



Quantification of the Future Needs

This chapter explores the quantitative impact of the health service gaps in the LHIN. Accurately quantifying the current service delivery gap or unmet need is challenging, since there are numerous factors influencing where and how people in the LHIN access care. Disease prevalence based on people who live in the LHIN catchment area provides a high-level baseline of need in the LHIN. However, four hospitals within the LHIN are situated close to the LHIN boundaries, with a natural flow of patients across the border. Individuals will seek care across the boundary for several reasons including: physician referral patterns; access to tertiary/quaternary care; accessibility (e.g. close to work or home); or, to seek services not available in the LHIN. Without an assessment of why individuals are seeking care in other LHINs, it is difficult to accurately quantify service gaps, since the LHIN population may be accessing “out of LHIN” services for the right reasons as opposed to real “service gaps” within the LHIN. (See chapter: Gaps in Central LHIN for discussion on patient flow).

To quantify the gaps to the extent possible, this chapter will:

- Describe the LHIN’s current expenditures;
- Estimate impact of growth on future costs;
- Quantify known current service delivery gaps and adjust for growth (referred to as Known Gaps); and
- Calculate the upper range of current gap costs using peer LHIN average service ratios (referred to as the Service Ratio Gap).

The current gap is likely somewhere in the range between the “Known Gap” and the “Service Ratio Gap”.

Current Expenditures

The LHIN currently spends \$1.5 Billion on health care. As shown in the Exhibit below, this represents 80.4% for combined institutional care (hospital and long-term care homes) with the remaining 19.6% of funding allocated to the community sector. Over the past few years, the LHIN has benefited from increased funding to hospitals for growth and wait times; as a result, overall hospital base spending in the LHIN is up 16% over three years (18% in total with increases in one-time and other MOHLTC funding). In 2008/09, the LHIN’s community providers received stabilization funding of 4% for the CCAC and 2.25% for the community sector (with the exclusion of additional funding for the Community Health Centre). The Aging at Home strategy has also increased LHIN funding primarily for Community Support Services, increasing base funding by \$13.5 million for 2008/09 and \$20.1 million for 2009/10.

Exhibit 70: LHIN Provider Expenditures 2008/09 LHIN Budget

Sector	08/09 LHIN Budget	Breakdown
Hospitals	\$976,101,000	63.8%
Community Support Services	\$49,637,700	3.2%
Community Mental Health and Addictions	\$59,901,500	3.9%
Community Care Access Centre	\$176,906,500	11.6%
Community Health Centre	\$4,530,540	0.3%
Long-term Care	\$254,815,500	16.6%
Other (ABI)	\$8,606,200	0.6%
Total	\$1,530,498,940	100.0%

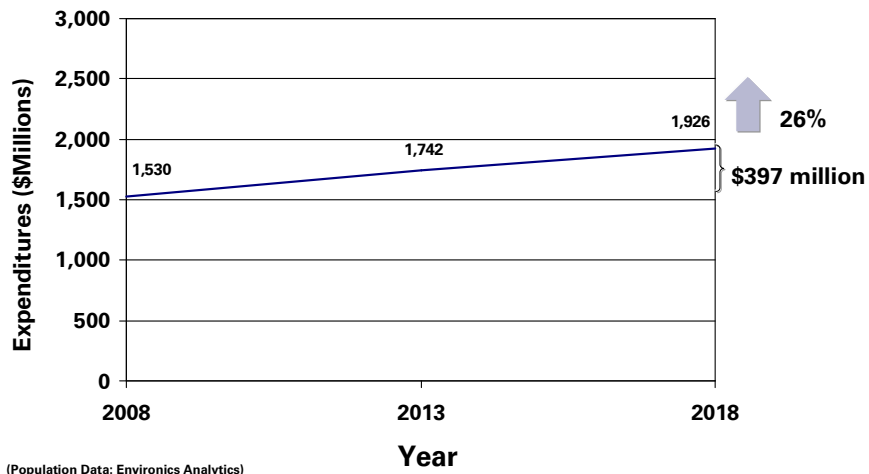
All reported costs are operational expenditures in today’s dollars and are not adjusted for inflation. Capital and infrastructure costs are not included.

