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ICES Institute for Clinical Evaluative Sciences

Ontario's Mosaic of Children's Treatment Services

ICES Investigative Report

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About ICES

Ontario's resource for informed health care decision-making

ICES is an independent, non-profit organization that conducts research on a broad range of topical issues to enhance the effectiveness of health care for Ontarians. Internationally recognized for its innovative use of population-based health information, ICES knowledge provides evidence to support health policy development and changes to the organization and delivery of health care services.

Unbiased ICES evidence provides fact-based measures of health system performance; a clearer understanding of the shifting health care needs of Ontarians; and a stimulus for discussion of practical solutions to optimize scarce resources.

Key to ICES' research is our ability to link anonymous population-based health information on an individual patient basis, using unique encrypted identifiers that ensure privacy and confidentiality. This allows scientists to obtain a more comprehensive view of specific health care issues than would otherwise be possible. Linked databases reflecting 12 million of 30 million Canadians allow researchers to follow patient populations through diagnosis and treatment, and to evaluate outcomes.

ICES brings together the best and the brightest talent under one roof. Many of our faculty are not only internationally recognized leaders in their fields, but are also practising clinicians who understand the grassroots of health care delivery, making ICES knowledge clinically-focused and useful in changing practice. Other team members have statistical training, epidemiological backgrounds, project management or communications expertise. The variety of skill sets and educational backgrounds ensures a multi-disciplinary approach to issues management and creates a real-world mosaic of perspectives that is vital to shaping Ontario's future health care.

ICES collaborates with experts from a diverse network of institutions, government agencies, professional organizations and patient groups to ensure research and policy relevance.

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Executive Summary

Purpose

Children represent a small, though important, segment of the health care seeking population, and are consumers of a wide spectrum of services including medical and nursing services, rehabilitation services for developmental impairments, and mental health services, in and outside the hospital setting. Some have special health care needs for chronic, and often multiple, conditions. Advances in treatment methods cross the spectrum of professional services and increase the challenge of delivering high quality child-specific health care at community and regional levels.

While previous ICES reports focused on hospitalization services for which data have been more readily available, this report is oriented towards new data on ambulatory treatment services. The chief goals of this report are to:

- Provide a general overview of distribution and delivery of common treatment services to children 0 to 19 years of age across the province;
- Examine how service utilization varies by District Health Council (DHC) area; and,
- Report feedback from health care provider stakeholders regarding issues and solutions for ensuring access to quality treatment services.

Two important issues should be considered in the review of this report. First, this work focuses on characterizing the system or overall environment of treatment services for children, not specific communities and organizations, and as such, the data should not be interpreted as a report card. Second, this overview was compiled through a series of steps over time using data from markedly different sources, some of which are limited in timeliness and may not provide an exact indication of recent activity. Nevertheless, the emerging themes are reasonably current and assuredly relevant. This report has been produced to assist in informing existing major policy developments in Ontario, including the development of Local Health Integration Networks.

Study

This report deals with medical (medical and nursing), rehabilitation (rehabilitation and developmental) and mental health services that treat, cure or improve the consequences of diagnosed diseases and conditions of childhood. Specifically, this included: well child, newborn and minor assessments, general assessments, and consultations for three classes of physicians (generalists, pediatric specialists, and "other" which included otolaryngology, ophthalmology, optometry, psychiatry and chiropractic).

The analysis excluded organizations whose exclusive role is primary prevention, early intervention for risk factors, and health promotion such as Community Health Centres and Public Health, though these organizations were surveyed to ascertain types of services provided. As well, highly specialized tertiary/quaternary services affiliated with the pediatric academic health sciences centres were excluded, as the particular issues that flow from organizing such highly specialized services are addressed elsewhere.[6]

It is important to note that creating a complete picture service delivery, though desirable, is impossible at this point, as important data needed to examine access, utilization, integration and outcomes of services on a comprehensive basis is not yet available. In particular, data for mental health and children's rehabilitation centres needs to be brought onto the existing health information grid in Ontario.

Methods

The comprehensive research approach for this report involved the following components:

- Environmental scan and meetings with key governmental stakeholders
- Preliminary interviews surveys with DHCs
- Surveys of delivery organizations: Hospitals and non-hospitals, which were comprised of 6 types (Children's Rehabilitation Centres; Community Care Access Centres; Mental Health Centres; Community Health Centres; Public Health Units; Community Living organizations)
- Administrative data analysis of individual level data was studied to determine regional variation of services utilization. (Sources include: OHIP physician claims; home care claims (Ontario Home Care Administration Service); Statistics Canada; Hospital Inventory; MOHLTC census; CIHI discharge abstract database)
- Preliminary report on regional variation of service utilization issued in 2001 to survey groups
- Focus group discussions/proposals of solutions to challenges by survey organization representatives
- Publication of this investigative report

Findings and discussion

In attempting to create a bird's-eye view of delivery of children's ambulatory treatment services, an important finding was that currently, no master blueprint or inventory detailing the multiple sectors and respective roles exists.

In addition to professional services funded through OHIP, treatment services for children are delivered primarily through four organizational sectors in Ontario:

1. Hospitals;

2. Home care services (CCAC);

3. Children's mental health services (MH); and,

4. Children's rehabilitation services (CRC).

A large number of other organizations and programs were also identified as having involvement in child health, but are more involved in advocacy, health promotion, early intervention, information and referral and were not included in the study.

Data analysis, together with the survey and focus groups responses, point to the following challenges across the medical, rehabilitation and mental health sectors that prevent seamless service delivery:

1. Fragmentation and variation in services;

2. Limited availability of information;

3. Problems with the capacity and utilization of services;

4. Difficulties with integration of care; and

5. The lack of an overall blueprint and inventory for children's treatment services.

These system-level dilemmas seem to correspond with general concerns about children's services raised at a federal/inter-provincial level.[1]

In the course of producing this report, numerous initiatives were identified (e.g., the Specialized Pediatric Services Council, the development of networks, etc.) that indicate some forward momentum in improving treatment services for children in Ontario, though it is clear that numerous challenges must be addressed to achieve a more seamless system of service delivery. The following sections describe, in brief, the key findings in five areas of focus.

Distribution

The four major sectors have facilities distributed in the DHC areas with a few exceptions. However, evaluation of service coverage and access to services across these areas was difficult because of variation in types of services reportedly offered by organizations from different areas. For example, while 80 to 90% of CRC organizations reported programs in communication, occupational therapy, and physiotherapy for children, only 23% reported specific psychoeducational programs. Of MH organizations responding to the survey, only 54% reported behavior modification programs and 30% reported child psychiatry services, though almost all reported counseling services. Furthermore, organizations from different sectors (e.g. CCAC and CRC) appear to be delivering similar services to the same area. Some of this variation and overlap may be due to the labeling and identification of services while some variation may simply address local priority needs. These observations point out the potential for significant gaps and duplication in service access and delivery, which cannot be further investigated at this point because of the lack of comprehensive data on individual service encounters.

Utilization

Rates in the use of selected physician services (well child assessments, pediatric assessments, counseling, psychiatry, ophthalmology, and otolaryngology) by children vary across the province. The variation appears to be mild or moderate for most services, but was higher for pediatric and psychiatric assessment and consultation services (the highest DHC rate was over 4 times the lowest DHC rate). Four out of 16 DHC areas had rates below or somewhat below average for all of the main physician services. This group includes two northern DHCs (Algoma-Cochrane-Manitoulin-Sudbury and Northwestern Ontario) and two central rural DHCs (Waterloo Region-Dufferin-Wellington, and Grey-Bruce-Huron-Perth). The use of CCAC home care services by children also varies across the province. However, the rural versus urban differences noted for physician services were not observed for home care services, as there were relatively high rates of utilization in rural and remote area DHCs.

Health human resources

Information on supply of personnel specializing in child health is still rudimentary. Concerns regarding the distribution and availability of physicians and other providers have been identified in other recent reports. The number of pediatricians per capita varies substantially across the province. The survey results indicate difficulty recruiting and retaining pediatric expertise across all specialties and many regions. Physician workforce distribution appears to be associated with lower rates of children receiving care from specialists in many rural and remote regions in the province. Survey responses regarding waiting lists and durations suggest substantial delays in accessing rehabilitation and mental health services in most regions of Ontario, though actual data on wait times is not available. Organizations reported that the "usual waiting times" for speech-language therapy, psychoeducational services, child psychiatry, counseling services and behavior modification services were 5 to 6 months, on average.

Integration/coordination

There was little uniformity in reports of collaborative organizational relationships (outside of sectoral associations such as the Ontario Hospital Association) among the survey responses. Frequency of specific types of collaborative relationships reported (e.g., CCAC with hospital) was generally low. Problems in the verification of these relationships could account for some underestimation of collaboration activities, though responses suggest that explicit integration and collaboration across sectors is not yet consistently present.

Stakeholder input

Through focus groups, health care provider stakeholders indicated that meeting the goal of an efficient and equitable seamless system of care for children in this province requires significant policy changes, asserting that an overall public policy framework and blueprint for services for children would be required to make it happen. Stakeholders also indicated a need to break down the current silo approach to children's services that arose from distinct program funding mechanisms for education, mental health, and hospital services. They proposed a model in which integration and collaboration across services and sectors is more explicit and rolls up from the client-professional level, through organization and management, to leadership at a governmental level. This model involves clarifications in mandate, funding and accountability for treatment services for children, and more emphasis on clinical information management, human resources planning, clinical evidence and best practices.

Overview of Children's Treatment Services in Ontario

Introduction

Children are a unique population, and there is evidence that specialized knowledge and specific services are effective in improving health outcomes. Accountability for providing accessible and effective services to this population requires a macro perspective of how services are distributed and integrated, and the quality of services delivered in particular sectors and regions.

This report presents an overview of the mosaic of publicly funded children's treatment services Ontario. Investigators sought to:

- Compile an overview and describe the general characteristics (i.e. organization, specialization and integration) and distribution of the major health care treatment services that are currently available to children of Ontario.
- Determine whether the utilization of services varies by District Health Council area, where province wide data are available.
- Review findings with a group of expert stakeholders representing treatment services to identify issues and potential solutions for providing quality health care services to children in Ontario.

The quality of children's health care may be significantly affected by several characteristics of their health services:

- Organization and distribution of services,
- Availability and specialization of health professionals; and
- Coordination or integration of services.

There is a risk of poor quality health care from fragmentation, inconsistency in the availability of services and information (i.e., clinical expertise and management support). This risk has been recently described for the elderly in Canada, though there has still been relatively little investigation into the effects of health service organization and characteristics of professionals on the outcomes of health care for children in Ontario or Canada.[13]

The focus of this report is distribution of treatment services across the province. The focus included services to cure or improve the consequences of diagnosed childhood diseases and conditions, and secondary prevention of complications, but excluded organizations whose exclusive role is primary prevention, early intervention for risk factors, and health promotion. Furthermore, highly specialized tertiary/quaternary services affiliated with the pediatric academic health sciences centres were not included. The particular issues that flow from organizing such highly specialized services are currently being addressed elsewhere.[6]

Background

An important role for population-based child health services research is to determine if all children have access to high quality integrated and well coordinated ambulatory and inpatient health services. Variation in service organization, specialization and/or integration across regions may affect utilization and health care outcomes. In Ontario, high rates of variation for a number of children's services have been noted, for example, extremely high small area variation in utilization of home care for newborns and high regional variation in hospitalization for common medical conditions, most notably gastroenteritis.[10,18,16] Variation

in utilization of other important services, such as rehabilitation services and developmental services from Children's Rehabilitation Centres (CRC) or mental health services from Children's Mental Health Centres (CMHC), have not been studied. However, there are indications that access to these services varies widely.

Several factors influence variation in access and quality of children's treatment services:

- Service characteristics, such as funding levels, service infrastructure capacity, management style, and organization;
- Professional characteristics, such as type and supply, practice styles, and procedure volume;
- Population characteristics, such as socioeconomic status and disease prevalence, which have been associated with variation in infrastructure and utilization of services.

The pattern of morbidity in children with special needs often requires a broad and evolving range of services over many years. Common conditions, such as developmental problems, attention deficit disorder, or childhood asthma, rarely result in severe outcomes such as death, but, owing to sheer numbers, ultimately have considerable cumulative impact on population health status. For these children, quality health care relies much more on a cluster of readily available, integrated or coordinated, and largely ambulatory services, than for children without special needs.[11,12] Outcomes for such conditions may not be readily attributed to any single intervention or service.

With children representing a small segment of the health care seeking population, pediatric expertise may tend to develop in a few specialized centres or services, with less opportunity for homogeneous distribution along the lines of general regional health services and professionals. With this specialization, there has been an increase in specialized assessment tools and therapies for children.

In Ontario, a recent review of some highly specialized procedures was followed by recommendations to concentrate tertiary pediatric cardiac surgery and pediatric transplantation services in one centre.[14] The Review Committee also made recommendations regarding principles for pediatric activities of the five Academic Health Sciences Centres (AHSC) and opportunities are being explored with other highly specialized hospital-based specialized services. However, not all of the important advances in therapy are concentrated at the level of tertiary and quaternary care. Knowledge and techniques in caring for children at the community level have also advanced and involve a range of professional services. Ensuring dissemination of best practices across the all communities based on this new knowledge is a significant challenge. For children with special health care needs, who often require a variety of services, additional problems arise around the access and coordination of care. Several reports have identified problems in care delivered to children with special needs through silos without coordination or integration.[8,15]

Scope of report

The goal of this report is to provide an overview of the public services and organizations involved in providing health care treatment to children in Ontario. It is intended to provide a general overview of the common treatment services and does not delve into specific services or problem areas for decision-making. Previous ICES reports focused on hospitalization services for which data have been more readily available, while this report is oriented more towards including additional data on ambulatory treatment services.

The project relied on information from a variety of sources, including:

- Previously published material from Statistics Canada, and the Institute for Clinical Evaluative Sciences (ICES);

- New material from analysis of OHIP claims, home care claims, a survey of organizations, and stakeholder focus groups.

The amount of detail and accuracy of the material depend on the nature of information available from these sources. An attempt has been made to examine this information in overview, and to avoid detailed repetition when other sources of this information are readily available.

The survey of organizations was based on a voluntary participation framework used by researchers affiliated with ICES. As such, the results reflect a sample of services, and cannot be treated as a public inventory, shared or verified.

Chapter 1—Service Information

Introduction

The purpose of this chapter is to evaluate available information that describes organizations involved in providing health care treatment services for Ontario children. Four major sectors of organizations were identified as major providers: the hospital sector, children's rehabilitation centres, children's mental health centres, and community care access centres.

There is no comprehensive inventory of organizations providing services to children and no identifiable central blueprint providing information on mandate and reporting. Province-wide encounter level data is currently available only for hospital, physician and community care services.

Service inventory

While a directory of services is available to help health practitioners identify resources on a regional basis for the purpose of referral, this type of resource provides insufficient information for study. A comprehensive inventory of information on all the major organizations and services for children was sought, but could not be identified. Knowledge and documentation on some service sectors (e.g., children's mental health) was available through individual Government of Ontario offices and associations (e.g., Ontario Association of the Children's Rehabilitation Centres, Association of Community Care Access Centres, etc.). Governmental supervision and knowledge of services involving children are distributed among several offices and ministries, including the Ministry of Health and Long-Term Care, the Ministry of Community and Social Services, and the provincial government's Department of Integrated Services for Children.

In addition to private professional practices, the organizations identified as most consistently involved in delivering health treatment services to children were structured in clusters within 6 sectors. These include hospitals, Community Care Access Centres (CCAC), Children's Rehabilitation Centres (CRC), Mental Health (MH), Community Health Centres (CHC), Public Health Units (PHU). It was apparent that there were also numerous other programs and organizations involving children's health care that did not fit into these sectors or had less-defined associations within these sectors. Examples of these include Community Living organizations (CL), Easter Seals, Canadian National Institute for the Blind, and Pediatric Oncology Group of Ontario. For some of these groups, it is also difficult to obtain clear information and definition of their role in actual service delivery versus activities such as liaison, referral, coordination, information, support, research and/or advocacy. These organizations also may receive a mix of funding including government grants as well as charitable donations for their activities.

The 6 organization sectors and their roles in providing health care treatment services to children are shown in Exhibit 1.1. These sources do not consistently provide a detailed delineation of services provided or mandates with respect to specific populations or services. Furthermore, a blueprint document for all sectors, providing details or outlining their respective roles could not be identified.

Service information

Annual reports and other information activities

Hospitals are required to regularly submit detailed abstracts on all admissions to the MOHLTC, in addition to an annual summary of services types and volumes. Most hospitals also participate in the Hospital Reports series co-sponsored by the Ontario Hospital Association and MOHLTC. One-third of hospitals reported carrying out additional quality reports, needs assessments, or evaluation research related to child health.

The majority (92%) of the non-hospital organizations responding to the survey also stated that they produce an annual report. Eighty-three percent produce information on the types and volumes of services provided, and 45% conduct some form of child-specific research or analysis. There does not appear to be any public-access compilation or collections of reports from these organizations.

Administrative data

Province-wide administrative data are available for acute care hospitals (CIHI discharge abstract database) and fee-for-service physician billings (OHIP). Administrative data for the province's CCAC activities (Ontario Home Care Administration Service dataset) has also become available for research. All of these databases provide some level of detail on individual health care encounters, including the unique health care number, and can be linked to allow research on population-based utilization and effectiveness using individual level data. However, the same cannot be said of the other sectors. No comprehensive administrative information with individual level records is compiled for MH, CHC, PH and CRC services. Utilization of these services by individuals cannot currently be studied at a population level.

Survey responses

Of the more than 200 Ontario hospital sites, 139 hospital corporations (some have multiple sites) were identified for study. Data for services of 116 hospital corporations, including all the major regional centres was obtained from the Hospital Inventory, a 2001 survey of Ontario hospitals.[20] Surveys were sent to seventy-six hospitals that provided more than one service for children (i.e., more than just a level 1 nursery) and to organizations in other sectors. Exhibit 1.2 shows the survey response rates by major sector. The overall response rate was 73%, but varied from a low of 62% from Public Health Units to 98% from CCACs and 100% from DHCs.

Discussion

Four major health sectors indicate a mandate that includes a primary role in children's treatment services. Two of these, hospitals and community care access centres, are involved in providing care across the population spectrum. The other two sectors, children's mental health organizations and children's rehabilitation centres, are concerned primarily with services for children and adolescents with special needs. Another category of treatment services is individual practitioners with claims paid through OHIP. These are predominantly physician services, in many cases, provided to hospitalized individuals. Based on the survey, two other types of organizations indicated provision of some children's treatment services—community health centres and public health units. However, these sectors have mandates emphasizing health promotion and preventive services.

Most of the organizations produce annual reports and have reporting relationships with governmental departments. Provincial encounter-level data with individual health care numbers is available for research and management only from hospital and physician claims, and home care services.

The environmental scan identified additional services and organizations with strong interest and activities in child health. Some of these, such as CL organizations are organized and distributed across the province. They appear to play a crucial role in advocacy, information and referral, but offer little in direct treatment services. Other examples include an extensive list of programs for early intervention or developmental support, which may or may not be affiliated with organizations in the above sectors. Also included in the group of additional providers are networks (such as the Pediatric Oncology Group of Ontario and the Canadian National Institute for the Blind) or organizations with highly specialized roles around specific problems (e.g., cancer, blindness). Most of these organizations indicated little or no direct involvement in providing treatment services and are not discussed in detail in this report. Nevertheless, it should be noted that this sector of adjunct health organizations appears to be extensively involved in information and support services, health promotion, and advocacy.

Chapter 1—Service Information

Exhibits

Exhibit 1.1 Major service sectors for children's health and their roles in Ontario, 2002

Sector	Role
Public Hospitals **Ontario Hospital Association (OHA)** **http://www.oha.com** 160 public hospital corporations; 225 sites	*"… provide a wide variety of essential services, such as acute, including emergency, chronic, rehabilitation and mental health services;…"* The OHA recommends that the OHA and hospitalsith the Ontario Government to develop and promote new forms of health enterprises and networks, from specialized centres of excellence to comprehensive care centres that meet the diverse needs of patients in their community.
Non-Hospitals **Children's Mental Health Centres** **Children's Mental Health Ontario (CMHO)** **http://www.cmho.org** 87 member centres	*"…support and treat children and youth who suffer from emotional, behavioural and mental health problems, and their families."* "We are committed to advocating for the well being of children and families, promoting an environment that leads to mental health and promoting quality children's mental health programs."
Children's Rehabilitation Centres **Ontario Association of Children's Rehabilitation Services (OACRS)** **http://www.oacrs.com/** 19 treatment centres	*"…promotes a province-wide, co-ordinated, community-based service system for children and youth with special needs and their families."* "We are about children—children with physical disabilities and those professionals who provide services and support to these children, their families, their schools, and their communities."
Community Care Access Centres **Ontario Association of Community Care Access Centres (OACCAC)** **http://www.oaccac.on.ca** 43 regional CCACs	*"…provide a simplified service access point and are responsible for:* • *determining eligibility for, and buying on behalf of consumers highest quality best priced visiting professional and homemaker services provided at home and in publicly-funded schools,* • *service planning and case management for each client."* School health support services were implemented in 1984 to provide children with universal access to the publicly funded education system.
Community Health Centres **Association of Ontario Health Centres (AOHC)** **http://www.aohc.org** 65 member centres	*"…provide community-based primary health, health promotion and illness prevention services to tens of thousands of Ontarians in over 70 communities."* Health Centres are vehicles for health promotion. This includes: primary care, health education, individual advocacy, community development, social action, building healthy public policy, and creating supportive environments.
Public Health Units **Association of Local Public Health Agencies (aLPHa)** **http://www.alphaweb.org** 27 county-district health units; 9 regional health departments; 1 amalgamated city (Toronto).	*"…deliver programs and services for the long-term improvement in the health of the population."* Over the years, [PHUs] have developed a strong, effective provincial structure to promote and protect health, and prevent disease.

Data source: Environmental Scan

Exhibit 1.2 Survey response rates of organizations involved in children's health in Ontario, 2002

Rank	Survey Organization	Number Sent Surveys	Survey Responses	Response Rate =
1	District Health Councils	16	16	100%
2	Community Care Access Centres	43	42	98%
3	Children's Rehabilitation Centres	19	17	84%
4	Public Hospitals	76	57	75%
5	Association of Community Health Centres	57	38	70%
6	Children's Mental Health Ontario	105	70	67%
7	Public Health Units	37	23	62%

Overall Response Rate = 73%

Data source: Survey of Organizations

Chapter 2—Service Distribution

Introduction

The purpose of this chapter is to review the distribution of population characteristics and children's health service organizations in Ontario by District Health Council (DHC) region, to better understand service coverage and access to treatment. Representative organizations from each of the four major sectors (hospital, children's rehabilitation centres, children's mental health centres, and community care access centres) are distributed in most, but not all, DHC regions. However, variation in the types of services reportedly offered by these organizations, as well as health care supply problems, make it difficult to establish the level of treatment available. Significant gaps and overlaps in service delivery may exist and are not likely to be identified and resolved without more information.

Concerns of District Health Councils

For Community Care Access Centres (CCAC) and Public Health Units (PH), regional catchment areas and boundaries provided a clear indication of service responsibilities across the province. These organizations have regional definitions based on the historic county and municipality boundaries, which tend to match or subdivide DHC boundaries. Hospitals, Community Health Centres (CHC), Children's Rehabilitation Centres (CRC) and Mental Health (MH) report catchment areas, though these are largely defined by location in communities. Issues around catchment areas are addressed in Chapter 5 (Service Coordination).

Respondents in the DHC interviews expressed concern about the adequacy of access to some children's health services prohibited by geographic isolation or limited service provision. The three areas most consistently identified as problematic were:

1. Inadequate capacity in the system for mental health services;

2. Fragmentation of services; and,

3. Problems with access to services in rural areas.

This was perceived to be related to a shortage of professionals, (including child psychiatrists, speech and language specialists, pediatricians, and family physicians) and, in some cases, the distance to service locations. Concerns were also expressed about setting up services with adequate capacity for special needs populations in the districts, including children in poverty, children with autism or developmental disabilities, aboriginal peoples, and teen pregnancy. Some contacts reported concern that services for children over five years of age were receiving less attention and that access to services was more difficult.

Exhibit 2.1 demonstrates some of the differences among DHCs from a population perspective using data on selected health risk indicators from Statistics Canada. The size of DHC population varies nearly tenfold, and the population density varies by several orders of magnitude. Of note, the highest proportion of children living in low-income families is in Toronto and Hamilton. The adolescent and adult proportion of physical inactivity is higher in Toronto. The proportion of daily smoking is lower in urban DHCs and higher in DHCs with large rural and remote regions.

Exhibit 2.2 illustrates that population health outcomes also vary by DHC. Low birth weight and perinatal mortality are higher in Toronto and Hamilton, but infant mortality is slightly higher in Northwestern Ontario and two other rural DHCs. In contrast, there is substantial variation in admissions for asthma and gastroenteritis in children, with the lowest rates in the DHCs of Hamilton, Ottawa and Thames Valley. Champlain, Thames Valley, Simcoe-York, and Halton-Peel had average or below average rates of outcomes across all categories depicted here. DHC respondents indicated an awareness of the special child population needs of their constituencies, but did not identify a province-wide framework for translating them into services in the relevant health sectors.

Types of services provided

Although their mandate is usually defined as a single service type, in general, most organizations provide a variety of services. Exhibit 2.3 shows all the services they provide, including prevention and early intervention programs. For example, CCAC, CHC and PH units predominantly report medical or nursing programs/services, CRC and CCACs predominantly report rehabilitation programs, and MH centres predominantly report mental health services specifically for children. Most of the organizations also report activities or programs from across the whole spectrum of services, though there appears to be little consistency in involvement with services outside the organization's predominant role.

Exhibit 2.4 illustrates children's rehabilitation and mental health programs in the CRC, CCAC, and MH sectors. Certain types of programs (for example, communication or physiotherapy) are consistently reported within organizations of a given sector (for example, CRC). Others, such as psycho-educational, developmental and behavioral modification services are less consistently reported across organizations within a sector. It is possible that some of the inconsistency reflects respondents' difficulties in articulating some services, either through lack of awareness or because the lexicon for labeling services and programs is not well established. Some services may be provided by members of an organization despite there being no established program. Nevertheless, these results do suggest a significant degree of eclecticism across organizations and sectors in delivery of treatment interventions to children.

Children's health services professionals

Though the surveyed non-hospital organizations employ a wide variety of professionals, Exhibit 2.5 shows that there is no type consistently present in all organizations. This is consistent with the wide range and variation by sector of services and programs specific for children delivered by most organizations. Two-thirds of the respondent organizations (66%) reported that they had difficulty finding, hiring and maintaining staff with pediatric expertise. This problem was reported as a pronounced difficulty by a proportion of organizations in all the professional groups. One-third of those organizations (34%) cited geography and 41% cited salary as major contributing factors to the hiring problem. Thirty-eight percent cited other reasons, one of which was a shortage of professionals trained for children's services.

Respondent hospitals reported a similar range of professional employees. Nurses, social workers and speech-language therapists, as well as pediatricians, were the most frequently reported service professionals with specialized training in child health, at 59%, 50%, 48% and 75% respectively. As with the non-hospital organizations, most (75%) of the respondent hospitals also reported difficulty finding, hiring and maintaining staff with pediatric expertise. Nearly half (42%) of hospitals reported that the most pronounced shortages were with nurses (37%) and psychologists (43%). Respondent hospitals also reported difficulty hiring pediatricians (32%).

Service distribution

Medical and nursing services by category

Hospitals are a major sector for provision of medical and nursing services to children. Of 116 Ontario hospitals providing information to the Hospital Inventory, 94 reported providing some form of service for children, ranging from a Level 1 nursery for low-risk births, to multiple services including tertiary care. Seventy-six hospitals provided more than one service for children (i.e., beyond a Level 1 nursery). These hospitals were distributed throughout the province's DHCs, ranging from 14 hospital corporations in Algoma-Cochrane-Manitoulin-Sudbury, to two major hospital corporations in Hamilton. Five academic pediatric health care centres are located in the south of the province in five DHCs (Champlain, Southeastern Ontario, Toronto, Hamilton, Thames Valley). Of the 116 hospitals included in the inventory, 81 (70%) reported availability of general pediatricians' services, and 44 (38%) reported neonatology services. Fifteen hospitals (13%) reported Level 3 neonatal intensive care services and 13 (11%) reported pediatric oncology services. Forty-four hospitals (38%) reported having psychiatric services for children and youth. Only 17 hospitals (15%) reported a child development service or clinic.

Exhibit 2.6 shows that the proportion of hospitals reporting general pediatric services varied by DHC. Some DHCs had it in every hospital, while others had it only in a subset of hospitals. Four DHCs had 50% or fewer of the hospitals reporting general pediatric services. The underlying reason for the distribution of these services is unclear; restructuring and amalgamation of hospital sites into hospital corporations with multiple sites may be an influence. Inconsistent distribution may also reflect different approaches to hospital specialization or centralization/distribution planning within regions or the ability to recruit and develop these services.

As anticipated, the variation in hospital service capabilities reported by DHCs increases as hospitals become more specialized (i.e., considered tertiary care). At least one hospital with some form of child psychiatry service was identified in each DHC. A large number of DHCs do not have hospitals reporting child development services (38%), pediatric oncology services (38%) or level 3 neonatal intensive care capabilities (44%). These reports do not provide any direct indications of the level of treatment capacity for these services.

