

**Report of a Study to Review  
Levels of Service and Responses  
to Need in a Sample of  
Ontario Long Term Care Facilities and  
Selected Comparators**

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## 1. Introduction

As our lifespan extends and both the number and proportion of Ontarians over 65 years increases, the number of people requiring some form of long term care can be expected to increase substantially. The provision of appropriate, high quality services that enhance independence and quality of life for the frail elderly is one of the most important challenges facing health policy makers around the globe.

There are a number of central questions that must be addressed when evaluating policy related to care for the elderly such as:

- ∞ What are the most appropriate types of care and services to offer a given population?
- ∞ Where are these services most appropriately provided?
- ∞ How much service should be provided to this population?
- ∞ How should scarce resources be distributed to be equitable?
- ∞ How can we maximize the impact of the allocation of those scarce resources?
- ∞ On what basis can the quality of care be assessed - and what relationship exists between quality of care and levels of services?
- ∞ What mix of expertise is required to serve the needs of the frail elderly?
- ∞ What limits are currently in place in long term care settings that must be addressed?

While health care service providers and policy makers continue to be hindered in their ability to answer these critical questions by the absence of reliable and valid evidence, this report adds to the body of health care knowledge through a quantitative examination of levels of service in long term care facilities across a number of provinces, states and countries. The study results provide information to inform and support further analysis and decision making related to the amount of care provided to residents in Ontario long term care facilities.

## 2. Background

Ontario's long term care programs provide services and support to individuals in their home and community as well as facility based care for those whose needs can best be met in a long term care facility. Nursing homes and homes for the aged are available for people who are not able to live independently in their own homes and who require a 24-hour nursing service to be available to meet their nursing and personal care needs.<sup>1</sup>

There are presently 498 facilities providing long term care to 57,000 residents in Ontario. The facilities include 70 Charitable Homes for the Aged, 101 Municipal Homes for the Aged, and 326 Nursing Homes. For the purposes of this report, we refer to these facilities as long term care (LTC) facilities.

In 1998, the Ontario Ministry of Health and Long Term Care committed to adding 20,000 new long term care beds in the province as part of a multi-year plan with associated investments of millions of dollars. Facility based long term care in Ontario is both a challenging and dynamic environment and this investment has been occurring at a time when the province as a whole is witnessing dramatic shifts in all care sectors along with projections of both a growing and aging population.

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<sup>1</sup> Ontario Ministry of Health and Long-Term Care website

In 1993, the Ontario Ministry of Health set out a new funding system for LTC facilities. A resident needs-based funding formula was used to establish a fixed per diem payment for accommodation, food and programming, and a variable per diem for nursing and personal care.

Long term care residents present a wide range of needs and require varying levels of services and staff resources to provide these services. In Ontario, all LTC facilities must use the Alberta Classification System on an annual basis to help establish each facility's funding level. The classification system is a predictive system in that it measures eight indicators of care requirements (eating, toileting, transferring, dressing, potential for injury to self or others, ineffective coping, urinary continence and bowel continence) grouped into three domains of activities of daily living, behaviours of daily living and continuing care level. The scores are used to predict the resident's total care requirements. The eight areas do not fully reflect the resident's medical or health status, required treatments, procedures and medications, nor do they adequately reflect special need areas such as rehabilitation/restorative care, mental health care or palliative care.

In contrast, Ontario's chronic/complex continuing care population includes those with on-going chronic conditions that require hospitalization that is usually a short stay. Twenty-one percent of complex continuing care (CCC) patients were transferred to LTC facilities in 1998/99.<sup>2</sup> For chronic/complex continuing care patients in Ontario, data collection using the

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<sup>2</sup> Canadian Institute for Health Information. Health Care in Canada, A First Annual Report 2000. pg. 56

Minimum Data Set 2 (MDS 2.0) has become mandatory. In addition, the associated Resource Utilization Groups III (RUGIII) has been approved for the purpose of developing a funding methodology for CCC facilities and units in Ontario public hospitals.

Since 1993 when the current system for identifying funding levels for Ontario LTC was introduced, dramatic changes have occurred and more are proposed for Ontario's health system. Examples of those changes that have a significant impact on the delivery of long term care services include:

- ∞ Overall reduction in the number of beds in acute care hospitals with an increasing emphasis on shortened lengths of stay which in turn puts renewed emphasis on caring for patients in non-acute based settings including LTC facilities,
- ∞ Uneven distribution of long term care beds in many areas of the province,
- ∞ A continuing shift to a higher proportion of heavier care residents (based on the Alberta Classification System) and an increase in provincial Case Mix Measure in Ontario LTC facilities <sup>3</sup>,
- ∞ Re-organization of a number of chronic care/complex continuing care beds and a shifting role for complex continuing care facilities, and

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<sup>3</sup> Ministry of Health and Long Term Care Facility Classification (based on the Alberta Classification). The 2000 results show the case mix measure is up 2.1% to 85.07 from 83.30 in 1999. The proportion of heavier level of care categories E-G increased by 3.8% and represents 67.9% of all LTC residents. Case Mix Measure is a measure of the facility's level of care determined by multiplying resource use weighting factors the proportion of residents in each classification category that reflects their nursing and personal care requirements.



- ∞ Placement Coordination Services and access to long term care beds managed by Community Care Access Centers.

### 3. Study Objectives

In response to these changes, the Ontario Association of Non-Profit Homes and Services for Seniors (OANHSS) and the Ontario Long Term Care Association (OLTCA) embarked on an initiative to review the provision of services in long term care facilities. The objectives of the review were to determine:

- ∞ The existing complexity (acuity), of a sample of long term care facility residents,
- ∞ The current amount of services (direct and indirect for nursing, therapies and accommodation) provided to a sample of residents in long term care facilities in Ontario, and
- ∞ How the existing acuity and levels of services compare to similar residents/patients in other Ontario settings (chronic care) as well as other Canadian provinces and international jurisdictions.

This report is the first study to conduct a direct, individual-level comparison of the needs and services provided to residents of LTC facilities and patients in complex continuing care

facilities in Ontario with those of nursing home residents in other provinces, states and countries.

## 4. Project Description

A combination of facility-specific staffing levels, financial and MDS 2.0 data were used to provide cross-sectoral comparisons within Ontario (i.e., long term care vs. complex continuing care),<sup>4</sup> inter-provincial comparisons within Canada, North American comparisons using data from four U.S. states, and international comparisons with three European countries.

Evidence about the care of almost 150,000 frail elderly persons in Canada, the U.S. and Europe were used to compare against the experience of a sample of residents in long term care facilities in Ontario. The following table provides a summary of the key sources used in data collection.

**Figure 1: Key Sources for Data Collection**

| Key Data Elements                             | Sources                   |
|---|---------------------------|
| <b>Acuity Levels</b>                          |                           |
| Ontario Long Term Care ADL Level and CMI      | Fall, 1999 Classification |
| Ontario Chronic Care ADL Level and CMI        | MDS 2.0 -Ontario Data Set |
| Other Jurisdictions ADL Level and CMI         | Facility Specific Reports |
| <b>Median Rating - Alberta Classification</b> |                           |
| Ontario Long Term Care                        | Fall, 1999 Classification |

<sup>4</sup> Note: For this report, the terms “chronic care” and “complex continuing care” are used interchangeably with respect to Ontario hospitals. In addition, the terms resident and patient are used in a manner which is similar to the way it is used in the specific jurisdiction.

|                                  |   |
|----------------------------------|---|
| Alberta Long Term Care           | Provincial Reports and Facility Specific Reports  |
| <b>Median Rating MDS/RUG-III</b> |   |
| Ontario Long Term Care           | RAI Health Informatics project  |
| Ontario Chronic Care             | Provincial Data Set   |
| Other Jurisdictions              | Facility Specific Reports, InterRAI reports   |
| <b>Service Levels</b>            |   |
| Ontario Long Term Care           | Service Level Survey and Facility Budget Reports for information not collected by MDS                         |
| Ontario Chronic Care             | Service Level Survey and Facility Budget Reports for information not collected by MDS, Providence Centre data |
| Other Jurisdictions              | Service Level Survey and Facility Budget Reports for information not collected by MDS, InterRAI data          |

## **5. Methods and Limitations**

### **5.1 Study Methodology**

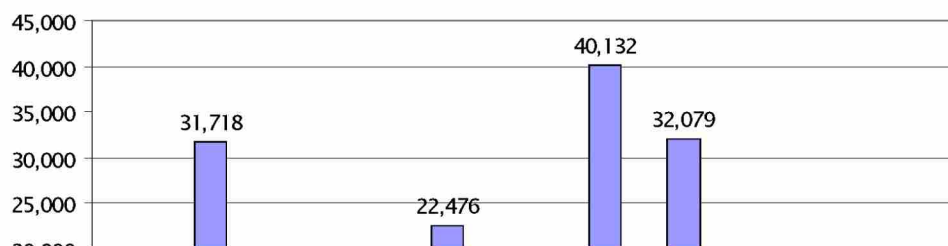
Data from the Minimum Data Set 2.0 (MDS 2.0), and facility-specific survey information gathered in Canadian, U.S. and international settings were the primary sources of information for this study. The data was used to describe the characteristics of residents of long term care facilities, their case mix distributions, utilization of professional services and treatments, and access to those services and treatments among individuals identified as having specific and similar needs. All MDS 2.0 data used for this study came from assessments completed by trained nurses in each of the respective provinces, states and countries. In some cases, the data were collected both as part of mandatory reporting requirements (e.g. Ontario CCC and U.S. nursing homes); and where pilot studies of the MDS (e.g. Manitoba) and MDS-related research projects (e.g. Ontario long term care and European data) are taking place.

The MDS 2.0 tool is primarily used for resident/patient assessment and care planning and is completed by trained nursing staff, through direct observation of resident status at specific points in time. Standardization of the data collection is maintained through training programs, reliability testing and user manuals. The assessment tool looks at a comprehensive number of features of the resident including: mood, behaviour, cognition, activities of daily living, treatments, medications, therapies provided and physician visits.

Once gathered, this information can be categorized using a “grouping methodology”, RUG-III (Resource Utilization Groups). The RUG-III case-mix algorithm was developed to provide a patient-specific means of describing the resources used by individuals with different needs. Version 5.12 of RUG-III uses 108 variables from the MDS 2.0 to create 44 categories of patients with homogeneous resource use patterns. The current RUG-III algorithm explains about 55% of variance in resource use, and it has been validated in a number of countries through a series of international studies. Each of the 44 levels has an associated case mix index (a proxy for acuity and resource requirements).

The MDS 2.0 data collection efforts spanned an approximate 5-year time frame with the earliest study occurring in Finland in 1995 and the most recent data collection occurring in a sample of Ontario long term care facilities. The total sample size in the study was about 150,000 residents/patients. The sample was derived from Ontario, Manitoba and Saskatchewan LTC facilities, Ontario CCC facilities, Michigan, Maine, Mississippi, South Dakota Nursing Homes and Swedish, Finnish and Dutch Nursing Homes. The contribution of each jurisdiction to the total sample is provided in the following graph. It is important to note that the sample is derived from completed MDS 2.0 assessments and does not necessarily reflect the number of beds in the jurisdiction.

**Figure 2: Sample Composition**



A summary of the data sources and the sampling frame is provided in Appendix 1 and 2.

A literature review was also undertaken to gather information related to the context of this study and to understand some of the differences in long term care across the study jurisdictions. This review can be found in Appendix 3.

A survey was specifically developed and tested for the study and sent to a sub-sample of long term care facilities in Ontario, Manitoba, Saskatchewan, the Netherlands, and CCC units in Ontario. The survey can be found in Appendix 4 of this report. This survey gathered facility

specific data related to hours of care provided by registered nurses (RNs), registered professional nurses (RPNs), health care aides (HCAs), therapy staff (physiotherapists, occupational therapists and recreation therapists), and other professional staff such as social workers.

## 5.2 Study Limitations

While a review of the data provided here yields a number of important findings, some important caveats must be noted. Any evaluation of evidence should take into account at least three characteristics of the research method used: 1) reliability and validity of the data; 2) degree to which the samples used are representative; and 3) relevance of the historical period in which observations are made.

### *Reliability and Validity of Data*

The reliability and validity of the MDS has been a major focus of research by interRAI, an international research group focused on the advancement of the Resident Assessment Instruments. The MDS has consistently shown to have good measurement properties in terms of inter-rater agreement, internal consistency, convergent validity and criterion validity (Morris et al., 1990; Brandeis et al., 1995; Williams et al., 1997; Lawton et al., 1998; Hawes et al., 1995; Morris et al., 1997; Phillips and Morris, 1998; Phillips et al., 1993; Mor et al., 1995;



Morris et al., 1994; Burrows et al., 2000; Morris et al., 1999; Teare et al., 2000; Hirdes et al., 1999).

Evidence about the reliability and validity of MDS items have also been replicated in international studies (Sgadari et al., 1997). Qualified nurses or other clinicians compiled all data analyzed in this study, either as part of research or pilot studies or as part of normal clinical practice. Therefore, even though some degree of measurement error should always be expected with any data, issues of data quality should not pose a major threat to the accuracy of these findings.

The MDS 2.0 data provides information on the relative case mix index of the populations being served within each of the jurisdictions. However, the data is limited to providing information on what services have been received and not on what services should have been received given the need of the patient. Consequently, if a population is under-served then the case mix index of that population may be comparatively lower than the cohort based upon what services were received. This may confound to some degree, comparisons of case mix across the cohort.

This study also investigates and compares relative need across the cohort. The need analysis was designed to identify persons in need of specific services. The analysis provides an overview of the need for medical, nursing, rehabilitation and psychosocial services but does not control for the acuity of the persons under investigation. That is, the study focuses

on the need of specific services but doesn't control for persons with serious medical co-morbidities. However, as indicated earlier, this data may not be accurately available for all jurisdictions as the MDS data provides data on what services were received and not what was required.

In addition, several of the jurisdictions are required to submit MDS 2.0 data for funding purposes. This may affect both the reliability and validity of the data in several ways.

Facilities may attempt to maximize the acuity of the patients they serve in order to maximize the funding allotment. Facilities whose funding is dependent on the data submitted may also implement stringent data quality procedures to ensure data are as accurate as possible. In addition, facilities may preferentially select specific patients to maximize their funding.

Inherent in all funding systems, are incentives and disincentives for facilities to achieve broader health system goals. The impact of the various funding systems on the data cannot be determined but should be taken into context with the findings of this report.

