



Introduction

Overview of the LHIN and Its Role in Health System Planning

The Central Local Health Integration Network (Central LHIN), along with 13 other LHINs in Ontario, was established according to the Local Health System Integration Act, 2006. The LHINs were developed to act as agents of the Ministry of Health and Long Term Care (MOHLTC) with the objective to “plan, fund and integrate the local health system to achieve the purpose of the Act” (Part II, Section 5 of the Act). The Act places significant decision-making power at the community level and strives to make LHINs accountable for addressing community needs. In addition to managing local health system planning and community engagement, the LHINs were given the responsibility for funding a wide range of health service providers. The MOHLTC continues to provide stewardship of Ontario’s health system, by setting direction, strategic policy and system standards, and, delivering provincial programs and services.

Framing the Report

Since inception, the LHINs have been engaged in numerous planning activities. Within the Central LHIN the Integrated Health Service Plan (IHSP) led to the development of several high-level priorities and the LHIN has spent the past several years implementing the IHSP. The LHIN developed several advisory working groups to provide direction on the implementation of the plan, and has been successful in making significant change along numerous areas of focus (e.g., Seniors’ services with Doorways to Care and the Balance of Care model). In autumn 2009, the LHIN will be required to update the IHSP, building on the work that has been completed to date and using the information provided in this report to strengthen current directions and build new ones.

This report provides a 10-year examination on the health service needs and gaps of the population based on an epidemiologically-based framework. The report also recommends strategic priorities and goals for the LHIN based on the impact of current and future needs and demands as analyzed by KPMG. As described in more detail below, to build the report, several in-depth analyses were conducted as a means to provide insight into the larger system; to examine the needs and model for a future health system for the LHIN. The full results of these analyses are provided in Appendices H through O, and are intended to guide ongoing discussions across the LHIN as a whole.

Purpose of the Service Needs and Gap Analysis Project

The Central LHIN, home to 1.6 million Ontarians, is the most populous Local Health Integration Network (LHIN) in the province, containing a vast demographic range in terms of ethnicity, language, age structure, socio-economic status and urban/rural split. A significant proportion of the LHIN’s population resides primarily in North Toronto and southern York Region with a significant rural character found in its northern regions. The demographic variability within its geography provides strengths, yet poses challenges to planning and delivery of health services.

A needs assessment provides scientific rigor along with the engagement of stakeholders to help drive decisions on the development of appropriate healthcare delivery models to improve population health outcomes. LHIN-wide systematic planning through the development of a

needs assessment will drive evidence-based decisions for health service delivery. A needs assessment is a data-driven process that defines the health inequities across the LHIN and defines service gaps in the context of a growing, changing population.

KPMG, assisted by Infonaut, was engaged by the Central LHIN to conduct a Central LHIN-wide Health Service Needs Assessment and Gap Analysis to realize the following objectives:

- To identify health service needs and complete a gap assessment to:
 - Better understand existing gaps;
 - Inform planning and funding activities for the next ten years;
 - Provide an epidemiologically-based framework of need for health services; and,
 - Provide a sound basis for which to guide planning for health service delivery in Central LHIN that accommodates growth, impact to health service human resources, efficient service delivery models and appropriate service levels.
- To identify integration priorities;
- To recommend implementation strategies for integration priorities; and
- To align the health service needs and gap assessment.

Some of the key themes that were included in the Health Service Needs and Gap Assessment are as follows:

- Confirming the existing and emerging demographics and diverse population within the Central LHIN (epidemiological and population-based approach including social determinants of health);
- Developing a needs-based equitable/rational planning approach for the future for the LHIN;
- Identifying the gap related to health disparities that exist between different populations within Central LHIN;
- The need to understand core basket of services required at the local, regional and LHIN-wide levels aligning services with needs (both community & institutional) ;
- Identifying the gaps in services (building a seamless continuum of care);
- Emphasis on building capacity and facilitating access and linkages across the LHIN (new models of care based on best available evidence, i.e., leading practices);
- Strengthening community services and capacity to reduce reliance on the acute care sector (continuity of care pre and post acute care, i.e., emergency visits or admission) and mapping to core basket of services; and
- Identifying improvements in access (e.g., coordinating access).