Availability of pediatric hospital beds can be obtained through the Daily Census Summary (Exhibit 2.7). The overall rate of pediatric hospital beds reported through this summary was 44.2 beds per 100,000 population aged 0 to 19 years for fiscal year 2001/02. The rates range from a low of 22.6 in Simcoe-York to 77 per 100,000 children in Northwestern Ontario. The DHCs with the lowest bed rates per population include those that surround Toronto, which has the second highest rate at 68.6 beds per 100,000 children.

Physician services may be affiliated with hospitals or children's rehabilitation centres, or may be provided through private practice or affiliation with other organizations. In Exhibit 2.8, 15 of the 18 (83%) CRCs responding to the survey indicated they had physicians involved children's services, and for 14, this included pediatricians. Twenty-eight of 31 (90.3%) CHCs and 12 of 23 (52.2%) of PHUs reported physicians involved in services for children. Only 16 of 60 (26.%) of MH organizations reported physician involvement.

The summarized supply of physician services varies significantly across Ontario.[17] Exhibit 2.9 shows that the pattern of variation is similar across the different physician groups, with higher rates of physician full-time equivalents (FTEs) in metropolitan areas and areas with academic health sciences centres (see also Exhibit 2.8). This variation is extreme among specialists, including those important in the care of children (e.g., pediatricians).

However, interpreting this variation is far from straightforward. It is difficult to know whether the proportion of specialist FTEs involved specifically in children's care varies to the same extent as the overall FTE for a given group of physicians. The one exception is pediatricians, who, by the nature of their specialty, serve children and adolescents almost exclusively. Recent data indicates the supply of FTEs varied from a low of 6.2 FTEs per 100,000 children for Grey-Bruce-Huron-Perth DHC to 51.4 FTEs per 100,000 in Toronto DHC in fiscal year 2001. Interpreting variation in pediatrician FTEs is still difficult given the varied role of pediatricians, some of whom are involved in primary care in Toronto or in sub-specialized care in academic health sciences centres. Nevertheless, variation in pediatrician FTEs among DHCs without academic health sciences centres is substantial, ranging from 6.2 FTEs per 100,000 children aged 0 to 19 years in Grey-Bruce-Huron-Perth DHC to 22.8 FTE per 100,000 children in Simcoe-York DHC.

Nursing

Nursing services are a major component of hospital outpatient and inpatient services. Outside the hospital domain, nursing services for children are predominantly provided through three sectors: CCACs, CHCs, and PHUs. As CCACs are regionalized and decentralized, their services are expected to be available throughout the province regardless of DHC, provided the supply of home nursing professionals is available.

Thirty-three of 41 (80.5%) CCAC respondents reported that nursing services were included in services specifically provided to children, though only 11 of 41 employed nurses with specialization in children's health. Three of the 8 CCACs not reporting nursing services specifically for children indicated that it was especially difficult to recruit nurses.

Almost all, (29 out of 31, or 93.6%) of CHC survey respondents reported nursing services specifically for children, but only 15.6% respondents reported that nurses specializing in children's health were involved in these services. This was similar to PHUs units, with 21 of 23 respondents (91.3%) confirming services specifically for children, and 34.8% reporting nurses specialized in children's health. Only 4 of 19 (22.2%) CRCs report nurses employed in services for children.

Rehabilitation services

CRCs are intended to be a major resource for children's rehabilitation services. Exhibit 2.10 shows the numbers of CRC and MH organizations throughout Ontario in 2001/02. There are 20 CRCs in Ontario, though three DHCs did not have one. Other organization types also play a significant role in providing rehabilitation and developmental services (see Exhibit 2.3). In particular, CCACs provide a range of rehabilitation services in homes and schools. MH and PH deliver a more restricted range of rehabilitation and developmental services including speech and language, and occupational therapy. Level of involvement in these programs, as well as target population and scope, varies among organizations. A large number of organizations provide programs, but there is no simple way to summarize or compare the collective program capacity.

Hospitals also provide outpatient developmental and/or multidisciplinary services for children. In a number of cases, this is through an affiliated CRC (e.g., Hotel Dieu Hospital and the Children's Development Centre in Kingston). There is variation in the involvement of hospitals in children's rehabilitation services, including child development clinics. This variation was evident from the survey of hospitals (Exhibit 2.3) and the hospital inventory data. From reports in the hospital inventory data (Exhibit 2.6), three DHCs had more than one hospital reporting a child development service, seven DHCs had one hospital with a child development service, and six DHCs had none.

Mental health services

There are 103 children's mental health centres (MH) that belong to Children's Mental Health Ontario, an association of mental health centres funded by the province, with at least one in every DHC (see Exhibit 2.10). Fifteen of 16 DHCs identified lack of service capacity to meet the need for children's mental health services (inpatient and outpatient) in their region.

Some children's mental health services are provided through hospitals as reported in the survey and in the hospital inventory data. Exhibit 2.6 illustrates the distribution of hospitals with child psychiatry services as reported in the hospital inventory. These services do appear to be distributed throughout all the DHCs, with all having at least one hospital reporting a child psychiatry service. In contrast, there is significant variation in the supply of psychiatrists across the province (Exhibit 2.8; Exhibit 3.25 in Chapter 3).

Special populations

Age range of children served

The majority of organizations surveyed serve multiple age ranges, from infants to adolescents. Ninety-four percent of the organizations responding to the survey provide services to adolescents, and this proportion was reasonably consistent across the DHCs, with the lowest proportion in Essex-Kent-Lambton and Halton-Peel at 83%. The proportion of organizations with services for infants (0 to 2 years) was slightly lower than for preschool, school age, and adolescent age ranges. Overall, 87% of the organizations surveyed provide services to infants. This proportion was lowest in the Grey-Bruce-Huron-Perth at 73%.

Cultural groups served and services in different languages

Thirty-seven percent of respondent organizations provided services targeted to specific needs of a cultural group. This proportion varied from a low of 14% in Southeastern Ontario DHC to highs of 67% and 69% in Hamilton and Champlain, respectively. Only 16 percent of respondent hospitals indicated provision of special services for a specific cultural group.

Two-thirds (64%) of organizations indicated they provided services in a language other than English, and this varied widely by DHC. Two-thirds or more of the organizations provided service in another language in the DHCs of Algoma-Cochrane-Manitoulin-Sudbury, Essex-Kent-Lambton, Northern Shores, Waterloo Region-Wellington-Dufferin, Halton-Peel, Niagara, Simcoe-York, Hamilton, Toronto, and Champlain. In the latter three urban DHCs, respectively, 100%, 82% and 94% of organizations provided services in other languages. Nearly half of the hospitals (49%) provide children's services in a language other than English. Because of the survey's limited scope and response rate, the cultural and linguistic groups that receive services to meet specific needs were not accurately identified.

Emergency services

Forty-eight percent of non-hospital organizations indicated they do not provide emergency services, 35% provide services 24/7, and 17% provide limited emergency services, usually with a one-day wait. Examples of services with a one-day wait or extended hours, include crisis services and nursing (home) support. Some emergency services provided on a 24/7 basis include crisis services, physician and nurse on-call, child welfare, emergency respite and public health emergencies (e.g., communicable disease outbreak). The most common reason for not providing emergency services was that the organization is not mandated to provide them.

Discussion

The major organizations involved in delivering treatment services to children are organized into several sectors with individual representative institutions distributed, in most cases, throughout DHCs. However, distribution of service coverage is complex because of variation in types of services offered by the different organizations within and across the sectors. This creates potential for significant gaps and overlaps in service delivery that are difficult to resolve with available information.

The lack of uniformity in specific types of services delivered by organizations with the same or similar mandates has been described as a form of eclecticism. In Australia, this term has been used to describe variation in developmental services across a wide geographic area, and was attributed to a lack of understanding and agreement regarding best practices and evidence-based therapies.[4] It is possible that other factors also play a role determining the specific configuration of services provided by specific organizations.

Information on Ontario's health care personnel supply is still rudimentary, especially with respect to child health specialists, though available information on physician distribution supports concerns regarding uneven distribution throughout the province. The survey results indicate widespread difficulty recruiting and retaining pediatric expertise across all specialties and many regions. The extent to which variation in service distribution also reflects genuine differences in child population needs, remains unknown. It is unclear whether there is a consistent framework or information base for planning service distribution across the province based on population needs.

Chapter 2—Service Distribution

Exhibits

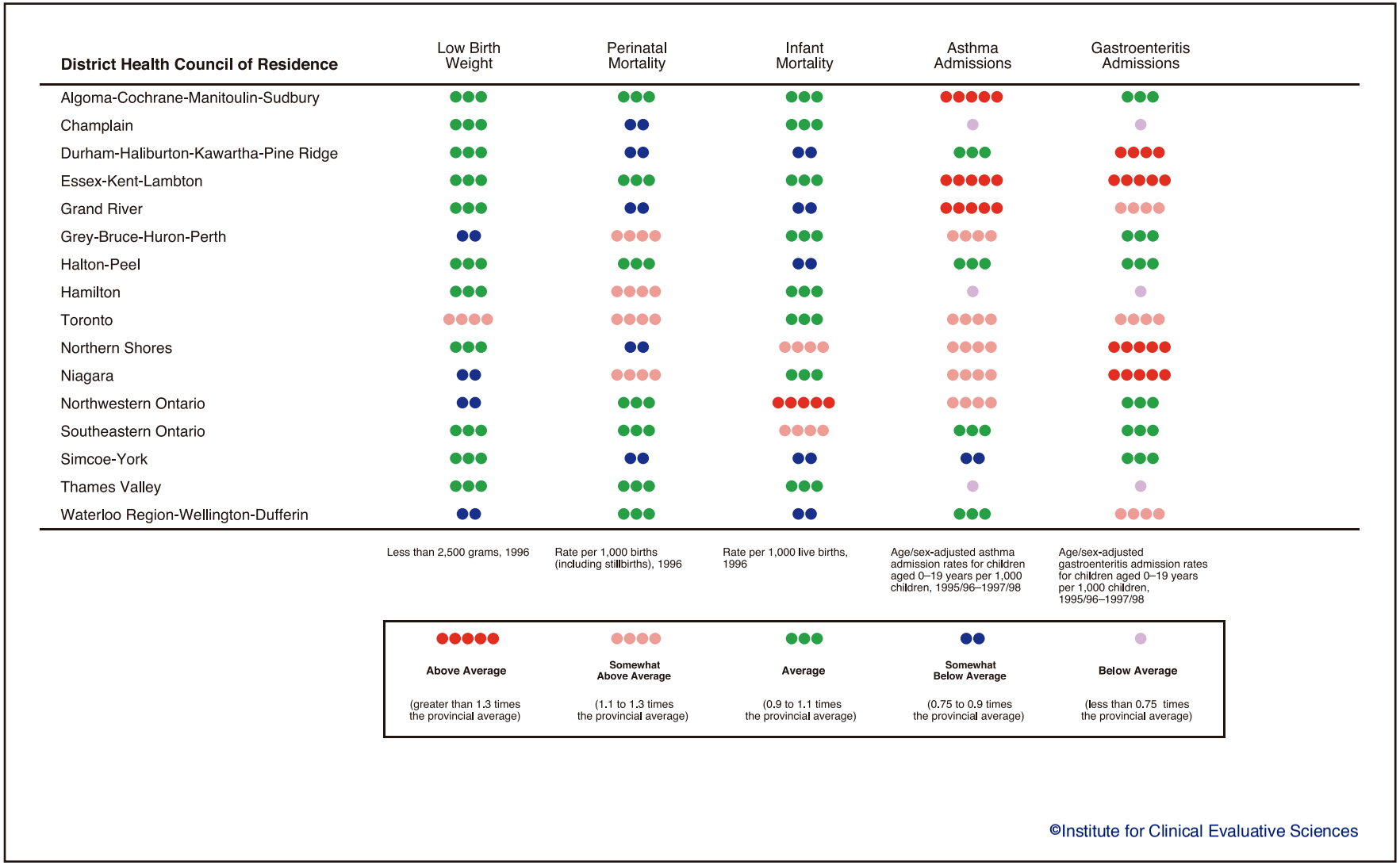
Exhibit 2.1 Population characteristics of District Health Councils in Ontario, 1996 to 2001

District Health Council of Residence	DHC Population of Children	DHC Population Density	Children Living in Low Income Families	Female Teen and Adult Probable Depression	Teen and Adult Physical Inactivity	Teen and Adult Daily Smoking
Algoma-Cochrane-Manitoulin-Sudbury	**112,426**	**1.7**	●●●	●●●●	●●●	●●●●●
Champlain	**273,060**	**63.8**	●●●	●●●	●●	●●●
Durham-Haliburton-Kawartha-Pine Ridge	**226,101**	**47.5**	●	●●●	●●●	●●●●
Essex-Kent-Lambton	**167,806**	**80.1**	●●	●●●	●●●	●●●●
Grand River	**66,272**	**54.3**	●●	●●●●	●●●	●●●●
Grey-Bruce-Huron-Perth	**81,130**	**20.2**	●	●●	●●●	●●●
Halton-Peel	**377,004**	**546.1**	●●	●●●	●●●	●●
Hamilton	**127,752**	**420.3**	●●●●	●●●●	●●●	●●●●
Toronto	**584,037**	**3785.8**	●●●●●	●●	●●●●	●●
Northern Shores	**55,702**	**4.8**	●●●	●●●	●●	●●●●
Niagara	**106,356**	**218.0**	●●	●●●●	●●●	●●●
Northwestern Ontario	**71,698**	**0.5**	●	●●●	●●	●●●●
Southeastern Ontario	**125,365**	**23.7**	●●	●●●	●●	●●●●
Simcoe-York	**296,619**	**139.8**	●	●●●	●●●	●●●
Thames Valley	**162,271**	**77.8**	●●	●●●	●●●	●●●
Waterloo Region-Wellington-Dufferin	**188,670**	**113.0**	●	●●●●	●●●	●●●
	Children aged 0–19 years, 1999	Population density per square kilometre by DHC, transformed with quadratic root because of extremely skewed distribution, 1996	Children aged 17 years and under living in low-income families (1995 income) as a proportion of children aged 17 and under by DHC, 1996	Proportion of females aged 12 years and over with risk of probable depression, 2000/01	Leisure-time physical activity: proportion of physically inactive individuals aged 12 years and over, 2000/01	Proportion of individuals aged 12 years and over reporting smoking at least one cigarette on a daily basis for the prior month, 2000/01

●●●●●	●●●●	●●●	●●	●
Above Average	**Somewhat Above Average**	**Average**	**Somewhat Below Average**	**Below Average**
(greater than 1.3 times the provincial average)	(1.1 to 1.3 times the provincial average)	(0.9 to 1.1 times the provincial average)	(0.75 to 0.9 times the provincial average)	(less than 0.75 times the provincial average)

Data source: Statistics Canada

Exhibit 2.2 Population health indicators and utilization outcomes by District Health Council in Ontario, 1996 to 2001



Data sources: Statistics Canada; ICES Research Atlas: Inpatient Day and Surgery Use by Children in Ontario, 2001

Exhibit 2.3 Comparison of children's health service/programs reported in survey by organizational sector in Ontario, 2001–2002

	Percentage of Organizations Reporting at Least One Service or Program Specifically for Children					
Type of Program Activities Reported	**Hospital (N = 48)**	**CHC (N = 32)**	**PH (N = 23)**	**CCAC (N = 43)**	**CRC (N = 18)**	**MH (N = 60)**
Medical/Nursing*	100	97	91	95	44	13
Rehabilitation*	48	15	50	84	100	32
Mental Health*	46	52	19	2.5	16	97
Dental	37	6.8	89	0	6.2	0
Health Promotion	50	88	96	23	17	18
Prevention	44	81	96	12	22	55
Early Intervention	41	72	96	21	72	65
Advocacy	33	69	48	51	28	52
Research/Evaluation	50	28	78	37	56	57
Other Programs	28	16	17	19	33	32

* Treatment service or program interventions aimed at curing or improving the patient's condition. Medical/Nursing includes primary care interventions, specialty services, nursing and dietary care. Rehabilitation includes speech and language, occupational and developmental services, physical rehabilitation, and psycho-educational services. Mental Health includes counseling, behavior modification, addiction treatment, psychological services and psychiatry.

Data source: Survey of Organizations

Exhibit 2.4 Children's health programs reported by surveyed organizations by sector in Ontario, 2001–2002

Rehabilitation	CRC (%)	CCAC (%)	MH (%)
Developmental	53	20	19
Communication	89	78	27
Occupational Therapy	79	83	11
Physiotherapy	84	83	10
Psychoeducational	21	2	13
Assistive Devices	42	24	2
Physical Medicine	16	7	2
Hearing	16	5	2
Other Rehabilitation	74	34	6

Mental Health	CRC	CCAC	MH
Counseling	11	2	84
Behavior Modification	11	0	54
Psychiatry	5	0	30
Addiction	0	0	21
Other Mental Health	5	0	65

Data source: Survey of Organizations

Exhibit 2.5 Professionals employed to provide services for children, by non-hospital organizations responding to survey (CRC, CCAC, CHC, PH, MH) in Ontario, 2001–2002

Professional	Percentage of Organizations that Employ the Profession for Services for Children	Percentage of Organizations that Employ Professionals Specializing in Children's Health	Percentage of Organizations Reporting Problems Hiring Professionals Specializing in Children's Health
Social Worker	30	27	21
Nurse	69	35	19
Nurse	55	17	16
Dietitian	37	8	4
Physician	40	13*	7*
Occupational Therapist	30	22	16
Physiotherapist	30	19	15
Art/Music Therapist	9	7	2
Speech and Language Therapist	42	29	32
Child and Youth Worker	---	38	11
Other	57	28	17

* Pediatrician

Data source: Survey of Organizations

Exhibit 2.6 Distribution of selected pediatric hospital services by District Health Council in Ontario, 2000–2002

District Health Council of Residence	Pediatric Hospital Beds	Proportion of Hospitals Reporting General Pediatrics Service	Number of Hospitals Reporting Child Development Service	Number of Hospitals Reporting Child Psychiatry Service	Number of Hospitals Reporting Pediatric Oncology Service	Number of Hospitals Reporting Level 3 Nursery Service
Algoma-Cochrane-Manitoulin-Sudbury	●●●●	●●●	⊙	●	⊙	●
Champlain**	●●●	●●●	⊙	●	⊙	●
Durham-Haliburton-Kawartha-Pine Ridge	●	●	○	●	○	○
Essex-Kent-Lambton	●●●	●●●●●	⊙	●	⊙	●
Grand River	●●●	●●●	○	⊙	○	○
Grey-Bruce-Huron-Perth	●●●	●●●●●	○	●	○	○
Halton-Peel	●	●●●●●	⊙	●	⊙	○
Hamilton**	●●●●	●●●●●	⊙	●	⊙	⊙
Toronto**	●●●●●	●●●●	●	●	●	●
Northern Shores	●●	●	○	⊙	○	⊙
Niagara	●●●	●	⊙	⊙	○	○
Northwestern Ontario	●●●●●	●●●●	○	⊙	○	⊙
Southeastern Ontario**	●●	●●●	●	●	⊙	⊙
Simcoe-York	●	●●●●	●	●	●	○
Thames Valley**	●●●●●	●	⊙	●	⊙	⊙
Waterloo Region-Wellington-Dufferin	●●	●●●	○	⊙	●	○

**Pediatric academic health sciences centres provide tertiary care services to children outside these DHCs.

Pediatric hospital beds per 100,000 children aged 0 –19 years by DHC of hospital location, 2001/02

●●●●●	●●●●	●●●	●●	●
Above Average	**Somewhat Above Average**	**Average**	**Somewhat Below Average**	**Below Average**
(greater than 1.3 times the provincial average)	(1.1 to 1.3 times the provincial average)	(0.9 to 1.1 times the provincial average)	(0.75 to 0.9 times the provincial average)	(less than 0.75 times the provincial average)

●	⊙	○
2 or more hospitals with service	**1 hospital with service**	**no hospital with service**

Data sources: Daily Census Summary; Hospital Inventory–Ministry of Health and Long-Term Care

Exhibit 2.7 Pediatric hospital beds per 100,000 population aged 0 to 19, by District Health Council of hospital location, in Ontario, 2000–2002

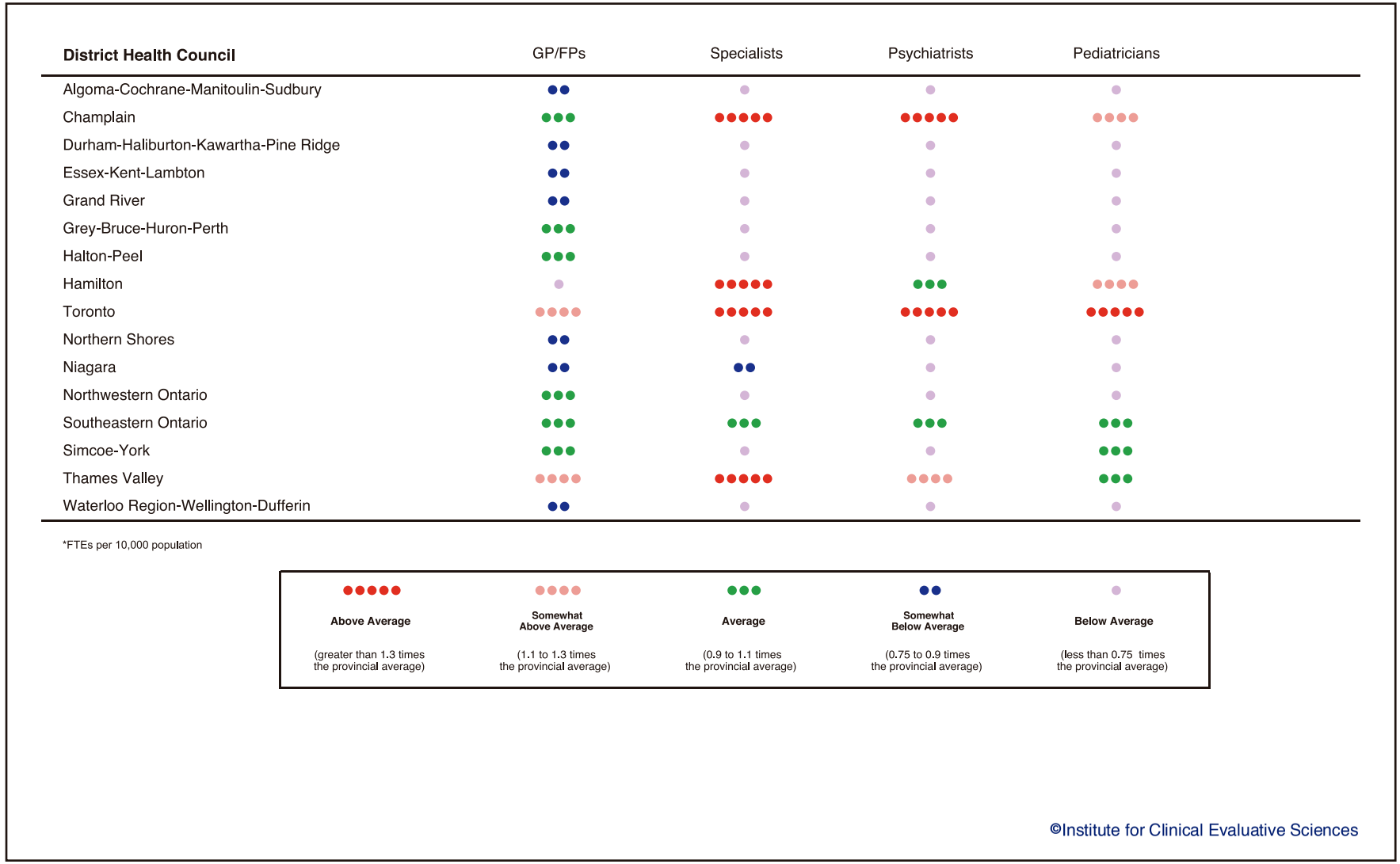
District Health Council	Pediatric Beds Staffed and in Operation at Year End, Fiscal Years 2000 to 2002			
	Average Annual Number of Pediatric Bed Days Staffed and in Operation* (MIS Code 720 00 00)	Average Annual Rate of Bed Days Per 100,000 Children	Standardardized Morbidity Ratio	Rank
Algoma-Cochrane-Manitoulin-Sudbury	61.4	54.6	1.237	4
Champlain**	119.1	43.6	0.987	8
Durham-Haliburton-Kawartha-Pine Ridge	54.1	23.9	0.542	15
Essex-Kent-Lambton	80.6	48.0	1.087	6
Grand River	30.6	46.2	1.045	7
Grey-Bruce-Huron-Perth	34.5	42.5	0.963	9
Halton-Peel	93.5	24.8	0.561	14
Hamilton**	62.8	49.2	1.113	5
Niagara	44.9	42.2	0.955	10
Northern Shores	21.2	38.1	0.862	11
Northwestern Ontario	55.2	77.0	1.743	1
Simcoe-York	67.0	22.6	0.512	16
Southeastern**	46.3	36.9	0.836	12
Thames Valley**	95.9	59.1	1.338	3
Toronto**	400.7	68.6	1.553	2
Waterloo Region-Wellington-Dufferin	67.3	35.7	0.808	13
Province-wide Crude Rate		44.2		
Extremal Quotient [EQ]		3.41		
Ratio of Third Quartile over First Quartile		1.38		
Coefficient of Variation (%) [CV]		0.344		

* Defined as beds available for patient accommodation and with staff available to provide the required care for individuals 18years and under, **but not newborns**. These data do not include bassinets for newborns or pediatric intensive care beds which are not consistently reported or separated out from other bed counts for this period.

**The pediatric academic health sciences centres located in these five DHCs provide tertiary care services to children outside of these DHCs.

Data sources: Daily Census Summary; Hospital Inventory–Ministry of Health and Long-Term Care

Exhibit 2.8 Physician distribution* by District Health Council in Ontario, 1999



Data source: Corporate Provider Database

Exhibit 2.9 Total physician FTEs registered as providing services, per category per 100,000 population aged 0 to 19 years, by District Health Council of practice location, in Ontario, 1999

	General or Family Practice			Pediatrics			Ophthalmology			Otolarygnology			Psychiatry		
District Health Council	FTE Rate per 100,000*	Standardardized Morbidity Ratio	Rank	FTE Rate per 100,000*	Standardardized Morbidity Ratio	Rank	FTE Rate per 100,000*	Standardardized Morbidity Ratio	Rank	FTE Rate per 100,000*	Standardardized Morbidity Ratio	Rank	FTE Rate per 100,000*	Standardardized Morbidity Ratio	Rank
Algoma-Cochrane-Manitoulin-Sudbury	261.1	0.906	7	11.3	0.453	12	9.0	0.745	9	4.8	0.714	9	12.1	0.220	15
Champlain**	301.1	1.045	3	29.1	1.167	3	18.6	1.532	2	7.9	1.174	3	95.2	1.729	2
Durham-Haliburton-Kawartha-Pine Ridge	235.7	0.818	11	13.1	0.523	11	6.8	0.562	12	4.3	0.636	11	21.8	0.397	9
Essex-Kent-Lambton	218.7	0.759	16	13.6	0.545	9	10.3	0.850	8	3.8	0.572	14	18.7	0.340	12
Grand River	221.1	0.767	14	7.8	0.311	15	8.8	0.728	10	2.7	0.398	15	14.7	0.266	14
Grey-Bruce-Huron-Perth	225.9	0.784	12	6.2	0.250	16	6.1	0.503	14	2.5	0.379	16	17.9	0.325	13
Halton-Peel	248.1	0.861	9	16.1	0.644	8	6.4	0.528	13	5.0	0.740	8	26.1	0.475	6
Hamilton**	265.8	0.922	6	31.8	1.272	2	13.4	1.105	4	6.5	0.974	6	61.4	1.115	4
Niagara	243.0	0.843	10	19.0	0.762	7	12.4	1.021	6	7.4	1.107	4	20.9	0.379	10
Northern Shores	296.9	1.030	4	7.8	0.311	14	10.9	0.902	7	5.9	0.879	7	20.0	0.364	11
Northwestern Ontario	220.8	0.766	15	9.4	0.378	13	5.5	0.449	16	4.1	0.620	12	10.9	0.199	16
Simcoe-York	255.6	0.887	8	22.8	0.913	6	6.1	0.502	15	4.3	0.647	10	22.9	0.415	8
Southeastern Ontario**	311.0	1.079	2	23.7	0.947	5	13.1	1.081	5	6.7	1.003	5	57.5	1.044	5
Thames Valley**	270.1	0.937	5	27.2	1.091	4	14.8	1.215	3	8.2	1.229	2	66.1	1.200	3
Toronto**	427.7	1.484	1	51.4	2.059	1	21.5	1.774	1	12.4	1.852	1	131.9	2.396	1
Waterloo Region-Wellington-Dufferin	222.7	0.773	13	13.2	0.529	10	7.3	0.597	11	3.9	0.585	13	25.6	0.466	7
Province-wide Rate	288.1			25.0			12.1			6.7			55.1		
Extremal Quotient [EQ]	1.96			8.25			3.95			4.89			12.07		
Ratio of Third Quartile over First Quartile	1.26			2.45			2.00			1.75			3.25		
Coefficient of Variation % [CV]	25.3			58.2			49.1			47.2			80.5		

*These physicians may provide services to children outside of this DHC.