#### *Representativeness of the Sample*

The degree to which a sample is representative of a population of interest is typically more difficult to establish. This study compares Ontario LTC and Ontario CCC to various jurisdictions providing long term care services. The Canadian and European comparators were chosen based upon the availability of MDS 2.0 data. The four US states, Michigan, Maine and Mississippi and South Dakota were chosen based on the state level quality of

data. As a result, the jurisdictions chosen for comparison were limited to the availability of accurate data. In addition, a mixture of samples was drawn from each of the jurisdictions. In some cases, the data are a census of all individuals in a given type of facility in a particular jurisdiction within a specified time period. For example, the Ontario MDS 2.0 CCC data were from all admission, annual and quarterly assessments obtained in fiscal year 1998-1999. The sample excludes significant change assessments. It also allows for repeat observations of individuals within the data set by treating follow-up observations as separate individuals. Therefore, the data are not entirely based on independent observations over time, and may over-represent characteristics that tend to be stable over time (e.g., use of psychotropic medications). On the other hand, if one were to only choose a single observation from one resident/patient in the study year, it would be unclear as to which observation should be chosen. The results comparing new and existing patients in chronic care for example, clearly demonstrate that RUG-III levels may change over time. By choosing only new assessments, one might over-estimate the prevalence of clinical complexity in one sample and increase measurement error in smaller, cross-sectional samples from other studies where there are few admissions. Given these trade-offs, it was felt that the use of all observations was the most reasonable way to analyze the MDS data, based on census samples.

For the U.S. states, a 10% random sample was chosen from the census file to reduce computing demands to 10s, rather than 100s, of thousands of cases. Nonetheless, the U.S. data can be assumed to be highly representative of the study states at the time of data collection.

The Ontario LTC, Manitoba, Sweden and Finland data are all from pilot/research studies in which samples of residents were drawn at the time of assessment. In some cases, the sample represents an entire facility, but these samples represent an entire *jurisdiction*. In the absence of census data or much more sophisticated sample data (without response bias), it cannot be stated that these samples are definitively representative of those provinces or countries. On the other hand, the facilities sampled were not especially unusual and response bias did not appear to be a major problem.

Data from the Prince Albert Health Region represent a census of all persons in homes operating in that region in 1998, yet we cannot be certain that Prince Albert is necessarily representative of all of Saskatchewan. This is also true for data collected from Michigan, Maine, Mississippi and South Dakota; it cannot be stated with certainty how representative these states are of all of the United States. Therefore, some caution should be used with respect to the generalization of these data. The findings however, are evocative of a number of important questions for each jurisdiction studied, and they point to the kinds of evidence that can be obtained from MDS 2.0 data.

While the use of MDS 2.0 data and the RUGIII grouper provides for data comparisons, when comparing LTC to CCC populations in Ontario, the following must also be considered:

- ∞ the CCC population is not homogeneous and is comprised of at least three if not more populations: 1) a "short-stay" patient group made up of those receiving post-acute,

- palliative and "assessment and treatment"; 2) patients receiving rehabilitation in non-designated rehabilitation beds and 3) a "long-stay" patient group who may have long term chronic illnesses and medical complexities not appropriate for long term care facilities,
- ∞ the "short stay" group are the disproportionate receivers of rehabilitation therapy services in CCC, and
  - ∞ the "short stay" patient group also represents the majority of CCC patients on a per-patient basis but not the majority of CCC patient days.

*Relevance of Data*

The issue of the time of data collection is also another important consideration. The Swedish, Finnish, and some of the U.S. data were gathered from three to five years earlier than the Ontario data. For example, within the U.S., Michigan data were gathered over the last two years and the data from the other three states were about four years old. Therefore, the data tell us only the extent to which Ontario facilities are comparable to homes in those jurisdictions several years ago. In the case of Michigan, observations on similarities and differences with respect to Michigan's "current state" can be made, but the comments apply only to that state only and not the entire U.S. In the present analyses, it is reasonable to argue that the data from Ontario, Saskatchewan, Manitoba, Michigan and Netherlands are sufficiently contemporary that historical differences should not be a major concern.

Despite these caveats, this study represents a major step forward in providing new evidence about at least some of the questions posed earlier with respect to long term care in Ontario.

## 6. Context

### 6.1 Distinguishing Between Case-Mix and Payment Systems

Although issues related to case-mix and payment systems are closely intertwined, it is important to make a distinction between them in order to clarify what can be learned through comparisons of data related to each system.

A *case-mix* system provide a means of describing the relative resource intensity needs of different groups of patients that are typically classified according to their clinical characteristics. Case-mix systems normally have a grouping methodology that divides individuals in terms of the resources they consume and applies a weighting system that results in a numerical score allowing comparisons of the *relative* level of resource intensity for those groups. That is, they provide information about the relative size of the “slices of the pie” that one group consumes compared with another group. The two most common case-mix methods used in health care are *per diem* systems and *episodic* systems. Per diem systems that consider costs for a typical patient day are more appropriate for long term care than episodic systems, which usually employ length of stay as a proxy for episode cost.

In this study, case mix has been used to describe relative resource consumption across jurisdictions.

## 6.2 Identifying Needs and Services Received

The key question this study addressed is “How do the levels of services (nursing, aide and therapies) provided to residents of Ontario long term care facilities compare to the services received in other long term care and Ontario CCC settings”?

The approach taken to deal with the issue of measuring service levels, was to consider the extent to which persons with specific needs are able to obtain access to interventions that can address those needs. This comparison was done on a non-monetary basis, i.e. by comparing services received by similar residents, not by levels of funding.

To start, *need* must be defined within the context of long term care. To illustrate, persons with impairments in ambulating have a need for rehabilitation services if there is a reasonable expectation that such services could improve their mobility or individuals experiencing depression may have a need for some combination of psychosocial therapies and pharmaceutical intervention in order to improve their quality of life. Thus, to examine needs in different jurisdictions requires not only a means of describing the problem but also access to data that allows for the determination of equivalence, with a reasonable level of certainty, of the needs of the populations compared and the services provided to them.



The merit in studying responses to needs is in understanding the impact they can have on: 1) improving quality of life; 2) reducing rates of decline, co-morbidity or disablement; and/or 3) reducing indirect costs in the health care services (e.g., an individual may be transferred to a more expensive sector of the health care system to deal with exacerbated problems that can no longer be addressed in the current setting).

Figure 3 provides a summary of the measures used in the need analysis and the coding schemes to identify persons in need of specific services. It should be noted that the set of need indicators examined is not a comprehensive inventory of all potential ways to measure need for services in the MDS 2.0. Instead, it is intended to provide an overview of the need for medical, nursing, rehabilitation and psychosocial services.

The MDS 2.0 assessments collect resident status information in a number of domains. Five of these “areas of need” (column 1) are reviewed in this study and provide a foundation for a comparison of similar populations based on objective measures of need. The extent to which those needs are expressed (i.e. frequency of symptoms), during the MDS 2.0 assessment is summarized in column 2 – “needs distribution”. By comparing “types of interventions” (column 3), the extent to which similar resident needs are met can be calculated. Other indicators of need obtained from the MDS 2.0 and used in this study are the Cognitive Performance Scale (CPS), Activities of Daily Living (ADL), Depression Rating Scale (DRS), and Health Instability Profile (HIP). The use of multiple scales strengthened the ability of this



study to describe the long term care populations across sectors and allowed for "services provided" to be measured against "indicators of need" in each jurisdiction.

The MDS-Depression Rating Scale (MDS-DRS) is a new outcome measure intended to be used in research and as a clinical indicator of need. Seven items from MDS 2.0 are used to identify depression. Validation studies were based on a comparison of the MDS-DRS with the Hamilton Depression Rating Scale and the Cornell Scale for Depression. Compared to DSM-IV Major or minor depression diagnoses, the MDS-DRS was 91% sensitive and 69% specific at a cutpoint score of 3 out of 7.

The Cognitive Performance Scale (CPS) was developed to describe cognitive status using items from the MDS instrument. It combines information on memory impairment, level of consciousness and executive function, with scores ranging from 0 (intact) to 6 (very severe impairment). The CPS was shown to be highly correlated with the MMSE<sup>5</sup> in a number of validation studies.

The ADL Hierarchy scale groups activities of daily living according the stage of the disablement process in which they occur. Early loss ADL's (e.g., dressing) are assigned lower scores than late loss ADL's (e.g., bed mobility). The ADL Hierarchy Scale Ranges from 1 (no impairment) to 10 (dependent in bed mobility or eating).

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<sup>5</sup> Mini-Mental State Examination, Folstein et al, 1975

Figure 3: Variables Used in Need Analysis

| Area of Need                 | Need Distribution  | Types of Interventions   |
|------------------------------|--|--|
| <b>Mental Health</b>         | Diagnosis of depression, anxiety disorder, bipolar disease, schizophrenia<br>Depression Rating Scale $\geq 3$<br>Presence of Hallucinations or delusions | Any contact with psychologist in last 7 days<br>Evaluation by licensed mental health professional in last 90 days<br>Occupational therapy in last 7 days<br>Any use of anti-psychotics, anxiety, anxiolytic, hypnotic, antidepressant in last 7 days<br>Any use or daily use of trunk or limb restraints or chair that prevents rising                 |
| <b>Behaviour Disturbance</b> | Any instance of wandering, verbal abuse, physical abuse, resisting care or socially inappropriate behaviour in last 30 days                              | Any contact with psychologist in last 7 days<br>Evaluation by licensed mental health professional in last 90 days<br>Any use of anti-psychotics, anxiety, anxiolytic, hypnotic, antidepressant in last 7 days<br>Any use or daily use of trunk or limb restraints or chair that prevents rising<br>Special behaviour symptom evaluation in last 7 days |

| Area of Need                    | Need Distribution   | Types of Interventions  |
|---------------------------------|---|---|
| <b>Rehabilitation Potential</b> | Self performance ranges from supervision to total dependence in any one of: bed mobility, transfer, walk in room, walk in corridor, locomotion , on/off unit, dressing, eating, toilet use, personal hygiene, bathing<br>AND<br>No worse than moderate impairment in decision making<br>AND<br>Resident or direct care staff believes s/he is capable of increased independence in at least some ADLs | Any contact with physical therapist or occupational therapist in last 7 days                                      |
| <b>Range of Motion</b>          | Any limitation of range of motion in neck, arm, hand, leg, foot   | Any or daily receipt of passive or active ROM exercise from Nursing (at least 15 minutes/day in last 7 days)      |
| <b>Urinary Incontinence</b>     | Occasional or worse incontinence of bladder in last 14 days   | Any scheduled toileting plans in last 14 days<br>Bladder retraining program in last 14 days<br>Use of pads/briefs |

### 6.3 Learning from Regional and International Comparisons

One of the more useful methods of understanding levels of service is comparative benchmarking of access to services between two or more populations. Discrepancies in access between comparable groups may yield evidence that different inputs are required for groups with different access levels. The choice of reference group for comparison purposes raises some important considerations. National and international comparisons can sometimes yield more useful information because they may reflect the results of different

models of care or the application of different sets of standards. Moreover, these comparisons may provide evidence about the effects of certain policy options being considered. What must be remembered, however, is that there is often enormous complexity underlying any comparison between two or more jurisdictions.

The concept of “long term care” has a variety of definitions across countries as well as within countries. What services are included and how services are delivered and by whom, vary from country to country and region by region. The literature is sparse in presenting a comprehensive overview of this concept and the nature of these services although a number of elements were uncovered in understanding the influences on resource allocation.

***What influences resource allocation in long term care?***

*Funding:*

- Funding by primary funder (i.e. Medicare, Medicaid, federal, provincial, private insurer): Funders vary in what types of services and the amount of service is funded, and
- Funding/Payment system: Funding systems may allocate resources based on the individual requirements (funding for the individual regardless of where they reside) or based on the facility characteristics (i.e. funding differently for a home for the aged versus a chronic care facility),

*Where services are provided:*

- Location of service: Is the service provided in an institution, longer stay units, community-based programs or in the home? For example, in the United Kingdom, rehabilitation services are provided in acute care rather than a “rehabilitation facility” as a result, resource utilization may be higher due to availability of staff.

*Who provides the services and what services are included in long term care?*

- Skill mix of registered versus non-registered models of staffing,
- Skilled (with rehabilitation) versus unskilled (no rehabilitation) facilities,
- Labour force pressures such as shortages of certain professional groups,
- Standards of care (any established standards by category of care),
- Regulations to mandate minimum staffing levels, and
- Allocation of time (resources) for direct versus indirect care.

*Social/cultural factors and the nature of long term care:*

- Why and when clients/residents are placed in institutions: For example, in Nordic countries, residents are older but healthier and receive the majority of medical care outside of a long term care “facility”,
- Health care needs of specific client/resident populations. That is, technology dependant clients/residents, specialized units for Alzheimer residents, etc.,
- Increased lobbying efforts by special interest groups such as Alzheimer support groups for specialized units, and

- Regulatory body (Federal/Provincial/Regional licensing bodies) requirements. For example, the ratio of staff to resident or the number of minutes of licensed nursing care per resident.

Additional elements influencing resource allocation include the amount of information available on activity based budgeting, workload measurement, cost allocation, variance analysis and utilization management. A discussion of the long term care jurisdictions used in the study can be found in Appendix 5.

## 7. Key Findings

The findings are presented in the following seven sections:

7.1 Demographic Characteristics

7.2 Clinical Diagnosis Characteristics

7.3 Other Resident Characteristics

7.4 Case Mix Characteristics

7.5 Receipt of Nursing Services

7.6 Mental Health Needs and Receipt of Mental Health Services

7.7 Rehabilitation Needs and Receipt of Professional Services, Therapies and Interventions

This section of the report will focus on establishing the similarities and differences between residents' characteristics and needs in Ontario LTC facilities and the comparator sites as a foundation for describing the level of care associated with these resident groups.

### *Data Analysis*

The distributions of variables of interest were examined across the multiple jurisdictions.

Demographic and clinical characteristics were gathered directly from MDS 2.0 data while data related to levels of service were obtained from facility specific surveys.

The need analyses conducted here involved a two-step process. First, the potential need for specific clinical interventions were identified through algorithms that used data from the MDS 2.0.

Second, persons with those need characteristics present were examined in order to determine the percentage receiving interventions, therapies or other services that might be expected to have some benefit with respect to that need. The discussion relative to need reports on the overall prevalence of a given need (e.g., mental health problems) and then reports on the receipt of interventions (e.g., group therapy) among the subgroup in need only.