Current & Projected Spend (no adjustments to base)

As noted throughout this report, the largest impact facing the LHIN over the next ten years is population growth and changing demographics. This shift will see the seniors population command an increasing proportion of the population, while the growth in children and youth is expected to remain flat. These changes will impact the demand for health services in the LHIN and will not be uniform across service types or across the planning areas.

Although the population will growth only 13.0%, the increase in spending outpaces the increase in population growth due to the impact of an aging population and higher needs for health services. The graph below shows the current LHIN spending and projected growth over the next ten years, assuming no change in either service delivery or programming.

Exhibit 71: Projected Age-Adjusted Growth in Annual Central LHIN Expenditures (2008/09 to 2018/19)



As shown above, without any service changes, an additional \$397 million would be required in 2018. The table below illustrates increased expenditures by sector.

Exhibit 72: 10-year Cost of Growth in Services in Central LHIN

Services	Predominant Age Cohort Used to Project Growth	Current Annual Activity (2008/09)	Estimated 5-Year Growth in Annual Activity	Estimated 10-Year Growth in Annual Activity	Activity Cost (07/08)	Estimated 5-year Growth in Annual Operating Expenditures	Estimated 10-year Growth in Annual Operating Expenditures
Hospital Inpatient, Day Surgery, Emergency*	Adults 45+	140,146 Weighted Cases	19,497	36,018	\$4,319 (CPEWC)	\$84,206,345	\$ 155,559,678
CCAC In Home Adult	Adults 65+	50,000 Individuals Served	8,694	19,941	\$1,320 per individual served	\$11,475,907	\$ 26,322,594
CCAC Paediatric	Children 0-14	7,750 Individuals Served	-118	0	\$1,320 per individual served	-\$156,248	\$0
Community Support Services	Adults 65+	57,108 Individuals Served	9,930	22,776	\$3,700 per individual served	\$36,740,220	\$ 84,272,025
Community Mental Health and Addictions	Adult 45+	23,628 Individuals Served	3,287	6,066	\$2,630 per individual served	\$8,644,972	\$ 15,954,853
Community Health Centres	Adults 45+	6046 Individuals Served	841	1,552	\$751 per individual served	\$631,666	\$ 1,165,784
Long Term Care	Adults 85+	7057 Beds	1,901	3,056	\$37,174 per Bed	\$70,678,475	\$113,591,885
Total						\$212,221,340	\$396,866,820
<i>(Source: LHIN HAPS Data, JPPC Equivalent CPWC, MOHLTC HIT Tool)</i>							
<i>*Includes all Hospital activity including inpatient medical, surgical, rehab, complex continuing care, emergency and clinics.</i>							

The projections are not expected to follow a straight line projection over the ten years. In paediatrics, for example, some growth is expected over the next few years followed by flat growth to a small decline resulting in a net 0% growth over the ten year period. These costs also do not include new services not currently provided in the LHIN.

Quantification of Known Gaps

This section attempts to estimate the costs associated with current service capacity gaps with the best available data. Where data was reliable in determining the gap and estimated service costs, these gaps are calculated below, labelled "Known Gaps". This quantification does not represent the entire gap for the LHIN. Further program level planning will be required to accurately cost the size of other gaps that have been identified in this report.

Current service gaps include the following:

- Gaps that require immediate investment to address health service inequities in the LHIN; and,
- Gaps that require immediate investment in order to mitigate future strain on health services in the LHIN due to a rapidly aging and chronic population.

The numbers provided below are orders of magnitude based on current per capita spending by similar providers. Where possible, costing data was sourced from the MOHLTC Healthcare Indicator Tool. There are some limitations to this approach. The use of current cost data does not account for possible historical funding inequities nor does it reflect possible service delivery innovations that may emerge in the future. Future budget planning should reflect specific proposals generated by health service providers based on true costs of providing services. All costs identified below are unit operating expenditures; that is, they exclude the cost of overhead or administrative costs, capital and infrastructure requirements and indirect costs such as diagnostic services.