**The physicians included are not necessarily engaged in practice serving children, and physician workforce in some DHCs are expected to be greater due to the number of subspecialists affiliated with tertiary care and academic health science centres in those areas.

Data source: Corporate Provider Database

Exhibit 2.10 Children's rehabilitation centres and mental health centres by District Health Council, in Ontario, 2001–2002

District Health Council	Number of Children's Rehabilitation Centres	Number of Children's Mental Health Organizations
Algoma-Cochrane-Manitoulin-Sudbury	2	8
Champlain*	1	7
Durham-Haliburton-Kawartha-Pine Ridge	2	6
Essex-Kent-Lambton	3	8
Grand River	1	2
Grey-Bruce-Huron-Perth	0	3
Halton-Peel	1	7
Hamilton*	1	5
Niagara	1	2
Northern Shores	0	5
Northwestern Ontario	1	6
Simcoe-York	0	4
Southeastern Ontario*	2	5
Thames Valley*	1	8
Toronto*	2	25
Waterloo Region-Wellington-Dufferin	1	4
Total	**19**	**105**

* Location of pediatric academic health sciences centres

Data source: Environmental Scan

Chapter 3—Service Utilization

Introduction

The purpose of this chapter is to examine reported wait times and utilization of services for which individual encounter level data is available, and to ascertain signs of problems or differences service availability. Wait times reported by organizations in the mental health, rehabilitation and community care sectors were prolonged for a variety of rehabilitation and mental health services across the province. Pediatric and psychiatric consultation and assessment rates are substantially lower in many rural and remote regions, where the reported supply of pediatricians and psychiatrist per capita are also low. Use of community care differed across Ontario, but further information is needed to understand this variation.

In the survey of hospital and non-hospital organizations delivering children's treatment services, almost half of the DHCs (mostly those with large rural and remote areas) identified equity of access and utilization as problematic. Some DHCs identified the lack of a major sector organization within their boundary (e.g., a CRC) as a barrier to services. Access may be reduced for children living in areas where services are geographically sparse, however, factors other than proximity may also play an important role. Aside from examining distribution of service locations throughout the province, access to services can be evaluated by examining wait times and population-based rates of service utilization.

Waits for service

Almost three-quarters of non-hospital organizations (73%) surveyed indicated "longer than acceptable" waiting lists for pediatric services. "Acceptable" was defined as "meeting agreed upon standards or benchmarks including those that your organization has specified". There was variation by DHC, ranging from 45% in Grey-Bruce-Huron-Perth to 100% in Halton-Peel. Unacceptable waiting lists were reported by organizations in urban as well as rural DHCs. Variation by organization type ranged from 43% for PH units to 94% among Children's Rehabilitation Centres. Forty-seven percent of hospital respondents indicated longer than acceptable waiting lists for children's services.

Non-hospital organizations reported the usual wait times for services in each program provided (Exhibit 3.1). The reported average usual wait time for a specific service across all services and organizations was 14.9 weeks (standard deviation 20.8 weeks). The maximum wait time was reported for occupational therapy at 156 weeks (3 years). By organization type, mental health organizations have the longest average wait time at an average of 19 weeks. Next were Community Care Access Centres (CCAC) with a mean wait of 15 weeks and Children's Rehabilitation Centres (CRC) whose average wait time was 14 weeks. Community Health Centres (CHC) and Public Health Units (PHU) had average wait times of 5 and 4 weeks, respectively. The longest mean wait by service or program type was for communication or speech language therapy at 24 weeks. Psycho-education, assistive devices, occupational therapy, and behavior modification all had average usual wait times in excess of 5 months.

Reported wait times varied slightly across DHCs, but did not reveal a clear "rural versus urban" pattern. Exhibit 3.2 provides the averages and ranks of the wait times reported for children's mental health and rehabilitation programs by DHC. The average reported waiting time for mental health services ranged from 5.4 weeks in Halton-Peel to 25.2 weeks in Toronto. For rehabilitation services, the range was an average of 6.7 weeks in Grey-Bruce-Huron-Perth to 33.6 weeks in Simcoe-York.

Part of the difficulty in interpreting wait times at a DHC level is lack of comparability of services offered and the use of services by children outside the DHC boundary. Although the reported wait time for rehabilitation services in Grey-Bruce-Huron-Perth is relatively short, it reflects reports from only four programs in that region, none of which are a CRC. Reported waiting lists for services do not necessarily reflect the wait

times or access barriers faced by children in that DHC. Furthermore, these reports reflect perceptions of service by the respondent representative, but not actual measured waiting times. Nevertheless, they are a strong indication of a widespread perception that the usual wait time for access to common children's rehabilitation and mental health services range from 5 to 7 months.

Physician services utilization

Regional Variation

Primary care

Relatively mild variation was noted in the rates of service encounters with physicians for minor assessments, well baby care and annual examinations (Exhibits 3.3, 3.4 and 3.5). The extremal quotient (i.e., the highest DHC rate divided by the lowest DHC rate) was only 1.61. Rates were slightly higher in Toronto and Halton-Peel, and lowest in Northwestern Ontario. This variation did not correlate significantly with the rate of general practitioners/family physicians (GP/FPs) per 10,000 population aged 0 to 19 years.

Pediatric care

There is more variation in usage of general assessments and specialist consultations than for minor assessments and well child care. This is especially evident with the variation in the rate of pediatric consultations and assessments. (Exhibit 3.3; Exhibit 3.7, Exhibit 3.8). The extremal quotient for this variation is 4.21. Rates of encounters are highest in Toronto, Champlain and Simcoe-York DHCs. These regions also have more pediatrician FTEs per capita.

Rates of service are lowest in the rural DHCs with fewer pediatricians. However, when analysis is restricted to full pediatric consultations through referral, the rate of individual children receiving at least one consultation varies much less across DHCs (extremal quotient 1.98). This relatively lower variation in the rate of individuals suggests that access to pediatricians for consultation may be more uniform. The higher rates of pediatric consultations and related assessment service encounters in the metropolitan areas may, in part, be related to a different practice role of these pediatricians compared to those in other regions. This includes more repeat assessments and/or more tertiary care pediatric specialist involvement. Also, in the metropolitan areas, more pediatricians are involved in the delivery of primary care.

Other specialist services

As illustrated in Exhibits 3.9, 3.10, 3.11, 3.12, and 3.13, utilization rates of other professional services reimbursed by OHIP do not all have the same patterns of variation. Ophthalmology assessments and consultations vary in a pattern similar to pediatricians and psychiatrists, with high rates in the Ottawa and Toronto regions and lower rates in rural DHCs. However, variation in otolaryngology assessment is less, and does not follow this pattern. Of note, rates of service billings for optometry and chiropractic services were high in rural DHCs and appeared inverse to the pattern seen for pediatric, psychiatry and ophthalmology assessments.

Mental health and psychiatry

Administrative data on mental health services for children is currently available only for physician/psychiatric services. This data reveals very high variation in the rates of psychiatry consultations, assessments, care and therapy (Exhibits 3.14, 3.15, 3.16, and 3.17). The extremal quotient for this variation is 7.0. The highest rates are in the Toronto and Champlain DHCs, with substantially lower rates of utilization in DHCs with rural and remote geography. As with pediatric services, utilization correlates highly with the FTE supply of psychiatrists.

Overall trends

Is there a common pattern of variation across DHCs in the utilization of the different physician services? As illustrated in Exhibits 3.3, 3.9 and 3.14, variation occurs in the rate of physician services encounters and the rates of individual children receiving one or more indicator physician services within the year. Using the standardized morbidity approach to characterize this variance and highlight outliers, a comparison across the different service types and indicators is possible. On visual inspection alone, a number of DHCs seem to consistently emerge in the average or above average range for utilization across the different physician specialties (e.g., Toronto and Champlain). A few DHCs appear to be consistently below average (e.g., Waterloo, Wellington Region-Wellington-Dufferin).

Overall, the differences in DHC utilization rates for many of these physician services is consistent with relatively a mild or moderate degree of variation (i.e. the ratio of highest to lowest rate in the range of 2 to 3); these are similar to the variation generally observed for a wide range of services as seen in previous ICES atlases.[16] However, the degree of variation ranges from relatively minimal variation in utilization of well child and minor assessment services (i.e., few instances of DHCs in the above or below average categories) to more notable variation in selected specialist service encounter rates (e.g., pediatrics and psychiatry) with extremal quotients greater than 4. The ranking of DHCs also differs enough among indicators that a common rate of rise or fall in utilization is difficult to identify and the DHC standardized ratios correlated only moderately or minimally (although in most instances positively) with each other. This is not unexpected, as physician services utilization is governed by a complex mix of patient demand, referral patterns, physician supply, and type of physician practice, which is not currently planned or implemented consistently across all specialties and regions.

To further illustrate any possible underlying trend in relative utilization of physician services, the standardized ratios for all the indicator utilization rates studied were averaged and plotted together for each DHC. This was first carried out with the indicators for rates of individuals receiving a service. For example, the standardized rate of individuals in Toronto DHC receiving a "pediatric consultation" was plotted and averaged together with the standardized rate for "psychiatric consultation", "ophthalmology consultation", and other indicators of physician services studied for the same. Exhibit 3.18 shows results for each service by DHC, in descending order of average standardized rates. This plot demonstrates that the standard morbidity ratios (SMR) for the different indicator rates within each DHC cluster together.

Six DHCs (Northern Shores; Waterloo Region-Wellington-Dufferin; Algoma-Cochrane-Manitoulin-Sudbury; Southeastern Ontario; Northwestern Ontario; Grey-Bruce-Huron-Perth) have multiple SMRs for services that approach, or are below, the average limit. For these DHCs, the rates of individual children receiving an indicator physician service, across a range of indicators including well child care, pediatric care, psychiatric care and other specialist care, are all at, or substantially below, the provincial average.

When data on the SMRs for the rates of physician services encounters (i.e., total volume of encounters for indicator and related physician services) are plotted on the same axis with DHCs in the same rank order, this effect is still apparent (Exhibit 3.19). However, there is a slightly different pattern of dispersion within two DHCs (Simcoe-York and Southeastern Ontario) where the SMRs for volume of encounters rank higher than the rate of individuals receiving a service. Displayed in this fashion, these data indicate an underlying geographic pattern of variation in utilization of physician services that crosses the service types and persists whether rates of encounters or individuals are used as indicators. This approach further suggests that children from urban and suburban regions use more outpatient physician services across a range of specialties compared to children in most rural and remote regions.

Supply and utilization

To what extent are the variations in physician services a reflection of physician supply? Most outpatient physician services are currently not planned or restricted on a regional basis; gatekeeping for outpatient services is not centralized but resides at the practice level according to availability, practice type, or practice style. Accordingly, one of the challenges in examining access to services is to identify the relationship between service utilization and regional physician supply. Exhibits 3.20a and b illustrate the association between physician supply for selected types of physicians and the outpatient indicator rate of encounters for that type of physician. An association between the rate of encounters and the physician FTE is apparent with pediatrics and psychiatry, but is weak or not present with ophthalmology, otolaryngology and general practice.

Individuals are entitled to leave their own region to seek services elsewhere in the province, including specialist services provided only in one of the few academic health sciences centres. Distinguishing between physician services obtained in a home DHC versus those obtained from outside a DHC of residence may be important. Individuals from a DHC may seek relatively more services from outside their regional DHC to compensate for a lack of services within the DHC. Using a physician file containing the physician practice addresses permits classification of services for children resident in any given DHC by the location of the physician. At a simple level, encounters can be classified according to service provided by a physician practice in, or outside, the child's DHC. A standardized morbidity ratio can again be used to describe the variation in service encounter rate relative to other DHCs.

Exhibits 3.21, 3.22, 3.23, 3.24, 3.25 and 3.26 illustrate the variation in SMRs for selected physician service encounter rates by DHC for physician services provided in the child's DHC. The degree of variation for physician services in the home DHC is minimal for well child care and minor assessments. None of the DHCs are clearly above or below average outliers. The proportion of these services from physicians within the home DHC varies from 74% in Grand River DHC to 89% in Champlain.

In contrast, there is marked variation in pediatric, psychiatric and ophthalmologic consultations and assessments in the home DHC with Toronto and Champlain above average, and eight DHCs (without academic pediatric health science centres) well below average. The proportion of these services from physicians within the home DHC varies from 50% in Grey-Bruce-Perth-Huron to 89% in Champlain. The proportion of psychiatric services from physicians within the home DHC varies from 28% in Grey-Bruce-Perth-Huron to 91% in Champlain.

Exhibit 3.27a and Exhibit 3.27b demonstrate the relationship between physician supply and home DHC encounters. It indicates positive correlation between home DHC utilization and physician supply for pediatrics, psychiatry and ophthalmology.

Exhibit 3.28a and Exhibit 3.28b The relationship between the proportion of physician encounters that take place with physicians located within the child's DHC of residence and the physician supply within the DHC of residence is illustrated in these graphs. As the physician supply of specialists falls below 10 to 20 FTE per 100,000 population aged 0 to19 years, the proportion of encounters with specialists within the child's DHC decreases; for some DHCs to less than 50 to 65% of total encounters. This suggests that the relationship between physician supply within the home DHC and utilization of services outside the DHC is present for all specialists regardless of the overall utilization rate for children in the DHC.

A number of reasons guarantee that a proportion of children receive basic services from physicians outside their DHC, for example; when care is required from tertiary and quaternary services available only in a few centres, or when families live at the edge of a DHC boundary but are closer to a practice in the bordering DHC. This seems to be the case most particularly with rural or rural/suburban DHCs in southern Ontario.

Accordingly, it cannot be concluded that the supply of physicians causes the utilization rates observed. Nor can this superficial examination produce appropriate benchmarks for overall service utilization and utilization within the home DHC.

A small degree of mismatch is expected from inaccurate location data in the physician database as well as children's residence information. Nevertheless, the volume of physician encounters in a home DHC relative to other DHCs, provides an important, if crude, indication of the level of physician service activity and potential DHC capacity. These data indicate that for a number of specialties, and the majority of DHCs, which do not have an academic health sciences centre, a significant proportion (up to or more than half) of children's services are provided by physicians outside the home DHC. In addition, the data show that the lower the physician supply is in a DHC, the greater the proportion is of physician encounters outside the DHC.

Regional variation in home care utilization

Comprehensive service records for home care visits allow a population-based examination of utilization, similar to the approach used for physician services with OHIP claims data. However, it should be noted that the coding of service encounters for home care services has not been studied to the same degree as OHIP data. Nursing encounters can vary in duration, with some potentially lasting several hours in the form of shift nursing. Aggregating the number of encounters is, therefore, a relatively crude measure of service delivery and resource expenditure.

Significant variation was observed for the rates of home care service encounters and for individuals receiving home care services. Exhibits 3.29, 3.30 and 3.31 illustrate the distribution of DHC rates for all DHC professional services, and those specifically for home care nursing services. Rates for all professional encounters include visits by nurses, physiotherapists, occupational therapists, and other allied health professionals. Areas with above average rates of service encounters and rates of individuals receiving services include Champlain, Grey-Bruce-Huron-Perth, Northern Shores, Niagara, and Northwestern Ontario. Of note, DHCs with below average rates of encounters include Hamilton, Toronto, and Simcoe-York. Variation in rates of individuals receiving service ranged from a low of 808 per 100,000 population in Toronto to a high of 3,640 per 100,000 population in Northern Shores, giving an extremal quotient of 4.50. There was a very high correlation between the DHC rates of service encounters and rates of individuals receiving service ($R2 = 0.845$) indicating that those DHCs serving a higher rate of individual children also provided a high rate of encounters.

Rates of service encounters for nursing services alone also varied substantially across DHCs, and was most obvious in the rate of nursing services encounters. The ratio of the highest DHC rate to the lowest was 7.11 with most DHCs divided into either above or below average categories. The rate of nursing encounters ranged from a low of 6,037 per 100,000 population in Northwestern Ontario to a high of 42,951 per 100,000 population in Thames Valley. However, the degree of variation was reduced when the rate of individuals receiving services, rather than the total number of encounters, was examined. The lowest rate of individuals receiving nursing services was 242 children per 100,000 population in Simcoe-York and the highest rate was 506 children per 100,000 population in Grand River for an extremal quotient of 2.26. The correlation between DHC rates of services encounters and rates of individuals served was low ($R2 = 0.110$) in contrast with the pattern observed with all professional services. Thus, for nursing services, specifically, there appears to be variation between DHCs in the service encounters per child over and above the variation in rate of children served.

While some of the variation of home care service encounters and individuals served may relate to differences in population health, it seems unlikely to account for significant differences in utilization rates observed in some DHCs. Rate variation may be linked to the different ways home care services are

provided by CCACs. Higher rates of home care services in some rural and remote areas is an interesting contrast to the lower rates of physician services in these areas, though the underlying cause is not provided through this data.

It could be that distance-related access barriers to children's centres (e.g., CRC, MH, hospitals) influence increased demand for home care services, though, without linkage to encounter data for CRCs or MH centres, it is difficult to probe this further. Unlike physician services, gatekeeping for home care services is maintained through coordinators and criteria managed regionally at the CCAC level. In order to increase accessibility and bridge service gaps, CCAC service delivery management varies by region. For example, in northern regions where services are sparse, it may be necessary to provide more home care services. In addition, individuals usually cannot access services outside their CCAC of residence, unlike access to physician services.

Theoretically, these factors indicate a need to further study the utilization of home care services. However, data for the supply of home care nurses and other professionals by DHC, as well as information on the criteria and type of service plans for children, are not currently available for the province. Thus, the associations between staffing supply/practice style and service utilization cannot be investigated.

Discussion

Information for studying access to, and utilization of, children's treatment services is relatively limited, and there are no available data for examining province-wide patterns in utilization of mental health services (except physician claims), rehabilitation services (except home care services), or any of the services provided through the CHC or public health units. Survey responses regarding waiting lists and usual wait times suggest there may be substantial delays in accessing rehabilitation and mental health services in many, or even most, regions of Ontario. Without data on wait time and utilization of services, it is difficult to verify and measure these concerns.

Utilization of physician services has been studied using several indicators to cover a range of specialist claims as well as rates of individuals served and number of encounters. There is some support for the notion that variation in physician workforce may be a factor in lower rates of individual children receiving care from specialists in most rural and remote regions in the province. There is also an indication of substantial variation in how home care services are allocated to children from region to region. To obtain a clear picture of access and utilization across medical, nursing, rehabilitation, and mental health services, more work is required in collection of data collection and construction of appropriate indices.

Chapter 3—Service Utilization

Exhibits

Exhibit 3.13
Annual volume of index services and rates of population aged 0 to 19 years receiving chiropractic services with a claim to OHIP in Ontario, 1997 to 2002

Exhibit 3.14
Utilization of indicator* psychiatric and counseling physician services by population aged 0 to 19 years in Ontario, 1997 to 2002

Exhibit 3.15
Annual volume of index services and rates of population aged 0 to 19 years receiving psychiatric physician counseling services in Ontario, 1997 to 2002

Exhibit 3.16
Annual volume of index services and rates of population aged 0 to 19 years receiving selected psychiatric care services and assessments (excluding psychiatric consultations) in Ontario, 1997 to 2002

Exhibit 3.17
Annual volume of index services and rates of population aged 0 to 19 years receiving selected psychiatric consultations and related assessments (excluding psychiatric care services) in Ontario, 1997 to 2002

Exhibit 3.18
Standard morbidity ratios showing variation in rates of individuals receiving select physician services in rank order of average standardized morbidity ratio, by District Health Council in Ontario, 1997 to 2002

Exhibit 3.19
Standard mortality ratios showing variation in total rates of service volumes in rank order of average DHC SMR by District Health Council in Ontario, 1997 to 2002

Exhibit 3.20 a
Association between DHC specialist physician supply (FTE per 100,000 population aged 0 to 19 years) and DHC rate of physician encounters in Ontario, 1997 to 2002

Exhibit 3.20 b
Association between DHC GP/FP physician supply (FTE per 100,000 population aged 0 to 19 years) and DHC rate of physician encounters in Ontario, 1997 to 2002

Exhibit 3.21
Utilization of physician services in home DHC by population aged 0 to 19 years in Ontario, 1997 to 2002

Exhibit 3.22
Comparison of annual rates of services encounters for the population aged 0 to 19 years receiving services from physicians in versus outside the home DHC for well child, newborn, intermediate and minor assessments in Ontario, 1997 to 2002

Exhibit 3.23
Comparison of annual rates of services encounters for the population aged 0 to 19 years receiving services from physicians in versus outside the home DHC for outpatient pediatric consultation and related pediatric assessments in Ontario, 1997 to 2002

Exhibit 3.24
Comparison of annual rates of services encounters for the population aged 0 to 19 years receiving services from physicians in versus outside the home DHC for psychiatric consultations, psychiatric care and related assessments in Ontario, 1997 to 2002

Exhibit 3.25
Comparison of annual rates of services encounters for the population aged 0 to 19 years receiving services from physicians in versus outside the home DHC for ophthalmology assessments in Ontario, 1997 to 2002

Exhibit 3.26
Comparison of annual rates of services encounters for the population aged 0 to 19 years receiving services from physicians in versus outside the home DHC for otolaryngology assessments in Ontario, 1997 to 2002

Exhibit 3.27 a
Association between DHC specialist physician supply (FTE per 100,000 population aged 0 to 19 years) and rate of home DHC encounters in Ontario, 1997 to 2002

Exhibit 3.27 b
Association between DHC GP/FP physician supply (FTE per 100,000 population aged 0 to 19 years) and rate of home DHC encounters in Ontario, 1997 to 2002

Exhibit 3.28 a
Association between DHC specialist physician supply (FTE per 100,000 population aged 0 to 19 years) and proportion of home DHC physician encounters in Ontario, year(s)

Exhibit 3.28 b
Association between DHC GP/FP physician supply (FTE per 100,000 population aged 0 to 19 years) and proportion physician encounters outside home DHC in Ontario, year(s)

Exhibit 3.29
Utilization of home care service per population aged 0 to 19 years, by District Health Council in Ontario, year(s)

Exhibit 3.30
Annual rates of total home care services volume and population aged 0 to 19 years receiving professional home care services (including nursing, social work, and other allied health professionals) by District Health Council in Ontario, 2000 to 2002

Exhibit 3.31
Annual rates of total home care services volume and population aged 0 to 19 years receiving professional home care nursing services, by District Health Council in Ontario, 2000 to 2002

Exhibit 3.1 Wait times for children's health programs and services reported by non-hospital organizations (CRC, CCAC, CHC, PH, MH, CL) in Ontario, 2001–2002

Program Area	Reported Usual Wait Time (weeks); mean (SD)	Number of Programs Reported	Number of Organizations Offering at Least One Program	Predominant Sectors Reporting Service or Program
Rehabilitation				
Physiotherapy	14.3 (16.9)	125	80	CRC, CCAC
Occupational Therapy	20.9 (26.1)	125	76	CRC, CCAC, MH
Speech-Language Therapy	24.2 (23.1)	148	95	CRC, CCAC, MH, PH
Developmental	14.4 (21.5)	95	52	CRC, MH, CL
Assistive Devices	22.9 (23.2)	37	21	CRC, CCAC
Psycho-Education	22.6 (24.7)	25	17	CRC, MH
Hearing Programs	10.5 (10.9)	10.5	9	CRC, PH
Physical Medicine	13.5 (28.8)	13	9	CRC, CCAC
Other Rehabilitation	17.5 (24.2)	91	47	CRC, CCAC, CL
Mental Health				
Counseling (individual or group)	19.6 (20.8)	232	88	CRC, CHC, MH
Behaviour Modification	21.4 (23.4)	109	53	CRC, CHC, MH
Psychiatry	19.7 (23.4)	55	26	MH
Addiction Treatment	16.4 (11.8)	19	15	CHC, MH
Other Mental Health	17.8 (22.9)	115	55	CRC, CCAC, CHC, MH
Medical/Nursing				
Nursing Care[1]	1.69 (6.8)	96	45	CCAC
Dental	2.71 (5.8)	41	22	PH
Primary Care[2]	5.1 (12.8)	42	30	CHC, PH
Specialized Medical Care (e.g. pediatrician,orthopaedics)	4.4 (4.5)	18	17	CRC
Dietary/Nutrition	1.3 (1.21)	6	5	CHC
Specialized Surgical Care	12.0 (4.2)	12		CRC
Early Intervention or Prevention	3.0 (4.2)	49	32	CHC, PH
Other Medical	1.69 (6.8)	3		
Prevention				
Early Intervention or Prevention	1.5 (2.8)	49	32	CHC, PH

[1] Includes acute, chronic, medically fragile, preventative nursing care such as teaching, school support, home visitation, counseling by nurses

[2] Includes immunization, vaccination, family physician

Data source: Survey of Organizations

Exhibit 3.2 Usual wait times for mental health and rehabilitation services for children reported by non-hospital organizations by District Health Council in Ontario, 2001–2002

	Common Mental Health Services*			Common Rehabilitation Services**		
District Health Council	**N**	**Average (SD)**	**Rank**	**N**	**Average (SD)**	**Rank**
Algoma-Cochrane-Manitoulin-Sudbury	11	21.6 (29.5)	4	15	31.2 (30.3)	2
Champlain***	31	19.0 (16.1)	8	14	26 (34.3)	5
Durham-Haliburton-Kawartha-Pine Ridge	18	25.2 (26.1)	2	28	10.7 (9.19)	15
Essex-Kent-Lambton	28	17.2 (26.3)	9	31	16.9 (15.4)	10
Grand River	8	22.6 (11.2)	3	12	12.7 (11.8)	14
Grey-Bruce-Huron-Perth	6	8.16 (7.88)	15	4	6.75 (7.63)	16
Halton-Peel	10	5.4 (6.56)	16	3	24 (25.2)	6
Hamilton***	17	12.6 (6.42)	12	10	20.4 (16.8)	8
Niagara	6	12.3 (8.38)	13	21	23.1 (33.6)	7
Northern Shores	5	8.6 (14.8)	14	14	31.1 (27.8)	3
Northwestern Ontario	11	21.6 (29.5)	4	24	17.2 (19.5)	9
Simcoe-York	6	13.5 (13.5)	11	9	33.6 (51.3)	1
Southeastern Ontario***	8	14.6 (12.9)	10	16	16.5 (17.7)	11
Thames Valley***	15	19.4 (12.9)	7	19	15.5 (15.6)	13
Toronto***	45	25.2 (24.9)	1	46	15.6 (22.6)	12
Waterloo Region-Wellington Dufferin	14	20.2 (16.1)	6	15	26.4 (21.2)	4

* Common mental health services and programs include counseling, behavior modification, psychiatry.

** Common rehabilitation services and programs include physiotherapy, occupational therapy, assistive devices, developmental, psycho-educational services.

***Location of pediatric academic health sciences centres.

Data source: Survey of Organizations

Exhibit 3.3. Age/sex-adjusted utilization rates of indicator* ambulatory general and pediatric services per 100,000 population aged 0 to 19 years, by District Health Council in Ontario, 1997 to 2002

District Health Council of Residence	Volume of Well Child & Minor Assessment Encounters	Children Receiving Well Child Assessments	Volume of General Assessment Encounters	Children Receiving GP/FP Outpatient General Assessment	Volume of Paediatric Assessment Encounters	Children Receiving Paediatric Consultation
Algoma-Cochrane-Manitoulin-Sudbury	●●	●●●	●	●	●	●●
Champlain	●●●	●●●	●●●	●●●	●●●●	●●
Durham-Haliburton-Kawartha-Pine Ridge	●●●	●●●	●●●	●●	●●	●●●●
Essex-Kent-Lambton	●●●	●●●	●●	●●	●●	●●
Grand River	●●●	●●●	●	●	●	●●●●●
Grey-Bruce-Huron-Perth	●●	●●	●	●	●	●●
Halton-Peel	●●●●	●●●	●●●●	●●●●	●●●	●●●●
Hamilton	●●	●●	●●	●●	●●	●●●●
Toronto	●●●●	●●●●	●●●●●	●●●●●	●●●●●	●●●
Northern Shores	●●●	●●●	●●	●●	●	●●●
Niagara	●●	●●●	●	●	●●●	●●●
Northwestern Ontario	●	●●	●●	●	●	●●●
Southeastern Ontario	●●	●●●	●	●	●●	●●
Simcoe-York	●●●	●●●	●●●	●●●	●●●●	●●●
Thames Valley	●●●	●●●	●●	●●	●	●
Waterloo Region-Wellington-Dufferin	●●	●●	●●	●	●	●●●

*See Appendix A for a list of OHIP service codes and definitions used as indicator services. Further details and actual numeric rates and statistics for this data can be found in Appendix B.