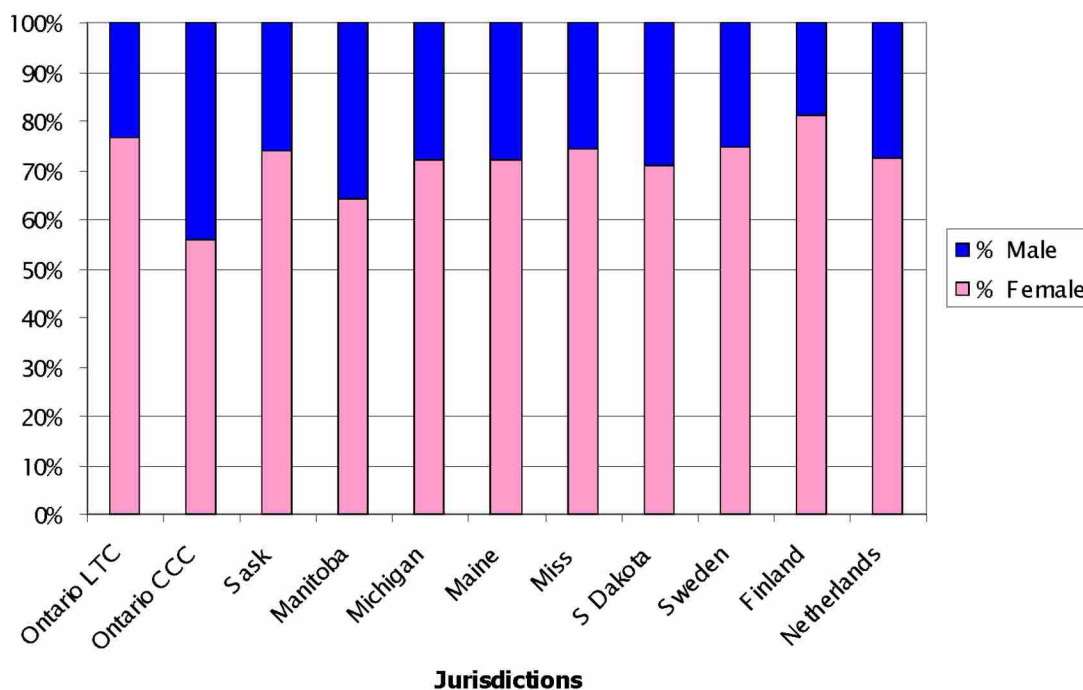
Hours of care provided to residents were examined against prevalence of specific conditions and indicators of need for specific interventions.

The results presented in this document, are representative of the populations as very large sample sizes were employed. For example, all comparisons between Ontario LTC facilities and U.S. nursing homes are significant, because they alone comprise well over 73,000 cases. Therefore, the examination of the results reported here should be guided by considerations of substantiality, policy relevance and clinical significance.

### 7.1 Demographic Characteristics

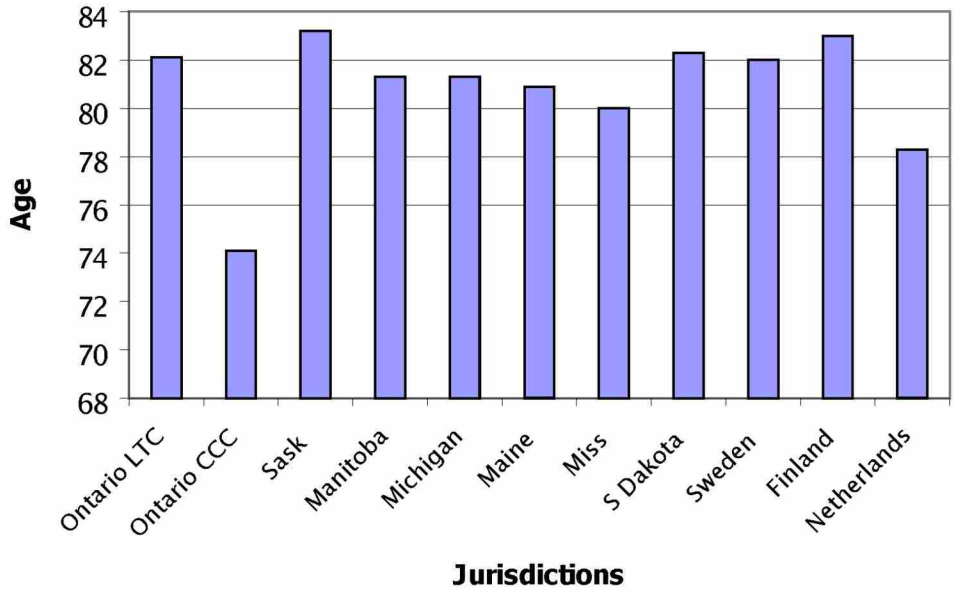
The majority of long term care facility residents in all jurisdictions were female with the highest proportion of females in Finland (81%) followed by residents in Ontario LTC beds (76.6%).

Figure 4: Gender Distribution



The graph below summarizes the age distribution of facility residents and indicates that the average age at most sites was over 80, with Ontario LTC residents being among the oldest (82.1 years). The youngest population is in Ontario CCC beds where the average age is 74.1 years.

**Figure 5: Average Age of Residents**



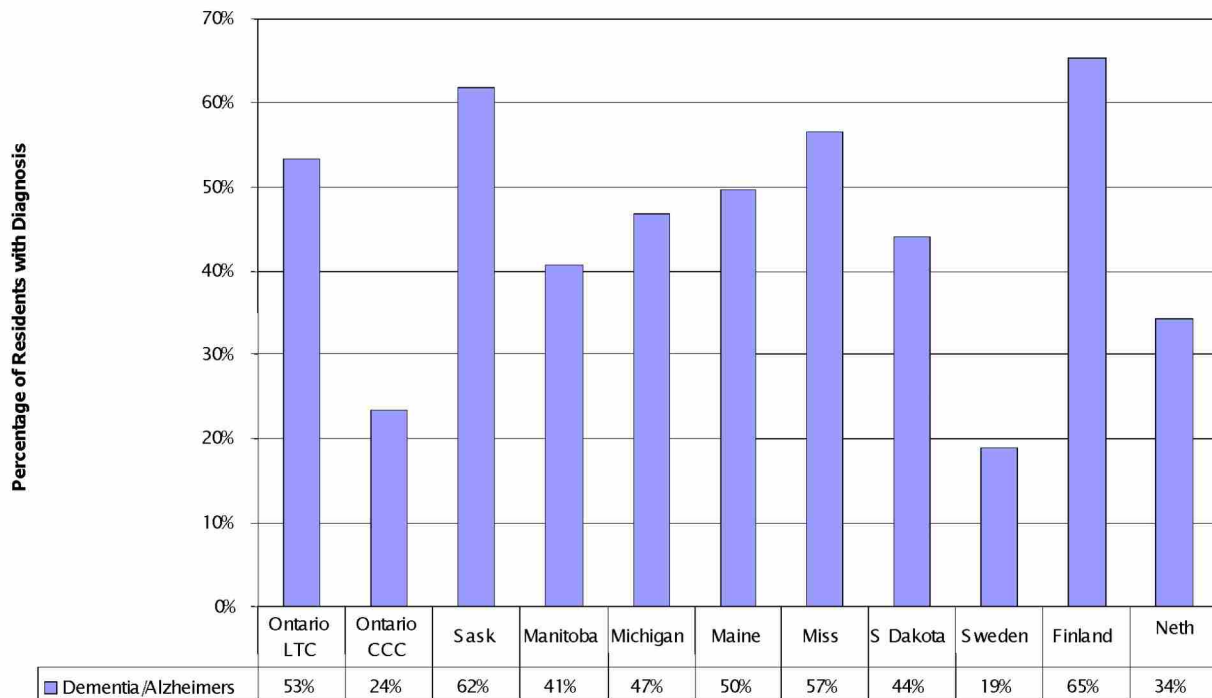
## 7.2 Clinical Diagnosis Characteristics

### *Proportion of Residents with Dementia and Alzheimer's Disease*

Dementia and Alzheimer's Disease combined were the most prevalent of all diagnoses in the sampled long term care facilities. As shown in the following graph, 53% of residents in Ontario facilities have one of these disorders. Only Finland (65%), Saskatchewan (62%) and Mississippi (57%) exceed this proportion. Substantially fewer persons had these diagnoses in Ontario CCC facilities where 24% of their population reported to have either a dementia or Alzheimer's disease.

It should be noted that more than one diagnosis can be reported on the MDS 2.0, therefore the following graphs represent the proportion of the study population with various diagnoses and not absolute numbers of residents.

Figure 6: Prevalence of Dementia and Alzheimers Disease Combined



Although not the subject of this review it is interesting to observe the low rate of a diagnosis of dementia and Alzheimer’s disease for residents of LTC facilities in Sweden. Consistent with other industrialized nations, Sweden’s elderly population is increasing more than any other sector of the population. In 1990 there were approximately 101,000 (6.4% of the over 65

population) people diagnosed with either moderate or severe dementia. In 2000, that figure rose to 121,000 or 7.7% of the population 65+ population.<sup>6</sup>

Reasons for discrepancies in percentages of cognitively impaired patients admitted to some form of health care facility in Sweden are not available but may be related to changes in treatment practices which offers some learning for the Ontario setting. In 1994, the Sweden Medical Product Agency defined new treatment guidelines regarding drug use in the demented elderly. In addition to these guidelines, groups of nursing homes have begun incorporating outreach programs designed to improve multidisciplinary teamwork that emphasizes regular, face-to-face communication with teams that consist of physicians, pharmacists, nurses and nursing assistants.<sup>7</sup> Clinical trials and descriptive studies consistently suggest that when treatments of long term care residents incorporate multidisciplinary interventions, even the most chronically debilitated patient's physical and cognitive functioning improves. In addition, where organic mental disorders and dementia are recognized and appropriately treated, symptoms may be partially or fully reversible.<sup>8</sup>

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<sup>6</sup> Wimo, A; Karlsson, G; Sandman, P.O.; Winblad, B., *Nordic Medicine* 1995; 110(4): 123-6. Care of patients with dementia—a ticking cost bomb? and Aguero-Torres, H, Fratiglioni, L., Winblad, B., *International Journal of Geriatric Psychiatry*, 1998 13(11): 7550-66. Natural history of Alzheimer's disease and other dementia: review of the literature in the light of findings from the Kungsholmen Project.

<sup>7</sup> Schmidt, I., et al; 1998 46(1): 77-82. The impact of regular multidisciplinary team interventions on psychotropic prescribing in Swedish nursing homes. *The Journal of the American Geriatrics Society*.

<sup>8</sup> Podgorski, C.; et al. 1996 44(7): 792-797. Cross-discipline disparities in perceptions of mental disorders in a long term care facility. *The Journal of the American Geriatrics Society*.

The number of residents with Dementia and Alzheimer's disease in Ontario long term care facilities has significant implications for the care and treatment of these individuals. Clearly, there needs to be adequate numbers and types of caregivers with specific training, as well as evaluation and monitoring programs in place to deal with health problems exhibited by these residents.

Few programs exist that provide specialized training in the care of patients with Alzheimer's or related dementias. The result is that caregivers in long term care facilities, acute care hospitals and the community are often not equipped with the knowledge and skills required to provide optimum care for patients with dementia.<sup>9</sup> Both residents/patients and caregivers feel the impact of this lack of expertise. For residents/patients, inadequately trained staff frequently increases the risk of cognitive decline. Given that cognition encompasses perceptual, organizational and psychomotor skills, understanding which specific neuro-cognitive dimensions are affected by nursing interventions permits the refinement of these interventions to better target specific cognitive functions. In addition, given the relationships between cognitive status and functional abilities to perform activities of daily living and self-care, appropriate nursing interventions may hold potential to positively affect function and

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<sup>9</sup> Gillick, M.; et al. 1996. 44(11): 1322-1325. Medical care in old age: what do nurses in long term care consider appropriate? The Journal of the American Geriatrics Society.

self-care indirectly through the maintenance or improvement of cognitive function.<sup>10</sup> An increase in dementia and cognitive impairment always means that residents/patients require more care, not less. This means that the maintenance of quality resident-centered care in long term care will require not only the appropriate numbers of staff but also staff with greater expertise.<sup>11</sup>

In combination with a lack of geriatric/geriatric psychiatric mental health education, LTC staff are strained and the ability to continue to provide safe, appropriate and quality care is compromised.<sup>12</sup> For example, residents with dementia tend to be seen as behavioral problems and staff untrained in geriatric medicine and nursing may miss important diagnostic clues. The resulting poor management of residents frequently leads to excessive acute care hospital stays and added strain on staffing levels within long term care facilities.

*Proportion of Residents with Arthritis, Stroke, Congestive Heart Failure (CHF) and Diabetes*

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<sup>10</sup> Stolley, J., et al 1991. 17(6): 34-38. Caring for patients with Alzheimer's disease. Recommendation for Nursing Education. The Journal of Gerontological Nursing. Abraham, I.; et al 1992. VI(6): 356-365. Cognitive nursing interventions with long term care residents: effects on neurocognitive dimensions. Archives of Psychiatric Nursing.

<sup>11</sup> Burl, J.; et al 1998. 46(4): 506-510. Geriatric nurse practitioners in long term care: demonstration of effectiveness in managed care. The Journal of the American Geriatrics Society. Lusk, C.; 1998. 24(8): 37-42. Geriatric mental health education in Canada SKIPS into the 21<sup>st</sup> century. The Journal of Gerontological Nursing.

<sup>12</sup> Lusk, C.; 1998. 24(8): 37-42. Geriatric mental health education in Canada SKIPS into the 21<sup>st</sup> century. The Journal of Gerontological Nursing.

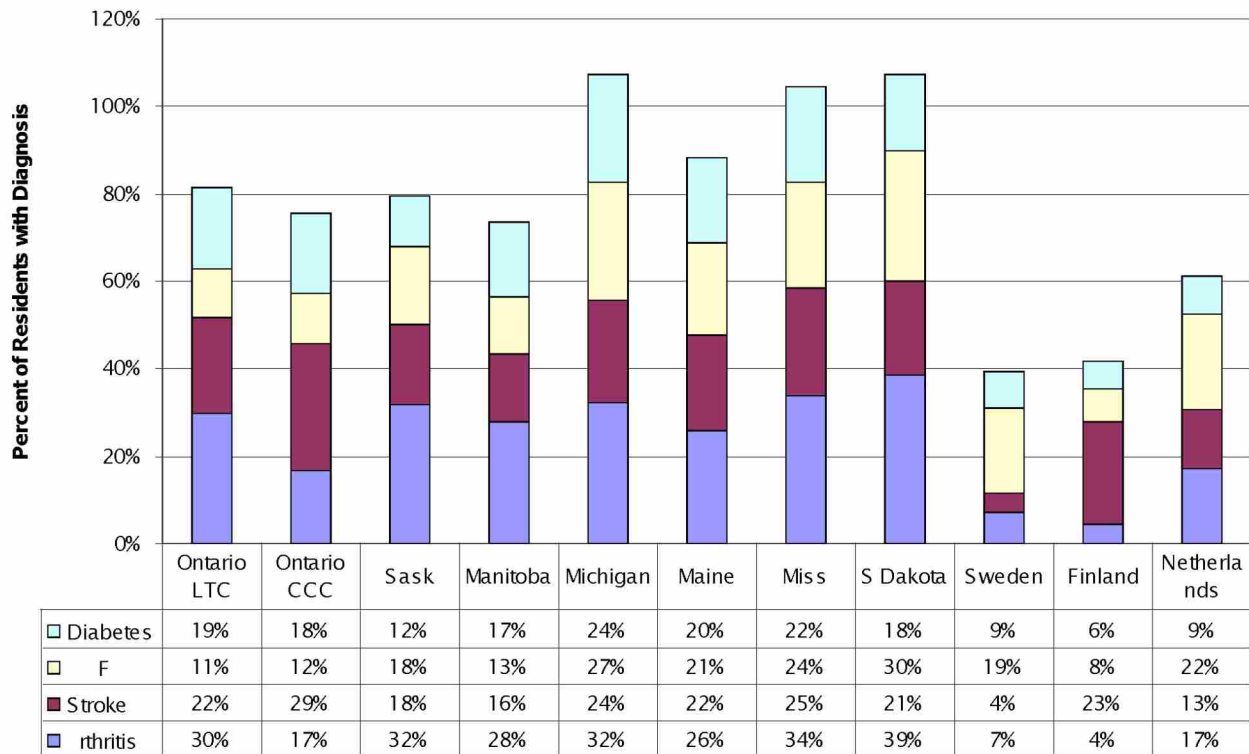


Arthritis, stroke, congestive heart failure (CHF) and diabetes followed dementia and Alzheimer's Disease as the most common diagnoses in long term care facilities.