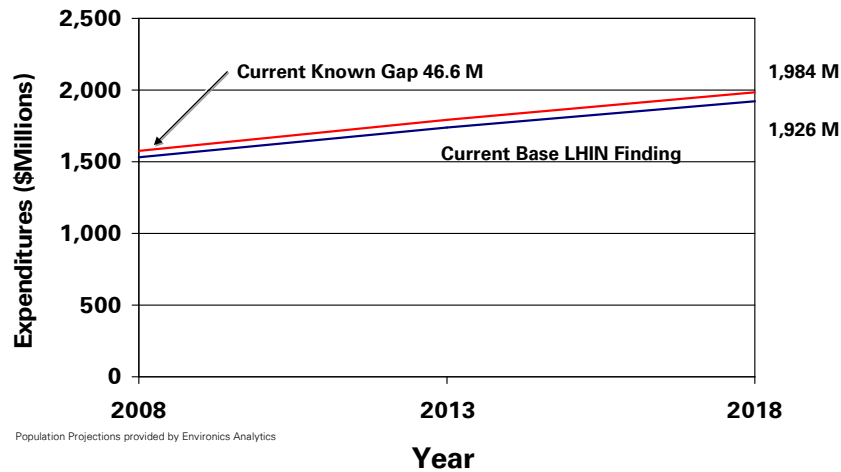
Known Gaps

Based on the analyses of data collected throughout the project, there are three areas where there are significant gaps in service; to provide appropriate services would cost an additional \$46.6 million. These should be considered immediate priorities because of the pervasiveness of the needs that have been identified by the data analyses. These include the following:

- Mental Health and Addictions Services (\$9.1 Million);
- Support for Older Seniors, 85+ ; including Long-term Care, Supportive Housing, Complex Continuing Care and Rehabilitation (\$15.8 Million); and
- Primary Care for rural and vulnerable populations (\$21.7 Million).

This gap, which represents 3.2% of the LHIN's current budget, is represented in the graph below and projected forward ten years based on age-adjusted population projections and changing demographics. Any financial figures provided are based on today's dollars.

Exhibit 73: Current Base Funding with Current Known Gap and Projected Growth Based on 2008/09 LHIN Budget.



These gaps are not exhaustive, as discussed in previous chapters, but require immediate investment by the LHIN to address inequities in access and basic service needs that are not currently being addressed. Further details on how these costs were estimated are described further below.

Mental Health and Addictions

The acute gap in mental health and addictions services includes a lack of capacity across the continuum of care including health promotion and education programs, primary care, community mental health, inpatient services and detoxification, residential services and supportive housing. With a lack of consistent reliable data it is difficult to accurately assess the specific size of this gap. Below are some estimates of the gaps in community mental health and addictions services, where data would allow adequate analysis.

Mental Health. Analyses of wait times in community mental health services suggest additional capacity is required in Assertive Community Treatment, Case Management, Counselling and Treatment, Abuse Services, Diversion and Court Support, Early Intervention, Social Rehab / Recreation, Concurrent Disorders, Multi-lingual Services, Supportive Housing, Vocational Services, and Withdrawal Management (see Mental Health and Addictions Appendix M). Analysis of current service data suggests that approximately 19,971 people are receiving some level of service (see Appendix M for further discussion). This number is based on an assessment of the number of individuals served across all LHIN-funded community mental health services. As individuals are likely to use multiple services, this number is likely understated. Prevalence studies estimate that 2-3 percent of the population are living with a serious mental illness representing 23,071 – 34,607 individuals (Ontario Health Survey, Mental Health Supplement, 1996 and Kirby, 2006). The difference between the prevalence and those served is estimated to be 3,280 -14,636 people. For the purpose of calculating the known gap, the minimum 3,280 gap will be used to provide a base estimate of the minimum gap in services to those living with serious mental illness.

Addressing the gap in community mental health services based on current cost structures in the LHIN, serving an additional 3,280 individuals would cost an estimated \$8,630,000 at current

costing of \$2,630 per individual served (Cost data is based on 2008/09 budgeted data received from the LHIN). While the gap was calculated using current service utilization compared to rates of individuals living with serious mental illness, it has been estimated that up to fifty percent of those using services are individuals living with serious mental illness. This would indicate that the gap is significantly larger than the minimum presented above. The LHIN should consider using the minimum gap as a base and increase capacity by 10% a year, while monitoring progress and access to services.