Minor assessment, well child and annual health examination encounter rates

Indicator well child assessment service

GP/FP outpatient general assessment

Indicator GP/FP general assessment service

Pediatric physician outpatient consultation and general assessment

Indicator pediatric consultation

Above Average	Somewhat Above Average	Average	Somewhat Below Average	Below Average
(greater than 1.3 times the provincial average)	(1.1 to 1.3 times the provincial average)	(0.9 to 1.1 times the provincial average)	(0.75 to 0.9 times the provincial average)	(less than 0.75 times the provincial average)

Data source: Ontario Health Insurance Plan

Exhibit 3.4 Annual volume of physician service encounters and rates per 100,000 population aged 0 to 19 years receiving well child, newborn, intermediate and minor assessments in Ontario, 1997 to 2002

	Annual Total Volume of Well Child, Newborn, & Minor Assessment Physician Services: A001 A007 A261 K017 K267 K269				Annual Number of Individuals Receiving a Well Child/Intermediate Assessment Physician Service: A007				
District Health Council	**Crude Number**	**Age and Sex Adjusted Rate Per 100,000**	**Standardized Morbidity Ratio**	**Rank**	**Crude Number**	**Age and Sex Adjusted Rate Per 100,000**	**Standardized Morbidity Ratio**	**Rank**	**Level of Significance**
Algoma-Cochrane-Manitoulin-Sudbury	278,824	253,589	0.848	13	71,844	64,717	0.934	12	*
Champlain	753,518	276,674	0.919	8	189,865	69,624	1.003	5	
Durham-Haliburton-Kawartha-Pine Ridge	701,095	314,578	1.044	4	158,623	70,670	1.018	4	*
Essex-Kent-Lambton	480,872	287,790	0.956	6	115,161	68,761	0.991	6	
Grand River	183,713	285,433	0.947	7	43,369	66,443	0.956	10	*
Grey-Bruce-Huron-Perth	206,032	262,134	0.871	11	49,121	61,480	0.886	13	*
Halton-Peel	1,303,621	338,891	1.126	2	282,625	74,310	1.070	2	*
Hamilton	291,436	227,191	0.755	15	73,248	57,205	0.825	16	*
Niagara	281,147	268,318	0.891	10	70,509	66,814	0.962	9	*
Northern Shores	147,015	271,743	0.909	9	36,709	66,927	0.965	8	*
Northwestern Ontario	156,829	220,225	0.733	16	42,551	59,560	0.859	14	*
Simcoe-York	952,176	325,869	1.081	3	210,216	71,443	1.029	3	*
Southeastern Ontario	317,893	258,464	0.859	12	80,976	65,232	0.939	11	*
Thames Valley	467,542	288,829	0.959	5	110,001	67,852	0.978	7	*
Toronto	2,161,187	354,943	1.173	1	456,293	76,570	1.099	1	*
Waterloo Region-Wellington-Dufferin	458,207	241,090	0.801	14	111,528	58,882	0.849	15	*
Statistic	Age Group	Value	Sex		Age Group	Value	Sex		
Province-wide Crude Rate		302,459				69,572			
Province-wide Age Specific Rates	0-0	1,046,976			0-0	175,237			
Province-wide Age Specific Rates	1-4	452,867			1-4	79,913			
Province-wide Age Specific Rates	5-9	251,646			5-9	64,853			
Province-wide Age Specific Rates	10-19	204,660			10-19	58,637			
Province-wide Sex Specific Rates		314,131	F			71,994	F		
Province-wide Sex Specific Rates		291,391	M			67,274	M		
Province-wide Age & Sex Adjusted Rate		301,127				69,411			
Extremal Quotient [EQ]		1.612				1.339			
Ratio of Third Quartile over First Quartile		1.178				1.112			
Coefficient of Variation (%) [CV]		13.93				8.2584			

Data source: Ontario Health Insurance Plan

Exhibit 3.5 Annual volume of index service encounters and rates per 100,000 population aged 0 to 19 years receiving GP/FP general assessments in Ontario, 1997 to 2002

	Annual Total Volume of Index Outpatient General and General Re-Assessments: A003, A004				Annual Number of Individuals Receiving an Index Outpatient General Assessment: A003				
District Health Council	**Crude Number**	**Age and Sex Adjusted Rate Per 100,000**	**Standardardized Morbidity Ratio**	**Rank**	**Crude Number**	**Age and Sex Adjusted Rate Per 100,000**	**Standardardized Morbidity Ratio**	**Rank**	**Level of Significance**
Algoma-Cochrane-Manitoulin-Sudbury	13,257	11,743	0.740	12	11,148	9,853	0.760	11	*
Champlain	40,840	14,966	0.942	4	35,831	13,128	1.012	4	*
Durham-Haliburton-Kawartha-Pine Ridge	33,090	14,732	0.925	5	26,353	11,715	0.901	5	*
Essex-Kent-Lambton	23,229	13,804	0.868	6	18,610	11,049	0.852	7	*
Grand River	7,140	10,786	0.680	14	6,022	9,074	0.700	13	*
Grey-Bruce-Huron-Perth	8,845	10,953	0.685	13	7,216	8,897	0.682	14	*
Halton-Peel	71,819	18,976	1.196	2	57,380	15,193	1.173	2	*
Hamilton	16,286	12,723	0.801	8	13,327	10,415	0.803	8	*
Niagara	10,905	10,264	0.646	16	9,209	8,661	0.668	16	*
Northern Shores	7,582	13,652	0.856	7	6,184	11,094	0.852	6	*
Northwestern Ontario	8,675	12,138	0.761	10	6,960	9,723	0.747	12	*
Simcoe-York	48,896	16,535	1.040	3	40,061	13,528	1.043	3	*
Southeastern Ontario	13,130	10,467	0.659	15	11,133	8,856	0.684	15	*
Thames Valley	19,796	12,181	0.767	9	16,622	10,226	0.788	9	*
Toronto	134,992	23,028	1.440	1	107,566	18,414	1.412	1	*
Waterloo Region-Wellington-Dufferin	22,823	12,066	0.760	11	19,100	10,103	0.779	10	*
Statistic	Age Group	Value	Sex		Age Group	Value	Sex		
Province-wide Crude Rate		15,925				13,561			
Province-wide Age Specific Rates	0-0	30,247			0-0	23,653			
Province-wide Age Specific Rates	1-4	16,107			1-4	12,892			
Province-wide Age Specific Rates	5-9	11,806			5-9	10,181			
Province-wide Age Specific Rates	10-19	16,714			10-19	14,671			
Province-wide Sex Specific Rates		17,458	F			14,842	F		
Province-wide Sex Specific Rates		14,472	M			12,347	M		
Province-wide Age & Sex Adjusted Rate		15,902				13,546			
Extremal Quotient [EQ]		2.244				2.118			
Ratio of Third Quartile over First Quartile		1.309				1.338			
Coefficient of Variation (%) [CV]		26.81				24.92			

Data source: Ontario Health Insurance Plan

Exhibit 3.6 Annual volume of index service encounters and rates per 100,000 population aged 0 to 19 years receiving GP/FP inpatient assessments in Ontario, 1997 to 2002

	Annual Total Volume of Index Inpatient and Related Assessments: C002 C003 C004 C005 C006 C007 C008 C009 H001 H002 H003				Annual Number of Individuals Receiving an Index Inpatient General Assessment Service: C003				
District Health Council	**Crude Number**	**Age and Sex Adjusted Rate Per 100,000**	**Standardardized Morbidity Ratio**	**Rank**	**Crude Number**	**Age and Sex Adjusted Rate Per 100,000**	**Standardardized Morbidity Ratio**	**Rank**	**Level of Significance**
Algoma-Cochrane-Manitoulin-Sudbury	9,059	8,482	1.975	3	2,141	2,116	1.214	8	*
Champlain	6,575	2,425	0.562	15	2,929	1,084	0.622	15	*
Durham-Haliburton-Kawartha-Pine Ridge	12,318	5,722	1.325	6	4,828	2,315	1.328	4	*
Essex-Kent-Lambton	8,707	5,189	1.205	7	2,984	1,789	1.026	13	
Grand River	4,606	7,463	1.720	4	1,538	2,614	1.498	1	*
Grey-Bruce-Huron-Perth	5,471	7,122	1.671	5	1,554	2,173	1.246	6	*
Halton-Peel	17,749	4,507	1.050	10	7,952	1,970	1.13	11	*
Hamilton	3,418	2,611	0.611	14	2,779	2,116	1.214	9	*
Niagara	5,158	5,007	1.160	8	2,031	2,013	1.155	10	*
Northern Shores	4,794	9,112	2.130	2	1,287	2,607	1.495	2	*
Northwestern Ontario	8,825	12,419	2.887	1	1,618	2,304	1.321	5	*
Simcoe-York	11,616	4,115	0.953	11	4,812	1,768	1.014	14	
Southeastern Ontario	4,790	4,031	0.927	12	2,451	2,120	1.216	7	*
Thames Valley	6,501	4,007	0.930	13	3,145	1,941	1.113	12	*
Toronto	13,319	2,041	0.466	16	7,015	969	0.556	16	*
Waterloo Region-Wellington-Dufferin	9,291	4,807	1.121	9	5,022	2,570	1.474	3	*
Statistic	Age Group	Value	Sex		Age Group	Value	Sex		
Province-wide Crude Rate		4,374				1,790			
Province-wide Age Specific Rates	0-0	56,061			0-0	40,068			
Province-wide Age Specific Rates	1-4	2,757			1-4	1			
Province-wide Age Specific Rates	5-9	970			5-9	0			
Province-wide Age Specific Rates	10-19	2,161			10-19	0			
Province-wide Sex Specific Rates		4,350	F			1,811	F		
Province-wide Sex Specific Rates		4,397	M			1,769	M		
Province-wide Age & Sex Adjusted Rate		4,309				4,309			
Extremal Quotient [EQ]		6.086				6.086			
Ratio of Third Quartile over First Quartile		1.815				1.815			
Coefficient of Variation (%) [CV]		49.48				49.48			

Data source: Ontario Health Insurance Plan

Exhibit 3.7 Annual volume of index services and rates per 100,000 population aged 0 to 19 years receiving outpatient pediatric consultation and related assessments in Ontario, 1997 to 2002

	Annual Total Volume of Index Paediatric Consultation Services and Related Assessments: A263 A264 A265 A266				Annual Number of Individuals Receiving an Index Paediatric Consultation Service: A265				
District Health Council	Crude Number	Age and Sex Adjusted Rate Per 100,000	Standardardized Morbidity Ratio	Rank	Crude Number	Age and Sex Adjusted Rate Per 100,000	Standardardized Morbidity Ratio	Rank	Level of Significance
Algoma-Cochrane-Manitoulin-Sudbury	16,888	15,816	0.561	12	6,061	5,672	0.876	11	*
Champlain	90,359	33,204	1.177	3	13,851	5,085	0.789	15	*
Durham-Haliburton-Kawartha-Pine Ridge	48,115	21,722	0.769	9	16,235	7,322	1.135	3	*
Essex-Kent-Lambton	37,670	22,687	0.803	8	8,598	5,174	0.801	14	*
Grand River	13,283	21,041	0.744	10	5,689	8,977	1.390	1	*
Grey-Bruce-Huron-Perth	8,129	10,621	0.376	16	4,228	5,515	0.852	13	*
Halton-Peel	102,653	26,335	0.935	5	28,137	7,230	1.125	4	*
Hamilton	31,367	24,432	0.866	6	10,316	8,037	1.246	2	*
Niagara	28,245	27,088	0.963	4	6,656	6,393	0.991	8	
Northern Shores	6,176	11,639	0.418	15	3,312	6,235	0.974	9	
Northwestern Ontario	9,454	13,349	0.474	14	4,413	6,232	0.967	10	
Simcoe-York	103,274	35,642	1.261	2	19,335	6,650	1.033	6	*
Southeastern Ontario	28,345	23,363	0.828	7	6,835	5,609	0.871	12	*
Thames Valley	23,916	14,794	0.524	13	7,338	4,537	0.704	16	*
Toronto	280,293	44,737	1.582	1	42,808	6,847	1.062	5	*
Waterloo Region-Wellington-Dufferin	30,495	15,984	0.567	11	12,295	6,442	1.000	7	
Statistic	Age Group	Value	Sex		Age Group	Value	Sex		
Province-wide Crude Rate		28,411				6,489			
Province-wide Age Specific Rates	0-0	138,407			0-0	34,420			
Province-wide Age Specific Rates	1-4	48,599			1-4	9,181			
Province-wide Age Specific Rates	5-9	27,409			5-9	6,465			
Province-wide Age Specific Rates	10-19	11,379			10-19	2,981			
Province-wide Sex Specific Rates		26,558	F			5,827	F		
Province-wide Sex Specific Rates		30,168	M			7,116	M		
Province-wide Age & Sex Adjusted Rate		28,227				6,448			
Extremal Quotient [EQ]		4.212				1.979			
Ratio of Third Quartile over First Quartile		1.745				1.265			
Coefficient of Variation (%) [CV]		37.85				15.12			

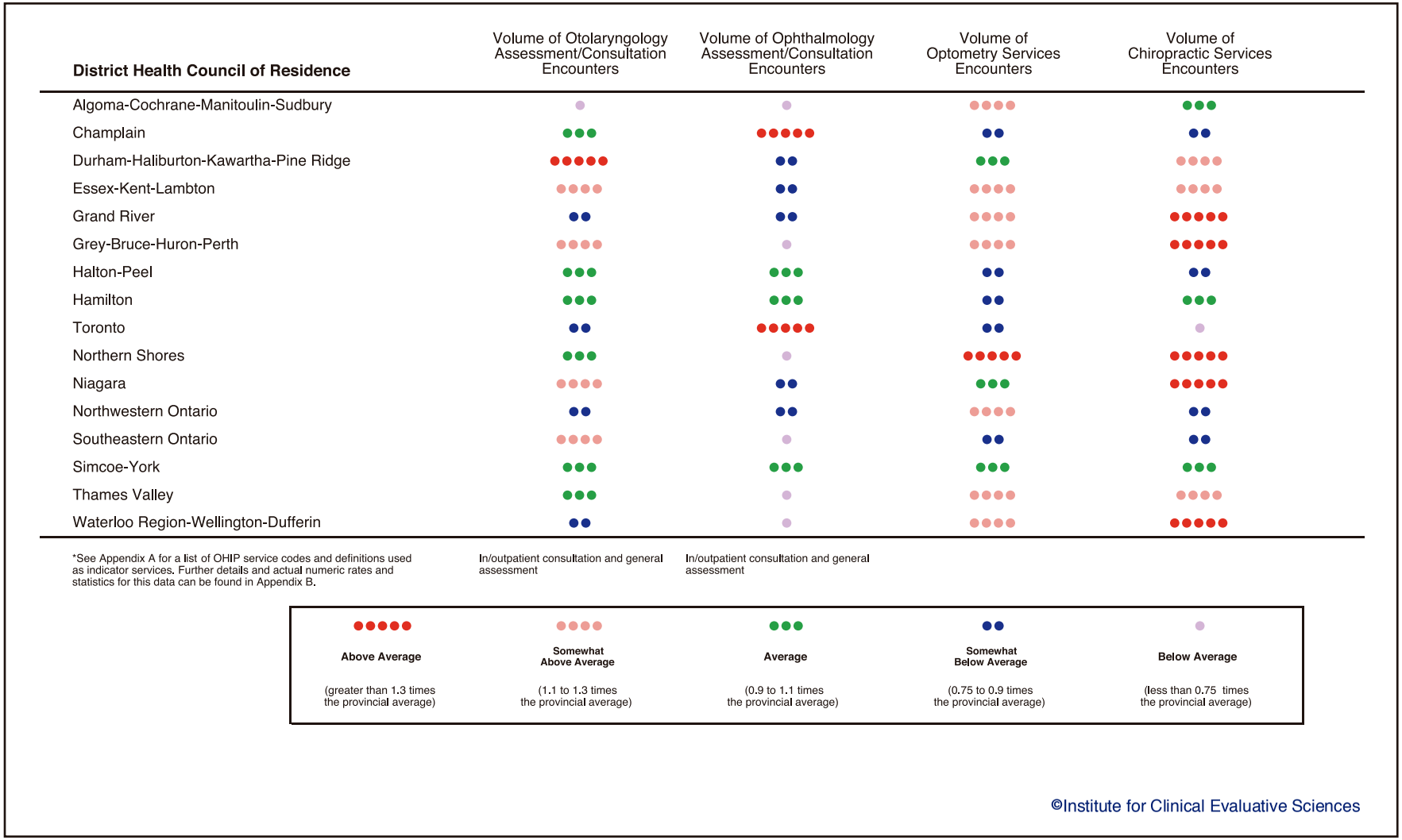
Data source: Ontario Health Insurance Plan

Exhibit 3.8 Annual volume of index services and rates per 100,000 population aged 0 to 19 years receiving inpatient pediatric consultation and related assessments in Ontario, 1997 to 2002

	Annual Total Volume of Index Inpatient Paediatric Consultations and Related Assessments: C262 C263 C264 C265 C266 C267 C268 C269 H261 H262 H263				Annual Number of Individuals Receiving an Index Inpatient Paediatric Consultation Service: C265				
District Health Council	**Crude Number**	**Age and Sex Adjusted Rate Per 100,000**	**Standardized Morbidity Ratio**	**Rank**	**Crude Number**	**Age and Sex Adjusted Rate Per 100,000**	**Standardized Morbidity Ratio**	**Rank**	**Level of Significance**
Algoma-Cochrane-Manitoulin-Sudbury	8,912	8,562	0.928	8	415	398	0.737	11	*
Champlain	26,533	9,789	1.063	4	1,866	688	1.278	3	*
Durham-Haliburton-Kawartha-Pine Ridge	18,873	8,778	0.953	6	758	349	0.653	15	*
Essex-Kent-Lambton	23,744	14,244	1.545	1	1,946	1,168	2.165	1	*
Grand River	4,534	7,381	0.805	15	246	402	0.745	9	*
Grey-Bruce-Huron-Perth	5,477	7,395	0.800	14	260	352	0.650	14	*
Halton-Peel	33,583	8,469	0.921	9	1,317	333	0.617	16	*
Hamilton	10,095	7,792	0.844	13	598	460	0.856	7	*
Niagara	11,264	11,000	1.194	2	404	394	0.732	12	*
Northern Shores	4,271	8,363	0.910	10	188	366	0.685	13	*
Northwestern Ontario	6,721	9,494	1.035	5	709	1,006	1.866	2	*
Simcoe-York	23,219	8,263	0.896	11	1,465	518	0.964	5	
Southeastern Ontario	7,429	6,258	0.680	16	473	398	0.740	10	*
Thames Valley	13,999	8,643	0.939	7	822	507	0.942	6	
Toronto	69,193	10,230	1.115	3	4,294	641	1.188	4	*
Waterloo Region-Wellington-Dufferin	15,005	7,798	0.845	12	778	404	0.749	8	*
Statistic	Age Group	Value	Sex		Age Group	Value	Sex		
Province-wide Crude Rate		9,359				547			
Province-wide Age Specific Rates	0-0	124,872			0-0	6,889			
Province-wide Age Specific Rates	1-4	8,860			1-4	591			
Province-wide Age Specific Rates	5-9	3,318			5-9	216			
Province-wide Age Specific Rates	10-19	2,405			10-19	138			
Province-wide Sex Specific Rates		8,867	F			505	F		
Province-wide Sex Specific Rates		9,825	M			587	M		
Province-wide Age & Sex Adjusted Rate		9,208				539			
Extremal Quotient [EQ]		2.276				3.505			
Ratio of Third Quartile over First Quartile		1.237				1.525			
Coefficient of Variation (%) [CV]		17.94				39.54			

Data source: Ontario Health Insurance Plan

Exhibit 3.9. Age/sex-adjusted utilization rates of indicator* specialist services by 100,000 population aged 0 to 19 years by District Health Council in Ontario, 1997 to 2002



Data source: Ontario Health Insurance Plan

Exhibit 3.10 Annual volume of index services and rates per 100,000 population aged 0 to 19 years receiving ophthalmology assessments in Ontario, 1997 to 2002

	Annual Total Volume of Index Ophthalmology Consultation and Related Assessments: A233 A234 A235 A236 C233 C234 C235 C236				Annual Number of Individuals Receiving an Index Ophthalmology Consultation Service: A235				
District Health Council	**Crude Number**	**Age and Sex Adjusted Rate Per 100,000**	**Standardardized Morbidity Ratio**	**Rank**	**Crude Number**	**Age and Sex Adjusted Rate Per 100,000**	**Standardardized Morbidity Ratio**	**Rank**	**Level of Significance**
Algoma-Cochrane-Manitoulin-Sudbury	3,617	3,276	0.650	13	1,030	936	0.594	11	*
Champlain	21,718	7,953	1.587	1	5,248	1,924	1.226	2	*
Durham-Haliburton-Kawartha-Pine Ridge	9,120	4,056	0.806	8	2,578	1,153	0.731	8	*
Essex-Kent-Lambton	6,432	3,845	0.767	9	1,940	1,159	0.740	7	*
Grand River	2,848	4,358	0.866	6	604	935	0.590	12	*
Grey-Bruce-Huron-Perth	2,199	2,795	0.548	15	609	780	0.488	14	*
Halton-Peel	18,459	4,856	0.970	5	6,614	1,739	1.107	3	*
Hamilton	6,885	5,389	1.075	3	2,076	1,622	1.035	5	
Niagara	4,523	4,287	0.853	7	1,457	1,380	0.880	6	*
Northern Shores	1,396	2,577	0.507	16	404	751	0.472	15	*
Northwestern Ontario	2,720	3,805	0.760	10	799	1,117	0.714	9	*
Simcoe-York	15,302	5,180	1.033	4	4,798	1,630	1.038	4	
Southeastern Ontario	4,280	3,435	0.686	12	1,230	990	0.632	10	*
Thames Valley	5,841	3,609	0.719	11	1,412	872	0.555	13	*
Toronto	40,340	6,886	1.360	2	15,288	2,602	1.631	1	*
Waterloo Region-Wellington-Dufferin	5,942	3,136	0.627	14	1,410	742	0.475	16	*
Statistic	Age Group	Value	Sex		Age Group	Value	Sex		
Province-wide Crude Rate		5,017				1,571			
Province-wide Age Specific Rates	0-0	7,769			0-0	3,631			
Province-wide Age Specific Rates	1-4	5,730			1-4	1,815			
Province-wide Age Specific Rates	5-9	5,653			5-9	1,704			
Province-wide Age Specific Rates	10-19	4,168			10-19	1,226			
Province-wide Sex Specific Rates		5,160	F			1,592	F		
Province-wide Sex Specific Rates		4,881	M			1,552	M		
Province-wide Age & Sex Adjusted Rate		5,013				1,569			
Extremal Quotient [EQ]		3.086				3.508			
Ratio of Third Quartile over First Quartile		1.495				1.800			
Coefficient of Variation (%) [CV]		31.23				39.50			

Data source: Ontario Health Insurance Plan

Exhibit 3.11 Annual volume of index services and rates per 100,000 population aged 0 to 19 years receiving otolaryngology assessments in Ontario, 1997 to 2002

	Annual Total Volume of Index Otolaryngology Consultations and Related Assessments: A243 A244 A245 A246 C243 C244 C245 C246				Annual Number of Individuals Receiving an Index Otolaryngology Consultation: A245				
District Health Council	**Crude Number**	**Age and Sex Adjusted Rate Per 100,000**	**Standardardized Morbidity Ratio**	**Rank**	**Crude Number**	**Age and Sex Adjusted Rate Per 100,000**	**Standardardized Morbidity Ratio**	**Rank**	**Level of Significance**
Algoma-Cochrane-Manitoulin-Sudbury	5,674	5,216	0.674	16	2,453	2,244	0.865	13	*
Champlain	21,749	7,970	1.026	6	7,075	2,594	0.997	9	
Durham-Haliburton-Kawartha-Pine Ridge	23,056	10,257	1.314	1	7,242	3,221	1.234	1	*
Essex-Kent-Lambton	15,638	9,441	1.213	3	4,640	2,792	1.073	4	*
Grand River	4,222	6,551	0.843	15	1,467	2,269	0.871	12	*
Grey-Bruce-Huron-Perth	7,205	9,291	1.188	4	1,824	2,335	0.892	11	*
Halton-Peel	29,571	7,684	0.990	8	10,126	2,642	1.016	7	
Hamilton	9,777	7,670	0.986	9	3,474	2,724	1.046	5	
Niagara	9,477	9,047	1.162	5	3,104	2,955	1.135	2	*
Northern Shores	4,184	7,888	1.009	7	1,542	2,879	1.102	3	
Northwestern Ontario	4,651	6,566	0.846	14	1,276	1,797	0.691	16	*
Simcoe-York	22,008	7,467	0.959	10	7,766	2,634	1.011	8	
Southeastern Ontario	12,027	9,761	1.257	2	2,735	2,213	0.852	14	*
Thames Valley	11,882	7,357	0.946	11	3,496	2,162	0.831	15	*
Toronto	41,441	6,960	0.889	12	15,980	2,690	1.027	6	
Waterloo Region-Wellington-Dufferin	12,635	6,670	0.858	13	4,511	2,382	0.916	10	*
Statistic	Age Group	Value	Sex		Age Group	Value	Sex		
Province-wide Crude Rate		7,782				2,604			
Province-wide Age Specific Rates	0-0	4,165			0-0	2,221			
Province-wide Age Specific Rates	1-4	14,302			1-4	4,348			
Province-wide Age Specific Rates	5-9	11,079			5-9	3,406			
Province-wide Age Specific Rates	10-19	3,888			10-19	1,553			
Province-wide Sex Specific Rates		6,738	F			2,347	F		
Province-wide Sex Specific Rates		8,772	M			2,848	M		
Province-wide Age & Sex Adjusted Rate		7,776				2,602			
Extremal Quotient [EQ]		1.966				1.793			
Ratio of Third Quartile over First Quartile		1.345				1.222			
Coefficient of Variation (%) [CV]		15.37				11.06			

Data source: Ontario Health Insurance Plan

Exhibit 3.12 Annual volume of index services and rates per 100,000 population aged 0 to 19 years receiving optometry assessments with a claim to OHIP in Ontario, 1997 to 2002

District Health Council	Annual Total Volume of Index Optometry Services Claimed to OHIP: V401 V402				Annual Number of Individuals Receiving an Index Optometry Service Claimed to OHIP: V401				
	Crude Number	Age and Sex Adjusted Rate Per 100,000	Standardardized Morbidity Ratio	Rank	Crude Number	Age and Sex Adjusted Rate Per 100,000	Standardardized Morbidity Ratio	Rank	Level of Significance
Algoma-Cochrane-Manitoulin-Sudbury	12,860	11,171	1.293	2	2,656	2,311	1.260	3	*
Champlain	20,919	7,646	0.887	12	4,624	1,690	0.924	11	*
Durham-Haliburton-Kawartha-Pine Ridge	19,937	8,741	1.014	11	3,891	1,706	0.933	10	*
Essex-Kent-Lambton	16,581	9,828	1.141	6	3,618	2,146	1.173	4	*
Grand River	6,398	9,487	1.098	8	1,342	1,997	1.087	6	
Grey-Bruce-Huron-Perth	9,214	11,070	1.283	3	1,744	2,098	1.146	5	*
Halton-Peel	27,831	7,514	0.871	13	5,962	1,608	0.878	13	*
Hamilton	8,684	6,812	0.790	15	1,817	1,426	0.779	16	*
Niagara	9,807	9,124	1.059	9	2,139	1,992	1.089	7	*
Northern Shores	7,666	13,488	1.549	1	1,810	3,187	1.727	1	*
Northwestern Ontario	7,421	10,269	1.192	5	1,216	1,681	0.921	12	
Simcoe-York	26,909	8,993	1.043	10	5,595	1,870	1.023	9	
Southeastern Ontario	8,384	6,578	0.764	16	1,853	1,455	0.796	15	*
Thames Valley	15,727	9,665	1.121	7	3,193	1,963	1.073	8	*
Toronto	40,772	7,255	0.838	14	9,002	1,600	0.871	14	*
Waterloo Region-Wellington-Dufferin	20,626	10,971	1.274	4	4,665	2,480	1.357	2	*
Statistic	Age Group	Value	Sex		Age Group	Value	Sex		
Province-wide Crude Rate		8,594				1,824			
Province-wide Age Specific Rates	0-0	433			0-0	154			
Province-wide Age Specific Rates	1-4	3,029			1-4	713			
Province-wide Age Specific Rates	5-9	9,272			5-9	1,988			
Province-wide Age Specific Rates	10-19	11,110			10-19	2,315			
Province-wide Sex Specific Rates		9,573	F			2,095	F		
Province-wide Sex Specific Rates		7,665	M			1,567	M		
Province-wide Age & Sex Adjusted Rate		8,618				1,829			
Extremal Quotient [EQ]		2.051				2.235			
Ratio of Third Quartile over First Quartile		1.401				1.291			
Coefficient of Variation (%) [CV]		17.76				18.27			