Observations about the prevalence of these diagnoses include:

- ∞ There are only modest differences in the distribution of these diagnoses between Ontario LTC facilities and those within Saskatchewan and Manitoba although there is a slightly higher proportion of residents in Ontario LTC facilities with stroke (22%) than Saskatchewan (18%) and Manitoba (16%),

Figure 7: Prevalence of Physical Problems



∞ CCC units and facilities had slightly more patients with stroke (29%) than seen in Ontario LTC facilities (22%). This is in contrast with the fact that in all Canadian LTC facilities, stroke is the next most common physical diagnosis after arthritis,

- ∞ Arthritis was the most common diagnosis of a physical problem in North American LTC facilities with between 26-39% of all residents having this diagnosis, and
- ∞ International comparisons include: rates of arthritis which are dramatically lower in Sweden and Finland, rates of stroke among Swedish patients and rates of diabetes which are also lower compared to Canadian LTC.

These factors contribute to the increase in acuity levels seen in long term care and have a major impact on the efficacy of long term nursing care. With appropriately trained long term care staff, morbidity arising from conditions such as CHF, diabetes, arthritis, etc., can be decreased by refocusing the objective of nursing care to the prevention of complications and the promotion of mental and physical health. Long term care staff can learn to recognize and avoid potentially problematic situations or conditions, thereby minimizing the need for transfers to acute care centers for more costly treatments and care.<sup>13</sup>

#### *Proportion of Residents with Other Conditions*

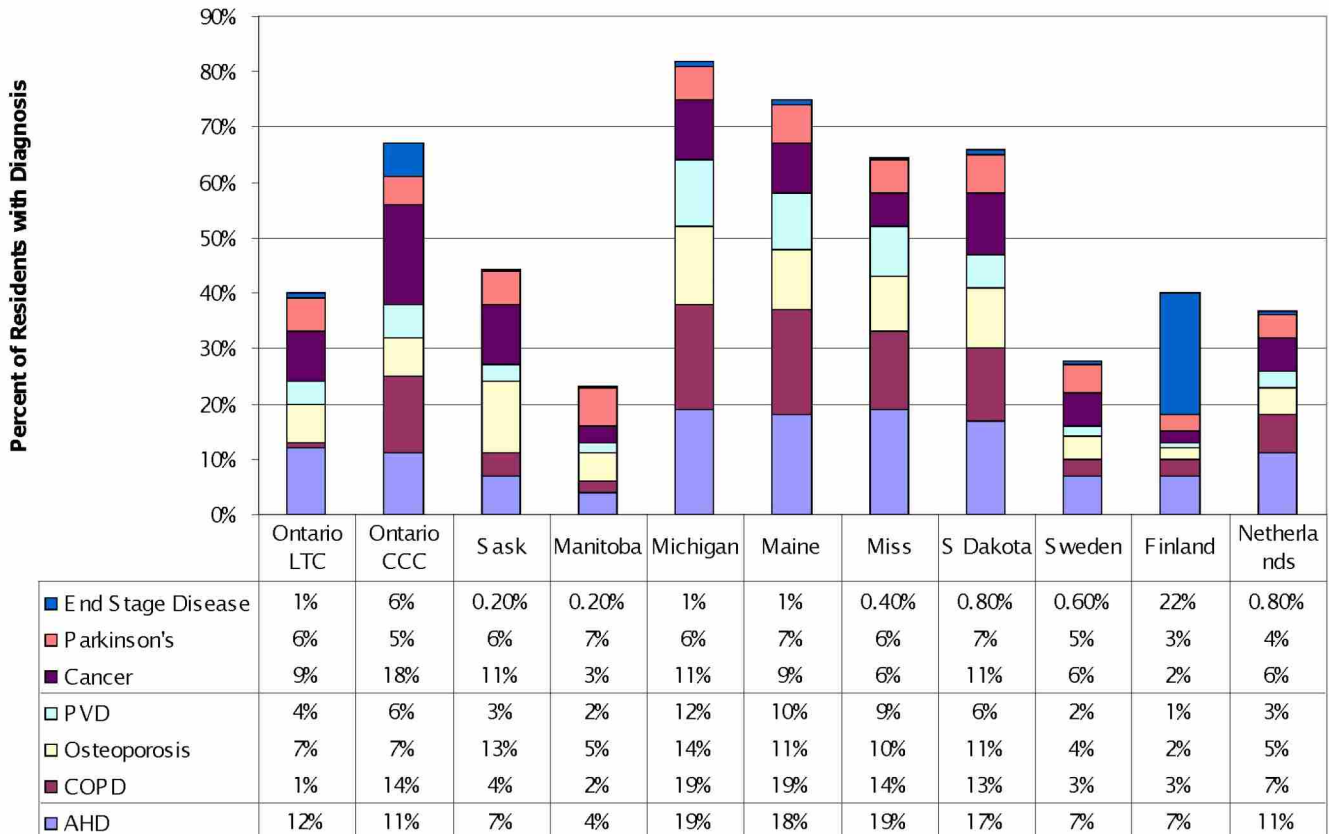
Conditions such as atherosclerotic heart disease (AHD), chronic obstructive pulmonary disease (COPD), osteoporosis, peripheral vascular disease (PVD), cancer, Parkinson's disease and end stages disease are seen in less than 13% of the Canadian long term care

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<sup>13</sup> Lusk, C.; 1998. 24(8): 37-42. Geriatric mental health education in Canada SKIPS into the 21<sup>st</sup> century. The Journal of Gerontological Nursing.

study populations. Heart disease, cancer and osteoporosis are the most common diagnoses of this group in Ontario long term care facilities.

Figure 8: Prevalence of Other Diagnoses



One pronounced difference was that U.S. nursing homes tended to have a much higher rate of persons with congestive heart failure and chronic obstructive pulmonary disease compared with Ontario LTC facilities. Other diseases that had higher prevalence rates in U.S. facilities were osteoporosis and peripheral vascular disease.

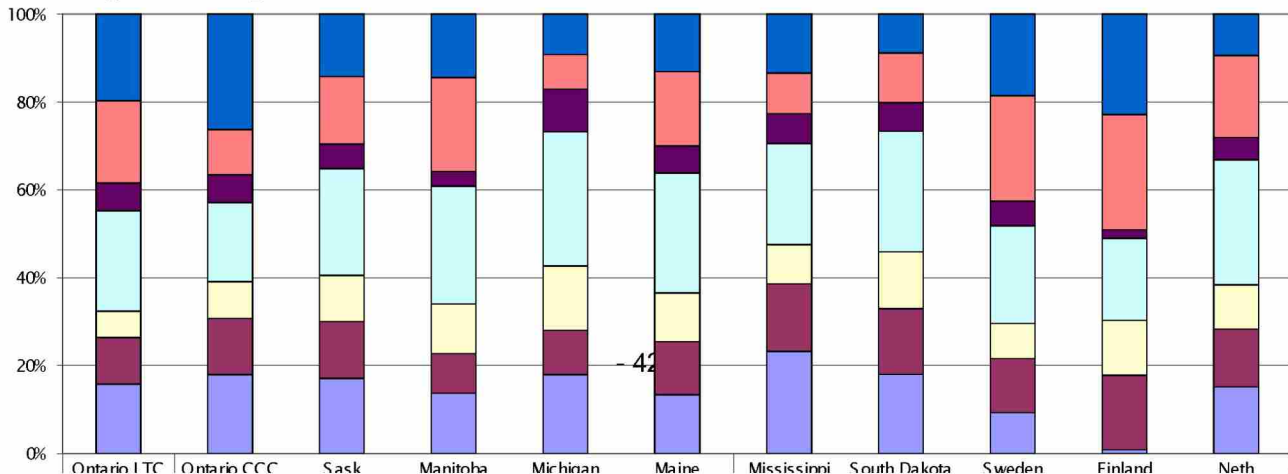
Comparisons of Sweden, Finland and the Netherlands with Ontario LTC residents indicated that Finland has a higher proportion of residents with end stage disease (22% for Finland and 1% for Ontario LTC). Otherwise, there are generally similar or lower proportions of residents with other diagnoses.

### 7.3 Other Resident Characteristics

#### *Cognitive Performance Scale (CPS)*

Several scales which measure degree of impairment either with cognitive ability or ability to accomplish activities of daily living (ADL) were reviewed. The following table shows the distribution of the Cognitive Performance Scale (CPS; Morris et al., 1994). A score of 6 on the scale indicates highest cognitive impairment.

**Figure 9: Cognitive Performance Scale**



The results of the Cognitive Performance Scale for residents of Ontario LTC facilities and Ontario CCC indicate that 44.8% and 43% of residents (respectively) are in levels 4 through 6 while residents in Saskatchewan and Manitoba facilities have 35.2% and 39.2% in this range.

Other results indicate that:

- ∞ Sweden (48.3%) and Finland (51%) are the only two countries with scores higher than Ontario LTC,
- ∞ Ontario CCC has a greater percentage of patients with a CPS score of 6, indicating coma or very severe, end-stage cognitive impairment, and
- ∞ The rates for severe cognitive impairment are lowest in Michigan and South Dakota at about half the rate (9.3% and 8.8% respectively) seen in Ontario facilities.

As discussed earlier, when psychiatric or cognitive disorders are unrecognized they are either untreated or inappropriately treated even where the disorders or dementias can be fully or partially reversed. For those cognitive conditions not amenable to drug therapies, specific opportunities for nursing interventions such as reducing aggravating factors and developing interventions based on a patients-specific patterns of strengths and weaknesses can be missed. Yet, when interventions are aimed at improving, maintaining or even limiting the decline in functional capacities in the areas of physical daily living, they prevent costly complications and promote quality of life for the patient, reducing the strain on caregivers.<sup>14</sup>

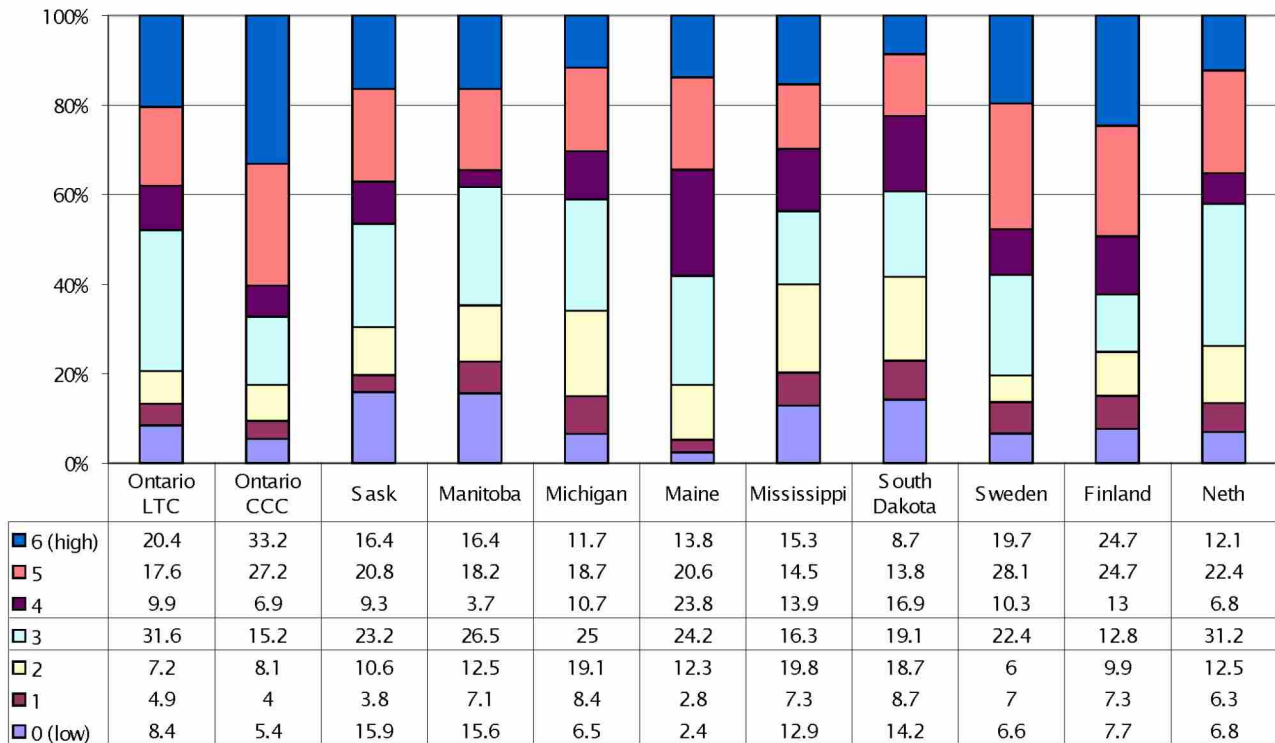
*Activities of Daily Living Scale (ADL)*

The Activities of Daily Living Scale (Morris et al., 1999), measures the extent to which residents are independent/dependent in activities of daily living such as bathing, dressing, eating and toileting. Higher levels of dependence on the scale are associated with progressively more reliance on direct care staff such as nursing and aide staff for assistance with these activities.

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<sup>14</sup> Przybylski, B.; et al 1996. 77(6): 554-561. Outcomes of enhanced physical and occupational therapy service in a nursing home setting. Archives of Physical Medicine and Rehabilitation.

Figure 10: ADL Hierarchy Scale



The findings for the ADL Hierarchy Scale indicate that 47.9% of Ontario LTC residents have high impairment scores of 4 through 6, which is greater than Saskatchewan (46.5%) and Manitoba (38.3%). Samples from the latter two provinces tend to have a higher proportion of



people with no ADL impairment (i.e., an ADL Hierarchy Score of 0) compared to Ontario LTC facilities.