Purpose and Use of this Report

This report provides analyses and guidance to Central LHIN to help the LHIN facilitate current and future planning, primarily aiding the LHIN in formulating decisions on strategic priorities and goals. Through examination of how different segments of the population interact with health care services using an epidemiological approach, the report will provide guidance in examining, health human resource, cost requirements and capital implications for the LHIN over the next ten years to address these services gaps. The analysis found in the report provides cross-sectional examination of health needs by domain and LHIN planning area. The decision framework will be used to guide service configuration decisions, establish performance metrics for population and healthcare service streams and an assessment of the appropriate levels of services required in the short and long term.

Approach and Methodology

The development of the needs assessment and gap analysis followed an epidemiologically-based approach intended to define the population health needs of the LHIN. This work fell into four phases and was completed as follows:

- Development of the analysis framework;
- Collection and analysis of health data based on this framework;
- Development of a future model and vision for the LHIN; and
- Development of strategic priorities.

The process was guided by an Advisory Committee whose membership, included in Appendix A, spanned the health sector continuum.

The development of the analysis framework was based on an initial understanding of the LHIN's population and health outcomes. This included an examination of the influencers, predictors and determinants of health; disease prevalence; and, the formal and informal supports that are sought by individuals to support their health needs, both inside and outside the LHIN mandate (including cross-boundary). Several core domains were developed as part of the framework to enable the detailed examination of system level issues, needs and gaps, as a mechanism to provide insights into the needs of the broader healthcare system. The framework used to identify the priority domains considered several criteria that included the following:

- Identified as a priority by the LHIN;
- Identified as a priority of the MOHLTC;
- High Volume Driver (75% of LHIN service volume);
- Identified as a MOHLTC-LHIN Accountability Agreement Indicator;
- Future Considerations that arise from the population-based scan or qualitative analysis; and
- Within the LHIN mandate.

These criteria were developed to provide some initial direction and focus to the project, as well as providing flexibility for the inclusion of other key domains identified during the project. The selection of these domains was intended to provide a broad database that enabled analysis beyond the initial selected domains.

The data collection and analysis that supported our approach focused on examining aspects of demand and supply of services, with service demand projected, where possible and appropriate.

For this project it was important to capture both met and unmet need, therefore expanding on current service demand to also look at those persons in the community that may not be receiving the care they need or seeking care elsewhere. To model demand where actual utilization of the services was not available, prevalence data was examined and extrapolated to identify total need. To model supply, health service utilization data was examined and compared to provincial supply variables in order to assess met and unmet needs in the LHIN.

Patient inflow and outflow from the LHIN and planning areas also helped to contribute an assessment of supply.

The epidemiological data has been analysed and presented in a way that has not been available to service providers previously. Much of the information has previously been consistently calculated and reported at the LHIN level, which does not highlight the health disparities and lack of equitable access within certain areas of the LHIN. Overall the population at the LHIN level is generally healthier when compared with their peers in the rest of the province. However, when the data is subdivided and analysed at the planning area level, the variation in the population becomes apparent. At this level the data also highlights the need for more in-depth analysis and data gathering by service providers at the local planning area level to gain more of an understanding of populations accessing and using health services.

For instance, the current data is not gathered by providers in such a way that one can know why a person is accessing the service. If one goal of the LHIN is repatriation of a specific service, the data is currently not able to determine the number of reasons why people might be accessing services outside the LHIN, (e.g., such as people accessing services in an area where they work; because they live close to the LHIN boundaries and a service is more closely located in a neighbouring LHIN; or is it due to current physician referral patterns). However, there is a significant amount of data offered in this report which can be used to guide planning decisions at this time.

This data is intended to be a starting point for further analysis. There may be instances where more detailed information is required prior to making choices, such as what additional social, recreational services and community supports need to be planned in conjunction with increased investments in supportive housing in a particular geographic area. While the data highlights particular needs in specific areas such as mental health and addictions, it does not necessarily mean there are not other needs that require consideration. There are a number of services and programs currently provided by Central LHIN providers that are not included as priorities within this report. In many cases, these services comprise the core health services infrastructure. The focus of this report has been on identifying unmet needs.

In addition, it is important to note that over the course of this project many interviews, focus groups and workshops were conducted over a four month period to gather a substantial amount of qualitative data from health service providers, allied health professionals as well as representatives from public health, education and faith networks. Information gathered during these sessions was analysed and common themes were extracted and gaps were identified.

