide the service to a critical mass³ of patients using the best available evidence.
3. Service provision requires clinical coherence and interdependencies with other programs (both specialized and non-specialized) and is established within the context of a coordinated network and system of care across the continuum.

Principle 2: Resources

1. The specialized service requires extensive capital (i.e. technology, equipment and/or specialized infrastructure) and/or operating resources (i.e. labour, supplies and other unique operating resources to ensure 24/7 coverage) that must be organized efficiently and effectively across the province for economies of scale, individually and clustered with other services.
2. The service requires planning at the regional and/or provincial levels to proactively monitor and manage service demand and equity over time, and allows for the natural evolution of services based on demand.

³ Critical mass, in this context, is defined as the number of patients that demonstrate the need for the service to be provided with an adequate volume to maintain clinical competence in order to provide safe, high-quality care.



Figure 6A: Inputs into the Creation of the Specialized Services Working Group's Principles

Based on this process, the two key principles that determine whether a service is specialized relate to **expertise** and the **resources required to provide the service**. Under each principle, there are specific,

Defining Specialized Services

Based on the principles above, the Working Group developed a broadly applying definition of a specialized service that could be used in conjunction with the principles:

A specialized health service is a service that provides highly focused care to a small proportion of patients within a defined geographical area, and which requires specific clinical expertise and resources in order to provide high-quality care promoting positive patient outcomes and experiences. A specialized service is inextricably linked to other services and requires broader planning at the regional or provincial level.

Application of Principles and Limitations

These principles can help determine whether services are specialized in the context of integrated care, where services require broader oversight and coordination. These principles were developed with hospital services in mind; however, the themes could be extrapolated to other healthcare areas with appropriate consultation.

Some examples are provided in Appendix B that utilize the above principles in order to determine whether a service is specialized across different service types. This includes both provincially and regionally delivered services (further discussed in Section 7). The examples used are inclusive of some ‘non-traditional’ services, as many highly specialized services are quite obviously specialized and did not require additional illustration.

One example in Appendix B is renal transplant services. Renal transplant services fulfill the criteria laid out in the principles and would therefore be considered a specialized service, organized and delivered provincially. This example includes both pre-, peri-, and post-operative renal transplant services as specialized. Additional

illustrative examples spanning mental health and addiction, rehabilitation, and the child health system are included in Appendix B. The principles can also be used to determine whether services are not considered specialized. For example, applying the principles to primary unilateral arthroscopy would determine that this does not fulfil the criteria to be considered a specialized service. These examples also consider the patient’s journey in accessing services along the continuum of care, which include a combination of specialized services and services that are not considered specialized based on this methodology.

Note that these examples are meant to be illustrative, not comprehensive.

In order to apply these principles across multiple service types, there are a few considerations that need further thought. Firstly, critical mass will differ depending on the service, and this will need to be defined further with specific thresholds based on the population and service. Secondly, effective and efficient care requires further defining and measurement; for instance, in rehabilitation, this may include co-locating patients per best practice guidelines. This also relates to the need for a well-defined critical mass for a service to maintain clinical competency, allowing for effective and efficient care.

Complementary Data Methodology in Identifying Specialized Services

The OHA worked with the Canadian Institute of Health Information (CIHI) to explore the clinical and statistical administrative data available in Ontario that can assist in identifying specialized services. The OHA used this data to inform the Working Group’s principles and to review present referral patterns and geographical access to specialized services; however, there were some limitations to this data exploration, including data availability in some care areas (e.g. outpatient, post-acute care, etc.) and challenges where the data are too small to analyze.

The proposed data approach was created as a proof-of-concept to identify specialized services where there was a concentration of expertise in a small number of hospitals, as well as hospital services serving a region in Ontario. The approach was not meant to populate a comprehensive list of specialized services, although the approach can be refined using clinical consultation in the future while considering the data limitations highlighted.

The data methodology took into consideration the following:

- Traditional measures of specialization, for example, the Gini Index, Herfindahl-Hirschman Index, Information Theory Index and Statistical Measure of Distance;
- Patient classifications systems used in Ontario's health system; and
- Contextual measures to inform identification of specialized services, such as out-of-province travel, most responsible provider, and diagnosis or intervention case mix group.

During this proof-of-concept and data exploration exercise, the following databases were used:

- Discharge Abstract Database (DAD)
- National Ambulatory Care Reporting System (NACRS)
- National Rehabilitation Care System (NRS)
- Ontario Registered Persons Database
- Ontario Healthcare Reporting System (OHRS)

Using five years of data, a set of primary and contextual measures were developed (see Appendix B). Using thresholds for these measures, a list of case mix groups was identified as specialized interventions and regional services using a market share analysis. The analyses identified areas where more information was required in outpatient services.

As noted above, there were limitations in this exercise. The data methodology was developed to explore a quantitative method of identifying specialized services, complementary to the qualitative method (i.e. the application of principles and criteria) created by the Working Group. Utilizing these two methods together could, ideally, create an appropriate list of specialized services for Ontario. However, the highest quality data was from acute care, making it more difficult to identify specialized services in post-acute care, mental health and addiction, and outpatient services.

For outpatient services, data is collected on a voluntary basis; hospitals are not required to submit data from these programs, and therefore the data is less accurate and complete compared to databases of acute care services, where data collection is required. Where data was available, however, this method demonstrated considerable promise in identifying specialized services. It will be critical to leverage high-quality data in order to best use a data driven methodology in conjunction with the principles and clinical consultation, which may require improving data collection and accuracy across the healthcare system.

RECOMMENDATIONS

Identify specialized services using specific principles and a data methodology that incorporates appropriate services across the continuum of care while remaining flexible to the various local contexts across Ontario.

Principles in identifying specialized services include expertise and the resources required to provide the service (as described above). These principles have specific criteria for decision-making, where a specialized service would need to meet all of these criteria in order to be considered specialized.

A quantitative method must incorporate high quality data to promote a high quality of care and evaluate overall performance, which will require improving data quality across many aspects of the system.



7 Governance, Funding, and Service Delivery

In developing the principles and decision-making criteria, the Specialized Services Working Group extensively reviewed the many interrelated topics related to the governance, funding, and delivery of specialized services in Ontario. These discussions incorporated perspectives of what a “best system” would look like, as well as how specialized services can be incorporated in an integrated care model, namely with Ontario Health Teams. The Working Group also discussed these topics with numerous OHA members and stakeholders for a comprehensive perspective; however, it was recognized that the Working Group may not have a full-system perspective on these issues, and the resulting recommendations may have blind spots that require further consideration and discussion.

Provincial Services and Regional Services

A key complexity in this work is the distinction between provincial services and regional services. Due to the regional variability across the province, the provision of services differs by region. These differences should be accounted for in identifying, governing, and funding these services across Ontario. The Working Group developed the principles and data methodology with both provincial and regional services in mind, to ensure specialized services are appropriately captured and stabilized in the transition to OHTs. These services would typically serve multiple OHTs due to their provincial or regional nature.

For clarity, a ‘provincial’ service in this context would be a service that serves a large geographic area and has few centres providing the service across the province. Many of these services are specialized and easier to identify due to the size of the population they serve, the expertise required, and the resources required. A ‘regional’ service would be a service that provides the service to multiple OHTs (depending on the regional context) in their broader geographical area; however, this service may or may not be specialized.

For example, there are four burn units across the province that provide care for all adult and paediatric burns in Ontario. These would clearly meet the criteria for a specialized service. However, an organization may provide unilateral knee arthroplasties to multiple OHTs in their region due to the volume of cases, and this is not a specialized regional service based on the criteria set out in this report. Conversely, amputee rehabilitation may be provided regionally, and due to the expertise and resources required in this specific type of rehabilitation, may be considered specialized. Additional examples are provided in Appendix B. Specialized regional and provincial services may require more centralized planning and oversight due to their nature. They may also be most appropriately funded through direct Ministry funding (such as through a rate x volume approach).

The regionalization of a service may be due to the needs or attributes of a region, and not an inherent quality of the service itself. These services are complex and interconnected, regardless of specialization, and layers of services are provided within hospitals and across future OHTs.

For additional context, an example of services related to chronic kidney disease could be used. Renal transplant services (including pre-transplant, peri-transplant, and post-transplant services) would be a provincial specialized service. Haemodialysis would be provided as a regional service, with each program providing the service to OHTs based on regional needs; haemodialysis would be considered a regional service but would not meet the key criteria of a specialized service. Each OHT would then provide long-term management of chronic kidney disease through primary and secondary care services, allowing patients to access this chronic care locally. This requires broader regional planning of services.

Some regions have built-in redundancy due to the service demand (i.e. multiple centres offering the same service), enabling the programs to care for a large volume of patients in their region. For example, multiple hospitals

in Toronto (and the surrounding area) may offer the same service due to the population size and service demand. Due to this redundancy, it would be difficult to dissect ‘regions’ of service for some services. However, in other areas of the province it may be possible to dissect out regions; for example, in southwestern Ontario there may be one provider of a regional service for the entire region.

Further, some regions provide services through alternative care models, such as a hub-and-spoke, virtual, or outreach models, furthering their reach beyond their immediate regions. These regional variations may affect the governance and funding of these services, as within some regions some of the regional services may be able to be incorporated in capitation funding by broadening the attributed population, and in others this would not be possible. It is unlikely that a completely uniform model would be appropriately applied to all regions in Ontario given these variations. Some regional programs may not require broad transformation as OHTs develop; for instance, current models in cancer care through Cancer Care Ontario–Ontario Health could be sustained, as they take quality, access, and population growth and distribution into account.

Identifying regional services in each region would be a collaborative effort; in addition to using the principles developed by the Working Group and the data methodology, regions would need to identify services that should not be replicated in each OHT. Variation between OHTs will make aligning a single care pathway for regional programs unlikely and will require multiple pathways for OHTs with different operating models. This would require an exploration of where services are located and how they are delivered. Local, regional, and provincial coordination would help with consistency across the province, while considering regional differences. Local, regional, and provincial services would work collaboratively to better integrate care for patients across the continuum.