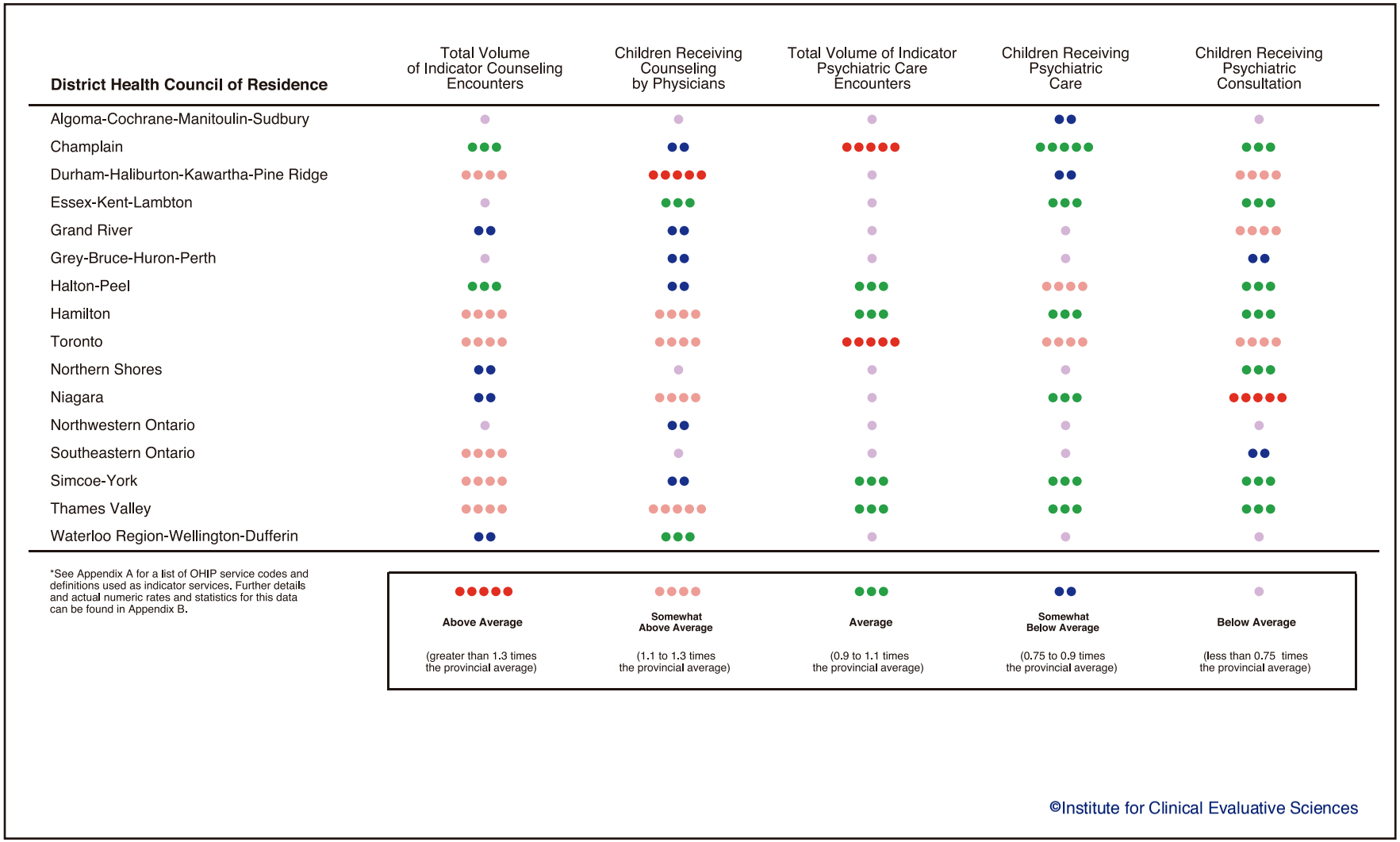
Data source: Ontario Health Insurance Plan

Exhibit 3.13 Annual volume of index services and rates per 100,000 population aged 0 to 19 years receiving chiropractic services with a claim to OHIP in Ontario, 1997 to 2002

	Annual Total Volume of Index Chiropractic Services Claimed to OHIP: V101 V103				Annual Number of Individuals Receiving an Index Chiropractic Service Claimed to OHIP: V101				
District Health Council	Crude Number	Age and Sex Adjusted Rate Per 100,000	Standardardized Morbidity Ratio	Rank	Crude Number	Age and Sex Adjusted Rate Per 100,000	Standardardized Morbidity Ratio	Rank	Level of Significance
Algoma-Cochrane-Manitoulin-Sudbury	41,369	35,824	1.005	10	5,131	4,461	1.524	4	*
Champlain	82,673	30,264	0.845	15	5,259	1,925	0.657	15	*
Durham-Haliburton-Kawartha-Pine Ridge	92,683	40,941	1.143	7	7,188	3,179	1.084	9	*
Essex-Kent-Lambton	68,437	40,405	1.132	8	7,868	4,647	1.589	3	*
Grand River	35,570	53,509	1.476	4	2,734	4,106	1.387	5	*
Grey-Bruce-Huron-Perth	62,635	75,792	2.107	1	4,555	5,529	1.874	1	*
Halton-Peel	114,917	30,832	0.862	14	8,230	2,207	0.753	14	*
Hamilton	44,590	34,903	0.975	11	3,157	2,469	0.842	13	*
Niagara	55,114	51,365	1.436	5	4,277	3,988	1.361	6	*
Northern Shores	32,151	56,244	1.572	2	2,650	4,651	1.584	2	*
Northwestern Ontario	22,731	31,398	0.879	12	2,153	2,975	1.017	11	
Simcoe-York	109,112	36,617	1.023	9	9,153	3,075	1.049	10	*
Southeastern Ontario	39,681	31,257	0.874	13	3,205	2,525	0.863	12	*
Thames Valley	70,283	43,219	1.207	6	5,914	3,637	1.240	8	*
Toronto	105,317	18,646	0.514	16	9,953	1,754	0.591	16	*
Waterloo Region-Wellington-Dufferin	103,481	54,906	1.537	3	7,099	3,764	1.287	7	*
Statistic	Age Group	Value	Sex		Age Group	Value	Sex		
Province-wide Crude Rate		35,759				2,929			
Province-wide Age Specific Rates	0-0	26,214			0-0	3,358			
Province-wide Age Specific Rates	1-4	21,364			1-4	1,598			
Province-wide Age Specific Rates	5-9	27,070			5-9	2,146			
Province-wide Age Specific Rates	10-19	46,645			10-19	3,808			
Province-wide Sex Specific Rates		36,723	F			2,892	F		
Province-wide Sex Specific Rates		34,845	M			2,964	M		
Province-wide Age & Sex Adjusted Rate		35,792				2,930			
Extremal Quotient [EQ]		4.065				3.152			
Ratio of Third Quartile over First Quartile		1.674				1.715			
Coefficient of Variation (%) [CV]		35.29				35.40			

Data source: Ontario Health Insurance Plan

Exhibit 3.14 Age/sex-adjusted utilization rates of indicator* psychiatric and counseling physician services by 100,000 population aged 0 to 19 years by District Health Council in Ontario, 1997 to 2002



Data source: Ontario Health Insurance Plan

Exhibit 3.15 Annual volume of index services and rates per 100,000 population aged 0 to 19 years receiving psychiatric physician counseling services in Ontario, 1997 to 2002

	Annual Total Volume of Index Physician Counseling and Related Services: K002 K003 K004 K007 K008 K013				Annual Number of Individuals Receiving an Index Physician Counseling Service: K013				
District Health Council	Crude Number	Age and Sex Adjusted Rate Per 100,000	Standardardized Morbidity Ratio	Rank	Crude Number	Age and Sex Adjusted Rate Per 100,000	Standardardized Morbidity Ratio	Rank	Level of Significance
Algoma-Cochrane-Manitoulin-Sudbury	8,672	7,463	0.694	15	747	670	0.553	15	*
Champlain	31,715	11,611	1.071	7	2,980	1,091	0.899	8	*
Durham-Haliburton-Kawartha-Pine Ridge	28,038	12,337	1.140	3	4,002	1,761	1.452	2	*
Essex-Kent-Lambton	11,713	6,941	0.639	16	1,846	1,107	0.912	7	*
Grand River	6,118	9,088	0.839	11	686	1,036	0.858	11	*
Grey-Bruce-Huron-Perth	6,629	7,954	0.735	13	745	931	0.765	13	*
Halton-Peel	37,948	10,204	0.940	8	4,106	1,087	0.895	9	*
Hamilton	15,634	12,242	1.129	4	1,789	1,403	1.155	3	*
Niagara	10,357	9,666	0.891	9	1,494	1,402	1.159	4	*
Northern Shores	5,348	9,217	0.861	10	332	600	0.495	16	*
Northwestern Ontario	5,472	7,565	0.699	14	768	1,070	0.887	10	
Simcoe-York	35,756	12,013	1.106	6	2,824	951	0.783	12	*
Southeastern Ontario	15,785	12,416	1.146	2	882	705	0.581	14	*
Thames Valley	21,572	13,255	1.222	1	3,184	1,964	1.618	1	*
Toronto	69,922	12,165	1.127	5	7,905	1,335	1.116	5	*
Waterloo Region-Wellington-Dufferin	16,756	8,907	0.821	12	2,358	1,253	1.030	6	
Statistic	Age Group	Value	Sex		Age Group	Value	Sex		
Province-wide Crude Rate		10,834				1,213			
Province-wide Age Specific Rates	0-0	9,653			0-0	1,149			
Province-wide Age Specific Rates	1-4	5,293			1-4	1,031			
Province-wide Age Specific Rates	5-9	8,744			5-9	1,803			
Province-wide Age Specific Rates	10-19	14,153			10-19	983			
Province-wide Sex Specific Rates		11,623	F			835	F		
Province-wide Sex Specific Rates		10,086	M			1,571	M		
Province-wide Age & Sex Adjusted Rate		10,846				1,214			
Extremal Quotient [EQ]		1.910				3.272			
Ratio of Third Quartile over First Quartile		1.447				1.455			
Coefficient of Variation (%) [CV]		16.98				26.29			

Data source: Ontario Health Insurance Plan

Exhibit 3.16 Annual volume of index services and rates per 100,000 population aged 0 to 19 years receiving selected psychiatric care services and assessments (excluding psychiatric consultations) in Ontario, 1997 to 2002

	Annual Total Volume of Index Psychiatric Care Services and Related Assessments: K191 K193 K195 K196 K197 K198 K199 C192 C197 C199 C198				Annual Number of Individuals Receiving an Index Psychiatric Care Service: K191				
District Health Council	**Crude Number**	**Age and Sex Adjusted Rate Per 100,000**	**Standardardized Morbidity Ratio**	**Rank**	**Crude Number**	**Age and Sex Adjusted Rate Per 100,000**	**Standardardized Morbidity Ratio**	**Rank**	**Level of Significance**
Algoma-Cochrane-Manitoulin-Sudbury	5,128	4,314	0.668	8	612	524	0.786	9	*
Champlain	30,986	11,327	1.742	1	2,827	1,033	1.539	1	*
Durham-Haliburton-Kawartha-Pine Ridge	9,786	4,297	0.661	9	1,194	523	0.779	10	*
Essex-Kent-Lambton	6,014	3,531	0.544	12	1,077	638	0.950	6	
Grand River	2,161	3,130	0.483	14	227	333	0.498	15	*
Grey-Bruce-Huron-Perth	2,737	3,200	0.493	13	301	359	0.535	13	*
Halton-Peel	23,881	6,507	1.001	4	3,040	821	1.225	3	*
Hamilton	7,909	6,191	0.952	5	774	606	0.903	8	
Niagara	5,047	4,652	0.716	7	697	646	0.962	5	
Northern Shores	2,188	3,697	0.571	11	247	426	0.636	11	*
Northwestern Ontario	1,648	2,256	0.348	16	258	355	0.530	14	*
Simcoe-York	19,613	6,529	1.004	3	1,882	627	0.935	7	
Southeastern Ontario	5,092	3,948	0.608	10	532	416	0.620	12	*
Thames Valley	9,968	6,104	0.939	6	1,171	719	1.071	4	
Toronto	58,447	10,505	1.616	2	4,773	849	1.267	2	*
Waterloo Region-Wellington-Dufferin	5,426	2,898	0.445	15	617	329	0.490	16	*
Statistic	Age Group	Value	Sex		Age Group	Value	Sex		
Province-wide Crude Rate		6,486				669			
Province-wide Age Specific Rates	0-0	73			0-0	17			
Province-wide Age Specific Rates	1-4	478			1-4	145			
Province-wide Age Specific Rates	5-9	3,836			5-9	676			
Province-wide Age Specific Rates	10-19	10,740			10-19	926			
Province-wide Sex Specific Rates		5,903	F			509	F		
Province-wide Sex Specific Rates		7,039	M			821	M		
Province-wide Age & Sex Adjusted Rate		6,504				671			
Extremal Quotient [EQ]		5,020				3.140			
Ratio of Third Quartile over First Quartile		1.887				1.763			
Coefficient of Variation (%) [CV]		44.61				30.57			

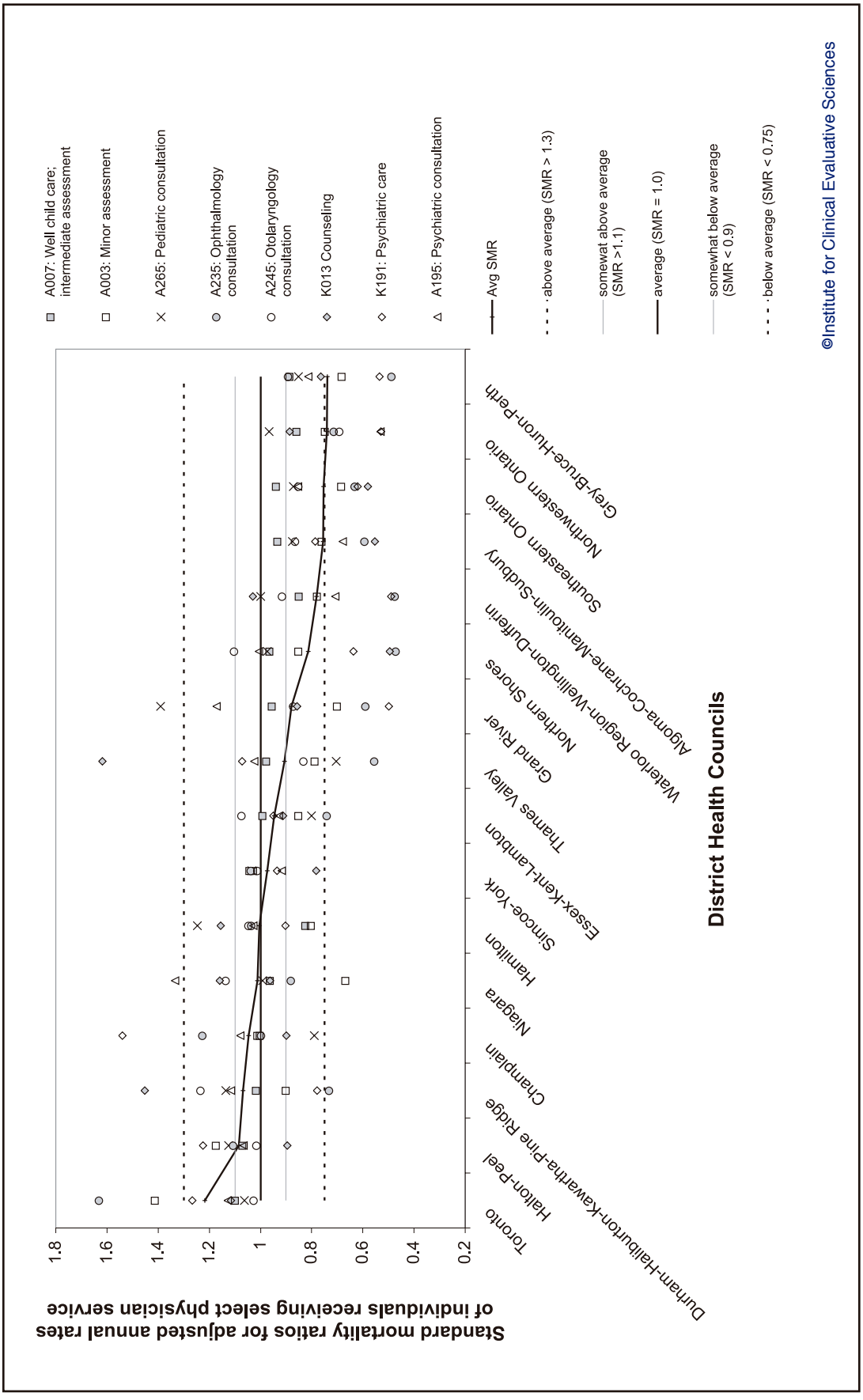
Data source: Ontario Health Insurance Plan

Exhibit 3.17 Annual volume of index services and rates per 100,000 population aged 0 to 19 years receiving selected psychiatric consultations and related assessments (excluding psychiatric care services) in Ontario, 1997 to 2002

	Annual Total Volume of Index Psychiatric Consultation Services and Related Assessments: A193 A194 A195 A196 A395 A895 C193 C194 C195 C196 C395 C895				Annual Number of Individuals Receiving an Index Psychiatric Consultation Service: A195				
District Health Council	Crude Number	Age and Sex Adjusted Rate Per 100,000	Standardized Morbidity Ratio	Rank	Crude Number	Age and Sex Adjusted Rate Per 100,000	Standardized Morbidity Ratio	Rank	Level of Significance
Algoma-Cochrane-Manitoulin-Sudbury	410	342	0.296	15	287	240	0.679	15	*
Champlain	17,616	6,439	5.395	1	1,045	382	1.079	5	
Durham-Haliburton-Kawartha-Pine Ridge	1,491	655	0.548	8	898	395	1.115	4	
Essex-Kent-Lambton	1,339	782	0.665	4	563	328	0.929	10	
Grand River	498	718	0.615	6	287	414	1.172	2	
Grey-Bruce-Huron-Perth	459	530	0.459	13	249	287	0.814	13	
Halton-Peel	2,322	637	0.526	9	1,379	378	1.066	6	
Hamilton	802	627	0.527	10	466	364	1.028	7	
Niagara	819	753	0.636	5	514	473	1.334	1	*
Northern Shores	363	611	0.526	11	213	359	1.006	9	
Northwestern Ontario	216	296	0.250	16	138	188	0.531	16	*
Simcoe-York	1,655	551	0.463	12	977	325	0.918	11	
Southeastern Ontario	1,214	948	0.796	2	392	303	0.854	12	
Thames Valley	1,080	661	0.556	7	593	363	1.024	8	
Toronto	4,921	887	0.733	3	2,213	400	1.129	3	*
Waterloo Region-Wellington-Dufferin	768	411	0.343	14	469	250	0.707	14	*
Statistic	Age Group	Value	Sex		Age Group	Value	Sex		
Province-wide Crude Rate		1,190				353			
Province-wide Age Specific Rates	0-0	5			0-0	4			
Province-wide Age Specific Rates	1-4	305			1-4	18			
Province-wide Age Specific Rates	5-9	1,218			5-9	82			
Province-wide Age Specific Rates	10-19	1,622			10-19	654			
Province-wide Sex Specific Rates		856	F			386	F		
Province-wide Sex Specific Rates		1,507	M			322	M		
Province-wide Age & Sex Adjusted Rate		1,194				354			
Extremal Quotient [EQ]		21.756				2.519			
Ratio of Third Quartile over First Quartile		1.421				1.315			
Coefficient of Variation (%) [CV]		139.19				16.45			

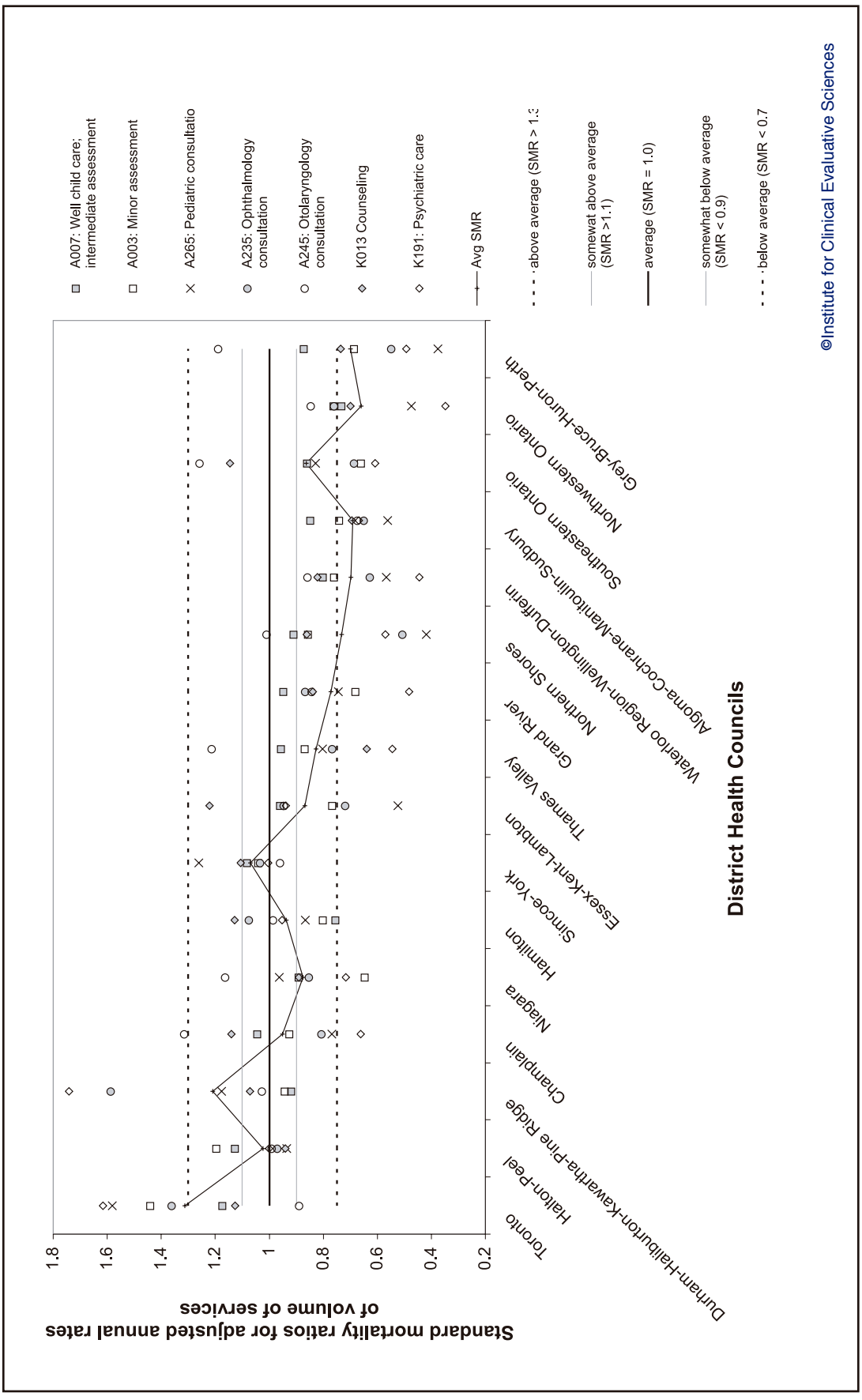
Data source: Ontario Health Insurance Plan

Exhibit 3.18 Variation in rates of individuals receiving select physician services in one year in rank order of average standardized mortality ratio, by District Health Council in Ontario, 1997 to 2002



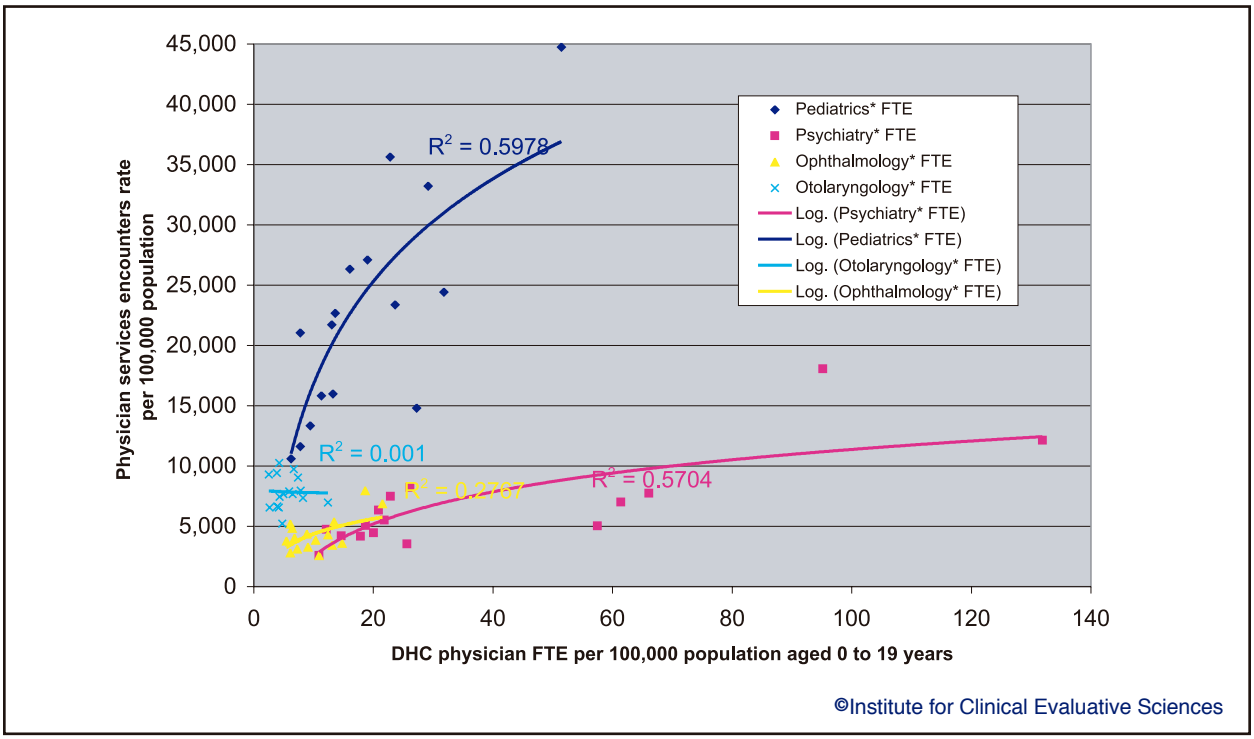
Data source: Ontario Health Insurance Plan

Exhibit 3.19 Standardized ratios showing variation in total rates of service volumes in one year in rank order of average standardized mortality ratio by District Health Council in Ontario, 1997 to 2002



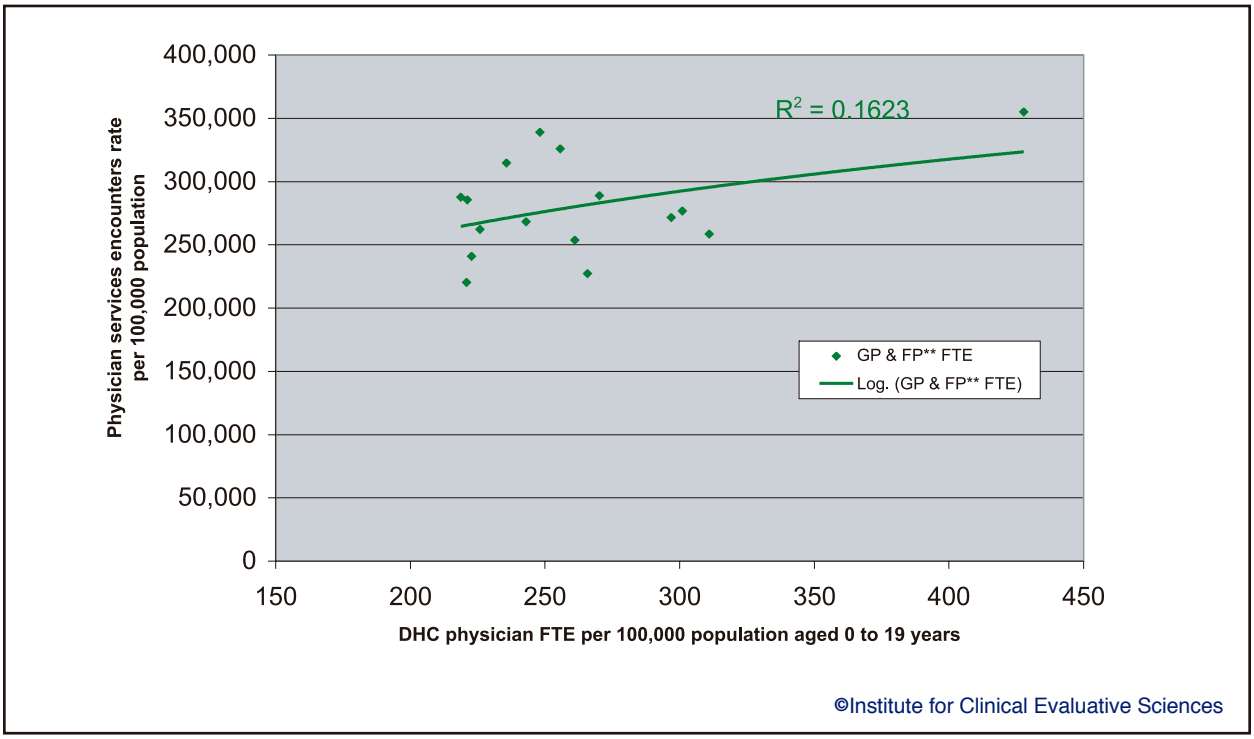
Data source: Ontario Health Insurance Plan

Exhibit 3.20 a) Association between District Health Council specialist physician supply per 100,000 population aged 0 to 19 years and DHC rate of physician encounters in Ontario, 1997 to 2002