Addictions. Prevalence data indicates that approximately 91,000 adults in the LHIN have a substance abuse problem (WHO, 2000). In 2007/08, the LHIN served only 3,837 people through LHIN-funded services. This data would suggest that there are 87,163 people who are not getting the service they need. However, it is not known how many of those individuals would actually seek care in a given year or who are receiving care from private sources. The cost of treating an additional 87,163 people at a cost of \$1,196 per person would be \$104 million. But without better data on the real level of service required, the LHIN should consider increasing addictions services by 10% a year and monitor access, increasing capacity as required. Focus group participants spoke of the need for residential addictions and withdrawal management as immediate gaps. The increase based on 2008/09 expenditures would cost \$427,000. The 10% increases have been suggested as manageable increases that provide enough capacity to make a difference, while allowing the LHIN to manage the increase and evaluate the ongoing effectiveness of the change in service delivery.

Primary Care

Primary care is a key foundation for an effective health care services system. The data analysed in this project has demonstrated that LHIN residents have significant challenges accessing adequate primary care. While recent reports indicate that 93% of residents in the LHIN have access to a family physician, this rate fluctuates depending on planning area. As demonstrated previously, the ratio of primary care providers in the LHIN is lower than the provincial average with acute shortages in the northern planning areas of the LHIN. There are also specific populations in the LHIN that have difficulty accessing primary care: rural; low income; people living with serious mental illness; and, seniors. These vulnerable populations would benefit from increased access to Primary Care services in the LHIN. There are a number of options for improving Primary Care Services which include increasing Community Health Centre capacity, increasing the number of Family Health Teams and seeking alternative Primary Care providers such as Nurse Practitioners.

The LHIN currently only has direct funding responsibility for primary care through Community Health Centres. Expansion of the Community Health Centres through satellite clinics, using current management would help to address the needs of unattached clients (those without access to a family physician). Alternate applications could include a mobile health bus to serve rural populations in the northern part of the LHIN including Georgina Island, including programs to partner with Toronto medical and nursing school to bring students to the "north". There are a number of successful examples in other parts of Ontario. The CHC satellites positioned throughout the LHIN should consider expanding the typical CHC model, relying on the use of nurse practitioners and inter-professional care practices to maintain cost efficiencies. The CHC currently maintains a cost ratio of \$751 per client served. Locations requiring satellites include

South Simcoe and Northern York, Central York, South West York, South East York and North York East; all have ratios of family physicians per residents well below provincial averages. Special shared care services that integrate services with community mental health as described above, chronic disease management and prevention and specialized seniors providers would help meet the needs of the planning areas.

Targeting 25% of individuals currently without a family physician, would represent a client base of 28,904 individuals. At current costs per client at the CHC, this would require additional operational funding of \$21,700,000. Where possible, the satellites should be co-located with existing providers. Increasing capacity would likely incur additional capital and infrastructure costs, including the costs for a mobile health unit.

Long Term Care, Supportive Housing, Rehabilitation and Complex Continuing Care Beds

As described throughout the report, Central LHIN currently has a younger population than the Ontario average, but this will change rapidly over the next ten years as the population ages. In anticipation of this shift, the LHIN has received funding to increase community support services to support seniors to age in place.

When compared to provincial averages, the LHIN has a gap in long term care capacity of 824 beds when comparing ratios of beds per population over age 85; a suggested capacity gap of 12 rehabilitation beds; and upwards of 400 beds as shown previously in complex continuing care (See discussion on capacity gaps in section: Gaps in Central LHIN). Comparisons with provincial averages are limited in that they do not account for the current health status of the population. In discussions with the community there were indications that there was a gap in service but that the gap in beds may not necessarily match the data for several reasons. Long term care demand is dependent on community service availability; services that help keep people in their homes (activities of daily living and instrumental activities of daily living). Increasing community capacity as the LHIN is currently doing should decrease demand for long term care. However, even with enhanced community supports, there is a demand for long term care as reflected in LTC waitlists and ALC data (See Appendix and chapter: Gaps in Central LHIN).