Regional services also require regional accountability and coordination from a clinical perspective. In some cases, an individual program or OHT may not have the line of sight of the needs of the broader region, and regional

accountability ensures that regional needs are met. For example, an endovascular treatment (EVT) program that provides this service to a region spanning multiple OHTs would require a regional clinical plan to ensure access, equity, and care quality. This regional accountability and coordination would be based on natural referral patterns across regions, and the services would be structured and funded on this regional basis. This may differ across Ontario due to regional variability, but providers should be aware of and accountable for their scope of service within their region, including quality outreach to referring hospitals.

An additional consideration is that services considered ‘specialized’ also may change over time. The inclusion of specialized services at either a provincial or regional level need regular review to ensure the services that are included remain specialized, and services that are new or that fundamentally change over time are considered for inclusion (or exclusion). This natural evolution of services should also consider the changing needs of communities; for instance, if a region grows substantially, it may be able to support the creation of new specialized programs to address the growing demands of the region. This will improve access and decrease waits and costs associated with transfers of care. This would require a centralized decision-making process and appropriate clinical resources, like the NHS model (Section 4). Regularly reviewing the included services would encourage care quality, ensuring these services are being appropriately resourced and have appropriate accountability.

The distinction between provincial and regional services would depend on an OHT structure that has some consistency in the services offered. An ideal structure would promote accountability in each OHT for a core group of services for their attributed population, such as all primary and secondary care. Each OHT would have oversight of their local services and the integration of these services across the continuum, allowing the OHT to focus on integrating the continuum of care across the majority of services to improve patients’ experiences. Specialized and regional services would then be layered over this OHT structure.

Regional services providing the service for multiple OHTs would have regional oversight, and provincial services across regions would have provincial oversight. Specialized services will take various forms depending on the organization of OHTs in a region. They could be set up independently or be part of a local or regional OHT, but in all cases will be focused on linking patients across a region and to the next phase of care. Similarly, from a governance perspective, specialized services could be funded separately or funded through an OHT. These services would also consider longitudinal and complex care needs, beyond episodic acute care. In all cases, regions will need to consider the model for governance and organization within the context of the region's OHT structure.

RECOMMENDATIONS

Structure provincial and regional specialized services with appropriate provincial or regional accountability and coordination. This coordination considers regional differences and alternative care models.

The OHT(s) offers a core group of services. Outside of those core services, regional specialized services will typically serve multiple OHTs and provincial specialized services serve multiple regions.

Specialized services are reviewed regularly through a centralized decision-making process, as services and care pathways change over time and programs may evolve to support the growth in regions.

Funding of Specialized Services

At present, the Ministry has indicated that services identified as 'specialized' may receive direct funding, outside of the proposed risk-adjusted capitation and bundled payment models in the OHT structure. Historically, these services have either been identified as a Provincial Program and funded directly or funded through global budgets within hospitals, limited by the definition of a specialized service. In order to stabilize specialized

services through the transition to OHTs, they must first be identified by understanding the greater context of a patient's care pathway and considering non-traditional services beyond acute care.

The academic mandate of these services should also be considered, as specialized services are typically integrated with research, developing best practice and knowledge in these specialized areas, and education, where healthcare professionals are trained to ensure clinical competence in these services. For clarity, the presence of an academic program does not determine whether a service is defined as specialized. There are examples of non-specialized services which have components of teaching, research and/or innovation, and there may be specialized services which do not have an associated academic program or have less of a focus on the academic mandate. Overall, however, the academic mandate is usually inextricably linked to many specialized programs, and therefore needs additional consideration in terms of appropriate resourcing.

Direct Funding of Services and Other Models

Once appropriate services are identified, a thoughtful approach to funding these services is required. This may require a multi-phased approach in order to stabilize specialized services through the transition to OHTs, including providing implementation support, and then address the concerns around access, equity, quality, and the academic mandate.

The presently identified method of funding specialized services through direct Ministry funding would be an appropriate method for highly specialized, high-cost/low-volume services. "Highly specialized" services are identified separately by the NHS (NHS England, 2018b), and there is also evidence of this distinction in the literature (see Appendix B). The NHS segregates "highly specialized" services as those serving approximately 500 patients or fewer per year; an example of such a service is extra-corporeal membrane oxygenation (ECMO) in both adults and children (NHS England, 2018b). "Highly specialized" services are a relatively small group of services that could be identified using the proposed data methodology, along with the principles identified by the Working Group. Specialized services outside of this category would constitute a larger group of services that may benefit from an alternative model of funding.

One such funding method is used through PHSA in B.C., where centralized funding is provided to specialized programs through specific funding streams based on allocated catchment areas, patient volumes, and demographics (as outlined in Section 4). There will need to be further thought on whether the delineation between “highly specialized” and “specialized” services is required in the Ontario context, and whether these two categories of specialized services requires separate funding models.

In order to stabilize these services through the transition to OHTs, these services could be funded through an approach that would involve funding based on historical utilization with consideration of demographic data into a global budget, focusing on maintaining status quo over the medium-term. Over the long-term transition to integrated care, the funding of specialized services could take into consideration broader issues around service growth, access, equity, quality, and the academic mandate. This cost-based funding approach could also consider the total cost of door-to-door care, including transfers between facilities and the impacts of associated wait times.

Impacts of Funding Changes

Changes to the funding of specialized services (and all services) involves administrative burden. This burden would be increased with the inclusion of specialized services in a capitation funding model, as service providers would then have to charge back the cost of the service to specific OHTs for the patients within their attributed population. This must be avoided in any funding changes, such as through alternate funding models for specialized services and the thoughtful implementation of capitation.

In order to provide high quality integrated care for patients across a continuum of care, services that have historically not been identified as specialized need further consideration. This requires thinking about the continuum of care as opposed to episodic, often acute care services, namely services that provide ongoing care to patients with complex care needs. This also includes consideration of services provided on an outpatient basis, which are often excluded from the conversation on specialized services, but are vitally important in the continuum of care.

Additionally, funding rates should be revisited as funding models are being developed, as often they do not cover current costs of providing specialized services.

A further consideration in funding specialized services is the academic mandate. Specialized services have a symbiotic relationship with the academic mandate of organizations. Not only do the services provide a rich research and learning experience, they also depend on ongoing research and education in care. Evidence-based care is paramount in a high-quality healthcare system, and research develops the evidence for these care decisions, as well as technology and knowledge for the future. Further, many specialized services depend on the trainee workforce for care provision, without which the service quality or the ability to provide the service would suffer. The research and education mandates of these services, as inherent parts of quality service provision in specialized services, need appropriate resourcing in order to be sustainable.

RECOMMENDATIONS

Fund specialized services through direct funding.

Stabilize specialized services through the transition to OHTs using a funding approach that considers historical utilization and demographic data in a global budget.

Ensure the sustainability of the delivery of specialized services. As the funding of specialized services evolves over the long-term, funding approaches should consider service growth, access, equity, care quality, and the sustainability of the academic mandate.



8 Future Work: Enablers and Pre-Requisites for a Successfully Integrated Health System

Through the transition to Ontario Health Teams and integrated care, the Working Group imagined a system of care that allows Ontarians equitable access to high-quality specialized services that are focused on patients' experiences and outcomes, and provided as close to the patient's home as possible while maintaining this high care quality. The Working Group identified numerous topics as needing additional thought, including the enablers mentioned in the Group's vision for specialized services (see Section 5). Although these topics are outside the direct mandate of this Group, they are highlighted for further exploration as the system transitions to Ontario Health Teams and better integrated care. The Working Group has provided some recommendations on the three topics that were initially discussed as principles due to their importance across the entire health sector. Additional topics are reviewed to outline some major points of consideration, including in nuanced care areas; however, due to the extensive work needed in these areas to guide future policy, no formal recommendations are provided by the Working Group at this time.

Recommendations on Quality, Access and Equity, and the Academic Mandate

Quality of Care and an Integrated Continuum of Care

A key component for patients receiving specialized services is high quality of care. The need for high-quality care is a determining factor in where services are provided, based on the ability to provide these services with the appropriate expertise and resources. The Working Group noted the importance of specialized services (and all health-related services) being provided in a manner aligned with the IHI's six dimensions of quality: the care is safe, effective, patient-centred, timely, efficient, and equitable (IHI, 2001). Further, the service should also be aligned with the Quadruple Aim, taking into consideration

population health, experience of care, per capita cost, and provider well-being (IHI, 2020). These cornerstones to care quality ensure high-quality service provision and ongoing accountability for positive patient experience and outcomes.

A robust quality framework for all specialized services is required. A framework would ensure care is evidence-based and appropriately provided, and would use data and performance metrics for accountability as well as improvements in patient outcomes and experiences. In services that are performed in multiple centres, performance metrics such as patient outcomes would track and be used to help reduce quality differentials between service sites. Patients would then be receiving the same quality of care, regardless of where in the province they access that care, improving health equity. This will be achievable through an improved ability to compare data across programs through unified data collection and analysis, such as uniform performance metrics. There should also be appropriate oversight to ensure consistent and high-quality care for populations at risk of increased fragmentation with changes in care models. Some examples are further addressed in the sections below.

Integrated models of care should support patients throughout the continuum of care and require collaboration between all service providers with the goal of providing patient-centred care. The continuum includes a patient's care pathway before, during, and after receiving specialized care. High-quality care would ensure that patients experience care transitions seamlessly. This will require further thought in how specialized services are integrated, on a practical level, between multiple OHTs and services. For instance, a patient receiving specialized hepatobiliary cancer treatment may have surgical treatment, chemotherapy, and radiation. Their surgery and radiation may be provided within a specialized program; however, their chemotherapy may be provided closer to their home outside the context of a specialized service program. The patient may also have extensive follow-up

with their oncology team, as well as with their primary care provider. The ideal integration between these services and providers would support a patient seamlessly through these transitions in care, unobstructed by bureaucratic processes that may arise due to a new integration structure. This is especially important in services with multiple funding sources.