Qualitative information was used if it came from multiple sources across more than one group. In some cases the qualitative findings were used to direct more detailed analysis of the quantitative data to either prove or disprove a particular viewpoint. In most cases the qualitative data was used to provide context and understanding to help interpret the quantitative data. Only in a few areas where quantitative data was sparse did the qualitative data become more prominent in identifying gaps and challenges.

After an assessment of the health service needs across the LHIN and the seven planning areas in the LHIN, visioning sessions were held with service providers to assess the data and develop a high level vision for service delivery in the LHIN. These high level service delivery concepts were then brought to local planning area forums where participants discussed the

foundation for local-to-regional service delivery models in order to advise on the development of a future model for the LHIN.

A separate, and concurrent project, was conducted to obtain input from the general public. Focus groups were held with LHIN residents to explore their experiences of the local health system. The results of these group meetings are described in Appendix S.

There is also a need to prioritize and make choices based on a number of criteria. This is seen as the final step and is possible following the development of a prioritization framework and an application of the framework given the health service needs and gaps across the LHIN. The prioritization framework, as discussed later in this report, was based on the principles of providing high net marginal gain for each dollar invested by the LHIN; assessing the greatest areas of need and prioritizing accordingly. As a result of the prioritization, strategic priorities emerged for the LHIN over the next ten years.

Methodological Framework

The following is a summary of the multi-stage data modelling process that was used to work across different populations, diseases and health issues:

- Stage 1:** Model health/disease determinants (social, economic) using sources such as the Community Health Survey supplemented with select Census parameters, using Canada as the sample size, and comparing to the Central LHIN experience;
- Stage 2:** Extrapolate data within Central LHIN down to a Postal Code level, size expected population, then aggregate expected population to a larger area (Sub LHIN planning level was chosen as the basis of analysis and comparison where possible.);
- Stage 3:** Population projections modelled for 5, and 10yrs based on an age-weighted approach using detailed projected population information; and,
- Stage 4:** Hospital, CCAC, and other primary data are being used to compare health needs to actual health service utilization and experiences. Relative Risk and population rates were calculated as a comparator where possible and appropriate.

The focus of the project was to provide an epidemiologically derived methodological approach for information analysis to determine a Health Needs Assessment and Gap Analysis for the Central LHIN. Where possible, primary data sources covering the entire LHIN population were sourced¹. However, the use of patient registries was limited by the current availability of these in Ontario and for barriers to access in a timely manner. Going forward, the LHIN should have additional registry resources available for planning as projects such as the Diabetes Registry come online.

Where primary patient data sources were not available, in order to size actual and expected populations we made use of sources such as the Canadian Community Health Survey. In

¹ This document contains select information and analysis from data provided by the Central LHIN and various respected sources. KPMG has not audited the completeness and accuracy of the source information provided and makes no representation as to its accuracy or completeness. This information is meant to be directional and to assist in achieving the objectives of the review. KPMG reserves the right to update the information contain herein. The information and analysis contained herein is based on a series of assumptions. These assumptions may change. These changes may have a material impact on the data presented. KPMG has explicitly made certain assumptions due to lack of data and/or materiality. Any decisions based on the information contained herein remain the responsibility of management.

addition, existing trusted research based on primary data sources were used to model incidence and prevalence. As such, a generic but flexible model was created and used to determine health service needs within the Central LHIN using patient level information or aggregated health survey results across the domains of interest defined by the LHIN.

This information was combined with postal-code level population, social and economic determinant data provided by Census Canada and Environics Analytics projections to model local and neighbourhood prevalence. This was used to project affected populations forward from current state (identified as 2006-2008), based on the availability of data as well as periods of five, and ten-year projections using projected growth of determinants at a local level. These forward projections were age and sex weighted.

In addition, health service utilization was incorporated from hospitals, the CCAC, and other sources and linked back to a patients' home postal code to define the Central LHIN experience. Where possible, client level service utilization information was imported into a Geospatial Information System (GIS) environment, geo-coded, and associated with the various geographic areas of interest to the LHIN (Out-of LHIN, LHIN-wide and Planning Area analysis). The advantages of creating this data in a geo-spatial environment include the ability to link disparate sources of data using 'location' as a common key to link information.