Ontario LTC scores tend to be higher for the 4 through 6 range than for Michigan (41.1%), Mississippi (43.7%) and South Dakota (39.4%). Generally, the U.S. rates tend to cluster in the moderate range of ADL impairment, whereas Canadian rates tend to be more skewed toward severe ADL impairment.

Residents in Ontario CCC have the highest proportion of persons with the most severe ADL impairment (i.e., ADL Hierarchy Score equal 6). About one third of these patients have severe impairment in late loss ADLs.

Findings for the European sample demonstrate lower levels than Ontario LTC in the 4 through 6 range for the Netherlands (41.3%) and higher scores in the same range for Sweden (58.1%) and Finland (62.4%).

The literature demonstrates that in spite of the presence of health care defecits such as those described above, with appropriate nursing, occupational and physical therapy interventions, improvements in the functional and self care abilities of long term care residents can be improved and thus enhance the quality of resident life.<sup>15</sup>

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<sup>15</sup> Abraham, I.; et al 1992. VI(6): 356-365. Cognitive nursing interventions with long term care residents: effects on neurocognitive dimensions. Archives of psychiatric nursing. Podgorski, C.; et al. 1996 44(7): 792-797.

*Health Instability Profile (HIP)*

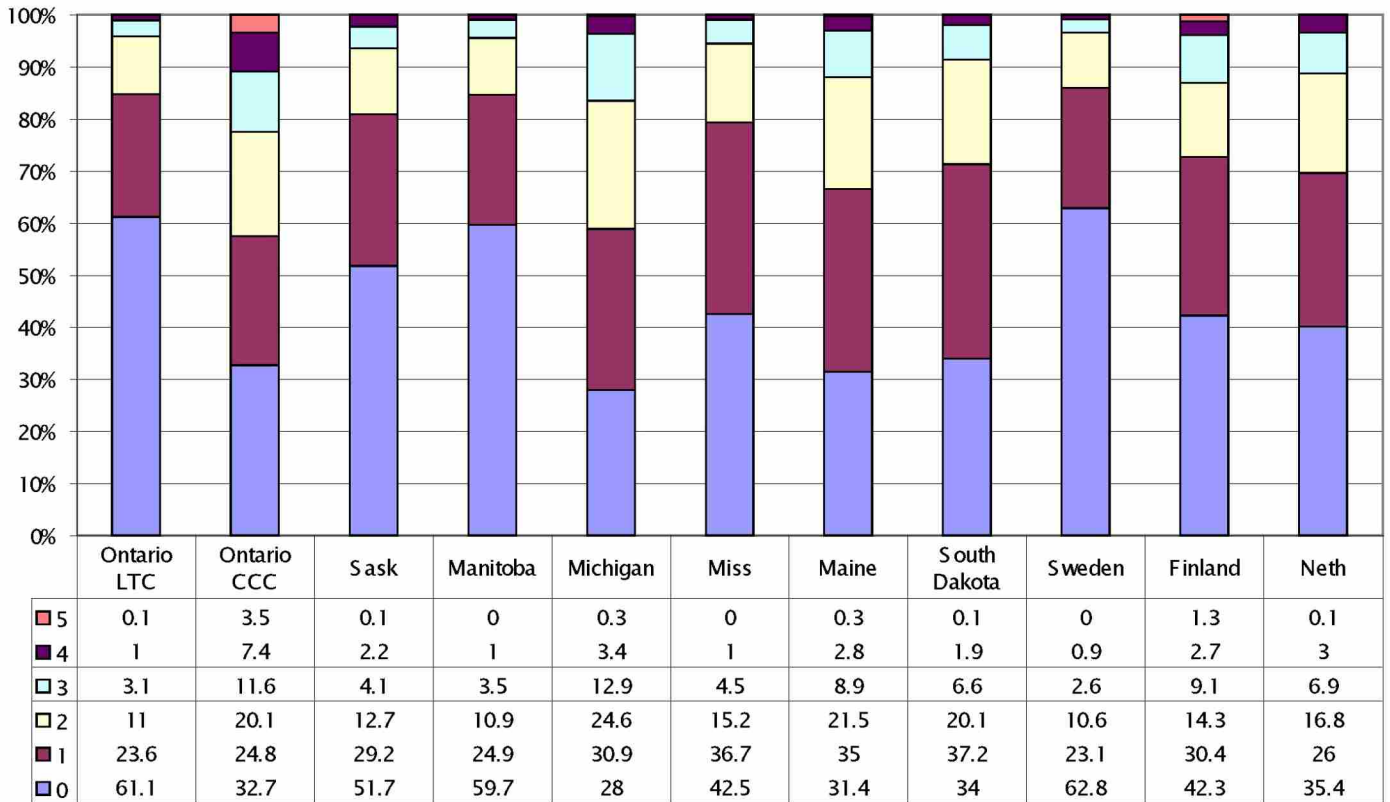
A review of the data from the scale measuring Health Instability (HIP) follows. The Health Instability Profile is a new outcome measure developed for the MDS 2.0, which has been validated as a predictor of mortality and of the intensity of medical interventions. In that sense, it may also be considered a proxy measure for frailty and medical complexity. A score of 5 indicates the highest instability and a score of 0 indicates the lowest instability.

The distributions of the HIP scores are reasonably comparable for Ontario, Saskatchewan and Manitoba LTC, but there is a clear shift in the distribution to higher instability among Ontario CCC patients. This is a reasonable reflection of the higher rate of persons receiving post acute care in chronic care.

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Cross-discipline disparities in perceptions of mental disorders in a long term care facility. The Journal of the American Geriatrics Society.

Figure 11: Health Instability Profile



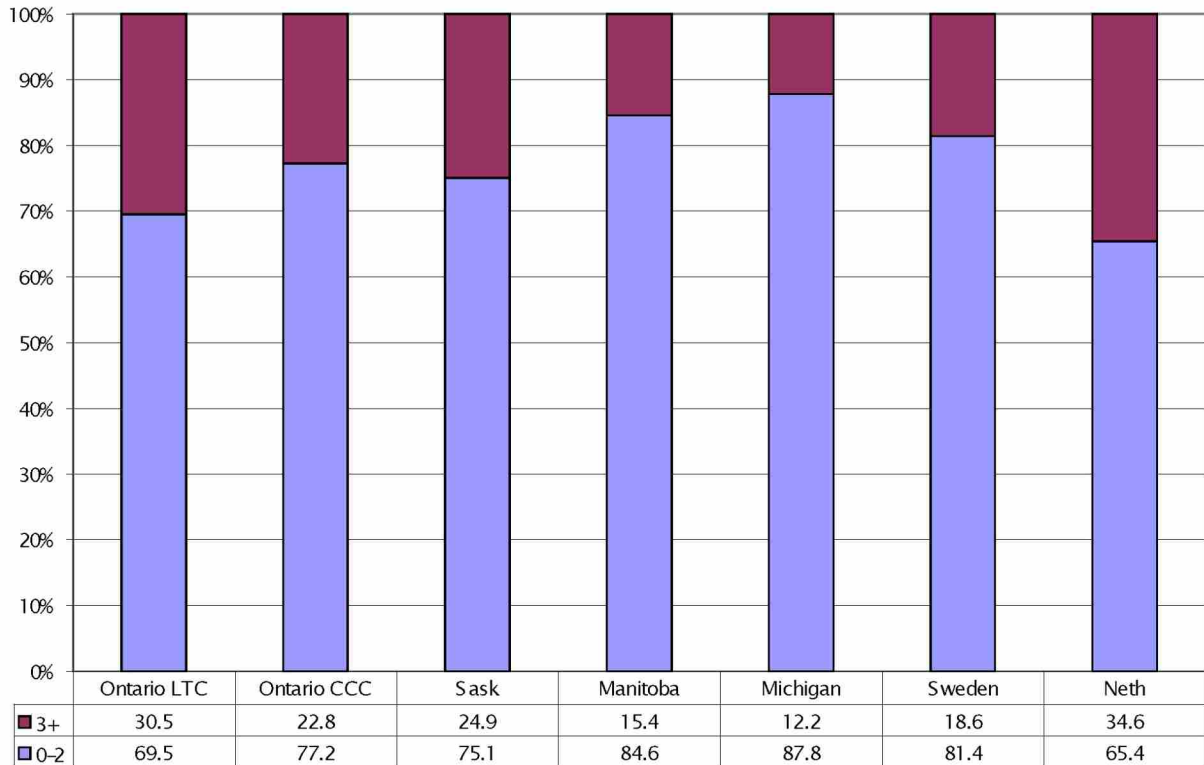
Other findings include:

- ∞ The U.S. nursing homes tend to look similar to Ontario CCC with respect to health instability, at least up to the mid-point of the scale. Facilities in all four states have substantially fewer persons with no health instabilities compared with Ontario LTC.CCC units/hospitals have the highest overall rate of persons in the highest two HIP categories. What this means is that a person with a HIP score of 5 has approximately a thirteen-fold increase in the risk of mortality compared to a person with a score of 0.
- ∞ Residents of Ontario LTC facilities and those in Sweden are most similar in the distribution for the HIP score. The Dutch and Finnish facilities are somewhat closer to the Ontario CCC.

*Depression Rating Scale (DRS)*

The following graph shows the proportion of persons with DRS scores of 3 or more indicating the presence of minor or major depression (Burrows et al., 2000).

**Figure 12: Depression Rating Scale**



Based on this indicator, the rate of depression in Ontario LTC is higher than all other facilities other than the Netherlands and is double the rate noted for Manitoba and almost three times the rate in Michigan.

The impact of all cognitive impairments and behaviour disturbances on healthcare workers and the health care system cannot be overstated. Although organic cognitive impairment diseases such as Alzheimer's disease are currently incurable, effective treatments are available for much of the psychiatric morbidity commonly associated with the clinical course of cognitive impairment regardless of cause.

In addition to the cognitive morbidity and disability caused by Alzheimer's or dementia, a substantial proportion of individuals may also develop psychiatric problems such as depression, delusions, hallucinations, anxiety, agitation and other behaviour problems.

Effective treatment is available for some of the cognitive morbidity and a variety of effective treatments are helpful for much of the psychiatric morbidity. Many of these morbidities can be reduced if promptly recognized, accurately diagnosed, and adequately treated by properly trained professionals. When appropriate and adequate psychiatric treatment is provided, residents' level of distress and dysfunction can be decreased, caregiver distress and burden

can be diminished, institutional care can be delayed, quality of life can be improved, and excess utilization of other more costly health care services can be reduced.

The ideal is that any resident who displays mental or psychosocial adjustment difficulty receives appropriate treatment and services. The reality is that few LTC facilities have the staff capability to intervene in appropriate and timely fashion. In these facilities, depression tends to go un-recognized, or under-diagnosed and untreated.

Part of the problem is that depression in older people is hard to disentangle from the many other disorders that affect this population and its symptom profile is somewhat different from that in other adults. In the US alone, direct and indirect costs of depression have been estimated at \$43 billion each year (1999 US Surgeon General Report of Mental Health). Depression in the elderly is particularly costly because of the excess disability that it causes and its deleterious interaction with physical health. Older patients with depression visit the doctor and emergency room more often, use more medication, incur higher outpatient charges, and stay longer in the hospital.

There are measures that can be taken however, to mitigate the costs associated with cognitive and psychiatric diseases in the elderly. The measure most effective is to ensure depressed elderly residents have access to the mental health care they need through:

“Ensuring health care providers participate in continuing education programs designed to increase their knowledge about and skill in recognition of depression and in initiation of treatment. Particular emphasis should be placed on necessity of referral to mental health specialists at various points in the treatment continuum. Providing training programs for care providers, including nursing staff and "hands on" staff, in both community and institutional settings directed at appropriate identification of the behavioural manifestations of depression and improvement of the care provided.

Innovative outreach and social service delivery models, including adult day care and senior citizens programs, should be encouraged, and information about them should be disseminated to professionals and other staff engaged in provision of mental health services to the elderly.”<sup>16</sup>

### *Summary of Demographic and Clinical Characteristics*

A comparison of Ontario LTC residents to other jurisdictions indicates that:

- ∞ There are more females in the cohort,
- ∞ The age of residents in Ontario facilities (82.1 years) is similar across all jurisdictions,

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<sup>16</sup> American Association for Geriatric Psychiatry: Position Statement. September, 1997; Adrian E Bauman and Ben J Smith Medical Journal of Australia 2000; 173: 88-90; William J. Hall, MD, Update in Geriatrics Annals of Internal Medicine, 1 September 1996. 125:390-397.; The British Geriatrics Society: Submission of evidence to: The Royal Commission on Long Term Care For the Elderly. Prepared by: Dr David D. Lubel, Honorary Secretary 8 June 1998. Diagnosis and Treatment of Depression in Late Life; National Institutes of Health Consensus Development Conference Statement. November, 1991. Mental health: A report of the surgeon general. 1999 David Satcher, M.D., Ph.D. Surgeon General.



- ∞ CCC generally has a younger population (74.1 years),
- ∞ There are comparable rates of Alzheimer's between Ontario LTC and U.S. nursing homes,
- ∞ Dementia and Alzheimer's disease combined are the most prevalent diagnosis,
- ∞ Arthritis and stroke are the most prevalent physical diagnosis for Ontario LTC residents as well as those in other North American jurisdictions,
- ∞ The scores on Cognitive Performance for Ontario LTC residents are similar to other Canadian provinces and higher than the U.S. (i.e. more cognitive impairment) but lower than Ontario CCC,
- ∞ Scores in ADL impairment for Ontario LTC residents are slightly higher than Manitoba and Saskatchewan, and higher than the U.S. states,
- ∞ Scores on the Health Instability Profile were comparable to other LTC facilities in Canada, and Sweden. However, Ontario CCC, the four U.S. states, Finland and Netherlands had higher rates of health instability, and
- ∞ Rates of depression in long term care residents are highest in Ontario LTC facilities.