Additionally, integration between hospital services, community services, and other sectors requires further consideration. Although beyond the mandate of the Working Group, community services were highlighted as an area that required further thought (discussed in more detail below), both with regard to the improved integration of these services, and whether specialized community services could be differentiated using similar decision-making criteria.

RECOMMENDATIONS

Develop a robust quality framework for specialized services that ensures appropriate, evidence-based care is provided using uniform performance and quality metrics across the province.

Establish oversight mechanisms to ensure consistent, high-quality care for populations for whom fragmentation will result in reductions of quality and access.

Seamlessly transition care between providers along the continuum to provide patients with unobstructed care along their integrated care pathway.

Access and Equity

A key topic for consideration in this work is the ability for Ontarians to equitably access specialized services across the province. The Working Group noted the importance of equitable access in a coordinated manner for all Ontarians as close to their homes as possible, with the recognition of the expectation of high-quality care and positive patient outcomes. There is a polarity between reasonably

local access to these services and the expectation of high-quality care. In discussing equity and access, the Working Group recognized the need for the voice of the patient (and family), and encourages the Ministry to engage with marginalized or otherwise underserved groups in transformation efforts. Understanding the social determinants of health and their interconnectedness with health on a broader scale is required in creating an accessible, equitable, and holistic health system.

Although not a differentiator in identifying specialized services, access and equity were considered key principles in the implementation of specialized services and a part of the vision of a future “best system”. Ideally, all specialized services would be coordinated and administered in an equitable manner. This includes specific work in providing care for marginalized communities and providing timely access to services in line with appropriate access criteria, determined through appropriate oversight. This timely access is key to reducing patient mortality, morbidity, and functional impairment and providing positive patient experiences. Additional work and support are needed to provide equitable care for marginalized populations, and this should be an area of focus moving forward.

The impacts of poor access on patient outcomes and experience should be considered in the evolution of services over time; for instance, if a population grows in a specific geographical area, it may be prudent to consider expanding programs within that community to reduce transfers between facilities and inappropriate wait times that result in poor patient outcomes and poor experiences of care. This natural evolution requires a broader clinical service plan that considers the changing demographics in regions.

Regional variability is also a crucial consideration in access to services. Services are delivered differently based on the unique needs of different regions and patient populations, such as in small, rural, and northern areas, or for populations with special considerations, such as francophone or Indigenous communities. These need deep consideration in planning and implementing specialized services to ensure equitable access and appropriate coordination of care.

An additional consideration raised by the Working Group was the appropriateness of services being provided in some centres, as the provision of services would depend on the needed expertise and resources. The Working Group noted that high quality patient care was of the utmost importance in specialized services; the polarity of access and equity and quality needs to be managed carefully to ensure positive patient outcomes, and this may override the need for care closer to home in some circumstances. For instance, the University Health Network is the only organization in Ontario that provides adult lung transplantation. The necessity of high-quality care, and the risk of mortality in this care pathway, necessitates a centralized program that ensures the appropriate expertise, and this overrides a desire for care close to home. However, the Working Group also noted a need for innovative models of care that allow for patients to receive longer-term follow-up closer to home, such as through hub-and-spoke, virtual, and travelling specialist models, which would improve care equity across the province.

RECOMMENDATIONS

Consider regional variability in planning and implementing specialized services and how this variability inequitably impacts access to services.

Utilize evidence-based, innovative care models and develop additional programs in regions that have the appropriate critical mass of patients in order to improve access throughout the province.

Academic Mandate of Hospitals

Hospitals' academic mandate, including education, research, and innovation, is a crucial component of many specialized services. The relationship between specialized services and the academic mandate is symbiotic, where the service improves research and teaching and vice versa.

Research partnerships and innovations in specialized services provides continual improvements in care, improving patient outcomes and experiences of care. These innovations drive new best practices and evidence for decision-making, as well as provide new technologies to improve care. This occurs in an environment where the specialized service enables research and innovation, through a strong linkage between the research mandate and the service. This relationship also enables innovations to be spread to other centres and commercialized, acting as an economic driver in the healthcare sector.

Formal and continuing education are also core components of specialized services. Specialized services typically rely on trainees as essential members of the care team, ensuring the service can meet the demand. Additionally, specialized services are fertile ground for training healthcare providers, as they provide rich learning experiences that are difficult or impossible to find elsewhere. Exposure of learners to these specialized services is also a critical component of recruitment and succession planning for providing such services.

The academic mandate is tightly woven into many specialized services, and the sustainability of this mandate is crucial. This requires further thought in how this mandate is appropriately resourced and accounted for in identifying, organizing, and funding specialized services, and should be inclusive of the mandate across various hospital types (e.g. large community hospitals, academic centres, etc.).

RECOMMENDATIONS

Consider the sustainability of the research and education mandates associated with specialized services in identifying, organizing, and funding these services, as the academic mandate helps ensure the best possible care.

Critical Considerations to Enable an Integrated System

Patient Engagement

Throughout the discussions of the Working Group, patient and community engagement and partnership were highlighted as vital to healthcare transformation. The Working Group, although unable to engage patients due to resource limitations in the making of this report, strongly urge government to meaningfully partner with patients and families and involve them in the development of integrated care. In order to provide the best possible care for patients, the system must be reorganized. This will require extensive work in patient engagement to better understand patient needs and how the system can better serve them in an integrated manner.

Technology and Data

The use of technology and data in healthcare has increased significantly in the last few decades and will continue to change how healthcare is provided across the province. However, the uptake of technology and collection and use of data has been inconsistent and at times limited by excessive red tape. Across the sector there is a dire need for improving technology use and access to appropriate equipment, particularly when shifting to a highly integrated care model. As evidenced by COVID-19, the use of virtual care and the ability to rapidly exchange information between providers is imperative in a modern healthcare system. This requires an investment in technology and data infrastructure to modernize Ontario's healthcare system, enabling timely virtual care (and distributed care), appropriate system planning, and accurate performance measurement to reduce quality differentials across the province and to track value based on positive patient-outcomes.

Modernization would also reduce issues around some archaic models of care that the system has long outgrown, such as the use of fax machines, physician requisitions not being accepted out-of-region, and the appropriate transfer of health information between providers. Technology and data are outside the scope of this report; however, these were flagged as areas needing deep consideration in order to provide high-quality care in Ontario.

Health Human Resources

Although out-of-scope for this report, the Working Group acknowledged the importance of including health human resources in the conversation: the physicians, nurses, allied health providers, and support staff who are integral to the provision of care services across the province. To best support health human resources and their unique needs, the system needs broad consideration on health human resources planning, such as understanding the expertise required across the province, the need for specific training programs, common regional or provincial credentialing, regional considerations and gaps, etc. This analysis and planning should consider a new context of highly integrated care, and what that requires from health professionals.

Governance

As has been discussed throughout this report, the changing governance in the transition to OHTs provides an opportunity to implement positive change in Ontario's healthcare system. However, proper care and attention must be taken to ensure service delivery, clinical quality, and appropriate funding is maintained through the transition to integrated care.

New system design should fully account for access and quality, with appropriate accountability and oversight of service delivery. Given the current intermediary stage of the transition, it is too soon to suggest specific structures or mandates; however, further clarity is needed on the roles of the Ministry of Health, Ontario Health, the five Ontario Health regions, and the clinical leadership throughout the province. The governance of services should first consider the patient and their need to access high-quality services, and design around that need. This may include centralized planning in order to evaluate existing services and include emerging services.

Child Health System

In considering specialization in the child health system, the Working Group consulted with paediatric hospital executives and the Provincial Council for Maternal and Child Health. Although the expertise and resources required are key factors in specialization, there are differences between the adult and child health systems that are notable.

Firstly, volumes may not be an appropriate indicator for specialization in paediatrics, as many of the services are relatively low volume. Secondly, the way services are clustered in the child health system is unique, and there is rarely an analogue in the adult system. The clustering of services may make some paediatric services specialized, whereas they would not necessarily be considered so in the adult system. Lastly, regionalization may not be as relevant, as specialized services in paediatrics tend to be regionalized due to the constraints of health human resources and equipment, necessitating the broader organization of services across a larger region. More standardization across regions may help delineate regional and specialized child health services.

Providing services to children is complex, as there is a broader ecology in the child health system that incorporates other services, such as education and social services. There are also challenges with transitioning children to the adult system when they turn 18 because of the interconnected nature of care in the child health system compared to the adult system. The complexity of the system increases the costs of delivering these services, and they typically serve lower volumes than in the adult system.

The nature of child and youth conditions, how they progress and how and where they are treated, differ significantly from those of adults. These differences in treatment, when combined with small volumes, necessitate specialization among relatively small and dispersed numbers of providers. This specialization refers to categories of services that might be considered tertiary or quaternary, but it also refers to many services that in adult setting would often be defined as secondary. These specialized services may be delivered in diverse settings such as hospitals, treatment centres, community settings, schools, and the home. As well, many specialized paediatric services provided in hospitals may only be delivered provincially (i.e. at a single centre) or regionally at a very small number of specialized children's hospitals. Often the children receiving these specialized services will interact significantly with multiple parts of the system and specialized providers due to their needs. Funding systems and governance need to support this movement and connection, as child healthcare is at great risk of fragmentation with the move to smaller integrated teams that may not have paediatric expertise. Provincial

and regional structures will need to be put into place to support OHTs in providing high quality paediatric care.

Complex Continuing Care and Rehabilitation Services

In order to deeply understand specialized complex continuing care and rehabilitation (CCC/rehab) services, the Working Group met with the OHA's CCC/Rehab Provincial Leadership Council and the GTA Rehab Network and University of Toronto's psychiatry working groups. CCC/rehab services are often interconnected with many other services and many are provided regionally. This regional approach is crucial for co-locating patients with similar needs or diagnoses, as well as concentrating expertise and resources that promotes the best patient outcomes and aligns with best practice guidelines.