Data sources: Ontario Health Insurance Plan; Corporate Provider Database

Exhibit 3.20 b) Association between District Health Council GP/FP physician supply per 100,000 population aged 0 to 19 years and DHC rate of physician encounters in Ontario, 1997 to 2002



Data sources: Ontario Health Insurance Plan; Corporate Provider Database

Exhibit 3.21 Age/sex-adjusted utilization of physician services in home District Health Council per 100,000 population aged 0 to 19 years in Ontario, 1997 to 2002

District Health Council (Patient Residence/Physician Office)	GP/FP Well Child and Minor Assessments	Pediatric Outpatient Assessments and Consultations	Psychiatric Inpatient/Outpatient Assessment and Care Encounters	Ophthalmology Inpatient/Outpatient Assessments and Consultations	Otolaryngology Inpatient/Outpatient Assessments and Consultations
Algoma-Cochrane-Manitoulin-Sudbury	●●	●	●	●	●
Champlain**	●●●	●●●●●	●●●●●	●●●●●	●●●●
Durham-Haliburton-Kawartha-Pine Ridge	●●●	●	●	●	●●●●
Essex-Kent-Lambton	●●●	●●●	●	●●	●●●●
Grand River	●●	●	●	●	●
Grey-Bruce-Huron-Perth	●●	●	●	●	●●●
Halton-Peel	●●●	●	●●●	●●	●●●
Hamilton**	●	●●●	●●●	●●●●	●●
Toronto**	●●●●	●●●●●	●●●●●	●●●●●	●●●
Northern Shores	●●●	●	●	●	●●
Niagara	●●●	●●●	●●	●●	●●●●
Northwestern Ontario	●●	●	●	●	●●●
Southeastern**	●●	●●	●	●	●●●●
Simcoe-York	●●●	●●●	●	●	●
Thames Valley**	●●●	●	●●●	●●●	●●●
Waterloo Region-Wellington-Dufferin	●●	●	●	●	●●

**Pediatric academic health sciences centres provide tertiary care services to children outside these DHCs.

Above Average	Somewhat Above Average	Average	Somewhat Below Average	Below Average
(greater than 1.3 times the provincial average)	(1.1 to 1.3 times the provincial average)	(0.9 to 1.1 times the provincial average)	(0.75 to 0.9 times the provincial average)	(less than 0.75 times the provincial average)

Data sources: Ontario Health Insurance Plan; Corporate Provider Database

Exhibit 3.22 Comparison of annual rates of services encounters per 100,000 population aged 0 to 19 years receiving services from physicians in versus outside the home District Health Council for well child, newborn, intermediate and minor assessments in Ontario, 1997 to 2002

	Physician Providing Service Within Same DHC as Child's Residence: Well Child, Newborn, & Minor Assessment Physician Services: A001 A007 A261 K017 K267 K269			Physician Providing Service Outside DHC of Child's Residence: Well Child, Newborn, & Minor Assessment Physician Services: A001 A007 A261 K017 K267 K269			Ratio of Rates of Service From Physician Within to Physician Outside DHC Of Child's Residence		
District Health Council	**Age and Sex Adjusted Rate Per 100,000**	**Standardized Morbidity Ratio**	**Rank**	**Age and Sex Adjusted Rate Per 100,000**	**Standardized Morbidity Ratio**	**Rank**	**Proportion of Service Encounters Within DHC**	**Standardized Ratio**	**Rank**
Algoma-Cochrane-Manitoulin-Sudbury	213782	0.871	11	39807	0.744	10	0.843	1.027	7
Champlain	245321	0.993	6	31353	0.580	16	0.887	1.081	1
Durham-Haliburton-Kawartha-Pine Ridge	245019	0.992	7	69559	1.280	4	0.779	0.949	14
Essex-Kent-Lambton	254873	1.032	3	32917	0.608	15	0.886	1.079	2
Grand River	211125	0.854	13	74308	1.366	2	0.740	0.901	16
Grey-Bruce-Huron-Perth	212579	0.861	12	49555	0.919	6	0.811	0.988	10
Halton-Peel	265554	1.076	2	73337	1.358	3	0.784	0.955	13
Hamilton	180430	0.731	16	46761	0.865	8	0.794	0.968	12
Niagara	229983	0.930	8	38335	0.710	12	0.857	1.045	4
Northern Shores	223674	0.911	9	48069	0.899	7	0.823	1.003	9
Northwestern Ontario	187031	0.759	15	33193	0.615	14	0.849	1.035	5
Simcoe-York	246436	0.997	5	79433	1.466	1	0.756	0.922	15
Southeastern Ontario	218993	0.887	10	39471	0.730	11	0.847	1.033	6
Thames Valley	251888	1.020	4	36942	0.683	13	0.872	1.063	3
Toronto	295992	1.193	1	58951	1.080	5	0.834	1.016	8
Waterloo Region-Wellington-Dufferin	195209	0.791	14	45881	0.848	9	0.810	0.987	11
Statistic	Value	Age Group & Sex		Value	Age Group & Sex		Value		
Province-wide Crude Rate	248177			54282			0.821		
Province-wide Age Specific Rates	892813	0-0		154163	0-0		0.853		
Province-wide Age Specific Rates	376558	1-4		76309	1-4		0.831		
Province-wide Age Specific Rates	204519	5-9		47127	5-9		0.813		
Province-wide Age Specific Rates	164035	10-19		40625	10-19		0.802		
Province-wide Sex Specific Rates	257352	F		56779	F		0.819		
Province-wide Sex Specific Rates	239477	M		51914	M		0.822		
Province-wide Age & Sex Adjusted Rate	247028			54099			0.820		
Extremal Quotient [EQ]	1.640			2.534					
Ratio of Third Quartile over First Quartile	1.176			1.707					
Coefficient of Variation (%) [CV]	13.49			30.43					

Data sources: Ontario Health Insurance Plan; Corporate Provider Database

Exhibit 3.23 Comparison of annual rates of services encounters per 100,000 population aged 0 to 19 years receiving services from physicians in versus outside the home District Health Council for outpatient pediatric consultation and related pediatric assessments in Ontario, 1997 to 2002

	Physician Providing Service Within Same DHC as Child's Residence: Paediatric Consultation Services and Related Assessments: A263 A264 A265 A266			Physician Providing Service Outside DHC of Child's Residence: Paediatric Consultation Services and Related Assessments: A263 A264 A265 A266			Ratio of Rates of Service From Physician Within to Physician Outside DHC of Child's Residence		
District Health Council	**Age and Sex Adjusted Rate Per 100,000**	**Standardized Morbidity Ratio**	**Rank**	**Age and Sex Adjusted Rate Per 100,000**	**Standardized Morbidity Ratio**	**Rank**	**Proportion of Service Encounters Within DHC**	**Standardized Ratio**	**Rank**
Algoma-Cochrane-Manitoulin-Sudbury	10,530	0.493	13	5,286	0.771	7	0.666	0.879	10
Champlain	29505	1.382	2	3698	0.540	12	0.889	1.174	1
Durham-Haliburton-Kawartha-Pine Ridge	11968	0.560	12	9753	1.417	3	0.551	0.728	14
Essex-Kent-Lambton	19635	0.918	5	3052	0.445	14	0.865	1.143	2
Grand River	13967	0.649	9	7074	1.036	4	0.664	0.877	11
Grey-Bruce-Huron-Perth	5354	0.247	16	5267	0.774	8	0.504	0.666	16
Halton-Peel	14972	0.704	8	11363	1.657	2	0.569	0.751	13
Hamilton	19267	0.902	6	5165	0.753	9	0.789	1.041	7
Niagara	23129	1.087	3	3959	0.579	11	0.854	1.128	3
Northern Shores	6135	0.292	15	5503	0.806	6	0.527	0.696	15
Northwestern Ontario	10456	0.491	14	2894	0.422	15	0.783	1.034	8
Simcoe-York	21908	1.021	4	13734	2.004	1	0.615	0.812	12
Southeastern Ontario	19042	0.891	7	4321	0.632	10	0.815	1.076	6
Thames Valley	12620	0.591	10	2174	0.317	16	0.853	1.127	4
Toronto	38085	1.772	1	6652	0.981	5	0.851	1.124	5
Waterloo Region-Wellington-Dufferin	12,319	0.577	11	3,665	0.534	13	0.771	1.018	9
Statistic	Value	Age Group & Sex		Value	Age Group & Sex		Value	Age Group	
Province-wide Crude Rate	21,512			6,899			0.757		
Province-wide Age Specific Rates	109,839	0-0		28,569	0-0		0.794	0-0	
Province-wide Age Specific Rates	37,252	1-4		11,346	1-4		0.767	1-4	
Province-wide Age Specific Rates	20,445	5-9		6,964	5-9		0.746	5-9	
Province-wide Age Specific Rates	8,152	10-19		3,227	10-19		0.716	10-19	
Province-wide Sex Specific Rates	20,116	F		6,442	F		0.757	F	
Province-wide Sex Specific Rates	22,836	M		7,333	M		0.757	M	
Province-wide Age & Sex Adjusted Rate	21,365			6,862			0.757		
Extremal Quotient [EQ]	7.113			6.318					
Ratio of Third Quartile over First Quartile	1.846			1.864					
Coefficient of Variation (%) [CV]	47.67			51.93					

Data sources: Ontario Health Insurance Plan; Corporate Provider Database

Exhibit 3.24 Comparison of annual rates of services encounters per 100,000 population aged 0 to 19 years receiving services from physicians in versus outside the home District Health Council for psychiatric consultations, psychiatric care and related assessments in Ontario, 1997 to 2002

	Physician Providing Service Within Same DHC as Child's Residence: Psychiatric Consultation, Care, and Related Assessments: A193 A194 A195 A196 A395 A895 C193 C194 C195 C196 C395 C895 K191 K193 K195 K196 K197 K198 K199 C192 C197 C199 C198			Physician Providing Service Outside DHC of Child's Residence: Psychiatric Consultation, Care, and Related Assessments: A193 A194 A195 A196 A395 A895 C193 C194 C195 C196 C395 C895 K191 K193 K195 K196 K197 K198 K199 C192 C197 C199 C198			Ratio of Rates of Service From Physician Within to Physician Outside DHC of Child's Residence		
District Health Council	**Age and Sex Adjusted Rate Per 100,000**	**Standardized Morbidity Ratio**	**Rank**	**Age and Sex Adjusted Rate Per 100,000**	**Standardized Morbidity Ratio**	**Rank**	**Proportion of Service Encounters Within DHC**	**Standardized Ratio**	**Rank**
Algoma-Cochrane-Manitoulin-Sudbury	3,411	0.580	8	1,342	0.590	14	0.718	0.994	6
Champlain	16430	2.756	1	1612	0.702	10	0.911	1.261	1
Durham-Haliburton-Kawartha-Pine Ridge	1907	0.320	11	3587	1.563	2	0.347	0.481	14
Essex-Kent-Lambton	3554	0.598	7	1500	0.654	12	0.703	0.974	8
Grand River	1468	0.250	15	2740	1.195	6	0.349	0.483	13
Grey-Bruce-Huron-Perth	1379	0.235	16	2791	1.211	4	0.331	0.458	15
Halton-Peel	6071	1.018	4	2145	0.934	7	0.739	1.023	5
Hamilton	5597	0.940	5	1407	0.613	13	0.799	1.107	4
Niagara	4503	0.755	6	1848	0.807	9	0.709	0.982	7
Northern Shores	1679	0.284	12	2771	1.212	5	0.377	0.523	12
Northwestern Ontario	1477	0.249	14	1111	0.484	16	0.571	0.791	9
Simcoe-York	2177	0.366	9	5307	2.313	1	0.291	0.403	16
Southeastern Ontario	2039	0.344	10	2998	1.304	3	0.405	0.561	11
Thames Valley	6429	1.079	3	1314	0.572	15	0.830	1.150	3
Toronto	10563	1.769	2	1562	0.679	11	0.871	1.207	2
Waterloo Region-Wellington-Dufferin	1,674	0.280	13	1,851	0.806	8	0.475	0.658	10
Statistic	Value	Age Group & Sex		Value	Age Group & Sex		Value		
Province-wide Crude Rate	5,946			2,289			0.722		
Province-wide Age Specific Rates	50	0-0		56	0-0		0.471		
Province-wide Age Specific Rates	769	1-4		227	1-4		0.772		
Province-wide Age Specific Rates	4,500	5-9		1,327	5-9		0.772		
Province-wide Age Specific Rates	9,210	10-19		3,779	10-19		0.709		
Province-wide Sex Specific Rates	5,108	F		2,053	F		0.713		
Province-wide Sex Specific Rates	6,739	M		2,513	M		0.728		
Province-wide Age & Sex Adjusted Rate	5,962			2,295			0.722		
Extremal Quotient [EQ]	11.915			4.778					
Ratio of Third Quartile over First Quartile	3.480			1,913					
Coefficient of Variation (%) [CV]	75.82			51.90					

Data sources: Ontario Health Insurance Plan; Corporate Provider Database

Exhibit 3.25 Comparison of annual rates of services encounters per 100,000 population aged 0 to 19 years receiving services from physicians in versus outside the home District Health Council for ophthalmology assessments in Ontario, 1997 to 2002

	Physician Providing Service Within Same DHC as Child's Residence: Ophthalmology Consultation and Related Assessments: A233 A234 A235 A236 C233 C234 C235 C236			Physician Providing Service Outside DHC of Child's Residence: Ophthalmology Consultation and Related Assessments: A233 A234 A235 A236 C233 C234 C235 C236			Ratio of Rates of Service From Physician Within to Physician Outside DHC of Child's Residence		
District Health Council	**Age and Sex Adjusted Rate Per 100,000**	**Standardardized Morbidity Ratio**	**Rank**	**Age and Sex Adjusted Rate Per 100,000**	**Standardardized Morbidity Ratio**	**Rank**	**Proportion of Service Encounters Within DHC**	**Standardized Ratio**	**Rank**
Algoma-Cochrane-Manitoulin-Sudbury	2,202	0.636	9	1,074	0.679	14	0.672	0.982	6
Champlain	7169	2.091	1	784	0.495	15	0.901	1.318	1
Durham-Haliburton-Kawartha-Pine Ridge	1640	0.477	14	2416	1.521	2	0.404	0.591	15
Essex-Kent-Lambton	2769	0.810	6	1075	0.676	13	0.720	1.053	5
Grand River	2473	0.723	8	1884	1.178	4	0.568	0.830	10
Grey-Bruce-Huron-Perth	1251	0.359	15	1544	0.961	7	0.447	0.654	14
Halton-Peel	2765	0.810	7	2091	1.316	3	0.569	0.832	9
Hamilton	4113	1.199	3	1275	0.806	11	0.763	1.116	4
Niagara	2864	0.835	5	1423	0.893	8	0.668	0.977	7
Northern Shores	1187	0.343	16	1390	0.866	9	0.461	0.673	13
Northwestern Ontario	2055	0.598	11	1750	1.112	5	0.540	0.789	11
Simcoe-York	2059	0.600	10	3121	1.974	1	0.397	0.581	16
Southeastern Ontario	1826	0.533	13	1609	1.018	6	0.532	0.777	12
Thames Valley	3237	0.942	4	372	0.236	16	0.897	1.311	2
Toronto	5573	1.614	2	1313	0.815	10	0.809	1.183	3
Waterloo Region-Wellington-Dufferin	1,889	0.551	12	1,247	0.791	12	0.602	0.880	8
Statistic	Value	Age Group & Sex		Value	Age Group & Sex		Value		
Province-wide Crude Rate	3,432			1,585			0.684		
Province-wide Age Specific Rates	4,874	0-0		2,895	0-0		0.627		
Province-wide Age Specific Rates	3,782	1-4		1,948	1-4		0.660		
Province-wide Age Specific Rates	3,856	5-9		1,797	5-9		0.682		
Province-wide Age Specific Rates	2,949	10-19		1,219	10-19		0.708		
Province-wide Sex Specific Rates	3,537	F		1,623	F		0.685		
Province-wide Sex Specific Rates	3,332	M		1,549	M		0.683		
Province-wide Age & Sex Adjusted Rate	3,430			1,583			0.684		
Extremal Quotient [EQ]	6.040			8.381					
Ratio of Third Quartile over First Quartile	1.642			1.565					
Coefficient of Variation (%) [CV]	52.82			44.73					

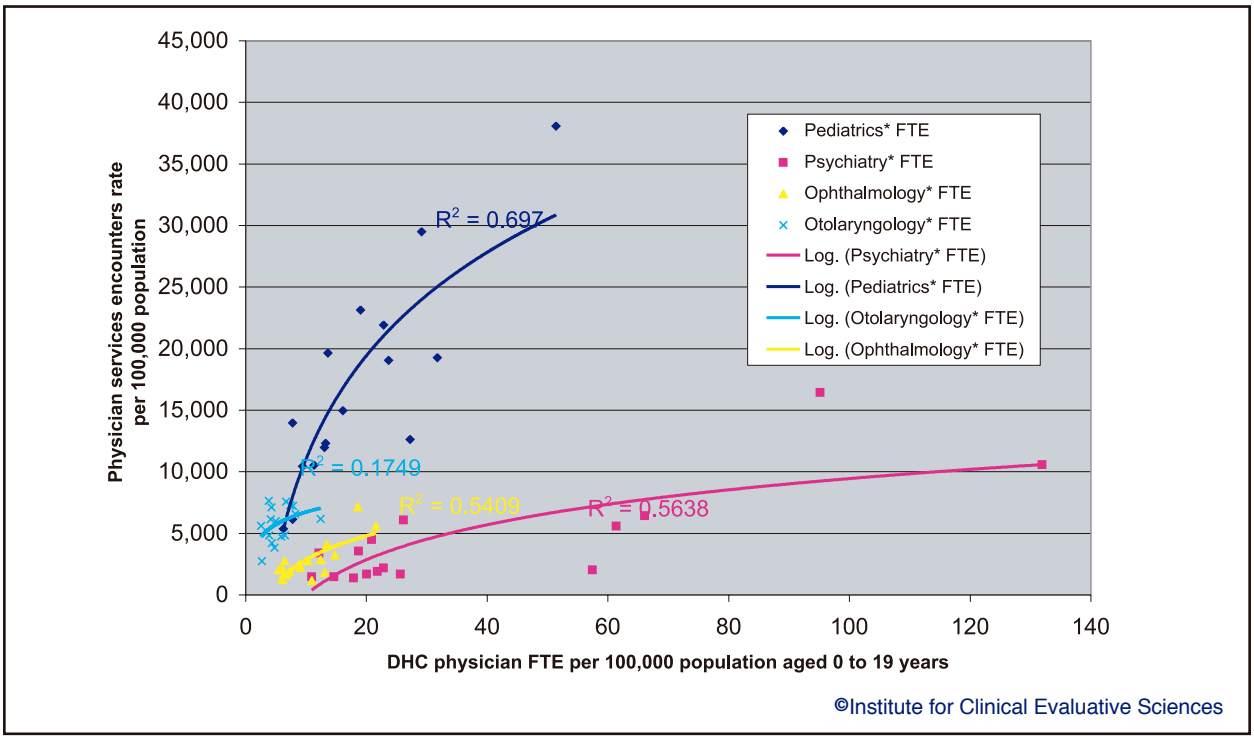
Data sources: Ontario Health Insurance Plan; Corporate Provider Database

Exhibit 3.26 Comparison of annual rates of services encounters per 100,000 population aged 0 to 19 years receiving services from physicians in versus outside the home District Health Council for otolaryngology assessments in Ontario, 1997 to 2002

	Physician Providing Service Within Same DHC as Child's Residence: Otolaryngology Consultations and Related Assessments: A243 A244 A245 A246 C243 C244 C245 C246			Physician Providing Service Outside DHC of Child's Residence: Otolaryngology Consultations and Related Assessments: A243 A244 A245 A246 C243 C244 C245 C246			Ratio of Rates of Service From Physician Within to Physician Outside DHC of Child's Residence		
District Health Council	**Age and Sex Adjusted Rate Per 100,000**	**Standardized Morbidity Ratio**	**Rank**	**Age and Sex Adjusted Rate Per 100,000**	**Standardized Morbidity Ratio**	**Rank**	**Proportion of Service Encounters Within DHC**	**Standardized Ratio**	**Rank**
Algoma-Cochrane-Manitoulin-Sudbury	3,840	0.646	15	1,376	0.765	12	0.736	0.959	9
Champlain	7224	1.211	4	746	0.414	15	0.906	1.180	2
Durham-Haliburton-Kawartha-Pine Ridge	7113	1.187	5	3143	1.734	5	0.694	0.903	11
Essex-Kent-Lambton	7649	1.279	1	1792	0.992	9	0.810	1.055	5
Grand River	2732	0.459	16	3819	2.108	1	0.417	0.543	16
Grey-Bruce-Huron-Perth	5628	0.934	10	3663	2.022	2	0.606	0.789	13
Halton-Peel	5980	1.004	9	1703	0.943	11	0.778	1.014	7
Hamilton	4828	0.808	12	2841	1.574	6	0.630	0.820	12
Niagara	7255	1.214	3	1792	0.991	10	0.802	1.044	6
Northern Shores	4740	0.788	13	3148	1.733	4	0.601	0.782	14
Northwestern Ontario	6157	1.033	8	409	0.227	16	0.938	1.221	1
Simcoe-York	4215	0.705	14	3251	1.799	3	0.565	0.735	15
Southeastern Ontario	7587	1.272	2	2173	1.205	7	0.777	1.012	8
Thames Valley	6565	1.099	6	793	0.439	13	0.892	1.162	3
Toronto	6169	1.026	7	791	0.431	14	0.886	1.154	4
Waterloo Region-Wellington-Dufferin	4,834	0.810	11	1,836	1.018	8	0.725	0.944	10
Statistic	Value	Age Group & Sex		Value	Age Group & Sex		Value		
Province-wide Crude Rate	5,976			1,806			0.768		
Province-wide Age Specific Rates	3,107	0-0		1,058	0-0		0.746		
Province-wide Age Specific Rates	11,171	1-4		3,131	1-4		0.781		
Province-wide Age Specific Rates	8,549	5-9		2,530	5-9		0.772		
Province-wide Age Specific Rates	2,900	10-19		988	10-19		0.746		
Province-wide Sex Specific Rates	5,167	F		1,572	F		0.767		
Province-wide Sex Specific Rates	6,743	M		2,028	M		0.769		
Province-wide Age & Sex Adjusted Rate	5,971			1,805			0.768		
Extremal Quotient [EQ]	2.800			9.336					
Ratio of Third Quartile over First Quartile	1.498			2.901					
Coefficient of Variation (%) [CV]	20.20			55.40					

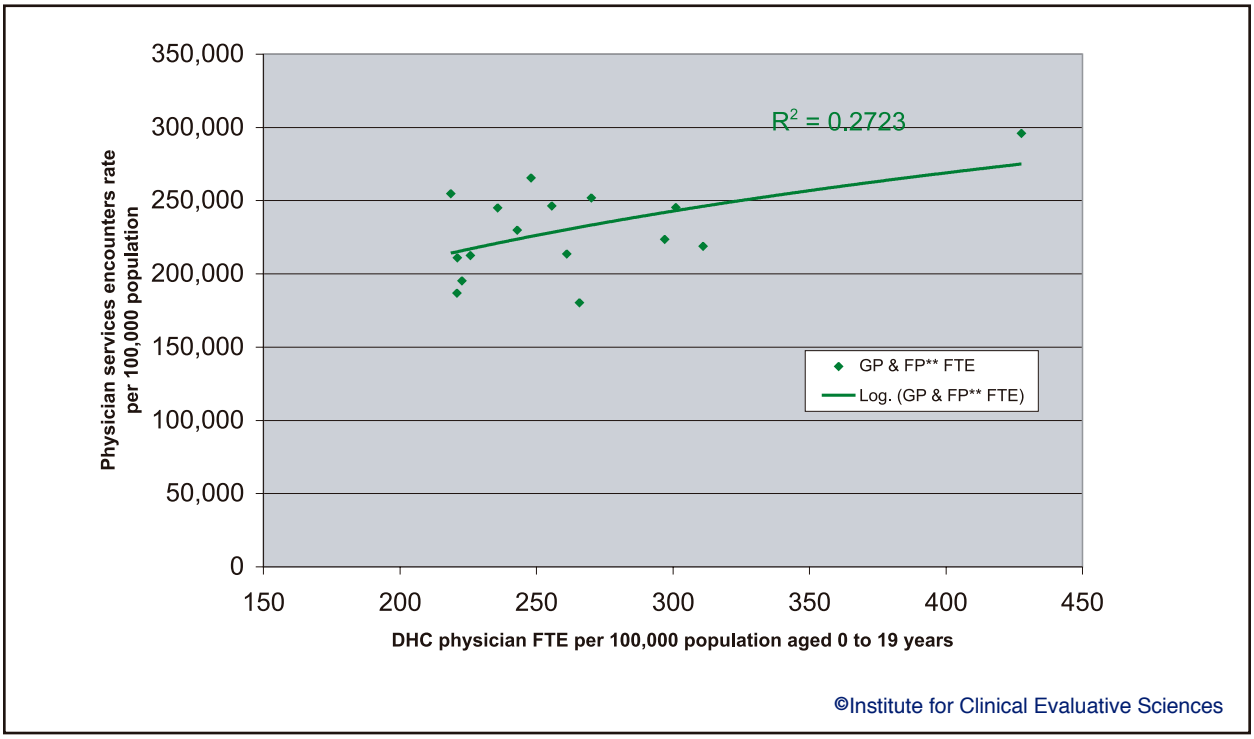
Data sources: Ontario Health Insurance Plan; Corporate Provider Database

Exhibit 3.27 a) Association between District Health Council specialist physician supply per 100,000 population aged 0 to 19 years and rate of home DHC encounters in Ontario, 1997 to 2002



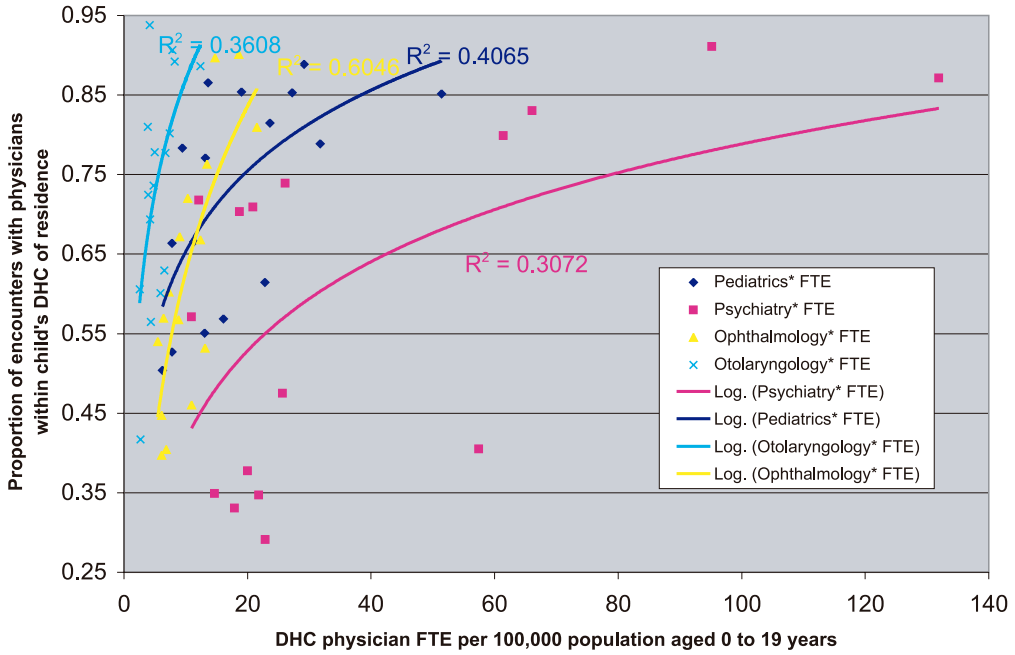
Data sources: Ontario Health Insurance Plan; Corporate Provider Database

Exhibit 3.27 b) Association between District Health Council GP/FP physician supply per 100,000 population aged 0 to 19 years and rate of home DHC encounters in Ontario, 1997 to 2002



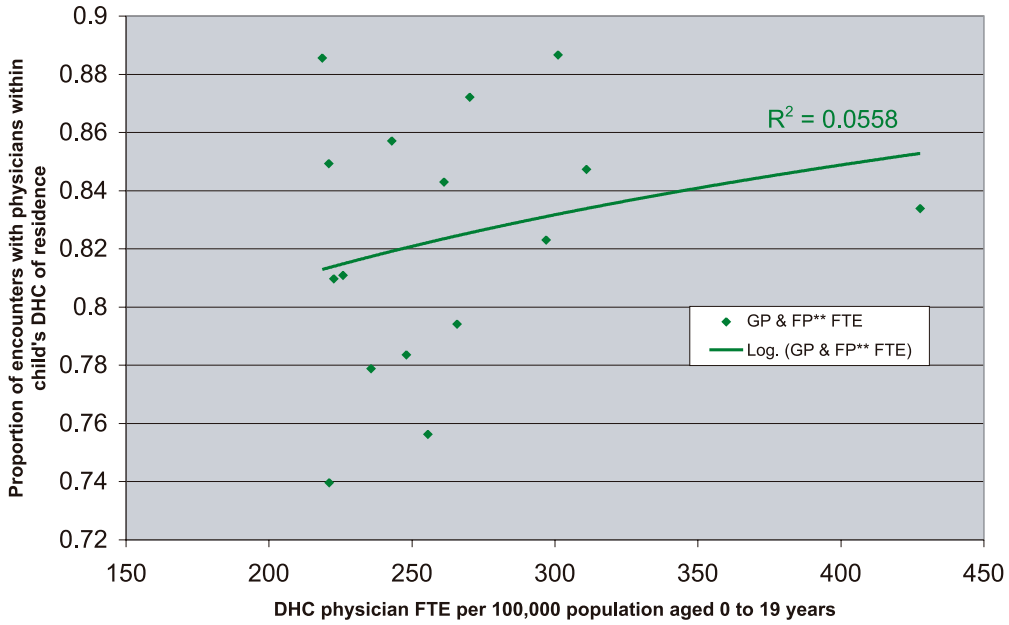
Data sources: Ontario Health Insurance Plan; Corporate Provider Database