As described earlier, comparing the LHIN to the provincial ratio of beds per 10,000 population would suggest a gap of 824 Long-term care beds. Funding all of these beds would increase annual operating costs by approximately \$30.6 million based on current funding levels in the LHIN. The data for long-term care wait times suggests that there is a need for additional service; there may however be alternatives to providing that care in an institution (e.g. supportive housing, community supports). It is suggested that the LHIN proceed to increase capacity to address supporting older seniors. The cost of increasing capacity by 5% of the current long-term care budgets is estimated at \$13.1 million. A small portion of this capacity should be used to increase long term care beds, primarily to address needs of ethno-cultural communities. The additional allocation should fund an increase in supportive housing and community supports that supports seniors in their homes. The cost of these services is likely less than the current \$37,174 per bed per year, spent on long term care in the LHIN.

As discussed previously, there is also a need to increase rehab and complex continuing care at a measured pace, closely monitoring access as capacity in the community is increased. Increasing rehabilitation beds by 12 would incur \$1.4 million in operating expenditures.

Central LHIN recently submitted a business case for 71 complex continuing care additional beds in the LHIN. This adjustment may close a significant portion of the gap, including those waiting in hospital, considered alternate level of care. At the time of developing the business case, the LHIN reported 16 ALC patients waiting in hospital for complex continuing care. The balance of the 71 beds requested is a repatriation of patients to Central LHIN. The difficulty in assessing the true gap, unless all patients are repatriated, is the large number of beds in Toronto Central LHIN that serve a large proportion of Central LHIN clients. Further analysis will be necessary to accurately size this gap. In the short term, it would be prudent to begin increasing complex continuing care capacity gradually. Increasing complex continuing care beds by 10% would incur \$1,250,000 in additional operational expenditures at 2007/2008 costs (Costing based on 2007/2008 operations costs per day, MOHLTC HIT).

The LHIN is also low on hospice palliative care beds, short-stay transition beds and supportive housing for seniors. This gap is quite consistent across the LHIN, although more pronounced north of Steeles Avenue. As the seniors' population grows, these gaps will become more acute unless they are addressed in the short term. The data currently available is not sufficient to cost these gaps and will require more specific program planning.

This section has estimated the costs associated with mental health and addictions, primary care as well as long-term care, supportive housing, complex continuing care and rehabilitation. The resulting estimate of \$46.6 million represents an estimate of current service delivery gaps based on the available data, and is a minimum baseline.

Service Ratio Gap

To calculate the maximum range, several activities within Central LHIN have been compared using a ratio to other LHINs with similar acute care facilities. All LHINs that had a high concentration of academic and specialty mental health beds were removed to make the comparison equivalent. These exclusions included the following LHINs: Toronto Central, Central East, Hamilton Niagara Haldimand Brant, Champlain and South West.

There are flaws in using this method to calculate the current gap. Looking at service utilization patterns does not take into account the health of the population or the close proximity to services accessible in neighbouring LHINs. However this method does allow a theoretical upper boundary of possible costs.

The table below summarizes the calculation of the maximum gap using a comparison of Central LHIN activity per population compared to Ontario. The current gap using this approach is \$513 million. A large portion of this gap is driven by acute care and other institutional expenditures as shown in the table below, through the wide variation in bed ratios. There may be alternate methods of delivering this care in the community at a much lower cost. As an example, this table suggests that the Central LHIN requires 824 LTC beds at this time. However, investing in supportive housing and other community services to enable a person to remain in a home setting for longer periods of time would reduce the number of beds needed.

Exhibit 74: Calculation of Service Ratio Gap (Based on service ratios with across Ontario).