Specialization in CCC/rehab may not be linked as closely with volumes, as some high-volume programs are specialized, such as cardiac or oncology rehab. Instead, specialization in this area is linked to the expertise and resources that are concentrated to serve a critical mass, as well as performance measurement (i.e. tracking patient outcomes) and the education associated with the service (i.e. requiring ongoing learning to manage the patient population requiring a level of expertise). Critical mass needs to be further defined in this patient population and be inclusive of both inpatient and outpatient settings. Understanding centres of expertise may help delineate specialized programs, as these programs provide broad service across large geographical areas or provincially. Further, as Ontario moves to an OHT model, there should be appropriate oversight to ensure patients who require specialized rehabilitation are receiving it, even if that is outside of their local OHT, and that OHTs are not utilizing non-specialized rehabilitation when specialized rehabilitation is more clinically appropriate. Programs should be reviewed regularly to confirm they are being adequately resourced and meeting best practice standards.

The GTA Rehab Network has taken the lead on developing specific inclusion and exclusion criteria for specialized rehab programs to provide clinical guidance on this topic. These frameworks may be helpful in determining specialization in CCC/rehab and may also provide a foundation for applying this to other service areas in order to determine specific clinical indices for specialized services.

Mental Health and Addiction Services

The Working Group engaged with the OHA's Mental Health Provincial Leadership Council in order to understand the unique needs within the mental health and addictions sector as it relates to specialized services. Mental health and addiction is an area of the healthcare sector that has historically been underserved. When considering mental health and addictions services in transformation efforts, it is important to consider the broader context of the mental health system and how to best provide high quality care.

Although some mental health and addiction services would be considered provincially specialized services (e.g. forensic mental health), many services are more regionally based, serving a broader geographical area due to the required expertise. This regional structure of programs often includes linkages with other programs, including those provided on an outpatient basis and by community providers. Programs or organizations that provide specialized mental health and addiction services act as resource consultants for the rest of the province and should work to provide enhanced capacity in an integrated system through knowledge translation and adaptive care models (e.g. virtual care). In determining specialization in mental health and addiction, it is crucial to also consider client complexity, as the depth of care required can vary within a single diagnosis.

As the province moves towards integrated care, there must be additional thought on how the integration of mental health and addictions services can be strengthened, such as through improved regional planning and accountability with appropriate funding to incentivize high quality care for patients/clients and through the recently established Mental Health and Addictions Centre of Excellence within Ontario Health. This planning and funding should consider the level of expertise required and the complexity of the patient/client population (e.g. the depth and length of care required). Additionally, any changes to the funding and oversight of mental health and addiction services should be taken with great care to limit the disruption and prevent additional bureaucratic burden.

Outpatient Services

Outpatient services are often forgotten when discussing specialized services, however they are vitally important in a patient's care pathway. These services often provide

the intake and initial assessment of patients, as well as longer-term management and follow-up. For example, at St. Joseph's Health Care London, the pituitary tumour clinic provides care for patients with pituitary tumours, which is a rare diagnosis. This clinic is coordinated with multiple specialties, including endocrinology, laboratory medicine, neuro-ophthalmology, and neuroradiology. The care pathway for patients accessing these services is through a centralized referral, with medical and possibly surgical management of the condition. These services include inpatient care as well as long-term management of this complex diagnosis on an outpatient basis. Given the integrated nature of the care provided, these outpatient services are crucial in the continuum and need equal recognition as a specialized service through appropriate resourcing, instead of being funded purely from global budgets which may not be able to provide consistent funding year-over-year.

Community-Based Services

Although out-of-scope for this report, as the mandate of the Working Group was to focus on hospital-based services, it was raised by the Working Group that the concept of a 'specialized' service does not only apply to hospital-based services. Further work must be done in the community space to understand how this applies to community-based services, and how these services may require more appropriate consideration in clinical planning as well as further resourcing to ensure effective care is being provided. This would require broad consultation throughout the community-based health service sector to better understand the care being provided in the community and how this work may be applied going forward.

Further, additional consultation is needed with primary care in order to better understand the full continuum of care for patients accessing specialized services, and the current linkages with primary care providers.

Francophone Services

Francophones in Ontario often experience challenges in accessing French healthcare services. The Working Group spoke with hospital and community leaders from the francophone community to better understand the key issues in accessing specialized services, but there will need to be additional work done with this community to improve the experience of Franco-Ontarians.

The francophone services engagement session included executives from hospitals in French-speaking communities and representatives from the French language planning entities (see Appendix A). In this session, some of the key aspects of the discussion were broadened beyond specialized services to encompass broader systemic issues that impact francophone patients' experiences in the health system. Communication and comprehension are key in accessing health services and allowing for well-informed patient choice. Therefore, patients should be able to access services in French anywhere in the province if that is their primary language.

In order to better coordinate care for francophone communities and provide services in French, there needs to be better optimization of resources; there is a demand/capacity mismatch that could be improved by identifying francophone communities in Ontario and their needs, identifying capacity across Ontario, and utilizing technology to appropriately match or deliver services across the continuum of care (i.e. inclusive of acute care, post-acute care, long-term care, etc.). In an integrated care environment, this coordination is integral to providing a positive patient experience within the healthcare system.

There are also broader systemic barriers due to the historical designations of francophone hospitals under the *French Language Services Act* (1990) limiting the provision of French services across the province, and the lack of availability of French language education in Ontario. There could be additional barriers with the arbitrary borders of new OHTs and the OH regions that limit francophone patients' access to services in French without the appropriate coordination and integration.

Indigenous Services

Indigenous communities in Ontario experience a multitude of issues in accessing healthcare services and require further thought from government in how these communities are engaged in healthcare transformation efforts. The Working Group meaningfully engaged with hospital and community leaders working with Indigenous communities in order to better understand the key issues in Indigenous peoples accessing specialized services.

The engagement session with representatives from hospitals and community organizations serving Indigenous communities captured a broad historical context, as well as current issues with equity and access of health services. There are many resources on the historical context of the treatment of Indigenous peoples across Canada and how policy change can better the lives of Indigenous peoples⁴.

These systemic issues continue to negatively impact the health status of Indigenous peoples and make equitable access to health services difficult. Jurisdictional issues⁵, racism, and marginalization continue to compromise patient safety and outcomes.

Broadly, there is a vital need for meaningful engagement and participation of Indigenous peoples and organizations in the self-governance of Indigenous health, with appropriate liaisons and bridges to specialized services that considers cultural needs, such as traditional healing approaches and patient choice for care. A shift is needed from a biomedical to a biopsychosocial approach that truly incorporates culturally safe, person-centred care across Ontario.

Further, access to care is incredibly challenging in many communities, particularly those in the remote north. Transportation for healthcare services is problematic, there is often poor internet connectivity that makes virtual care difficult, and there is a lack of integration and availability of care between various levels and along the care continuum. There needs to be additional engagement on how care can be provided to Indigenous communities, with Indigenous voices leading the work based on their knowledge and experience, including those who were engaged in the making of this report (see Appendix A).

4 Some resources include, but are not limited to: the Report of the Royal Commission on Aboriginal Peoples (1996); and the Truth and Reconciliation Commission of Canada (2015), specifically the 7 recommendations on health.

5 Further information on Indigenous federal/provincial/territorial jurisdiction and self-governance can be found [here](#).

9 Recommendations and Next Steps

The Working Group appreciates the opportunity to put forward a list of recommendations on stabilizing specialized services through the transition to OHTs. Like many things in healthcare, this topic is highly complex with many considerations. The Working Group reflected on many of these considerations and received feedback from a broad range of stakeholders on how specialized services can be stabilized in the short-to-medium-term, as well as how they can be enhanced in the long-term in an integrated care environment. These recommendations should be bundled with OHT framework discussions going forward. This report is meant to be the beginning of the conversation on specialized services, and the Working Group hopes that this report and its recommendations will support the continued evolution in the identification, governance, and funding of these services to better serve the needs of Ontarians.

The recommendations put forward by the Working Group include the following:

Stabilizing Specialized Services in Ontario

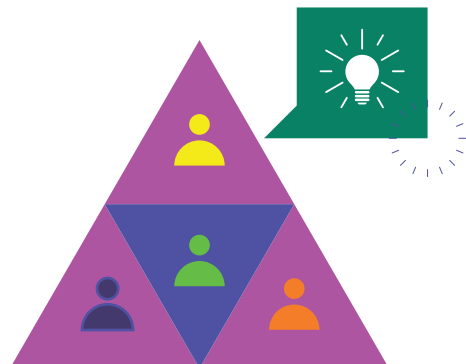
1. Identify specialized services using specific principles and a data methodology that incorporates appropriate services across the continuum of care while remaining flexible to the various local contexts across Ontario.
 - i. Principles in identifying specialized services include expertise and the resources required to provide the service (as described in Section 6). These principles have specific criteria for decision-making, where a specialized service would need to meet all of these criteria in order to be considered specialized.
 - ii. A quantitative method must incorporate high quality data to promote a high quality of care and evaluate overall performance, which will require improving data quality across many aspects of the system.

2. Structure provincial and regional specialized services with appropriate provincial or regional accountability and coordination. This coordination considers regional differences and alternative care models.
 - i. The OHT(s) offers a core group of services. Outside of those core services, regional specialized services will typically serve multiple OHTs and provincial specialized services serve multiple regions.
 - ii. Specialized services are reviewed regularly through a centralized decision-making process, as services and care pathways change over time and programs may evolve to support the growth in regions.
3. Fund specialized services through direct funding.
 - i. Stabilize specialized services through the transition to OHTs using a funding approach that considers historical utilization and demographic data in a global budget.