#### **7.4 Case-Mix Characteristics**

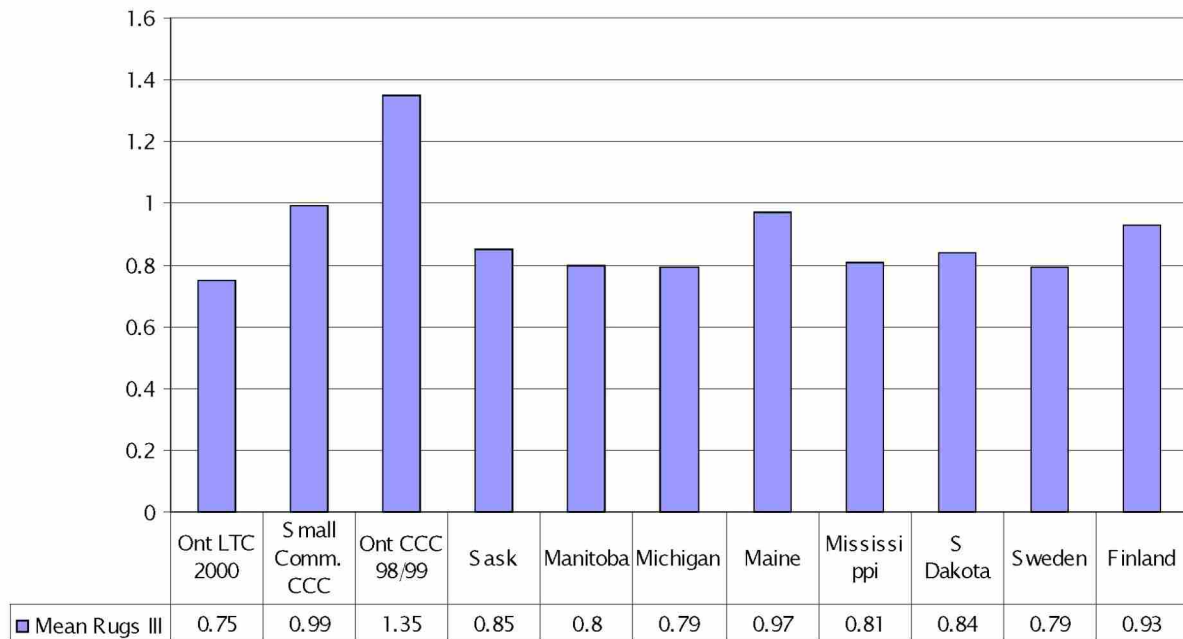
Case Mix Indexes (CMI), are a broad measure of acuity. Each of the 44 RUG-III groups is associated with a CMI that is comparable across the study settings. It is important to note that RUG-III classifications are based on a combination of services received and resident

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characteristics. Thus, residents who may *need* specific interventions that are not available in certain care settings cannot score based on need alone but score only if those services are received. In this way, Ontario long term care facilities are at a distinct disadvantage where there is limited access to therapy staff and other specialized care providers. Figure 13 shows the distribution of RUG-III Case-Mix Indexes in all comparator settings.

Further analysis of RUG-III scores indicates that newer patients (first assessment) have higher RUG-III scores. To illustrate, new patients in Ontario CCC and the four U.S. sites had consistently higher RUG-III scores than existing patients. This finding may be a reflection of the CCC patients who are high intensity, short stay and post-acute. These findings may also show the greater level of clinical complexity among newly admitted persons who may stabilize in their care requirements over time. For this reason, our comparisons are based on existing residents only.

Figure 13: Mean RUG-III Score (Existing Residents Only)



The weighting for Ontario data in this chart corresponds to the rates used by the Ontario Joint Policy and Planning Committee (JPPC) for funding purposes in Ontario (Teare, 2000) using RUG-III Version 2. Three values are shown for Ontario. The first bar indicates the mean value for Ontario LTC residents and is based on the most current data available. The second bar represents the mean value for small community CCC. The third bar is the mean value for

the CCC study population. The values reported for Ontario CCC are for the 1998/99 year.

Data from the rest of the cohort is based on RUG-III Version 1.

The Ontario weighting methodology takes into account Ontario wage rates and newer RUG-III weights published by the Health Care Finance Administration (HCFA) and were used here to make closer Canadian comparisons. The original rates published by Fries (1994) show a higher CMI for CCC (1.35) and are more comparable with the U.S. and international data. The choice of weighting methodologies should have no substantive implications for the comparative findings reported.

The Mean RUG-III graph indicates that:

- ∞ Long term care facilities in Ontario have comparable RUG-III scores to Saskatchewan and Manitoba (0.75, 0.85 and 0.80 respectively),
- ∞ All LTC facilities had lower RUG-III scores than Ontario CCC (1.35). Ontario LTC scores were closest to the mean of small community hospital chronic care units (0.99),
- ∞ This difference reflects, in part, the movement of Ontario CCC toward a greater emphasis on post-acute care and rehabilitation,
- ∞ The cross-section of Ontario LTC residents have comparable RUG-III scores to existing residents in Michigan and Mississippi nursing homes, and
- ∞ Sweden has RUG-III scores (0.79) that are most similar to Ontario LTC.

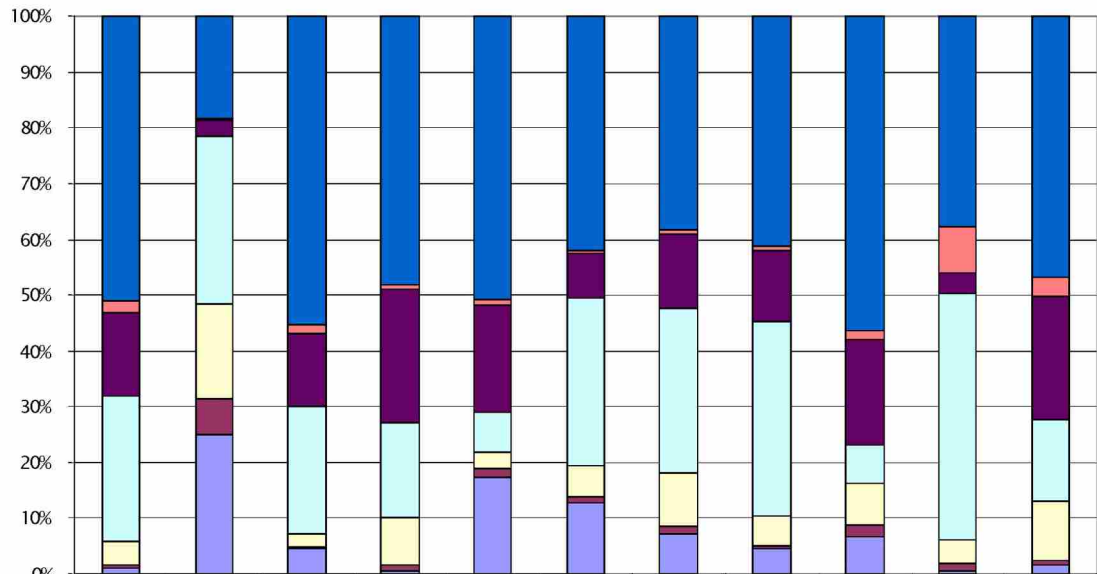
It is worth noting that numerous residents in Ontario LTC have RUG-III scores equal to or greater than RUG-III scores noted for some patients in complex continuing care. This is not unexpected, as it is anticipated that even though the average scores differ between sectors, there is a portion of the LTC and CCC populations that are very similar. In addition, mean scores do not illustrate the distribution of RUG-III categories.

Figure 14 illustrates that there are similar proportions of Clinically Complex residents in Ontario LTC (26%) and Ontario CCC (30%). Ontario LTC have more residents classified with Impaired Cognition (15% vs. 3% for Ontario CCC) and Behaviour Problems (2% vs. <1% in Ontario CCC).

**Figure 14: Distribution of RUG-III Categories Between Ontario LTC and CCC**

| <b>RUG-III Category</b>   | <b>Proportion in Ontario LTC (%)</b> | <b>Proportion in Ontario CCC (%)</b> |
|---------------------------|--------------------------------------|--------------------------------------|
| Rehabilitation            | 1%                                   | 25%                                  |
| Extensive Services        | <1%                                  | 6%                                   |
| Special Care              | 4%                                   | 17%                                  |
| Clinically Complex        | 26%                                  | 30%                                  |
| Impaired Cognition        | 15%                                  | 3%                                   |
| Behaviour Problems        | 2%                                   | <1%                                  |
| Reduced Physical Function | 51%                                  | 18%                                  |
| Total                     | 100%                                 | 100%                                 |

Figure 15: Distribution of RUG-III Scores by RUG-III Category



|                            | Ontario LTC | Ontario CCC | Sask LTC | Manitoba LTC | Michigan | Maine | Miss | South Dakota | Sweden | Finland | Neth |
|----------------------------|-------------|-------------|----------|--------------|----------|-------|------|--------------|--------|---------|------|
| Reduced Physical Functions | 51          | 18.3        | 55.3     | 48.2         | 50.9     | 42    | 38.3 | 41.1         | 56.4   | 37.7    | 46.8 |
| Behaviour Problems         | 2.2         | 0.4         | 1.6      | 0.6          | 1        | 0.5   | 0.8  | 0.8          | 1.6    | 8.4     | 3.4  |
| Impaired Cognition         | 14.9        | 2.7         | 13       | 24.2         | 19.3     | 8.1   | 13.2 | 12.8         | 18.9   | 3.6     | 22.2 |
| Clinically Complex         | 26.1        | 30.3        | 22.9     | 16.8         | 7.1      | 30    | 29.6 | 34.8         | 7      | 44.3    | 14.5 |
| Special Care               | 4.3         | 17          | 2.4      | 8.5          | 2.9      | 5.7   | 9.7  | 5.4          | 7.3    | 4.1     | 10.8 |
| Extensive Services         | 0.4         | 6.4         | 0.3      | 1.2          | 1.6      | 1     | 1.2  | 0.7          | 2.2    | 1.4     | 0.7  |
| Rehabilitation             | 1.1         | 25          | 4.5      | 0.5          | 17.3     | 12.7  | 7.2  | 4.4          | 6.7    | 0.6     | 1.6  |

When the distribution of the seven RUG-III categories are compared for Ontario LTC and all other sites, it is demonstrated that:

- ∞ LTC facilities in the three provinces have a higher proportion of individuals in the impaired cognition, behaviour problems and reduced physical functions categories than in Ontario CCC,
- ∞ Ontario CCC tend to have higher rates of individuals receiving rehabilitation services as well as those in the special care category. In Section 7.7 of this report, a comparison of the similarity of LTC resident need for rehabilitation compared to CCC addresses the lack of professional staff in LTC to meet these rehabilitation needs,
- ∞ The proportion of Ontario LTC residents in the clinically complex category is higher than in any of the other Canadian LTC facilities,
- ∞ Ontario LTC more closely resembles the distributions of RUG-III levels in Mississippi and South Dakota nursing homes. Nursing home residents in Michigan and Maine are much more likely to be in the rehabilitation category than Ontario LTC,
- ∞ Michigan and Sweden have a smaller proportion of persons in the clinically complex category (7.1% and 7% respectively), and
- ∞ The Finnish facilities have the lowest proportion of persons with reduced physical functions compared with Ontario, Dutch and Swedish LTC. Saskatchewan (55.3%), Sweden (56.4%), Ontario (51%) and Michigan (50.9%) have the highest proportion of residents with reduced physical functions.



It should be recalled that the structure of RUG-III is hierarchical, so residents are classified at the highest level of the hierarchy for which one is eligible. Therefore, residents in the impaired cognition and behaviour problem levels do not represent the totality of persons with those problems. If a resident has both medical complications and cognitive impairments, it is likely that one would be classified higher up in the RUG-III hierarchy as a result of the medical complexities. For example, only 2.7% of the Ontario CCC patients are in the impaired cognition category whereas 37% of those patients are in the two highest categories of the Cognitive Performance Scale (CPS). Although Ontario LTC has a comparable percentage in the highest two CPS categories, about 15% of patients in Ontario LTC residents are in the impaired cognition category. This suggests that CCC patients with cognitive impairments are more likely to have serious medical co-morbidities than Ontario LTC residents with impaired cognition.

In summary, the median case mix index of Ontario's LTC facilities is similar to that of the other Canadian LTC, some of the US states and European comparators. By RUG-III category, Ontario LTC facilities have a higher proportion of individuals in the impaired cognition and reduced physical functions categories. This is to be expected given the high prevalence of Alzheimer's and dementia in Ontario's LTC population. The Ontario LTC setting also reported a higher percentage of individuals in the clinically complex category. Overall however, the distribution of care across the seven categories is consistent with several of the other comparators.

## **7.5 Receipt of Nursing Services**

Describing the amount of services provided by nursing and health care aide staff to residents in Ontario LTC compared to other provinces, states and countries was a key objective of this study. In addition to the data described in the previous sections, which was derived from the MDS 2.0, specific information related to hours of care per resident day for nursing, aide and therapy staff was also collected.

Ontario LTC staff time was collected from a survey of selected Ontario LTC facilities. A total of 1,392 residents from four municipal homes and four nursing homes were used for the Ontario LTC staffing data. Both the MDS 2.0 data and staffing hours are based on 1999 activity and represent the median hours of nursing care reported by all facilities in the Ontario survey. The Ontario CCC nursing and therapy time is derived from a sample of 563 patients and represents current staffing levels. The Saskatchewan data are based on 1999 activity and represents the amount reported from the facilities surveyed. The US data are based on 1998 activity for all certified nursing facilities in the four states. When compared to total levels of nursing and aide care in other states, the selected U.S. jurisdictions fall within the national range of total hours of care which is between .5 to 9 hours per resident day. Dutch data is current and represents a mean of all facilities.

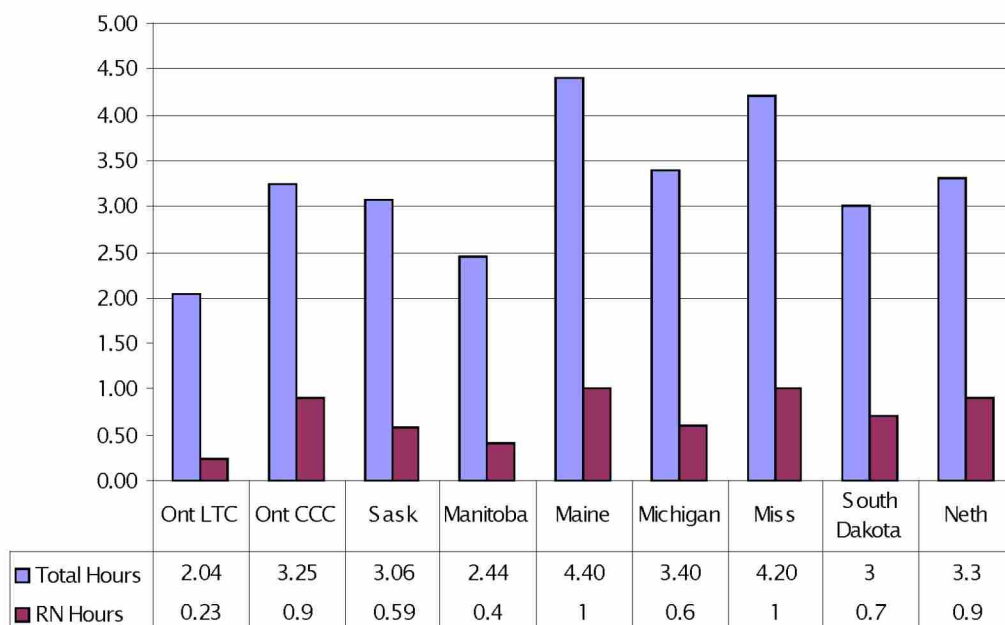
As each facility may collect data in a different manner, a detailed instruction guide was provided to standardize data collection. To provide the closest comparisons, only staffing data that is comparable across settings has been included in the analysis.