Exhibit 3.28 a) Association between District Health Council specialist physician supply per 100,000 population aged 0 to 19 years and proportion of home DHC physicians encounters in Ontario, 1997–2002



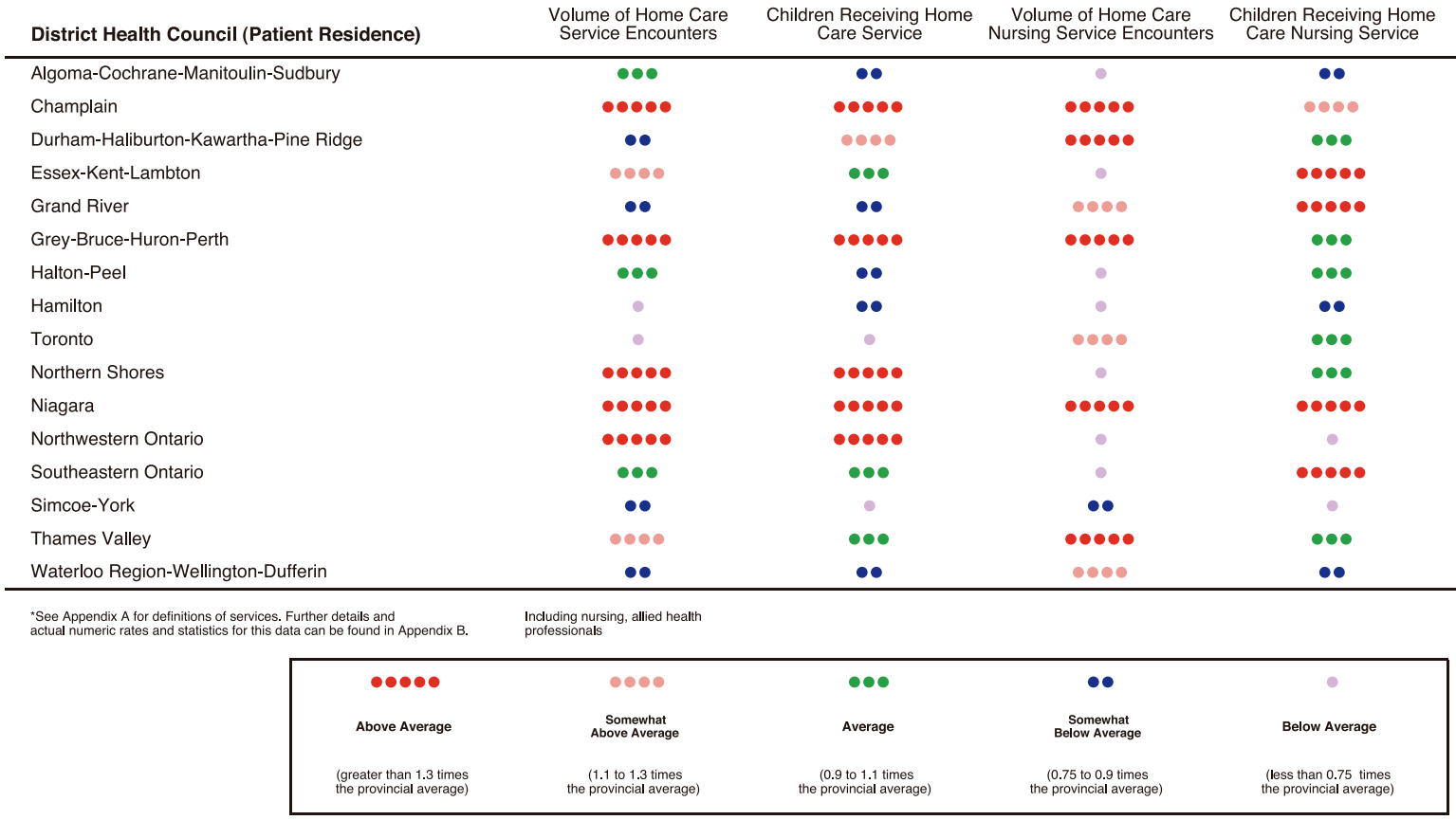
Data sources: Ontario Health Insurance Plan; Corporate Provider Database

Exhibit 3.28 b) Association between District Health Council GP/FP physician supply per 100,000 population aged 0 to 19 years and proportion physician encounters outside home DHC in Ontario, 1997–2002



Data sources: Ontario Health Insurance Plan; Corporate Provider Database

Exhibit 3.29 Age/sex-adjusted utilization of home care service per 100,000 population aged 0 to 19 years, by District Health Council in Ontario, 2000 to 2002



*See Appendix A for definitions of services. Further details and actual numeric rates and statistics for this data can be found in Appendix B.

Including nursing, allied health professionals

Data source: Ontario Home Care Administrative System

Exhibit 3.30 Annual rates of total home care services volume per 100,000 population aged 0 to 19 years receiving professional home care services (including nursing, social work, and other allied health professionals) by District Health Council in Ontario, 2000 to 2002

	Annual Total Volume of Home Care Professional Services				Annual Number of Individuals Receiving a Professional Home Care Service				
District Health Council	Crude Number	Age and Sex Adjusted Rate Per 100,000	Standardardized Morbidity Ratio	Rank	Crude Number	Age and Sex Adjusted Rate Per 100,000	Standardardized Morbidity Ratio	Rank	Level of Significance
Algoma-Cochrane-Manitoulin-Sudbury	14,821	14,495	0.937	8	1,166	1,131	0.853	12	*
Champlain	70,622	25,847	1.677	4	5,309	1,940	1.468	5	*
Durham-Haliburton-Kawartha-Pine Ridge	26,726	11,602	0.761	14	3,954	1,712	1.307	6	*
Essex-Kent-Lambton	29,544	17,932	1.163	7	2,182	1,323	1.001	8	
Grand River	8,159	12,780	0.837	13	748	1,166	0.888	11	
Grey-Bruce-Huron-Perth	16,564	22,126	1.434	5	1,901	2,517	1.904	2	*
Halton-Peel	55,171	13,898	0.898	10	4,680	1,182	0.892	10	*
Hamilton	12,904	10,057	0.654	15	1,304	1,017	0.770	14	*
Niagara	28,390	27,177	1.771	3	2,158	2,060	1.563	4	*
Northern Shores	21,952	42,916	2.761	1	1,876	3,640	2.725	1	*
Northwestern Ontario	20,107	29,273	1.904	2	1,478	2,148	1.627	3	*
Simcoe-York	41,230	13,517	0.872	11	2,805	915	0.689	15	*
Southeastern Ontario	17,014	14,011	0.912	9	1,478	1,212	0.919	9	
Thames Valley	29,048	17,972	1.168	6	2,209	1,363	1.034	7	
Toronto	52,270	8,435	0.559	16	4,926	808	0.620	16	*
Waterloo Region-Wellington-Dufferin	24,948	12,957	0.841	12	2,072	1,077	0.816	13	*
Statistic	Age Group	Value	Sex		Age Group	Value	Sex		
Province-wide Crude Rate		15,409				1,321			
Province-wide Age Specific Rates	0-0	17,907			0-0	1,008			
Province-wide Age Specific Rates	1-4	15,784			1-4	1,107			
Province-wide Age Specific Rates	5-9	38,002			5-9	3,329			
Province-wide Age Specific Rates	10-19	3,475			10-19	395			
Province-wide Sex Specific Rates		10,041	F			821	F		
Province-wide Sex Specific Rates		20,502	M			1,795	M		
Province-wide Age & Sex Adjusted Rate		15,411				1,321			
Extremal Quotient [EQ]		5.088				4.503			
Ratio of Third Quartile over First Quartile		1.864				1.812			
Coefficient of Variation (%) [CV]		44.51				40.93			

Data source: Ontario Home Care Administrative System

Exhibit 3.31 Annual rates of total home care services volume per 100,000 population aged 0 to 19 years receiving professional home care nursing services, by District Health Council in Ontario, 2000 to 2002

	Annual Total Volume of Home Care Nursing Services				Annual Number of Individuals Receiving a Home Care Nursing Service				
District Health Council	Crude Number	Age and Sex Adjusted Rate Per 100,000	Standardardized Morbidity Ratio	Rank	Crude Number	Age and Sex Adjusted Rate Per 100,000	Standardardized Morbidity Ratio	Rank	Level of Significance
Algoma-Cochrane-Manitoulin-Sudbury	12,944	12,247	0.479	15	329	305	0.916	12	
Champlain	98,515	36,326	1.381	4	1,126	418	1.214	5	*
Durham-Haliburton-Kawartha-Pine Ridge	83,316	37,899	1.436	2	786	353	1.042	7	
Essex-Kent-Lambton	31,873	19,094	0.726	10	784	468	1.369	3	*
Grand River	20,171	31,499	1.224	6	329	506	1.512	1	*
Grey-Bruce-Huron-Perth	26,933	36,665	1.358	3	257	327	0.972	9	
Halton-Peel	71,158	17,966	0.678	11	1,264	323	0.944	11	
Hamilton	16,864	13,063	0.496	14	336	260	0.759	14	*
Niagara	36,884	36,214	1.358	5	471	459	1.323	4	*
Northern Shores	7,849	15,207	0.579	13	194	358	1.068	6	
Northwestern Ontario	4,222	6,037	0.232	16	170	242	0.714	15	*
Simcoe-York	60,346	20,128	0.764	9	678	224	0.663	16	*
Southeastern Ontario	21,313	17,405	0.677	12	566	469	1.366	2	*
Thames Valley	68,507	42,951	1.620	1	541	334	0.981	8	
Toronto	182,946	29,169	1.105	8	2,059	324	0.971	10	
Waterloo Region-Wellington-Dufferin	59,494	30,903	1.173	7	530	276	0.806	13	*
Statistic	Age Group	Value	Sex		Age Group	Value	Sex		
Province-wide Crude Rate		26,367				342			
Province-wide Age Specific Rates	0-0	135,624			0-0	2,259			
Province-wide Age Specific Rates	1-4	40,782			1-4	290			
Province-wide Age Specific Rates	5-9	24,398			5-9	188			
Province-wide Age Specific Rates	10-19	12,908			10-19	278			
Province-wide Sex Specific Rates		24,488	F			319	F		
Province-wide Sex Specific Rates		28,150	M			364	M		
Province-wide Age & Sex Adjusted Rate		26,373				342			
Extremal Quotient [EQ]		7.115				2.262			
Ratio of Third Quartile over First Quartile		2.224				1.509			
Coefficient of Variation (%) [CV]		35.68				21.79			

Data source: Ontario Home Care Administrative System

Chapter 4—Service Coordination

Introduction

The purpose of this chapter is to obtain an overview of collaborative relationships reported by organizations providing treatment services for children. Though many organizations have reported such alliances, there do not appear to be uniform patterns for formal cooperation or integration across the organizational sectors.

Relationships between organizations

Catchment areas

Almost all of the surveyed organizations (98%) reported a formal catchment area for service provision, with a majority (79%) reporting an area smaller than the DHC boundary, 13% reporting a catchment area that matching their DHC boundary, and only 8% indicating a catchment area larger than their DHC. Almost one-third (29%) indicated awareness of other organizations with overlapping catchment areas coupled with delivery of the same spectrum of services. The proportion of organizations reporting overlapping catchment areas varied by DHC from 0% with Southeastern Ontario to 47% in Thames Valley, and seemed to be a greater problem in the more populated DHCs.

Referrals

Almost all non-hospital organizations (95%) reported acceptance of self-referrals. Only 42% of respondent organizations indicated acceptance of referrals from outside their catchment area. Of those accepting outside referrals, 8% indicated that they were given lower priority than referrals from within the catchment area. Acceptance of outside referrals ranged from none in Simcoe-York to 75% in Niagara. The majority of organizations (77%) indicated that outside referrals accounted for less than 1% of children served. Only 10 out of 229 respondent organizations estimated outside referrals at more than 10%; five were located in Toronto.

Most respondent organizations (96%) reported making referrals to other health service providers on a regular basis, with approximately one-third (34%) attributing this to lack of service capacity or and excessive waiting list at their own organization. This was cited by more organizations in Halton-Peel (67%), Simcoe-York (60%), Toronto (49%) and Thames Valley (40%) than in other DHCs. Most organizations also indicated regular referral of children to other providers for a more appropriate service (64%) and for supplementary service beyond that available from their own organization (92%).

Integration and coordination

Survey respondents were asked to report on collaborative relationships with other children's service providers. In addition to cooperation with organizations from the other identified sectors, they were also asked about relationships with school boards, CL, children's aid agencies, and any other groups. Detail was requested about the nature of these interactions in terms of written agreements involving a commitment of dollars or resources (for example, service exchange), coordinated delivery and/or participation in a broader network (such as a committee) or (care providers).

Exhibit 4.1 describes collaborative relationships of 229 organizations completing the survey (including CRC, CCAC, CHC, PH, MH, surveyed hospitals, and CL), 189 (83%) reported at least one significant collaborative relationship. Sixty-two percent of organizations had at least one collaborative relationship based on a written agreement and 63% had at least one collaborative relationship to directly coordinate services. Only 52% indicated they collaborated on service delivery within the context of a formal network of organizations. Collaborative relationships were also distributed across the different organizational

sectors with the highest participation proportions noted with the hospitals surveyed and CRCs. The organizations reporting collaborative relationships were distributed across the DHCs (see Exhibit 4.2).

Overall rates of collaboration may not be as useful an indicator of effective integration of health care services as collaboration across or within specific sectors may be more or less specific to the mandate of these organizations. A diverse array of collaborative relationships was reported by the survey respondents with some suggestion of a higher frequency of collaboration across certain dimensions, such as the collaboration between CRCs and MH regarding behavioural and developmental problems.

Exhibit 4.3 depicts the collaborative relationships reported within and between organization types. It indicates higher proportions of collaboration for specific types of intra-sectoral and cross-sectoral collaborative relationships. In particular, hospitals frequently reported collaborating with hospitals and MH centres with MH centres. In addition, at least half of the CRCs indicated collaboration with CCACs. However, the organizations reporting these collaborations are just over half (in one case two-thirds) within their sector. The responses on this survey did not identify any clear stereotypes for collaboration between specific sectors and specific types of organizations. Some of the organizations surveyed (mainly PH, MH and CRC) have relationships with organizations outside those surveyed, including school boards and children's aid agencies.

Discussion

Many organizations reported collaborative relationships, though these were not uniformly observed even when looking for specific dimensions of collaboration. Differences in respondents' identification of these relationships could account for some underestimation, and a lack of standard definitions may also contribute to the problem. Nevertheless, the pattern of collaboration reported was relatively consistent in terms of cooperation in service delivery, written agreements or formal networks. While reports of collaboration were higher for specific intra-sectoral dimensions (e.g., hospital-hospital, MH-MH) and cross-sectoral dimensions (CRCs with CCACs and hospitals), little uniformity was seen in the reported relationships.

The scope of this report does not include assessing the validity or effectiveness of these relationships. It is expected that many individual practitioners and divisions within the organizations may have linkages at a more informal level. Organizations that identified collaborative relationships are at least demonstrating awareness of the interconnectedness of key services and the importance of coordination or integration of care.

Chapter 4—Service Coordination

Exhibits

Exhibit 4.1 Frequency and type of collaboration among organizations involved in children's health services, by type, in Ontario, 2001–2002

Organization Type	Responding to Survey	Organizations with at Least One Collaborative Relationship Involving:							
		Coordination of Services		Written Agreement		Formal Network		Any Form of Collaboration	
	N	N	%	N	%	N	%	N	%
Children's Rehabilitation Centre (CRC)	15	11	73	13	87	9	60	14	93
Community Care Access Centre (CCAC)	42	25	60	21	50	17	40	31	74
Community Health Centre (CHC)	27	13	48	10	37	12	44	19	70
Community Living Association (CL)	12	6	50	1	8	4	33	6	50
Public Health Unit (PH)	23	17	74	19	83	14	61	21	91
Children's Mental Health Centre (MH)	66	46	70	47	71	36	55	55	83
Hospitals included in survey	44	24	55	33	75	27	61	43	98
Total	**229**	**142**	**62**	**144**	**63**	**119**	**52**	**189**	**83**

Data source: Survey of Organizations

Exhibit 4.2 Frequency and type of collaboration among organizations involved in children's health by District Health Council in Ontario, 2001–2002

District Health Council	Responding to Survey	Organizations with at Least One Collaborative Relationship Involving:							
		Coordination of Services		Written Agreement		Formal Network		Any Form of Collaboration	
	N	N	%	N	%	N	%	N	%
Algoma-Cochrane-Manitoulin-Sudbury	14	5	36	6	43	5	36	8	57
Champlain*	22	12	55	16	73	10	45	21	95
Durham-Haliburton-Kawartha-Pine Ridge	12	9	75	8	67	7	58	10	83
Essex-Kent-Lambton	20	10	50	11	55	8	40	15	75
Grand River	8	7	88	7	88	7	88	7	88
Grey-Bruce-Huron-Perth	13	11	85	6	46	8	62	12	92
Halton-Peel	8	4	50	4	50	6	75	4	50
Hamilton*	7	4	57	5	71	4	57	5	71
Niagara	6	5	83	5	83	3	50	6	100
Northern Shores	10	8	80	7	70	7	70	9	90
Northwestern Ontario	11	6	55	8	73	3	27	8	73
Simcoe-York	9	5	56	6	67	5	56	7	78
Southeastern Ontario*	16	10	63	10	63	5	31	13	81
Thames Valley*	16	11	69	11	69	10	63	13	81
Toronto*	44	23	52	23	52	25	57	35	80
Waterloo Region-Wellington Dufferin	13	10	77	8	62	6	46	12	92
Total	229	142	62	144	63	119	52	189	83

* Location of pediatric academic health sciences centres

Data source: Survey of Organizations

Exhibit 4.3 Integration and coordination between specific organization types involved in children's health in Ontario, 2001–2002

	Organizations Listed as Collaborator (%)								
Organization Types	**Hospital**	**CRC**	**CCAC**	**PH**	**CHC**	**MH**	**CL**	**School Board**	**CAS***
Children's Rehabilitation Centre (CRC)	**47**	**40**	**67**	**40**	13	**40**	20	**40**	7
Community Care Access Centre (CCAC)	12	**43**	10	21	0	19	2	26	10
Community Health Centre (CHC)	15	7	7	**37**	11	15	4	4	11
Community Living Association (CL)	0	17	25	8	0	**42**	0	0	17
Public Health Unit (PH)	**43**	4	9	**30**	4	26	9	**30**	**39**
Children's Mental Health Centre (MH)	27	11	6	17	6	**53**	5	**32**	27
Hospitals included in survey	**57**	16	7	25	9	27	2	11	9

* Children's aid societies

Data source: Survey of Organizations

Chapter 5—Stakeholder Views on Service Delivery

Introduction

The purpose of this chapter is to describe the stakeholder perspective regarding problems with service delivery and suggestions for improvements. Stakeholders from all sectors delivering treatment services to children identified the need for a comprehensive blueprint that includes an integrated framework for mandate, funding, information reporting, and accountability of all organizations providing major services. Further, stakeholders recommended steps to address geographic and human resource disparities and to improve knowledge generation and transfer, continuity of care, and collaboration across the system.

Effective service delivery—challenges and solutions

Stakeholder participants in the focus groups identified a range of issues important in the delivery of health services to children. Seven categories were the focus of discussions: regionalization; wait lists; mental health; transition; human resources; system; and barriers). Exhibit 5.1 shows an example of the four discussion areas covered, as applicable, for each category: access and distribution, specialization, coordination/comprehensiveness and information.

Focus groups proposed ideas in the following areas to move beyond the current mode of delivering children's treatment services to a more optimal system.

1. Funding

Though some increased funding would be required to meet growing needs of children across the province, participants recommended **changing the funding structure to ensure clear allocation to children's services and efficient use within a framework that minimizes redundancy and promotes best practices.** Participants proposed devising funding mechanisms and incentives tailored to the specific challenges of delivering health care services to children with diverse needs.

Due to the nature of children's health needs, the diverse array of services includes education, rehabilitation, prevention, early intervention, mental health, protection, medical and nursing care. The current funding arrangement involves separate grants through several different ministries, with only a subset funded through an inter-ministry department (Integrated Services for Children). Therefore, participants indicated a need for **improved integration of funding across ministries** to address access, distribution, coordination, comprehensiveness and continuity of services.

2. Improving information

To address the lack of information for planning and evaluation of health services, participants recommended the development of a province-wide comprehensive inventory of organizations serving children, and an **integrated clinical information and management system.** The system could also act as a resource centre for knowledge transfer of best practices for children's care. Further, it was recommended that the system should be based on agreements regarding collection and use of data, as well as core data elements to ensure consistent standardized data across all key organizations and agencies.

It was noted that sustainable funding would be necessary to ensure the ongoing integrity of this information system. Participants indicated that such a system would help address other issues such as contributing to an infrastructure between the different organizations and sectors, and promoting accountability, efficiency, coordination and integration.

3. Creating a blueprint vision and mandate for children's health services

Stakeholders pointed out the relevance of developing a **single vision and blueprint on roles and mandates of the various governmental departments and organizations that provide children's treatment services** across the province. This would require a multi-sectoral approach and common definitions of services, and could be used to drive policy development. The suggested approach was to build the vision from children's typical developmental needs and expand up to those of children with complex or specialized health care needs.

The participants suggested that the blueprint would support clear mandates at the organizational level and consistent delivery models to meet treatment needs of the children would follow. To develop a delivery model, participants recommended use of **a consistent accountability framework for all children's service agencies and organizations and an integrated case management/coordination approach to minimize family disruption, fragmented services, and maintain principles of family-centred care.** Further, it was recommended that the delivery model's key elements should be standardized across the province to meet children's needs. This model could be adapted by different regions and tailored to fit local level needs and resources.

4. Formalizing collaboration mechanisms/models

To develop an efficient model for service collaboration, organizations must have clear mandates and mechanisms to relate to specialized pediatric services and other related services. There is a need **to establish collaborative principles and processes as best practices for strong relationships amongst agencies and health care professionals.** Stakeholders suggested that DHCs take a lead role in facilitating collaboration and act as neutral brokers between organizations that may perceive conflicts.

The participants recommended use of **a mechanism to ensure accountability regarding models of care and collaboration,** similar to requirements for accreditation (especially with complex care cases). A central case manager or family advocate would be useful in ensuring appropriate use of skills, e.g., pediatricians providing care instead of coordinating patient activities.

Stakeholders also identified a need for **education to assist health professionals and organizations to enhance team work, integrated health management across agencies, interdisciplinary work and conflict resolution.**

Leadership bodies broadly representative of stakeholders with strong, non-hierarchical leaders, clear mandates and structure are needed for collaboration and linkage across sectors and regions. These could include ministerial tables, inter-ministerial committees and task forces, intra-health district, inter-departmental committees.

5. Developing human resource solutions

All stakeholder focus groups identified the need for more health and social care professionals with specialized experience in pediatrics, a major contributor to geographic disparity in service availability.

This was identified as requiring immediate attention to remedy existing shortage of professionals, particularly in rural and isolated geographic regions of Ontario and to ensure children receive the necessary care in a timely fashion.

Sustained funding to acquire and retain health care professionals specializing in the care of children across the province was also identified by stakeholders via **a coordinated set of solutions to address the serious deficit of pediatric expertise in many communities.** These include: training, recruitment,

retention, itinerant, and telehealth approaches, training more pediatric providers and more pediatric training in all health professional curricula, recruiting from outside of Ontario, investigating and addressing problems leading to poor recruitment and retention, and increasing the availability of telehealth and itinerant services for areas that cannot recruit or retain professionals with the needed pediatric training or experience.

Special incentives to train, attract and retain health professionals with specific expertise in the care of children and families to practice in rural/remote areas of the province. A supplemental solution to providing more professionals is to introduce innovative technologies such as telehealth and video conferencing that could also be used more extensively to link patients and providers with specialized pediatric providers. Further development of itinerant programs (i.e., traveling services of specialized professionals) is another method recommended for improving access to specialized expertise in areas distant from specialized centres. Both of these approaches were viewed as supporting continuing medical education of local providers as well as direct patient care.

6. Addressing geographic disparities

Disparity in availability of pediatric services in urban versus rural areas was identified by stakeholders. Though an important dimension is related to human resources, stakeholders identified other strategies to address this problem.

They suggested planning to determine the minimum level of services required based on regional populations. In addition, **a consistent funding allocation and accountability framework is needed for all children's service organizations to guide resource utilization by funders and recipients.** It was suggested that this would be best accomplished by developing a province-wide integrated-services-for-children program with a broad view of provincial needs, and as stated previously, service delivery and policy development need central planning and coordination through one office or ministry.

7. Knowledge generation and utilization

As discussed previously under Improving Information, a major gap in the current organization of services is the lack of a mechanism to transfer key findings from research studies and/or evaluations of children's programs into practice. While some of this exchange may be occurring along professional lines or within umbrella organizations for the specific sectors (e.g., the Ontario Hospital Association), the stakeholder participants indicated that exchange related specifically to children's services was deficient.

To improve knowledge translation and utilization of research findings by health care professionals and organizations, the stakeholders suggested development of **a resource centre with an inventory of best practices, standards and guidelines for children's services.** This could also include formal opportunities to share best practices and research findings using technology such as videoconferencing from universities and teaching hospitals with community hospitals in remote regions. It was believed that this exchange would encourage adoption of evidence-based practice guidelines across organizations and organization types. Furthermore, it was suggested that **engaging multiple organizations in using and testing common protocols would strengthen evaluation results and help define effective and efficient children's care.** Successfully implemented collaborative models regarding children's services should be identified, collected and disseminated as part of this process, and workable models adopted across the province.

8. Improving continuity and transition in care

Stakeholder focus group participants stressed the need to improve continuity in service delivery to children across Ontario. Organizational cooperation at a management level is not sufficient; collaboration must also occur at the patient-provider level. The problem is particularly striking among children with special health care needs and disabilities that are reliant on services provided by numerous organizations. The participants identified the need for **a strategy to improve a client-professional level linkage of services across ministries, departments, agencies, and municipalities/communities.** Linking mechanisms include:

- A system of single or central point of coordinated entry and re-entry to care across regions and service types;
- Case managers using a family-centred care approach with the authority and knowledge to coordinate services and case conferences across ministries and/or departments;
- Continuity mechanisms that address low volumes of children with highly specialized, intensive needs;
- Established processes for communication and information sharing with other elements of the service delivery system, including health, social services, education, and justice (such as a central clearing house as mentioned earlier);
- Ongoing education and information for professionals about the respective roles and services provided by others in the system;
- Attention to parents, and their role in directing services and funding, and access to information, advocate organizations and other parents.

These approaches can be regionalized but should also be integrated so they provide the same level of access, follow-up and community and home-based support for children through different disease stages and ages regardless of the child's location of residence.

The participants also acknowledged the growing number of children with specialized needs that are surviving into adulthood, and indicated that action is required to improve the transition from pediatric to adult services. These individuals are often forced through a transition around the age of majority. Yet, for many of these vulnerable individuals, the age at which the transition is required does not reflect a transition in their independence or a change in their most important health care needs. Stakeholders identified major issues and gaps in services connected with the transition from childhood to adulthood and indicated a need **for an explicit strategy to facilitate the transition of services created by age milestones.** Recommended mechanisms to help rectify the problems include:

- Funding coordinators to follow children and adolescents with special health care needs beyond the point of transition (i.e., up to age 21) to adult-oriented care services;
- Planning and funding transition in specialized services for severely affected individuals on health care needs, not on age, so that passing an age milestone does not lead to withdrawal of appropriate services and creation of new problems because of a change in professionals, organizations or sectors;
- Implementing standards of care around transitions (including roles of professionals, transition criteria, information summaries, etc.) to simplify transitions and ensure the evolving needs of the older child and young adult with special needs are met.

Discussion

The stakeholder focus group findings suggest that to build an efficient and equitable seamless system of care for children in this province, ongoing changes are needed which include an overall policy framework and blueprint for children's services. A suggested option was to give one ministry or department the mandate, authority, and funding to oversee children's services in an integrated fashion. More practically, if ministries and departments are to continue to share policy planning and administration of services, a common philosophical approach needs to be articulated and practised; perhaps overseen by an inter-ministerial, inter-provincial/territorial committee. This would break down the current stove-pipe approach for children's services.