Enhancing Specialized Services in Ontario

4. Develop a robust quality framework for specialized services that ensures appropriate, evidence-based care is provided using uniform performance and quality metrics across the province.
 - i. Establish oversight mechanisms to ensure consistent, high-quality care for populations for whom fragmentation will result in reductions of quality and access.
 - ii. Seamlessly transition care between providers along the continuum to provide patients with unobstructed care along their integrated care pathway.

5. Consider regional variability in planning and implementing specialized services and how this variability inequitably impacts access to services.
 - i. Utilize evidence-based, innovative care models and develop additional programs in regions that have the appropriate critical mass of patients in order to improve access throughout the province.
6. Ensure the sustainability of the delivery of specialized services.
 - i. As the funding of specialized services evolves over the long-term, funding approaches should consider service growth, access, equity, care quality, and the sustainability of the academic mandate.
 - ii. Consider the sustainability of the research and education mandates associated with specialized services in identifying, organizing, and funding these services, as the academic mandate helps ensure the best possible care.



Appendix A Specialized Services Working Group Membership and Contributors to the Report

List of Specialized Services Working Group Members

Clinical Executives

Dr. Sacha Bhatia, Chief Medical Innovation Officer, Women's College Hospital

***Dr. Dan Cass**, Executive Vice President and Chief Medical Executive, Sunnybrook Health Sciences Centre

Dr. Anil Chopra, Vice President, Medical Affairs, University Health Network

Dr. Edward Cole, Physician-in-Chief, University Health Network

Dr. Irfan Dhalla, Vice President, Physician Quality and Director, Care Experience Institute, Unity Health Toronto

Dr. Lennox Huang, Chief Medical Officer and Vice President for Medical and Academic Affairs, SickKids

Dr. Stewart Kennedy, Executive Vice President of Medicine and Academics, Thunder Bay Regional Health Sciences Centre

Dr. Albert Lauwers, Executive Vice President, Medical and Clinical Programs, Scarborough Health Network

Dr. Calvin Law, Chief, Edmond Odette Cancer Centre, Sunnybrook Health Sciences Centre and Regional Vice President, Cancer Care Ontario

Dr. Barry Lumb, Physician-in-Chief, Hamilton Health Sciences

Dr. Thomas Parker, Executive Vice President, Medical Affairs and Clinical Programs, Unity Health Toronto

Dr. Virginia Roth, Chief of Staff, The Ottawa Hospital

Dr. Maureen Shandling, Executive Vice President, Academic & Medical Affairs, Sinai Health System

Dr. Vicky Stergiopoulos, Physician-in-Chief, CAMH

Ru Taggar, Executive Vice President, Chief Nursing and Health Professions Executive, Sunnybrook Health Sciences Centre

CFOs/COOs/Other Executives

John Aldis, Senior Vice President, Finance and Corporate Services, St Joseph's Healthcare Hamilton

Susan Hollis, Vice President and Chief Financial Officer, St Joseph's Healthcare Hamilton

Jessica Logozzo, Executive Vice President, Regional Transformation and Integration, Thunder Bay Regional Health Sciences Centre

Jane Merkley, Executive Vice President, Chief Nurse Executive & Chief Operating Officer, Sinai Health System

CEOs

Ron Gagnon, President and CEO, Grand River Hospital

Dr. Barry Guppy, President and CEO, Perth and Smiths Falls District Hospital

Dr. Gillian Kernaghan, President and CEO, St Joseph's Health Care London

***Cameron Love**, President and CEO, The Ottawa Hospital

** Co-Chairs indicated by asterisk*

List of Consultations on Specialized Services

- Ontario Hospital Association survey of hospital Chief Executive Officers
- Consultations with the Ontario Hospital Association's Provincial Leadership Councils and groups:
 - Small/Rural/Northern Provincial Leadership Council
 - Medium-Size Community Hospital Provincial Leadership Council
 - Mental Health Provincial Leadership Council
 - Complex Continuing Care and Rehabilitation Provincial Leadership Council
 - Resources Committee of academic hospital Chief Financial Officers
- Consultations with select sub-groups, representing broad aspects of the healthcare system, including:
 - aediatric hospital executives
 - GTA Rehab Network and University of Toronto's physiatry working groups
 - Large community hospital executives
 - Provincial Council for Maternal and Child Health
 - Francophone health services, with representatives from:
 - Thunder Bay Regional Health Sciences Centre
 - The Royal Ottawa
 - Sensenbrenner Hospital
 - Cornwall Hospital
 - Health Sciences North
 - Hôpital de Mattawa
 - Smooth Rock Falls Hospital
 - Hôpital Montfort
 - The Ottawa Hospital
 - French Language Planning Entities:
 - Entité de planification des services de santé en français Érié St. Clair/Sud-Ouest (French Language Health Planning Entity 1: Erie St. Clair LHIN, South West LHIN)
 - Entité de planification pour les services en français dans les régions de Waterloo, Wellington, Hamilton, Niagara (French Language Health Planning Entity 2: Waterloo Wellington LHIN, Hamilton Niagara Haldimand Brant LHIN)
 - Reflet Salvéo (French Language Health Planning Entity 3: Central West LHIN, Mississauga Halton LHIN, Toronto Central LHIN)
 - Entité de planification pour les services de santé en français du Centre Sud-Ouest (French Language Health Planning Entity 4: Central LHIN, Central East LHIN, North Simcoe Muskoka LHIN)
 - Réseau des services de santé en français de l'Est de l'Ontario (French Language Health Planning Entity 5: Champlain LHIN, South East LHIN)
 - Réseau du mieux-être francophone du Nord de l'Ontario (French Language Health Planning Entity 6: North East LHIN, North West LHIN)
 - Indigenous health services, with representatives from:
 - Thunder Bay Region HSC
 - Health Sciences North
 - Anishnawbe Mushkiki Nation
 - Weeneebayko Area Hospital Authority
 - Brant Community Hospital
 - Southwest Ontario Aboriginal Health Access Centre
 - Fort Frances Area Tribal Health Services
 - Paawidigong First Nation Health Forum
 - Waasegiizhig Nanaandawe'iyewigamig Health Access Centre (WNHAC)
 - Dilico Anishnabek Family Care (representing First Nations on the North Shore)

Appendix B Applying the Principles and Data Methodology to Identify Specialized Services in Ontario

Illustrative Examples: Applying the Principles to Specific Services

Utilizing the principles laid out in Section 6, the illustrative examples below are meant to demonstrate how the principles can be used in determining whether a service is specialized, while considering the broader context of the patient's care pathway. As noted in Section 6, **these examples are meant to be illustrative, not comprehensive**, and include some 'non-traditional' examples, as traditional, highly specialized acute care services were obviously specialized and did not require further discussion regarding their inclusion.

As a reminder from Section 6, the principles and explanatory criteria that guide decision-making on whether a service is specialized include:

Principle 1: Expertise

1. An interprofessional team with a focused skill set is required to safely provide the specialized service, without which there is a significant risk of mortality, morbidity, or functional impairment.
2. Specialized teams provide the service to a critical mass of patients using the best available evidence.
3. Service provision requires clinical coherence and interdependencies with other programs (both specialized and non-specialized) and is established within the context of a coordinated network and system of care across the continuum.

Principle 2: Resources

1. The specialized service requires extensive capital (i.e. technology, equipment and/or specialized infrastructure) and/or operating resources (i.e. labour, supplies and other unique operating resources to ensure 24/7 coverage) that must be organized efficiently and effectively across the province for economies of scale, individually and clustered with other services.

2. The service requires planning at the regional and/or provincial levels to proactively monitor and manage service demand and equity over time, and allows for the natural evolution of services based on demand.

Acute Care Surgery and Medicine

Renal Transplant Services

Renal transplant services are inclusive of pre-, peri-, and post-operative services related to renal transplant. A patient who receives a renal transplant has a complex care pathway. For example, a patient with chronic kidney disease may be referred to a transplant surgeon after many years of weekly dialysis and long-term management of their chronic disease, including ongoing outpatient care. The large, interprofessional transplant team, which would include transplant surgeons, transplant nurses, diabetes specialists, dietitians, and other allied health, would be required due to the high risk of mortality and morbidity in this patient (fulfilling the first criteria under the Expertise principle). This team works with a significant volume (i.e. a critical mass) of renal transplant patients to maintain high quality care and competency (fulfilling the second criteria under the Expertise principle).

Renal transplant services include more than just the transplant procedure itself; the pre-operative assessment and post-operative care (including long-term outpatient follow-up with the transplant clinic) are also an integral part of the service. Further, transplant services are coordinated with regional and local services in order to transfer care and follow-up (fulfilling the third criteria under the Expertise principle); for instance, if a patient lives outside the region where they receive their transplant, their pre-transplant care (e.g. dialysis) would be coordinated with the transplant team, and some follow-up care may be coordinated with their local primary care physician or nephrologist. Provincial planning is also integral to the transplant process; this is centralized with Trillium Gift of Life Network and the Ontario Renal Network (Ontario Health) to support provincial demands and the organ retrieval and matching process.

Renal transplant services, due to their highly acute nature and interdependencies with other services, require extensive resourcing in the form of human resources (e.g. specialized physicians, nurses, and allied health that provide 24/7 coverage) and capital (e.g. equipment, technology, etc.) in order to maintain the program and have appropriate economies of scale. In other words, there needs to be a sufficiently large volume of renal transplant patients to justify the creation and maintenance of this highly resource-intensive program (fulfilling the first criteria under the Resources principle). These services also require provincial planning to ensure appropriate economies of scale and cost-effectiveness, as well as appropriate service clustering (fulfilling the second criteria under the Resources principle). This oversight also ensures optimal donor/recipient matching.

Non-Specialized: Primary Unilateral Total Hip Arthroscopy

An example of a service that does not meet the Working Group's definition of specialized is a primary unilateral total hip arthroscopy. Although this service requires an interprofessional team, the expertise required is broadly distributed across the province with many regional and local programs, and the volume of patients requiring a primary unilateral total hip arthroscopy allows for the maintenance of competence with relative ease. The service is often coordinated with rehabilitation services; however, these are not necessarily specific to a patient with a post-operative hip, and the relative risk of functional impairment is low without co-location.