Geospatial coding was performed to support various views of patient data at various geographic thresh-holds and the overlay of service providers and their service areas based on varying levels of analysis. Where client level data was not available, or could not be used in this manner because of the lack of identifying location information, information was sourced from reliable and trusted sources, such as Institute for Clinical Evaluative Sciences (ICES) and the MOHLTC. These sources have been identified throughout the report.

Results were then compared across LHINs and planning areas in order to calculate the inflow and outflow of patients and to confirm patient cohorts. This provided a local view of the LHIN's current health service needs as well as local growth patterns by domains of interest.

Health service utilization data in comparison to the expected prevalence allows the Central LHIN to size an 'expected population' requiring health services, 'met needs', and help identify those who may need treatment but are not seeking services. This information was then used to help identify potential gaps in service delivery.

Location-based analysis was completed aligning demographic and social indicators, population health, and health service utilization based on a standard analytical model that works across a series of priority areas and foci. The analysis established a baseline of information that will continue to provide the Central LHIN with localized intelligence on current hospital clinical service programs, support multi-year projection modeling of demand and service provision. Each of the following categories was considered for each domain analysis:

- Population and demographic profiling;
- Hospital/provider 'Natural' service areas and localization of services;
- System market analysis and patient referral;
- Service volumes and metrics; and
- Inter-LHIN effects and costing.

It is important to note that the administrative data that was used for this analysis was collected for purposes, other than projecting service demand. We have taken every precaution to

interpret the information appropriately; however some attention must be paid to the limitations of the data. Many of these issues were reviewed with system experts and where we could not validate the analysis, that information was not used.

Following the analysis of the current state, detailed utilization projections, weighted by age and sex, were developed and applied where possible and appropriate. Although the population-based gap analysis approach served as a framework, the emphasis was placed on future understanding of the population and their requirements to estimate the capacity and configuration of service delivery by services.

Limitations of the Data

KPMG has made every effort to include the most current and reliable data available for the project. But as with any project of this nature, limitations with the data were encountered. This project is an ongoing work in progress, and as new data becomes available or indicators become refined, new information should be released to provide a more accurate and comprehensive description of the community and health system issues.

The data is only as good as the original source and all data sets have some irregularities and therefore some limitations or cautions in their use. In addition, there are also instances where the data used throughout the project was being analysed for some reasons for which it was not originally intended. Hence there have been challenges in collecting and working with the data.

Data is currently collected for very specific single organizational purposes. While certain sectors have collection standards and follow certain guidelines, most sectors and organizations make use of information for their own unique needs. In addition, data is not collected in a manner that supports the tracking of an individual across the continuum of care making it difficult to determine the capacity of the system.

Furthermore, the data may illustrate the volume each community support organization is managing but is unable to say how many people are receiving services from multiple organizations. These organizations are also starting to move towards transactional data such as resource management and referral system solutions which have an impact on client care and help with operations and business management.

The implementation of MIS in the community sector should provide additional data reliability for the LHIN in the future. For the purpose of this project the major data limitations were encountered on the community sectors. The limitations encountered are described below.

Data Sources Used

Data sources used in the analysis are listed below. A more detailed description of these data sources is provided in Appendix F.

- Statistics Canada
 - Demographic
 - Age & Ethnicity
 - Socio-Economics
 - Canadian Community Health Survey (2005)
- Environics Analytics
 - Demographic Projections - Current (2008), 5 & 10yr
- General sources:
 - Provincial Health Planning DB (PHPDB)

- Hospital Discharge Abstracts: Ontario – (DAD)
- National Ambulatory Care Reporting System (NACRS)
- Ontario Home Care DB (OHCAS) and OHCAS Replacement (MOHLTC-FIM)
- Planning and Decision Support Tool (PDST) - (MOHLTC-FIM)
- CSS / MIS Comparative Reports - (MOHLTC-FIM)
- LHIN MLAA Indicators
- CCAC
 - CCAC Client Management System (Received from the Central CCAC)
 - Executive Level Reports (Received from the Central CCAC)
 - CCAC Comparative MIS Reporting System - (MOHLTC-FIM)
 - CCAC Home Care Database - (MOHLTC-FIM)
- Long Term Care
 - MOH- LTC Client Profile & Choice DB
 - OCCM – Occupancy Monitoring DB
 - LTC – Monthly Management Waitlist and Performance Reports
 - LTC – Detailed Monthly Management and Performance Reports
- Cardiac Specific
 - Cardiac Care Network (CCN) Annual Report
- Cancer Specific
 - Cancer Care Ontario Online Resource - iPort
- LHIN Service Providers
 - Hospitals
 - Acute
 - Rehab
 - Complex Continuing Care
 - Rehabilitation Beds
 - LTC Homes
 - o Long Stay
 - o Short Stay / Convalescent
- Mental Health
 - Connex Ontario
 - o Annual Reports
 - o eServices – Online Reporting Tool
 - MOHLTC Health Data Branch
 - o Community Mental Health and Addictions - (MOHLTC-FIM)
 - o Healthcare Indicator Tool - (MOHLTC-FIM)
 - o Community Support Services - (MOHLTC-FIM)
- Private Data Suppliers
 - Scott’s Medical Directory – Ontario Physicians and Specialists (2008)