	Activity Measure	Central LHIN Ratio	Ontario Ratio	Variance	Cost of Gap
Hospital Inpatient, Emergency and Clinical*	Inpatient Beds per 1,000 Population	1.25	2**	1,256 Beds	\$403,214,000
Long Term Care	Beds per Population over age 85	2,899	3,238	824 Beds	\$ 30,630,000
Community Care Access Centre	Individuals Served per 10,000	352.6	506.2	25,367 Individuals Served	\$ 33,484,000
Community Support Services***	Increase in base funding for Aging at Home for 09/10.				\$ 20,100,000
Community Mental Health and Addictions****	Per capita spending	72.91	88.42	\$15.50 per person	\$ 25,601,000
Total Maximum					\$513,000,000

Sources: MOHLTC Healthcare Indicator Tool, Central LHIN)

*Hospital Inpatient, Emergency and Clinical includes all adult and paediatric inpatient, mental health, rehab and continuing care beds. Includes Emergency Department and Clinic, excludes Operating Room, Diagnostic and Therapeutic Costs.

**The Ontario ratio excludes LHINs that have a high concentration of academic and specialty mental health beds to make the comparison more equivalent (exclusions included: Toronto Central, Central East, Hamilton Niagara, Haldimand, Brant; Champlain and South West LHINs)

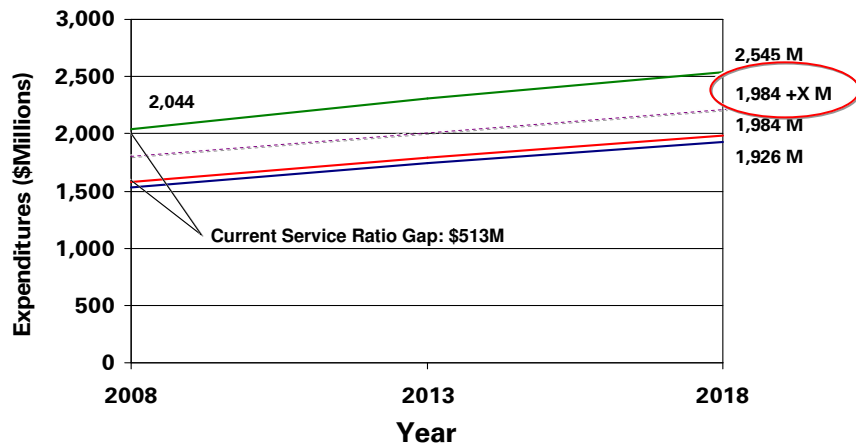
***Data on Community Support Services showed a net positive spend per capita compared to the rest of Ontario. The data was not reliable due to inconsistencies in MIS reporting to the MOHLTC across the province. The increase in base funding for Aging at Home for 09/10 was used as a proxy.

****Activity data was not reliable as a comparator. Expenditures were used as a proxy.

Capital investment would be required over and above the operational expenditures above, including any additional long term care beds, supportive housing if existing housing stock is not available to support this service, CHC satellite locations, residential hospice palliative care and possibly increased hospital space for inpatient and outpatient services.

The graph below demonstrates the service ratio gap and builds on the current LHIN expenditures and the current known gap from the previous exhibit.

Exhibit 75: Current Base Expenditures, Known Gap and Service Ratio Gap with 10-year projection



Source: LHIN 2008/09 Budget, Population data Environics Analytics

In summary, the true current gap is somewhere between the “Known Gap” of \$46.6 million and maximum gap \$513.6 million - all in today’s dollars.

Additional Cost Considerations

The costing analyses do not include estimates for a range of other priority needs that have been identified in this report. This section discusses some of the key need areas that require further detailed program planning in order to accurately estimate costs. The elements that would be included in these costs are described below. These costs would increase the estimated minimum gap.

Access for Ethno-cultural Groups

Throughout the project several consistent themes emerged among the data collection and analysis of the planning areas. The southern planning areas (all North York and South York planning areas) were characterized by large numbers of ethnic populations who encountered difficulties accessing care throughout the continuum.

Several options are available to address the needs of ethnic populations in the LHIN. To completely address these needs, elements of both options will probably be required. The first option is to provide specific funding to organizations to increase capacity among ethnic-specific services (e.g. Yee Hong Centre for Geriatric Care). The second option is to encourage providers to proactively engage ethnic communities when planning services and to fund increased access for ethnic specific services, either through cultural and linguistic translation or through multi-lingual service providers. Currently the available databases do not provide sufficient information to estimate the size of this gap, and without knowing the extent of this gap or the cost of these options, this service cannot be costed. The LHIN should continue to work with local multicultural organizations to develop models for both service delivery and tracking the need of these populations.