The service does require some capital and health human resource expenditure; however, this is often not specific to the service (e.g. scrub nurses, operating equipment, physical space for operating rooms, etc.). There is an economy of scale in providing the service, however the threshold for critical mass and cost-effectiveness is relatively low in this example, allowing the service to be provided more broadly at a reasonable expense. The service also does not need to be organized provincially and could be organized within an organization or region (depending on the regional context) to manage service demands.

Child Health

Paediatric Cardiac Critical Care

A child requiring cardiac critical care requires a highly specialized interprofessional team who can manage the needs of these children, including specialized physicians, nurses, and allied health. Without this level of expertise, there is a grave risk of mortality. This team provides the service to a highly specific low volume group with highly acute care needs. Critical mass ensures the service is delivered with the appropriate level of competence and in a manner that ensures high quality (fulfilling the first and second criteria under the Expertise principle). A paediatric cardiac critical care program is established within the context of broader paediatric medical and surgical services, such as services for paediatric cardiac surgery, heart failure, and pulmonary hypertension. There is a coordinated network that refers acutely ill children who require greater levels of care and expertise, as well as long-term follow-up for children with complex chronic care needs, including on an outpatient-basis (fulfilling the third criteria under the Expertise principle).

Paediatric cardiac critical care requires extensive specialized health human resources and equipment in order to provide appropriate and high-quality care, requiring the necessary economies of scale to reliably maintain a comprehensive program with 24/7 coverage (fulfilling the first criteria under the Resources principle). This care also requires provincial planning and oversight to manage service demands across the province (and in this case, also across Canada and internationally), providing equitable access across a broad geographical region (fulfilling the second criteria under the Resources principle).

Mental Health and Addiction

Inpatient Eating Disorders

Mental health and addiction is often not considered when discussing specialized services; however, many mental health services fit within the principles and criteria outlined above. One such example is an inpatient eating disorders (ED) program. Patients that require an inpatient admission for their ED have a highly specialized team

who supports the complex needs and care pathway that often accompanies EDs. This team may include specialist psychiatry, acute medical support, specialized mental health nursing, dietetics, and other allied health supports. This team has the necessary competence and skill to manage EDs; without this specialized support, there would be an increased risk to the patient's physical and mental health given the intractable nature of EDs (fulfilling the first criteria under the Expertise principle).

The volume of patients who require an inpatient admission for their ED is relatively low; the programs are therefore provided on a regional basis in order to maintain specialized clinical proficiency in managing EDs with the appropriate critical mass (fulfilling the second criteria under the Expertise principle). The service also requires coherence with other acute mental health services, as well as specialized outpatient services that are dedicated to the ongoing care and monitoring of EDs (fulfilling the third criteria under the Expertise principle).

An inpatient ED program requires extensive specialized health human resources to operate effectively to ensure comprehensive coverage, and a limited supply of this expertise across the province necessitates a regional model (fulfilling the first criteria under the Resources principle). Further, inpatient ED programs are typically provided alongside other acute mental health programs, as well as appropriate longitudinal outpatient follow-up post-discharge, providing appropriate clinical coherence. Program planning is centralized in order to manage the service demands across a supported region, in partnership with other organizations and providers. Planning includes an evolution of new inpatient ED programs based on the regional needs (fulfilling the second criteria under the Resources principle).

Complex Continuing Care and Rehabilitation

Acquired Brain Injury Rehabilitation

Rehabilitation is an integral part of many patients' care pathways, and highly important in improving functional outcomes. An example of a specialized rehabilitation

program is acquired brain injury (ABI) rehabilitation. In this program, a large interprofessional team provides expert care to patients with acquired brain injuries, including physiatrists, nurses, dietitians, physiotherapists, occupational therapists, etc. Without this clinical expertise, there is an increased risk of functional impairment (fulfilling the first criteria under the Expertise principle).

ABI rehabilitation provides rehab services for a highly specific patient population (i.e. those with acquired brain injuries, which may or may not be traumatic), and a critical mass is required to ensure quality care with the maintenance of clinical competency (fulfilling the second criteria under the Expertise principle). ABI rehabilitation also requires clinical coherence with other complementary services (fulfilling the third criteria under the Expertise principle). For example, a patient who receives a traumatic brain injury may first require acute neurology/neurosurgery, and then require ABI rehabilitation in the post-acute phase. Then, post-discharge from the inpatient program, a patient may require ongoing outpatient ABI services and community care. This supports care across the continuum and is in line with the patient's needs.

ABI rehabilitation requires specialized equipment and technology to help improve patient function after an acute event, as well as specialized health human resources that have limited availability across the province with appropriate service clustering (fulfilling the first criteria under the Resources principle). Economies of scale ensure the service is provided regionally with a critical mass of patients to maintain provider competency in achieving positive patient outcomes through high-quality service provision. The service is provided efficiently based on regional needs and service demand (fulfilling the second criteria under the Resources principle).

Complementary Data Methodology to Identify Specialized Services

As discussed in Section 6, a complementary data methodology was created to help identify specialized services and begin to understand how regional services could also be identified. Additional technical details on this proof-of-concept exercise are provided here; a more comprehensive description of this methodology will be available upon request.

Utilizing the existing case mix system through the Canadian Institute of Health Information (CIHI), measures of concentration and market share of hospitals were explored to identify specialized hospital services. The measures of concentration are important to identify specialized services, which are programs provided to patients with relatively rare conditions and the delivery of these services may require skilled staff in dedicated units to ensure volumes are sufficient to ensure the best possible outcomes. Four measures of concentration were explored, including the Herfindahl-Hirschman Index, a statistical measure of distance, the Information Theory Index, and the Gini coefficient/index (which is used widely to measure inequality of income between individuals). The Herfindahl-Hirschman Index and the Gini coefficient were analyzed fully. Other measures were defined and used to complement the measures of specialization focusing on provider specialization, the distance a patient travels to access care, and resource use per case as defined by the Resource Intensity Weights (RIW) per case. These measures and others are shown in Table AB1. For this analysis, the 14 Local Health Integration Networks (LHINs) were used to distinguish regions within Ontario.

Table AB1: Measures used to identify specialized Case Mix Groups (CMGs)

Other Measures Considered
Probability of specialist as most responsible provider (MRP)
Case mix group (CMG) partition (Diagnosis vs. Intervention)
Resource Intensity Weight (RIW)
Number of health regions providing the service
Number of hospitals
Average Length of Stay
Distance travelled from home to hospital
Average of the patients in a CMG
Peer Group (For a CMG, the percentage of cases served in a large community and academic hospitals)

The Case Mix Groups+ (CMG+) methodology is designed to aggregate acute care inpatients with similar clinical and resource-utilization characteristics. These groups were fundamental in organizing the data used in this analysis. CIHI developed this methodology using multiple years of acute care inpatient activity and cost records, and introduced and enhanced several grouping factors to improve the ability to clinically group inpatients and to define length of stay and resource use indicators. Patients are categorized into major clinical categories (MCCs) based on their most responsible diagnosis (MRDx) and the MCC is divided into two partitions: intervention and diagnosis. If a case is assigned to the diagnosis partition of an MCC, a list of diagnosis codes is used to assign the CMG cell. If a case is assigned to the intervention partition of an MCC, a hierarchical list of intervention codes is used to assign the CMG cell. The CMG partition (diagnosis or intervention) was used as a measure in this analysis.

Each CMG is assigned a resource intensity weight (RIW). RIW is a relative value measuring total patient resource use compared with average typical acute inpatients of 1.0. RIWs are calculated each year and for this study, 2018 RIWs were used.

Table AB2 shows the number and percentage of case assigned to provider programs as defined in the Discharge Abstract Data (DAD) data across Canada for 2013/14-2017/18. In this analysis, the variable explored was defined for a CMG as the percentage of the care provided by specialists as the most responsible provider.



Table AB2: Provider Programs and Percentage of Cases

Provider Program (N=26)	Number and percentage of CMGs assigned to provider programs		Number and percentage of cases assigned to provider programs	
	Number	Percent	Number	Percent
Generalist	134	25.5%	5,100,454	41.1%
Obstetric	22	4.2%	1,621,065	13.1%
General Surgery	66	12.6%	1,139,227	9.2%
General Paediatrics	34	6.5%	990,094	8.0%
Orthopaedic Surgery	55	10.5%	896,418	7.2%
Cardiology	17	3.2%	439,558	3.5%
Internal Medicine	22	4.2%	431,654	3.5%
Urology	19	3.6%	296,691	2.4%
Psychiatry	16	3.0%	269,982	2.2%
Gynecology	17	3.2%	264,789	2.1%

Specialists

Source: Discharge Abstract Database 2013/14-2017/18, Canadian Institute for Health Information.

Statistical Methods

Nonparametric descriptive statistics (i.e. medians and quartiles) were used. For statistical testing, the Kruskal-Wallis test, Wilcoxon-Mann-Whitney tests for pairwise comparisons, and Spearman's rank for correlation coefficient were used. P-values smaller than 0.05 were considered significant.

Principal components analysis (PCA) was used to reduce specialized indices and measures to a smaller number of combined components; in other words, taking the list of measures and grouping them into useful combinations. CMGs were used in the cluster analysis. The cluster analysis assigned CMGs into four classes based on the results of the PCA. Quaternary, tertiary, secondary, and primary care classes were developed using these statistical methods. Quaternary care is typically care that is provided by specialists upon referral from other primary care and specialist physicians, is rationalized and concentrated in a few hospitals in large health regions, and has a higher than average cost per case.

Finally, the assignment of the CMGs into the four classes was confirmed by comparing outcomes of 22 models, which used select measures that tested the consistency of the cluster assignment for each CMG.