The stakeholder group articulated a vision where the integration and collaboration across services and sectors is explicit and rolls up from the client-professional level, through organization and management, to leadership at a province-wide ministerial and departmental level. This vision involves aspects of mandate, funding and accountability. It also involves clinical information management, human resources planning, clinical evidence and best practices.

The focus groups did not look at the role of primary care practitioners and primary care reform in the problems or solutions to these issues. Much of the primary care practitioner role for children is preventive in nature; and therefore, out of the scope of this report on treatment services. This may also be due, in part, to the organization focus in the sampling of stakeholders for participation.

Chapter 5—Stakeholder Views on Service Delivery

Exhibits

Exhibit 5.1
Service delivery issues in children's health identified by stakeholder focus groups in Ontario, 2002

Exhibit 5.1 Service delivery issues in children's health identified by stakeholder focus groups in Ontario, 2002

	Issues			
Focus Areas	**Access and Distribution**	**Specialization**	**Coordination, Comprehensiveness, Continuity**	**Information**
Regionalization	Issues specific to non-urban areas, especially Northern communities: • Geographic isolation • Population density • Transportation • Weather • Lack of community-based services in some areas, so users need to rely on tertiary centres for services	• Lack of specialized services in remote areas		
Wait Lists	• "Average" wait time not a true picture—in some northern areas the wait is months or years • Huge variability in waits depending on service type		• There is a long wait time for an assessment then another long wait for the treatment service	• No standard definition of what a waiting list is or an appropriate waiting period
Mental Health	• Specific areas lacking mental health services—variability by geography • No dedicated psych beds in Hamilton • More crisis response needed • Respite care not properly supported			
Transition	• Huge gap in services for transition period to adult services		• Moving from one age specific service to another • Coordination as child falls out of one organization's mandate to another's	
Human Resources	• Access to and lack of specialists and primary care providers • Gaps in salaries of professionals	• Inability to retain specially trained pediatric specialists • Lack of new recruits, especially in certain areas due to limited number of new graduates • Gaps in dual diagnosis		
System			• Multiple assessments • Lack of communication between providers • Lack of coordination between Ministries • Too many geographic boundaries and catchment areas (need common boundaries across organizations)	• Need information on how to design a broader delivery system
Barriers	• Lack of knowledge of service by users • Language • Financial • Many services are fee-for service • Family income • Illegal immigrants			• Need more advocacy for kids' services

Data source: Stakeholder Focus Group

Chapter 6—Synthesis of Children's Treatment Services

Introduction

This chapter ties together the key findings and issues identified in the preceding chapters to paint a picture of the existing mosaic of children's treatment services, and summarizes the potential direction of change.

A bird's-eye view of change

Information gleaned through the environmental scan indicated some positive signs of change in treatment services for children in Ontario and other provinces, for example:[2]

- Reorganization of pediatric tertiary and quaternary care (highly specialized pediatric clinical activities). A prime illustration of this is the ongoing work of the Pediatric Specialized Care Coordination Council resulting from the review of children's cardiac surgery services in Ontario.[14]

- Funding of new therapy services for special populations of children.[23] Ontario has recently invested more in mental health services and early intervention programs for children at risk.[21]

- Identification of critically underserved areas and plans to implement service or boost capacity. This includes the implementation plan for the Northern Shores Regional Children's Treatment Centre (CRC).[3] It also includes development of strategies to improve human resources for health services in general, as well as efforts to recruit pediatricians to selected sites in Northern Ontario.[19,22]

- Service coordination and integration through improved interaction among existing resources, including the proposed Local Health Integration Networks.

Further, several service sectors in Ontario have undertaken initiatives to improve standardized collection and reporting of individual level data.

- At a provincial government level, this includes the work of the Integrated Services for Children Division portfolio.

- At the health services level, this can be seen with the implementation of formal collaboration such as the Child Health Network in Metropolitan Toronto, made up of area hospitals.[9]

- At a tertiary and quaternary care level, the new Ontario Child Health Network is a collaborative network of the 5 pediatric academic health sciences centres and Bloorview MacMillan Centre, a CRC and chronic care hospital health sciences centre.

- At the Ontario government's highest level, a new Children's Services ministry was announced in October 2003. It is not yet clear what role this ministry will have in the organization and delivery of children's treatment services.

These initiatives indicate that there is momentum for improving treatment services for children in Ontario. Yet, the bird's-eye view of overall distribution and coordination of these services also suggests that significant challenges lay ahead. For example, available data and stakeholder voices point to several critical issues:

- System fragmentation and variation in roles and practices;

- Limited access to information for planning and evaluation;

- Problems with service capacity and utilization;
- Challenges with integration of care; and,
- Lack of an overall blueprint and inventory of children's services.

Discussion

Specific concerns regarding the current model of health service delivery to children are outlined in detail here to assist in guiding policy development.

System fragmentation

Delivering services through multiple organizational sectors, more than one ministry and department creates silos with relatively little integration. A single blueprint, executive process, and envelope of funding would make the system more effective and efficient, reducing gaps and redundancies.

Data collection and system evaluation

Comprehensive encounter-level data for individuals is lacking across several important sectors (especially children's mental health centres and children's rehabilitation services), which limits evaluation and management of services as a whole. This is particularly important in light of other findings indicating gaps and duplication across organizations and sectors. In some instances, such as physiotherapy for a physical handicap, a service may be provided through a hospital, a CRC, or a CCAC, and the extent to which this occurs may vary from region to region.

Further, while survey and focus group participants expressed relatively consistent concerns, it is challenging to correlate this input with actual data on access and utilization of services. Lack of information on service capacity, waiting times, and utilization for all services across sectors is the main obstacle, and individual level data is not available for the two key sectors of MH and CRC. This impairs province-wide utilization analysis and makes it impossible to study joint utilization of mental health and rehabilitation services across sectors. For example, a comprehensive evaluation of access and quality in mental health treatment services would require access to physician services (available) and MH services data (not available) linked at an individual level.

Access and utilization

Assessing and ensuring equal access and effective utilization of special services for Ontario children is difficult. There are variations in utilization of home care and physician services across the province. For the latter, physician supply in rural regions in southern and northern Ontario, especially for specialty services, is a key factor. Stakeholder feedback indicates shortages in pediatric expertise across the spectrum of health professionals and long waiting lists for many rehabilitation and mental health services.

There is some agreement in the field about reduced access to psychiatric and pediatric physician services in Ontario's rural and remote areas. Children in many of these regions have lower rates of service utilization, including lower rates of service encounters with specialists, and this corresponds with lower specialty physician supply. However, this analysis aggregates encounters for different types of practices; for pediatric services this may include some primary care general assessments, community consultations, as well as pediatric tertiary care sub-specialist consultations. Benchmarks for appropriate utilization of these services have not yet been developed.

No data are available on waiting times to see pediatric specialists, and research on how rates of utilization

related to unacceptable waiting times or other access barriers. Non-hospital organizations reported mean waiting times of 4 to 6 months for rehabilitation and mental health services, a range most reported as unacceptable. To validate this information, standards on data collection and benchmarks for waiting times are necessary.

Distribution and capacity

Variability of organizational roles and activities across sectors makes it difficult to assess service distribution, capacity and utilization, and how organizations cooperate; it creates potential for inefficiency, gaps and duplication; and presents challenges in identifying best practices and securing evidence to support specific clinical activities.

This report is not intended as a determination of the "have" and "have not" DHCs with respect to health services for children. While regions in northern Ontario have typically been regarded as underserviced, lower rates of utilization and reports of unacceptable waiting times have also been observed in other areas of the province, and furthermore, variation in utilization by geography may be specific to service and sector. For example, the rural versus urban pattern of variation in utilization rates for physician services does not appear to exist for home care services as organizations in both urban and rural/ remote locations reported excessive waiting times.

The system-level concerns raised in this report correspond with more general issues about children's services broached at the federal/interprovincial level in a Health Canada report, as noted in the following excerpts:

> The system of care (as opposed to its separate component organizations) often exists without either a mission statement or an understanding of relevant goals [and]…has problems both focusing on where it is going and determining whether it is getting there.
>
> In the absence of valid indicators of child health, organizations are left open to many other influences, each of which comes with its own set of incentives and disincentives. As a result, organizations are open to the difficulties associated with serving many purposes.
>
> There is little or no external incentive for efficiency…coherent planning, priority setting, or action. There is no executive component that can cause the whole system of care to decide, act upon and implement coherent action.
>
> The basic effect of all the above problems is that most existing systems of care are not true systems, but rather 'collections of services'.[1]

It appears that Ontario's mosaic of children's treatment services falls somewhere between a "collection" and "system" of services. Present methods and available data for evaluating service distribution and coordination are crude and leave large gaps, and raise more questions than answers. Stakeholder participants in this research shared strong views on the need for a clearer common vision and blueprint for developing a system of services, and created recommendations for action (see Chapter 5, Stakeholder Views on Service Delivery). Additional questions about policy and planning were raised for discussion in the course of carrying out this study:

1. Is there a definition of services that require more centralization and those that require decentralization to children's communities?

2. Are there standards for wait times and travel to receive insured and extended health services?

3. Are there expectations of cooperation and integration of services that should lead to more uniformity and familiarity with formal collaborative relationships between organizations?

4. How much variability and overlap in the roles of sectors and organizations is appropriate for allowing organizations to better meet specific priority needs for the population in their areas?

5. Can specific indicators and benchmarks be identified to help evaluate and manage access to, and effectiveness of, treatment services for children?

6. To what extent should the distribution of health services remain and develop according to historic locations and relationships with service organizations, versus becoming driven by population-based spatial planning and/or regionalized funding?

7. Many children's treatment services relate to developmental, rehabilitation, social, educational and developmental objectives. A few fall under the insured services banner of the Canada Health Act (physician services), while others may be considered publicly-funded extended health services. How do activities relate to the Canada Health Act, and does this status have any implications for planning and evaluating these services?

Review of available data on services combined with service provider input from surveys and focus groups goes a long way to provide a picture of the system and the challenges in assessing and addressing the treatment needs of children. However, it is critical to consider related factors beyond the scope of this report that contribute to variation in utilization and outcomes of services, such as:

- Socio-demographic factors as primary determinants of health and disease prevalence; and

- Health promotion and preventive services.

Further research is required to develop and/or use the methodologies to study variation attributable to the above factors as well as health service characteristics, including better risk-adjustment and predictive modeling methodologies. It is also important to determine valid health outcome indicators for children to complement the information provided by the more simplistic indicators of utilization used in this report. This means moving beyond utilization-based indicators to outcome indicators with population-based data on functional status and quality of life.[5]

Policy Options

Input from health provider stakeholders from surveys and focus groups provided the following recommendations for policy change around data collection and system configuration.

A. Data collection

Improve availability of information for utilization evaluation, planning and policymaking

1. The Ontario Ministries involved in children's services should take necessary steps to collect, compile and make available for linkage and analysis with other electronic health data the province-wide electronic individual level data (including the health care number) for rehabilitation and mental health treatment services provided to children through the mental health centres and children's rehabilitation centres. Where relevant and possible, intake and outcome data should be included to ascertain and evaluate access, waiting time, and outcome.

2. Consideration should be given to collecting the same type of data for treatment episodes provided by public health units, CHCs or any other new or existing organizations funded to provide individual treatment services to children.

Benefits

- Data will allow analysts and researchers to address important policy-relevant questions about access, utilization and outcomes for rehabilitation and mental health services.
- Data can be handled securely through existing infrastructure for provincial health data.
- Data will also assist with planning, profiling clientele, case costing, performance review and will permit development standard indicators and benchmarks for feedback and performance evaluation.

Challenges

- Some organizations may be ill-equipped to collect and transfer data according to current standards.
- There may be initial costs in bringing these organizations and their data onto the grid.
- Concerns regarding data ownership and privacy may need to be addressed.
- Data on utilization alone (without other data such as criteria, waiting time and outcomes), will provide only limited information on access, appropriateness and outcome of services.

B. System

Improve accountability, develop a clinical information and management system, and coordinate service delivery

1. Ontario Ministries involved in children's services should develop a system blueprint and accountability structure for all children's treatment services.

Actions

- Produce an inventory of children's treatment services that details roles and mandates of the various governmental ministries, departments, organizations and programs involved.
- Name or develop an advisory body with terms of reference to identify and address system-level issues related to children's treatment services.
- Improve integration of funding across ministries with more transparent allocation to health care services for children.
- Develop a core accountability framework for all children's service agencies and organizations regardless of ministry responsible.
- Develop accountability mechanisms that promote allocation of services to children based on evidence and best practices, and address service gaps and redundancies.
- Include accountability mechanisms that ensure collaboration in broad care models.

Benefits

- Provides an overview of how departments and services interrelate and clarifies their roles within regions and the system as a whole.
- Demonstrates public accountability for expenditures and best practices, and serves as a scaffold for evaluating access, utilization and quality of these services.
- Provides a framework for tracking overall structural and funding changes for children's services over time.
- Provides the basis for identifying and resolving issues to reduce fragmentation, gaps, and redundancies and creates a forum for addressing other system issues.
- An integrated case management system would promote the child and family-centred approach, improve access, continuity and coordination of care, and reduce duplication and unnecessary referrals. Workforce planning will help anticipate future needs for full-spectrum professionals and help improve the capacity of services across Ontario.

Challenges

- Requires resources to construct and maintain the blueprint, inventory and accountability framework.
- May require balancing conflicting interests to resolve mandates and roles within the system.
- Potentially adds another layer in reporting and decision-making relationships if current accountability mechanisms are not integrated.

- Requires time and collaboration to harmonize care accountability framework with existing frameworks to suit system and sectoral needs.
- To work efficiently and effectively, a unified case management model would need to be integrated with buy-in from all relevant organizations.

2. The Ministries involved in children's services should work with stakeholders to develop a more comprehensive clinical information and management system for children's treatment services.

Actions

- Establish integrated clinical information and management systems based on agreements for collection and use of data, and ensure core data elements for consistent data availability across organizations.
- Establish a resource centre with an inventory of best practices, standards and guidelines for children's services.
- Engage all organizations to develop and evaluate common protocols, and determine best practices for effective and efficient children's care.
- Establish agreements for all the organizations to collect standardized electronic data, including a core dataset.

Benefits

Similar to Recommendation B1.

Challenges

Similar to Recommendation B1.

3. The Ministries involved in children's services should develop a coordinated approach to addressing the range of pediatric workforce needs of communities.

Actions

- Coordinate solutions to assess and address the deficit among disciplines of pediatric expertise in many communities.
- Develop strategies and incentives to train, attract and retain the range of health professionals with specific expertise in children's care needed for practice in rural/remote areas.

Benefits

- Population-based workforce planning could help anticipate future needs for professionals and assist in establishing a more sufficient distribution of services across Ontario.
- A common strategy could help address the workforce imbalance of a broader range of care providers (e.g., speech and language, occupational therapy, etc.).

Challenges

- Accurate information on professionals providing children's health services may be difficult to obtain and keep current.

- There may be diminishing returns in developing strategies and incentives for some of the more specialized professionals.
- Recruitment strategies and incentives may not always result in effective long-term retention.

4. The Ministries should work with stakeholders to develop a system-wide integrated case management strategy for seamless children's treatment services encompassing multiple organizations, geographic boundaries and age-related transitions.

Actions

- Establish integrated case management to minimize family disruption and fragmented services and maintain principles of family-centred care for children with special health care needs.
- Develop explicit strategies to facilitate service transition by age milestones and improve the client/professional-level linkage of services across ministries and communities.
- Support the development and evaluation of new models of care, information sharing, and collaboration to enhance access to specialized services for children in their community, home and school. For example, telehealth and enhanced teamwork between local providers and specialists in centres.
- Identify definitions, principles and best practices for efficient collaboration among organizations and health care professionals.

Benefits

- Integrated case management system for children with special health care needs should improve the child and family-centred approach to care and improve continuity, coordination and quality of care.
- Simplified access or gatekeeping should improve access to services and reduce duplication and unnecessary referrals arising from a fragmented delivery system.

Challenges

- Could lead to increased health expenditures if case management evolves as an additional infrastructure layer or new provider.
- Without a high level of buy-in from all the relevant organizations, case-managers may find it difficult to maintain knowledge of all the services, and coordinate effectively.

Appendix A. How the Research was Done

Information strategy

Before carrying out the research for this report, consultative meetings were held with contacts at the Ministry of Health and Long-Term Care (MOHLTC) and Ministry of Community and Social Services (MCSS) to determine the scope of services to be covered, and which information sources and survey sampling methods would be used. The decision was made to survey health care treatment services, excluding organizations that focused primarily on prevention, early intervention with high-risk and/or advocacy type services. The definition of "treatment" is broad and includes nursing, medical, rehabilitative/development and mental health services.

A sequential approach was used to obtain the information. In 2001, an environmental scan and District Health Council (DHC) surveys were completed. Surveys were developed and administered to the hospitals and other major organizations involved in children's health care treatment services. Early in 2002, available administrative data was identified and analyzed to provide information on utilization of services. Late in 2002, a preliminary report based on these information sources was circulated to stakeholders from the relevant organizations. Focus group meetings of these stakeholders were held to discuss issues in providing children's services, and the results of these discussions and recommendations were analyzed. Results from all of these information sources were synthesized and summarized for this report.

Data sources

Data on individual physician claims (Ontario Hospital Insurance Plan) and home care services (Ontario Home Care Administration Service) were obtained from ICES holdings through the standard data agreement with the MOHLTC. These data were analyzed at ICES with the stringent privacy protections as per the MOHLTC agreement and research ethics board approval.

Data on population and health status from Statistics Canada were obtained through ICES holdings and standard Statistics Canada reports. Data on hospitalizations for asthma and gastroenteritis were obtained from a recent ICES atlas on hospitalization rates for children.18 Information on physician supply was also obtained from a previous ICES report.[17] The Hospital Inventory 2001 data was obtained directly from the Hospital Inventory project.[20] Data on pediatric hospital bed census was obtained from the Daily Census Summary for fiscal years ending 2000, 2001 and 2002 (Ministry of Health and Long-Term Care, Daily Census Summary, Ontario, 2003).

Indicators of pediatric services utilization

A descriptive study was carried out utilizing Ontario Health Insurance Plan (OHIP) physician claims for children 0 to 19 years of age for the calendar years 1996 to 2001. The annual rate of volume of physician services and the total number of children receiving services were calculated by DHC. OHIP billings for children aged 0 to 19 years were analyzed to identify the most common fee codes utilized by children and organized into groups called service-types to ensure that closely related billings were considered together.

Services examined included well child care, assessments, general assessments, and consultations for three classes of physicians: generalists, pediatric specialists, and other selected specialists (otolaryngology, ophthalmology, optometry, chiropractic, psychiatry). Specific billing codes were selected for each of these categories as indicators of service provision. The choices were based on a combination of face validity, identifiable as a major service for its class (e.g., full consultation by a pediatrician, A265), and the frequency of claim use within the data.

Two approaches were used for analysis:

1. Rate of individual service encounters for a closely related group of claims (e.g., the aggregate total number of pediatric consultations and related pediatric general assessments, and general reassessments claims) expressed as an annual rate per 100,000 children age 0 to 19 years; and,

2. Rate of individuals receiving at least one of a specific indicator service claim (e.g., A265) within the fiscal year expressed as a rate per 100,000 children age 0 to 19 years.

Data on home care services for 1998/99 to 2001/02 were also analyzed using the Ontario Home Care Administration Service database. The rate of nursing and allied professional services encounters and the rate of individuals receiving these services were calculated for these data as per the physician claims data. All rates were annualized and age and sex adjustments were calculated using standard methods and the relevant population file from Statistics Canada for reference.

Depicting area variation

For the purpose of overview and policy analysis, it makes the most sense to present data as much as possible at the DHC level. Although funding is not currently directed to services through the DHCs on a per capita based formula, the DHCs do have a role in regional planning for health services. In addition, as a unit of geography and population, they are small enough to assist in identifying regional differences, but still possess enough of a population for relatively stable statistical rates. While data are presented using DHCs as a unit, it is important to consider a number of key limitations. The population size among DHCs varies approximately tenfold from the least populous (Northern Shores) to the most populous (Toronto). Accordingly, statistical rates will be much more stable in the most populous DHCs and will influence the overall Ontario rates more significantly. Also, while there are geographic and socio-demographic differences between the DHC regions and their populations, there is significant overlap between DHC characteristics and heterogeneity within DHCs.

The utilization and area variation data for DHCs is provided in figures to facilitate visual inspection as well as in more detailed exhibit tables. [pls confirm this is what you meant] The Dartmouth approach has been used to identify borderline outliers (i.e., 1.1 to 1.3 times or 0.75 to 0.9 times relative to the provincial average) and major outliers (greater than 1.3 times or less than 0.75 times relative to the provincial average). This approach is more sensitive for describing variation and outliers when the rates of events studied are high, and less prone to extreme variation. It permits variation in standardized measures of rates (i.e., standardized morbidity ratios[7]) and proportions for a wide variety of data to be illustrated in the same manner for purposes of broader comparisons across these data. Standardized ratios are the ratio of the individual rate to the overall rate and essentially place all indicators on a similar scale, i.e. their position with respect to their own overall rate for the indicator. The second format involving tables with detailed rates and statistics is included in Appendix B.

Health care organization surveys

Members of the 16 DHCs were interviewed and surveyed for two purposes; to obtain information on perceived issues in children's health service delivery and children's health status; and, to obtain information on organizations and hospitals offering children's health treatment services in their DHC. This served as a starting point for creating the sample. Semi-structured survey interviews with DHC representatives were used to identify specific concerns about children's health care delivery. Questionnaires for the other organizations were modified to include these themes. Based on the environmental scan, interviews and piloting of questionnaires, hospitals and non-hospital organizations were surveyed separately using the same framework of questions.

Hospitals were included in the survey based on their report of pediatric services (i.e., a general pediatrician, Level 2 nursery, or any other pediatric services such as child psychiatry) in the Hospital Reports 2001 inventory conducted by the University of Toronto/Ontario Hospital Association. From the hospital inventory, 210 hospital sites in Ontario were identified. A significant proportion of these were associated with other hospitals in the same region to form a single corporation. Hospital sites were grouped together into their corporations.

Before surveying non-hospital organizations, service providers were categorized into one of three service types: medical (medical, nursing and dentistry services), rehabilitation (rehabilitation and developmental services) and mental health. These were determined by the primary service provided and/or the organization's mandate. In the survey, respondents were asked to indicate what types of services they provide. Non-hospital organizations fell into one of six types: Children's Mental Health Centres (CMHC), Children's Rehabilitation Centres (CRCs), Community Care Access Centres (CCACs), Community Health Centres (CHCs), Community Living Organizations (CL), and Public Health Units (PHUs) (Exhibit 1.1). Each survey was designed to cover the following domains: service capacity, professionals, services and programs, and integration and coordination. This information was supplemented by information in the Canadian Hospital Directory 2000/01 and the inventory of Ontario hospitals compiled for the Hospital Reports 2001.

Stakeholder focus groups

A one-day stakeholder advisory focus group session was held on September 17, 2002 with representatives from across the children's treatment services sectors (including hospitals).The aim of this session was to obtain feedback on a preliminary report on regional variation derived from administrative data analysis and survey data, and to discuss issues of concern and potential solutions related to the provision and delivery of children's services. Candidates were selected by canvassing organizations. Three focus groups were held with 8–10 participants each. Participants representing CRCs, CCACs, community services, hospitals, and CMHCs comprised each group. Representation from each of the service sectors and geographic regions was consistently obtained for each group.

Seven categories were defined as problem areas for discussion: regionalization, wait lists, mental health, transition, human resources, system, and barriers. For each category, the focus groups considered the following domains:

- Access and distribution of services;
- Specialization of services;
- Coordination and integration of services; and
- Information for managing and evaluating health services

Each group was asked the same questions about these domains:

1. What are the key problems in delivering children's treatment services in Ontario?

2. What are potential solutions?

A ranking procedure isolated the most pressing issues. Solutions were sought and discussed on the highest ranked three to five problems. Results of these exercises and discussion were recorded and synthesized using qualitative content analysis.

Limitations

As with any qualitative research, although specific questions were addressed, the focus group process was free flowing to enable the participants to discuss issues they perceived as important. The goal was to guide the discussion to keep it uniform across the three groups, but the dynamics of each group could not be predicted, so there was some variation in the time given to each content area. Although the representation of service and geographic areas was mostly uniform, the element of unpredictability nevertheless exists.

Another limitation to the results was the amount of material covered in a short time span (three hours). Due to time limitations, however, specialization and coordination were given less time, or were merged together. Information was not discussed in as much detail as the other content areas. In anticipation of time constraints, content areas were ordered according to priority so that access/distribution was the first point of discussion. This choice was made because specialization and coordination often overlap with access and distribution, and many of the problems raised are inter-dependent. As well, in conducting exploratory interviews with a representative from each DHC at the start of this project, it became apparent that access/distribution was a serious issue in children's health services that related to coordination and specialization of services.

Appendix B. Detailed Analytic Methods

Surveys

Coding age groups

Respondents were asked to indicate the age range of their clients. Because there is no standardized categorization of age ranges across organizations, an open question, rather than pre-set categories, was used.

Table 1. Defined age categories of study compared to age ranges provided by respondents

Age Category	Study Definition	Age Ranges Cited by Respondents
Infant	0–2	0–6 months, 0–1, 0–2
Pre-school	3–5	1–4, 2–4, 2–5, 2–6
School-Aged	6–12	3–14, 4–8, 4–12, 6–12
Adolescents	13–19	11–18, 12–16, 12–21

This example is not exhaustive, but does illustrate the variety of responses regarding target age of the service provided. An attempt was made to cover each age group served by a particular service, because although a service may be listed as serving infants, it does not necessarily mean it serves infants of all ages. For example, a service listed as serving 1 to 6 year-olds, was labeled as being targeted to infants and preschoolers.

Coding service integration and coordination

Survey respondents were asked if they coordinate services with other service providers on one or more of the following levels:

- Written agreement;
- Coordinated delivery; and
- Broader network.

Respondents were asked to list each organization for which a relationship exists and to indicate the nature of the relationship per the above categories. Relationship organizations were categorized the same as the respondent organizations, with the addition of school board and Children's Aid Society as follows:

- Hospital
- Rehabilitation Centre
- Community Care Access Centre
- Public Health Unit
- Community Health Centre
- Mental Health
- Community Living
- School Board
- Children's Aid Society
- Other

Codes were created to indicate the types of relationships between the respondent organizations and those with whom they coordinate. Respondent and relationship organizations were grouped into "types" and tabulated.

Utilization indicators

OHIP services codes used for indicators rates

OHIP claims for children aged 0 to 19 years were analyzed to identify the most common fee codes and organize into service types ensuring that closely related billings were considered together. For example, outpatient pediatric consultations and general assessments included the fee codes, A001, A007, A261, K017, K267, and K269. Service types that were prevalent and of interest included:

minor assessments, well infant care, and annual examinations
A001, **A007,** A261, K017, K267, K269

general practitioner/family practice assessments
A003, A004

counseling
K002, K003, K004, K007, K008, **K013**

outpatient pediatric assessment and consultation
A263, A264, **A265,** A266

psychiatric care and therapy
K191, K193, K195, K196, K197, K198, K199, C192, C197, C199, C198

psychiatric assessment, consultation
A193, A194, **A195,** A196, A395, A895, C193, C194, C195, C196, C395, C895

ophthalmology assessment and consultation
A233, A234, **A235,** A236, C233, C234, C235, C236

otolaryngology assessment and consultation
A243, A244, **A245,** A246, C243, C244, C245, C246

optometry services
V401, V402

chiropractic services
V101, V103

For the first indicator (rate of service encounters) all claims for each service in the list were counted, regardless of whether there were repeated claims for an individual during the year. For the second indicator (rate of individuals served), individuals with at least one principal consultation claim (bold) in the service category for the year were counted.

Statistical analyses of indicator rates

Unless otherwise specified, all rates are expressed using a denominator of 100,000 children aged 0 to 19 years of age.

Due to large population size and high rates observed for the indicators and data selected for this report, overall statistical tests of significance of variation are generally not very useful and have not been routinely included. At this level of analysis, overall tests of variation tend to be uniformly positive (i.e., indicating that the overall variation is statistically significant) and provide little additional information.

However, one degree of freedom chi square tests were used in specific circumstances to test the level of significance of the individual area rates difference from the overall provincial rate to assist in identifying outliers. Areas with rates that are statistically different from the provincial mean as per a significance level of probability <0.0001 have been identified with an asterix in the Exhibits. Statistical tests of individual outlier significance were carried out only with the annualized rates of individuals receiving an indicator service. The problem of non-independence with the total volume of services data caused by multiple encounters per individual can be avoided by using this individual-based data. It is important to note that statistical significance does not necessarily mean clinical significance, as rate differences may be so small that they carry no policy relevance.

Description of associations between some selected DHC indicator rates (e.g., correlation of physician supply with rates of physician encounters) were carried out using Pearson correlation coefficients and/or unweighted least squares regression lines to represent these associations graphically. These analyses were based on the assumption and observation that the numerators and denominators for such rates are sufficiently large that the rates and their standardized ratio distributions approximate a normal distribution. These DHC rates have been used as a summary characteristics of the DHC, not as weighted representation of the individuals within. Regression analyses for the purpose of building predictive models of utilization are beyond the scope and intent of this report.

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