### **Total Hours of Nursing Care in Ontario Long Term Care Facilities and Selected Comparators**

The starting point for this comparison was to identify the paid hours of all registered nursing staff and health care aides for 1999 and to calculate the hours of care provided per resident per day. These calculations did not include nursing administration.

The following graph illustrates the total hours per resident per day for nursing and aide staff. Highlighted next to the total hours of care in this figure are the hours of care by registered nursing staff.

Figure 16: Total Hours per Resident per Day (RN, RPN and HCA)



The data clearly indicates that Ontario LTC provides the fewest number of nursing hours per resident day when compared to other settings. This is an important finding given that from previous data, it has been demonstrated that Ontario LTC residents:

- ∞ Are among the oldest,
- ∞ Have one of the highest rates of dementias and Alzheimer's,
- ∞ Have the highest proportion of residents with stroke in the Canadian sample,
- ∞ Have high levels of cognitive and ADL impairment, and
- ∞ Are the most depressed.

Although the total hours per resident per day for the U.S. states are typically higher than the cohort, a 1999 report to the U.S. Congress does not believe this to be the gold standard. In addition, some U.S. studies have indicated that total nursing care hours for residents should be in the range of approximately 4.55 total hours of care per resident day (administrative and direct care).

“One fulltime Registered Nurse (RN) director of nursing in every nursing home and a fulltime assistant director of nursing for facilities with 100 or more beds to provide leadership and administration for complex nursing services. In addition, at least one RN nursing supervisor – on duty for each shift 24 hours per day, 7 days per week in each nursing home due to the requirements of residents for complex nursing care. Other recommendations included the shift away from the current use of nursing assistants as the primary direct caregivers. At least 14 minutes of the total 2.93 hours of direct resident care per day should be given by RNs or LPN/LVNs.”<sup>17</sup>

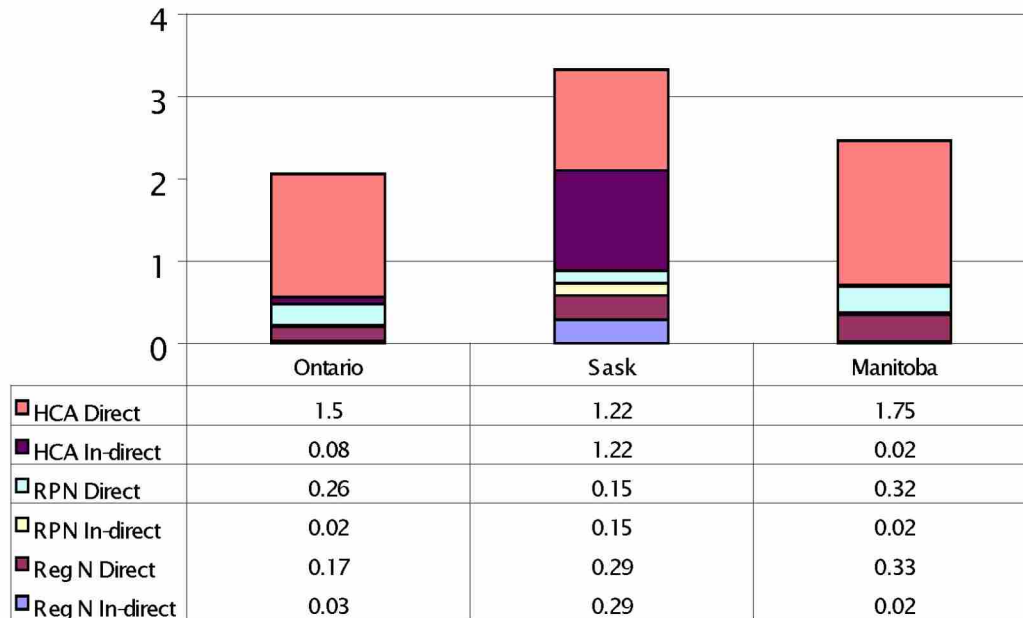
Total hours of nursing care include a component for both direct and indirect care. Direct care is defined as hands on care or time spent in discussing resident issues with family or other caregivers. Indirect care is defined as non-patient specific time such as attending general staff meetings. The following graph provides a distribution of the direct and indirect nursing care provided by registered nurses, registered practical nurses and health care assistants in

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<sup>17</sup> Harrington, C., Kovner, C., Mezey, M. (2000). Experts recommend minimum nursing staffing standards for nursing facilities in the United States. *The Gerontologist* 40 (1), p. 5-16.

Canadian jurisdictions. Numbers provided here do not total hours of care in Figure 16 due to rounding.

**Figure 17: Direct and Indirect Hours of Nursing Care**

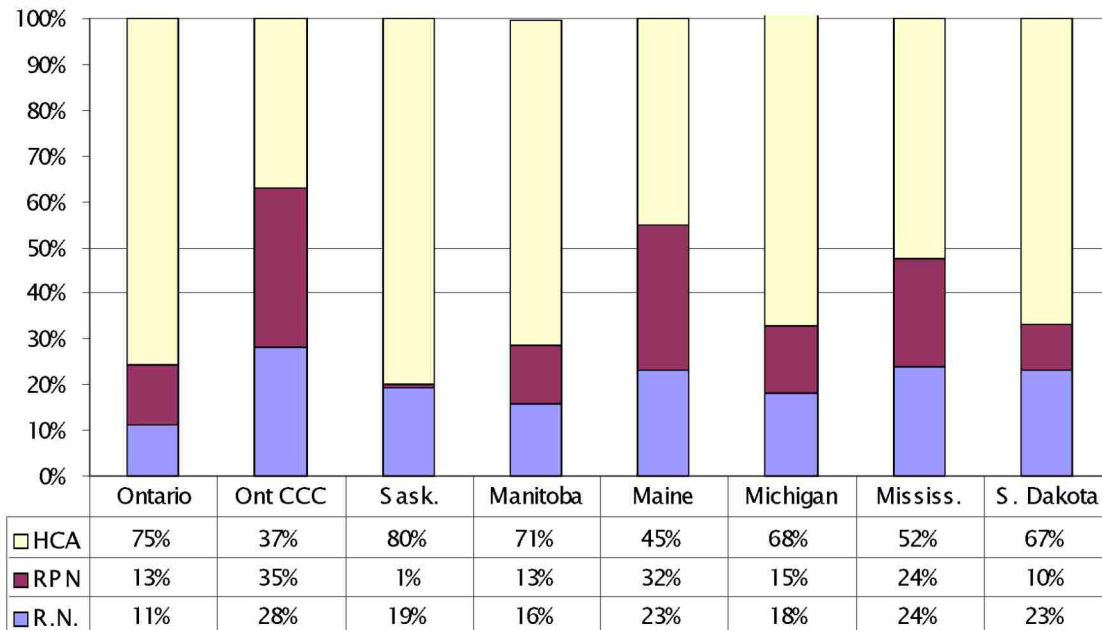


Some important differences are noted in the way in which care is delivered in each setting.

- ∞ Ontario and Saskatchewan LTC facilities provide similar amounts of direct care (1.9 and 1.6 hours respectively),
- ∞ Ontario and Manitoba LTC facilities provide similar amounts of indirect care (.2 and .1 hours respectively); and
- ∞ In all settings, health care aides provide the largest proportion of direct care.

The graph below identifies the proportion of care provided by registered nurses, registered practical nurse and health care assistants in the larger sample. Ontario LTC has the lowest amount of care provided by RNs (11%) and the second highest amount of care provided by health care aides (75%).

**Figure 18: Percent of Total Nursing Time by Category of Staff**



*Note: U.S. hours of nursing care are reported for all certified nursing facilities.*

In summary, and considering previous evidence indicating the similarity of resident characteristics between Ontario and the other jurisdictions, it is noted that:

- ∞ The overall hours of nursing care in Ontario LTC are less than that provided in other jurisdictions,
- ∞ The proportion of care that is provided by registered nurses is less than in other jurisdictions,
- ∞ In Ontario, Saskatchewan and Manitoba LTC, three quarters of care is provided by health care assistants, and
- ∞ Other than health care aides, care in the U.S. is almost equally divided between registered nurses and registered practical nurse or vocational nurses.

### **Hours of Care by Level of Acuity**

When comparing service levels in Ontario LTC to other jurisdictions, it is important to note the similarity and differences in the resident/patient populations. In a number of areas, the Ontario LTC population has more complex needs than residents in other jurisdictions.

Specific to case mix based on the distribution of RUG-III categories, it can be demonstrated that in comparing Ontario LTC to the cohort, there are:

- ∞ Higher proportions of residents with behaviour problems,
- ∞ Similar distributions of residents with impaired cognition,
- ∞ Similar proportions who are clinically complex, and
- ∞ Higher proportion of residents who have reduced physical functions.



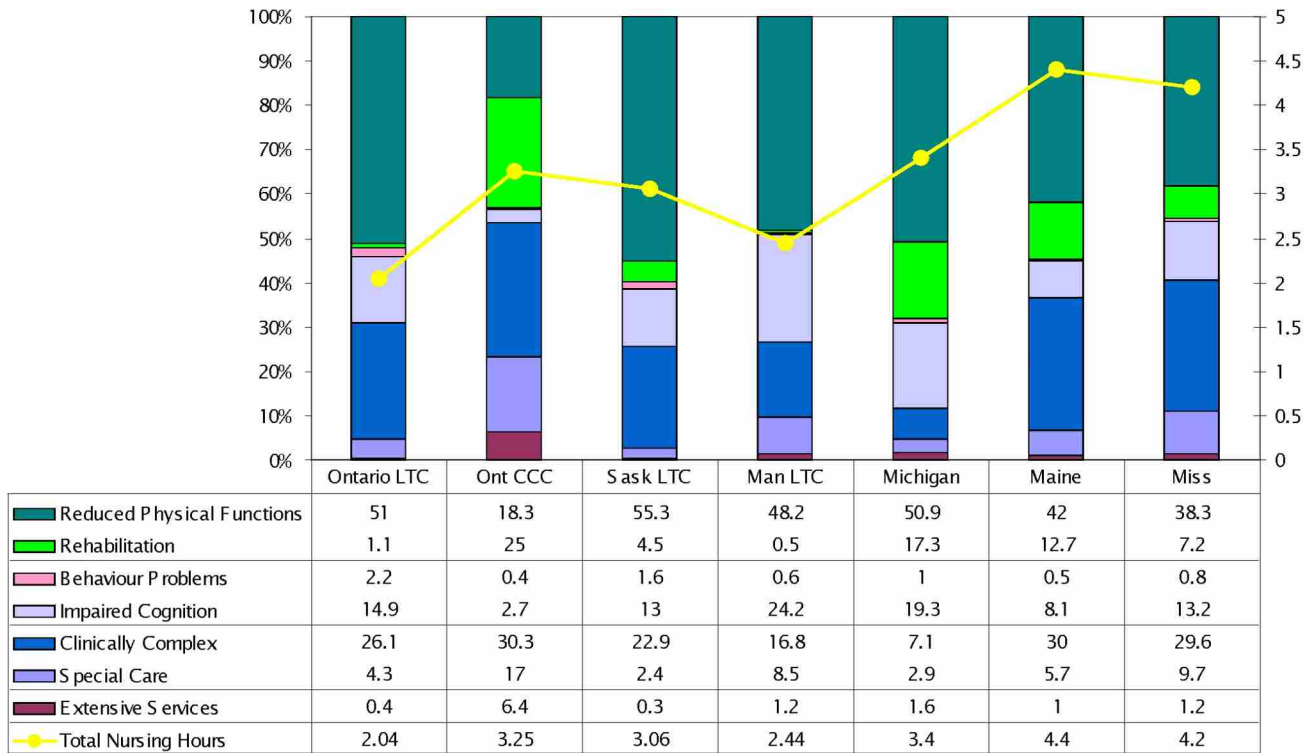


Figure 19: Nursing Hours by RUG-III Category

### Receipt of Specific Nursing Interventions

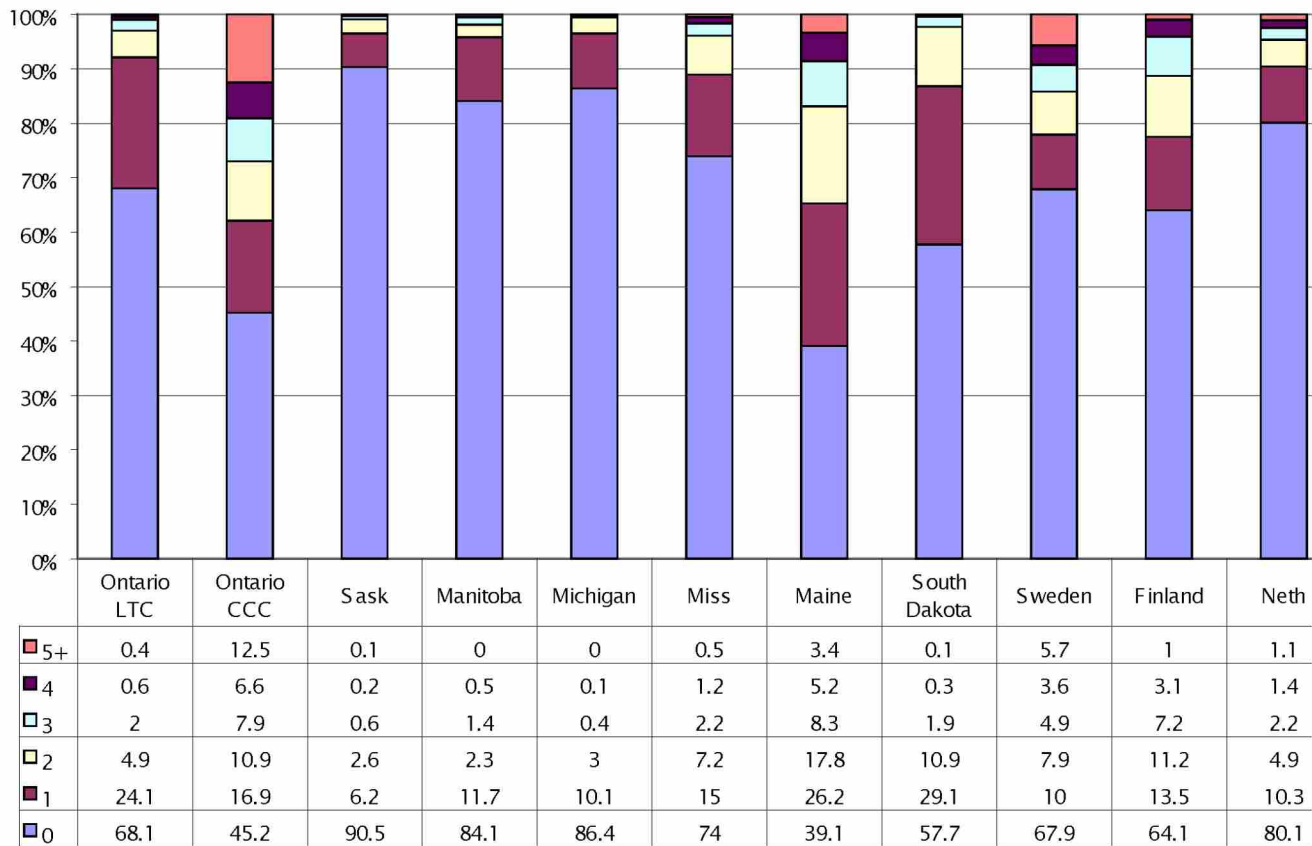
#### *Nursing Rehabilitation*

The MDS 2.0 captures information related to specific nursing interventions. In long term care facilities, the large majority of staff are nurses or aides. These staff members assume overall responsibility for resident care that includes nursing rehabilitation. The following graph summarizes the quantity of nursing rehabilitation interventions performed per week– that is

the number of rehabilitation activities such as range of motion exercises that were provided by nursing staff in a seven-day period.