Data Sources

The 2018 CIHI case mix system was used to identify specialized services. The DAD data for inpatient acute care for 2012-2017 was used. The CMG+ patient classification system and its associated RIW system for 2018 was examined. Overall data comprised of 6.8 million inpatient discharges, including day surgery episodes, classified into 524 CMGs.

Results

Table AB3 shows the number and percentage of cases assigned to provider programs, as defined in the DAD data across Canada for 2013/14-2017/18. In this analysis, the percentage of the care provided by specialists was explored for each CMG. Those represented by higher percentages of specialists were considered to be more specialized CMGs. For Ontario's hospitals, the top service providers for inpatient acute care were internal medicine and family/general practice.

Table AB3: Top Service Providers in Acute Care

Top Service Provider	# of CMGs	% of CMGs	Total Volume	% of Total Volume
Internal Medicine	88	16.8%	1,263,832	22.0%
Family/General Practice	64	12.2%	981,466	17.0%
Obstetrics & Gynecology	38	7.3%	871,962	15.1%
Paediatrics	39	7.5%	833,042	14.5%
General Surgery	53	10.1%	489,041	8.5%
Orthopaedic Surgery	58	11.1%	439,991	7.6%
Cardiology	16	3.1%	191,969	3.3%
Urology	21	4.0%	154,180	2.7%
Otolaryngology	28	5.4%	102,532	1.8%
Neurosurgery	20	3.8%	84,132	1.5%
Cardiac Surgery	13	2.5%	62,835	1.1%
Hematology/Oncology	9	1.7%	61,033	1.1%
Vascular Surgery	10	1.9%	52,598	0.9%
Psychiatry	9	1.7%	44,499	0.8%
Thoracic Surgery	10	1.9%	31,505	0.5%
Plastic Surgery	16	3.1%	25,880	0.4%
Gastroenterology	2	0.4%	14,355	0.2%
Nephrology	5	1.0%	12,150	0.2%
Neurology	3	0.6%	11,874	0.2%
Oral Surgery	3	0.6%	7,290	0.1%
Neonatal-Perinatal Medicine	5	1.0%	6,956	0.1%
Ophthalmology	8	1.5%	5,684	0.1%
Gynecologic Oncology	2	0.4%	3,112	0.1%
Respirology	2	0.4%	2,788	0.0%
Radiation Oncology	1	0.2%	2,491	0.0%
Endocrinology & Metabolism	1	0.2%	2,431	0.0%

The PCA, cluster analyses, and the results of the models used to confirm the assignment of the CMGs are shown in Figures AB1 and AB2. 22 models were investigated to confirm the assignment with the base model using 4 measures: probability of a specialist being the MRP, patient travel distance, Gini index, and CMG partition (diagnosis vs. intervention partition). The four measures of concentration that were explored were found to be highly correlated, and the Gini index was used in the final analyses. There were 93 CMGs that were identified as quaternary; 12 of these were diagnoses and 81 were interventions. Transplants (e.g. heart, lung, liver, bone

marrow), pituitary/pineal gland intervention, cochlear implant, craniotomy for drainage, and neonatal 1500+gm with other major interventions were examples of these interventional CMGs identified as specialized; however, there are other examples, and this is not an extensive representation.

Figures AB1-4 and Table AB4 below show the four clusters of the acute inpatient CMGs. In general, most quaternary CMGs are relatively concentrated in a few hospitals, with a mean Gini of 0.85 and an average RIW of 4.757.

Figure AB1: Levels of Care Clusters by Principal Components

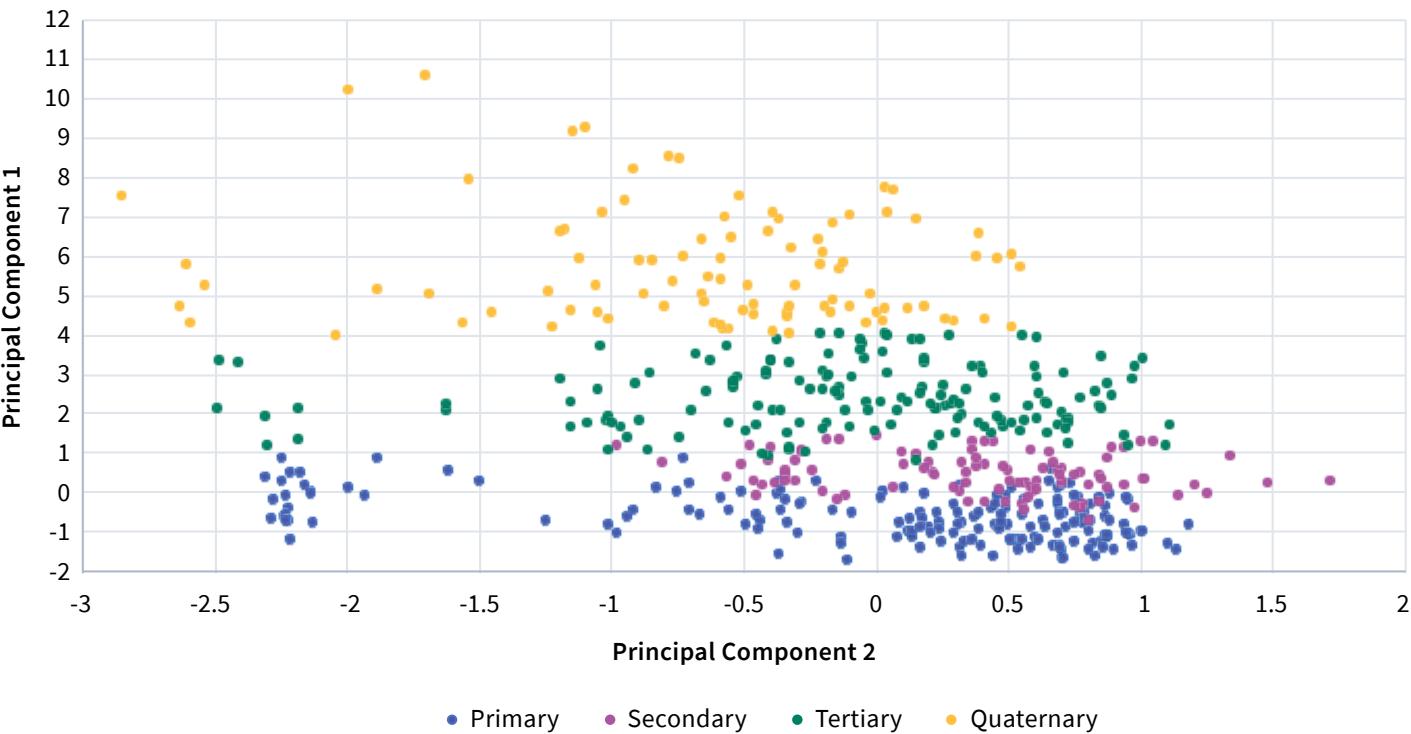


Figure AB2: Proportion of Cases by Level of Care

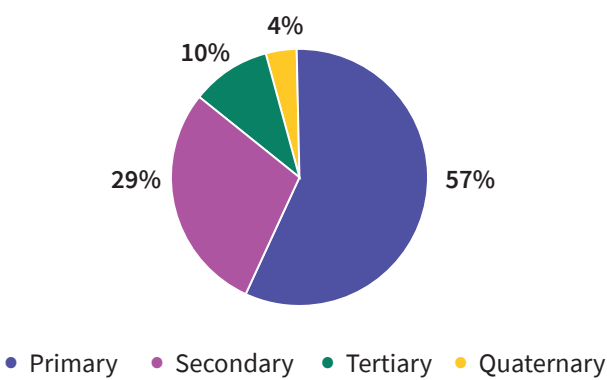


Table AB4: Number of CMGs by Level of Care

Level of Care	# of CMGs
Quaternary	93
Tertiary	156
Secondary	97
Primary	178
Total	524