Availability

There are ongoing challenges to collecting information on Community Mental Health and Addictions and Community Support Services, including Support within Housing, Supportive Housing for Seniors and Homes for Special Care at a low enough level to be used in conjunction with the approved methodology. Lack of lower level planning information was often cited as an ongoing issue for all system planners.

There was some difficulty accessing information at a planning area level because of the numerous ongoing changes to these areas, within the data methodology within the MOHLTC. Going forward, more local information will probably be provided by Census CSD.

Data Currency

For the most part, health service utilization information that was provided for analysis was typically for fiscal year 2005/06 or more current. In some cases CCAC data for 2007/2008 was used. The currency of the various data used is reflected throughout the report in the titles and source descriptions. Efforts were made to ensure that the most current data available was sourced and used for the project.

Accuracy

Issues related to data accuracy were discovered at various points in the project. A summary of the most pertinent data issues experienced is as follows:

1. **Hospital Coding (NACRS).** In some of the areas of study issues were found related to hospital coding. Where issues were identified as probably, but could not be confirmed the data was excluded.
2. **Mental Health.** Issues were discovered in working with the Community Mental Health and Addictions data provided by the MOHLTC-FIM. Issues regarding completeness of data, accuracy, and trending were identified. We established a base of trusted source data from the MIS through meeting with experts in this field. However, as a result, primary data sources were used with caution; reporting only what could be established as reasonable numbers for the functional areas and areas of study. As a result, there is greater reliance on Mental Health and Addictions reports made available through the LHIN.
3. **Health Service Providers, Locations, and Program Services Offered.** There were serious challenges in sourcing accurate and complete list of the various providers. Most community organizations are tracked at a local level only and finding comprehensive sources that would identify Health Service Providers, Locations, and Program Services offered was very difficult for some groups.
4. **CCAC Comparative MIS Reporting System.** We encountered some MIS related issues in the CCAC Comparative Reports. Issues were investigated and were explained due to the amalgamation of the CCACs and migration to a new client management system. Suspect data was not reported and where reviewers identified data issues in response to the tabling of reports, that information was also excluded.

In addition, some Information provided by the LHIN and CCAC was either incomplete due to currency of the information, the information had been collected in formats that made it's use extremely difficult (e.g., provider services are collected in a free text field that made searching and arranging by services difficult) or information was stored and provided in formats not compatible with organization and analysis (i.e. PDF files made up a great deal of provider information that was provided as part of this project).

Please note, there are ongoing projects within the Ministry of Health to provide a trusted and comprehensive source for various health providers, with one project requiring self-registration by providers, but this is not currently available. There are also various LHIN initiatives, within

the Central LHIN and in other LHINs, to collect and organize provider information in a more rational and comprehensive manner.

Quality Assurance

Effective project management and quality assurance are critical to the successful execution and implementation of any project. A large portion of our quality management is achieved proactively through our strong project management process. Overall the project director and the project manager are responsible for delivering a completed project at a quality level consistent with KPMG's professional standards and our clients' expectations. Fulfilling that responsibility requires careful front-end planning to build in quality as the work effort unfolds. KPMG focuses on quality by placing senior people in the field for effective project management. KPMG's review policies represent a double check to help ensure client's needs are met and to maintain a high level of excellence.

All work is reviewed by a team member more senior than the person doing the work and, on this engagement, is subject to an independent evaluation by the Engagement Partner. In addition to the above, KPMG's quality assurance process includes a defined process to monitor and manage the overall quality of the project and related deliverables.