Building to the Future

As described in the report, a large part of the story for Central LHIN is the expected growth and aging of the population in the LHIN. To address the impact of this rapid demographic shift, specific services need to be addressed now in order to mitigate future demand. These services include the following:

- Chronic Disease Prevention and Management (including cardiac and cancer services);
- Seniors Services (including Palliative care and Long term Care); and
- Service Coordination and Integration.

This is not meant to indicate that these areas do not have immediate gaps, but rather the primary driver of these gaps will be future growth and changing demographics in the LHIN. The immediate gaps are also estimated below.

Chronic Disease Prevention and Management

Current prevalence rates for diabetes and other chronic conditions including cardiac and cancer are equivalent to or below provincial averages. Keeping current service demand lower as compared to provincial averages. These rates will be impacted in the coming years by significant population aging. Services implemented immediately to help identify high risk individuals and help them to manage their health can have significant impact on health service utilization (Barr et al (2003) and Tuomilehto et al. (2001)). Implementing health promotion and prevention programs can also reduce health service utilization. Increased capacity will be required across all chronic conditions to assist individuals living with chronic conditions manage their own diseases.

For those with chronic conditions, the prevalence of having multiple chronic conditions as demonstrated in the report is quite common. This risk of developing multiple chronic conditions rises with age. It will be important for the LHIN to adopt an integrated approach to managing chronic conditions. The intensive requirement for primary care to for health promotion, screening and prevention and self-management of chronic conditions requires the LHIN to effectively integrate services across the continuum, building integrated teams of care providers that include a case manager / system navigator, specialists (e.g. endocrinologist, cardiologist, rheumatologist, etc.), primary care provider, advanced practice nurses, dieticians and social workers. The LHIN also has some established community networks that could be leveraged for health promotion and screening activities and access points (e.g., Faith-Health Initiative).

The core pieces that would require investment by the LHIN include immediate programs in chronic disease health promotion, programs to identify and track high-risk individuals and provide nutritional and lifestyle counselling, and, mechanisms to integrate service delivery across the continuum. These are discussed in more detail below. Health promotion, education and screening programs should be located in community-based environments such as the Community Health Centre. Special attention should be paid to creating access for ethno-cultural populations.

A screening program for high risk individuals would include the development of a disease registry, tools to allow inter-professional collaboration, nutritional and lifestyle counselling and

disease monitoring. Tuomilehto et al. (2001) demonstrated a reduction in diabetes prevalence by 58% among high risk individuals through a similar program.

Integration of Services

A consistent theme across the domains is that services are consistently delivered in silos. The importance of integrated service delivery is reflected in the jurisdictional review and reflects the components identified below (see Appendix Q for further detail). There have been some gains made among the community mental health and addictions providers in the LHIN, but more work needs to be done across all domains to integrate service delivery. This does not mean amalgamating service providers, but rather vertical integration and service delivery coordination as described in the previous chapter on the future model for the LHIN.

The costs drivers for the LHIN in this area, driven primarily from the evidence as described in the jurisdictional review, include the following:

- Regional Program Managers;
- Central Coordinators;
- System Navigators;
- eHealth, tools for inter-professional collaboration and disease registries;
- Service Delivery Planning; and
- Coordinated Performance Management Systems including wait time tracking.

The integration of service delivery will require additional infrastructure investments by the LHIN, but will help to increase the productivity of health service delivery in the LHIN and mitigate future cost drivers from an aging chronic population. With the available data and evidence, it is difficult to cost the impact mitigation and integration strategies will have on the LHIN, either in terms of increasing health status or minimizing cost growth. Based on the analysis, it is likely that the LHIN will improve the population health status of the LHIN. The LHIN, however, does not have control over all levers to improve population health status. A rigorous program of performance management will help the LHIN to assess the ongoing impact of investments in the health sector, while providing data and evidence to influence sectors outside the LHIN's mandate that have an impact on population health status.