Figure AB3: Distribution of Gini Index Across CMGs

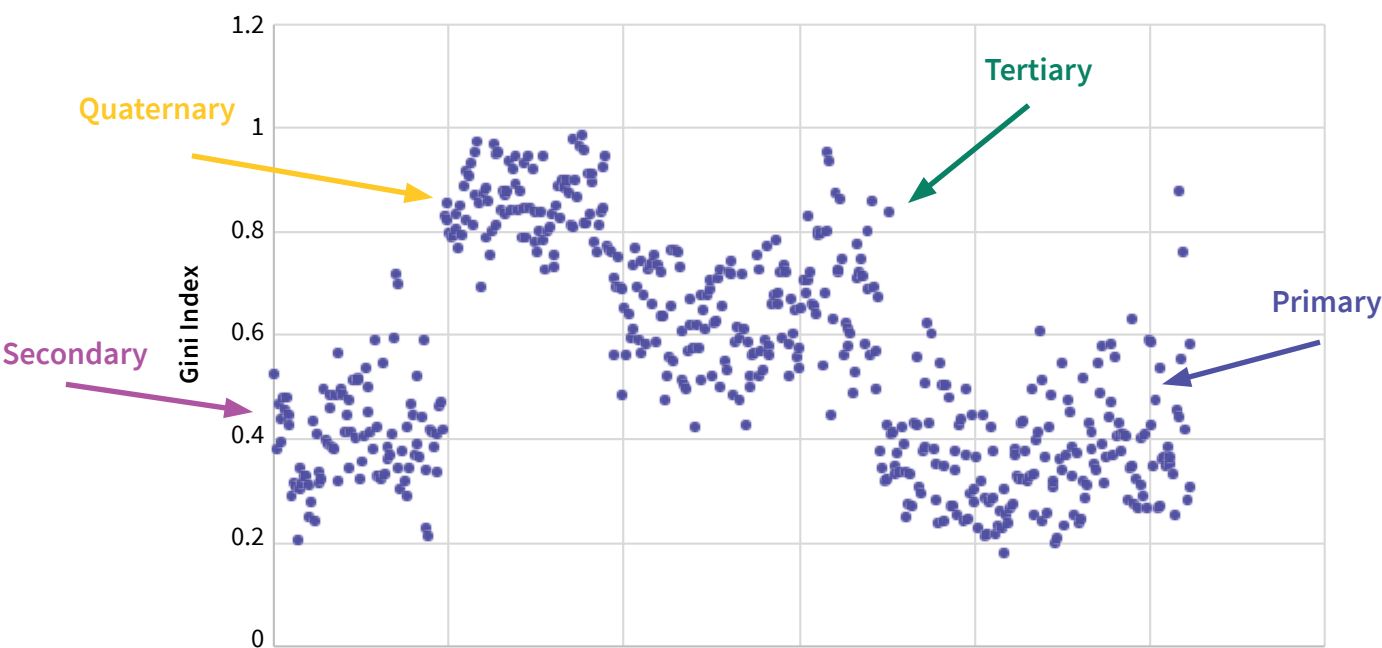
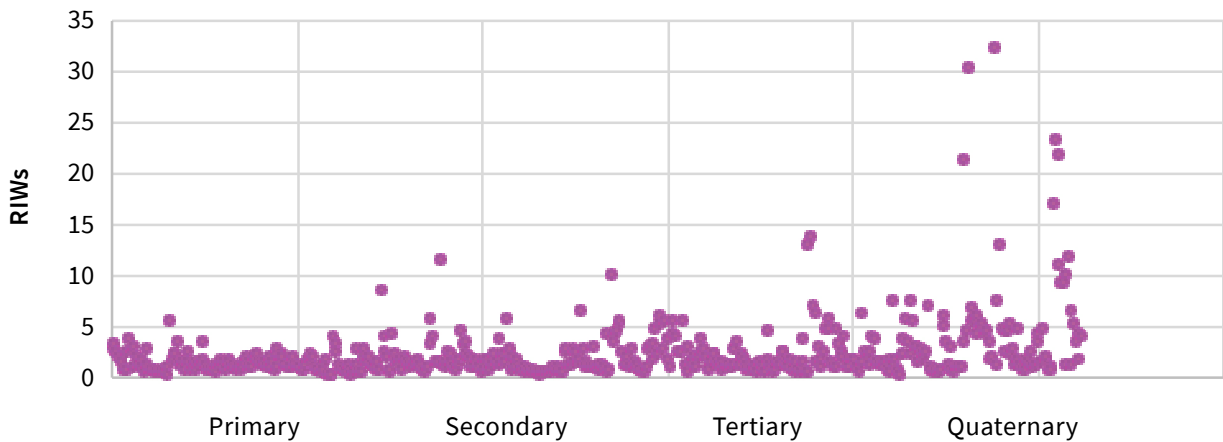


Figure AB4: Average RIW (2018) by CMG Cluster



Regional Services

In this report, the differentiation between provincial and regional services and how specialized services are categorized was described in Section 7. Due to the vast regional variability across the province, services may be provided in different structures depending on the region and population needs. A hospital service may not be specialized using the analysis above; however, the service

may still be a regional program. Regionalization of a service may be due to the needs or attributes of a region, and not an inherent quality of the service itself. Provincial, regional, and local services are all interconnected, as there are natural referrals that occur between them. There are also variations between regions in how these services are connected, requiring regional oversight in clinical service planning.

To assist in determining regional services, a market share analysis was used to explore identification of hospital services that are regionalized in Ontario. Similar to previous analyses, the inpatient acute care data was used for 2018/19. Using CMGs, large hospital programs were defined using the major provider service code in the DAD data. In order to determine regional programs, geographic regions had to be defined. For the regional services analysis, the 105 communities in the Health Based Allocation Model (HBAM) and the Growth and Efficiency Model (GEM), used in funding methodologies, were explored.

To calculate the market share of a program, the amount of activity for all hospitals in a region and the number of patients served by the hospital for the various communities were established using postal code data. The market share of a program in a hospital was calculated as the percentage of cases in a community served by that hospital. If a hospital program's market share was high for a community, the program could be considered a regionalized service. For example, Table AB5 could be used to analyze a hospital's service volumes for a specialized program and calculate the market share (or percentage of cases) served by that program for patients living in that community.

Table AB5: Acute Care Cases by Community for a Hospital

HBAM Community (Where patients came from)	# Cases in the Hospital	% of Share (Denominator is all Patients in that Program in this Hospital)	Weighted Cases in Hospital	% of Share (Denominator is all Patients in that Program in this Hospital)	Total Weighted Cases in Each Community	% of Share Served by the Hospital
Middlesex County	107	46%	108	44%	326	33%
Oxford County	21	9%	24	10%	86	28%
Essex County	18	8%	24	10%	256	9%
Elgin County	17	7%	20	8%	68	29%
Perth County	14	6%	13	5%	39	34%
Lambton County	11	5%	12	5%	54	22%
Kent County	9	4%	9	4%	69	13%
Huron County	7	3%	7	3%	25	27%
Algoma District	5	2%	6	2%	22	28%
Bruce County	4	2%	3	1%	62	5%
Haldimand-Norfolk Regional Municipality	3	1%	3	1%	148	2%
Wellington County	3	1%	3	1%	99	3%
Other	3	1%	3	1%	198	1%
Grey County	2	1%	2	1%	38	5%
Brant County	2	1%	2	1%	98	2%
Nipissing District	1	0%	1	0%	14	8%
Cambridge	1	0%	1	0%	130	1%
Brampton	1	0%	1	0%	200	0%
Kitchener	1	0%	1	0%	62	2%
Thunder Bay District	1	0%	1	0%	63	2%
Niagara-On-The-Lake	1	0%	1	0%	6	15%
Burlington	1	0%	1	0%	101	1%
West Lincoln	1	0%	1	0%	8	8%
Grand Total	234	100%	246	100%		

Additional Considerations for Future Research

The analyses focused on inpatient acute care as reported in the CIHI's DAD. In Ontario, we have many administrative data sources from which we can apply the methodologies explored in this report. Table AB6 shows the data available in the hospital sector. As explained in the report, there are

a number of specialized services in the ambulatory care setting, as well as in the community. We can expand this approach to the inpatient rehabilitation care, complex continuing care, inpatient mental health, as well as emergency care; however, the outpatient clinic data is not currently being captured.

Table AB6. CIHI Data Holdings

Jurisdictional Coverage of CIHI Data Holdings (as of September 30, 2020)

Legend:

C	Complete coverage (>95%)
P	Partial coverage
N	No data



Data holding	Types of care/groups of professionals	Latest year available	Ont.
Hospital care			
Discharge Abstract Database (DAD)	Inpatient	2019–2020	C
Discharge Abstract Database (DAD)	Day surgery	2019–2020	N
National Ambulatory Care Reporting System (NACRS)	Emergency department visits	2019–2020	C
National Ambulatory Care Reporting System (NACRS)	Day surgery	2019–2020	C
National Ambulatory Care Reporting System (NACRS)	Outpatient clinics	2019–2020	P
Hospital Morbidity Database (HMDB)	Inpatient	2018–2019	C
Hospital Morbidity Database (HMDB)	Day surgery	2018–2019	N
National Rehabilitation Reporting System (NRS)	Inpatient rehabilitation	2019–2020	C
Continuing Care Reporting System (CCRS)	Hospital continuing care	2019–2020	P
Community care			
Continuing Care Reporting System (CCRS)	Residential care	2019–2020	C
Home Care Reporting System (HCERS)	Home care	2019–2020	N
Specialized care			
Hospital Mental Health Database (HMHDB)	Inpatient	2018–2019	C
Ontario Mental Health Reporting System (OMHRS)	Inpatient	2019–2020	C
Canadian Organ Replacement Register (CORR)	Dialysis	2019	C
Canadian Organ Replacement Register (CORR)	Transplant	2019	C
National Trauma Registry (NTR)	Specialized care	2012–2013	C
Ontario Trauma Registry (OTR)	Specialized care	2019–2020	C
Canadian Joint Replacement Registry (CJRR)	Specialized care	2019–2020	C
Medical Imaging Technology Database (MITB)	Specialized care	2012	C
Canadian Multiple Sclerosis Monitoring System (CMSMS)	Specialized care	2015–2016	N

Notes

For many data holdings, jurisdictional coverage varies across years.

CPERS survey frequency and stage of implementation may vary by jurisdiction.

The following data is not available to the public at this time: CPERS, NACRS – clinic data (Newfoundland and Labrador, Prince Edward Island and Saskatchewan), NPDUIS (Quebec) and NSIR.

Source: Canadian Institute for Health Information. Jurisdictional Coverage of CIHI Data Holdings (as of September 30, 2020). Ottawa, ON: CIHI; 2020.

The regions used were defined by the former Ontario LHINs and the 105 communities used in the funding models. Other definitions can be used; for example, the Ontario Health Teams regions when they are established.

To explore specialized services in the outpatient or ambulatory care settings, primary data collection will be required in the short-term, with more extensive and regular data collection needed in the longer-term. It is possible to perform the market share analyses if hospitals in a particular region submit postal code information for patients being seen in specialized ambulatory clinics. In this report, we tested this approach using data in a region for a specialized regional clinic, as submitted by hospitals. Primary data collection of patients seen in specialized regional clinics will need to be collected provincially.

Finally, technical enhancement can be done by removing outliers in the PCA and cluster analyses. For the quaternary cluster of CMGs, many of the CMGs were interventions. For the diagnosis CMGs, additional analyses can be done to confirm if some can be categorized together under a clinical program.

In conclusion, the methodological approaches in this report are meant to highlight a “proof-of-concept” using administrative data to identify specialized and regional services in hospitals. It is not meant to develop a final list of specialized services. This approach requires a robust clinical consultation process, similar to that undertaken by other jurisdictions like the United Kingdom; however, the methods and analyses highlighted in this report can be used to inform future discussions for planning and funding purposes with that in mind.



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