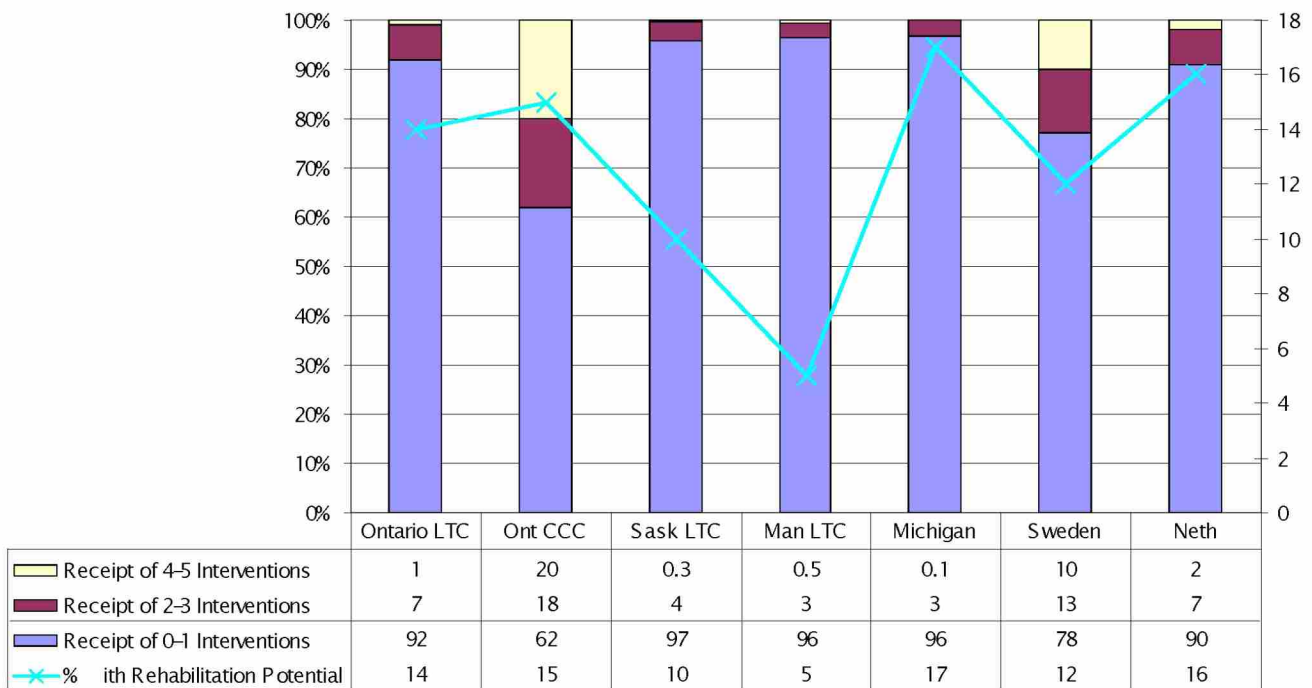
This data indicates 68% of Ontario LTC residents do not receive nursing rehabilitation and a further 24% receive one intervention in a seven-day period. This percentage of residents receiving 0 to 1 interventions is exceeded in Saskatchewan, Manitoba and Michigan where 97%, 96% and 97% of residents, respectively do not receive nursing rehabilitation beyond intervention. An unanswered question arising from this is whether staff other than nursing provides rehabilitation therapies. Of note in Michigan, 84% of residents with rehabilitation potential received either occupational or physical therapy. In Ontario LTC, only 10% of those with rehabilitation potential received either physiotherapy or occupational therapy. These findings, which will be discussed in greater detail in Section 7.7 of this report demonstrate that Ontario LTC provides the least amount of physiotherapy and occupational therapy to those with rehabilitation potential and is among the lowest providers of nursing rehabilitation.

**Figure 20: Distribution of the Count of Nursing Rehabilitation Interventions**



A more detailed breakdown of nursing rehabilitation against those with rehabilitation potential is provided in the following table. Again, it is demonstrated that Ontario LTC residents have comparable rehabilitation potential with one of the lowest levels of receipt of nursing rehabilitation services.

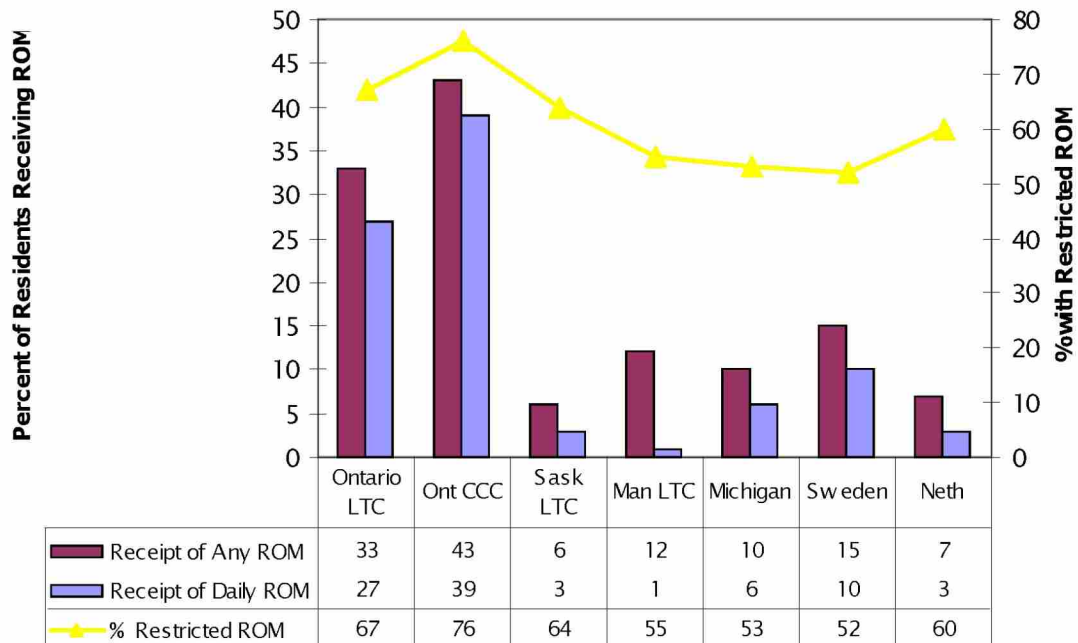
Figure 21: Count of Nursing Rehabilitation against Rehabilitation Potential



Restricted range of motion (ROM) is an important problem in the long term care population. Given the high rates of those with arthritis (30%) and stroke (22%) in Ontario LTC facilities, passive and active range of motion is an important part of disability limitation and activation, which can be provided by nursing and aide staff.

Data related to those with restricted range of motion (i.e. those who have potential to benefit from ROM) were compared to the number of individuals who received ROM exercises among those in need. The graph summarizes these findings and indicates that, other than Ontario CCC, Ontario LTC has the highest proportion of residents with restricted ROM. Data further demonstrates that only 33% of this “in need” population actually received *any* ROM exercises while 27% receive daily ROM exercises. Although this proportion is substantially higher than the comparator groups, these groups also utilize other therapists to provide rehabilitation (see Figure 27). This is not the case in Ontario LTC facilities.

Figure 22: Receipt of ROM Exercises Among Those in Need

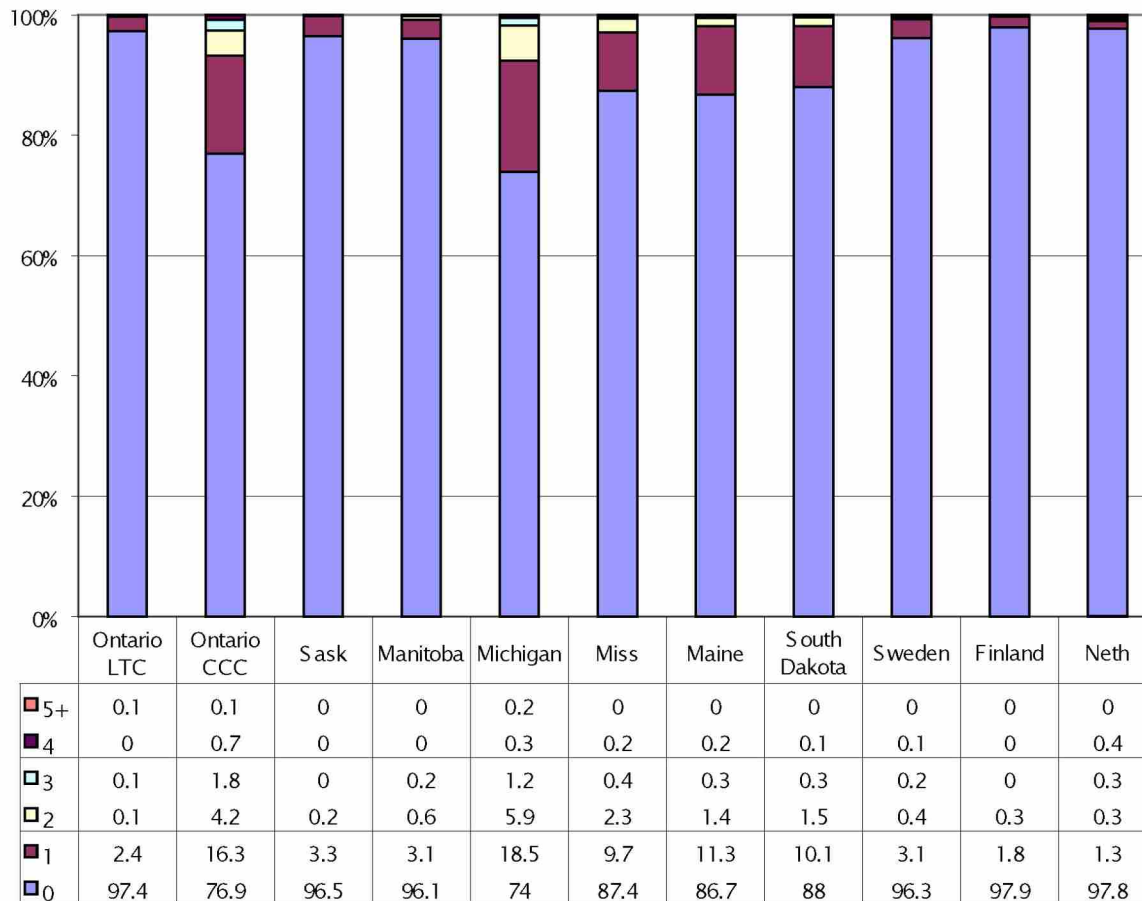


*Nursing Treatments*

Nursing interventions related to medically indicated treatments was also collected. As demonstrated in the following graph, the majority of residents in Ontario LTC do not receive medical treatments (97%). This number is comparable to all study groups except Ontario

CCC and Michigan where 16% and 19% respectively receive at least one intervention. Of note is that in Ontario LTC, 0.1% of the population received more than five interventions, which along with Ontario CCC and Michigan is the highest number of medical treatments. This may indicate a small number of residents with more acute care needs.

Figure 23: Distribution of the Count of Treatments in All Residents/Patients



*Nursing Interventions for Incontinence*

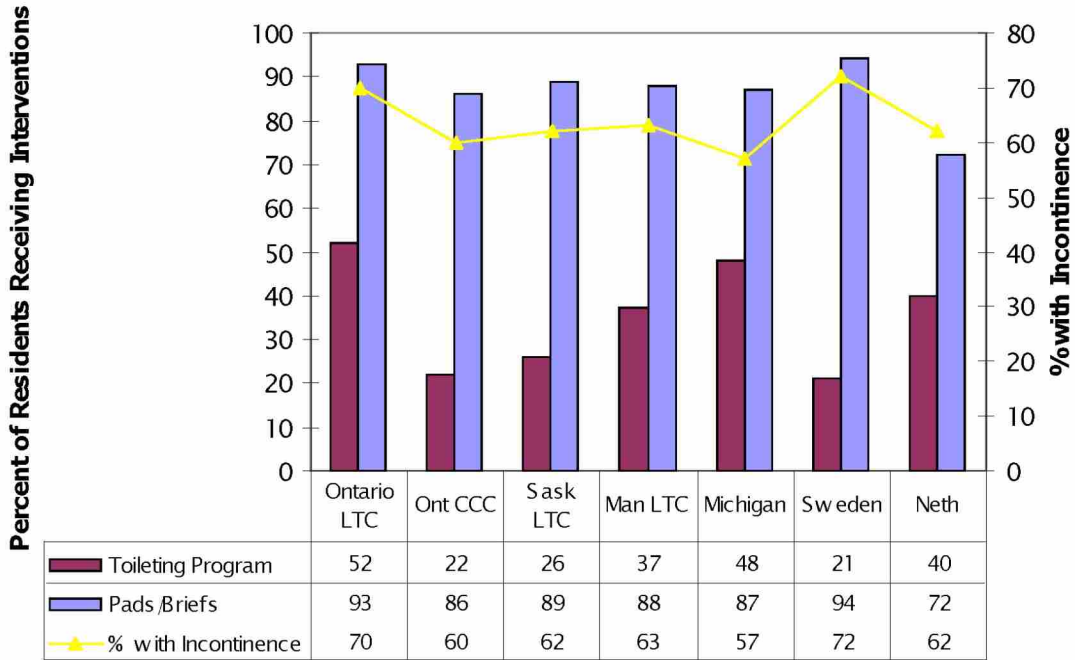
The following graph examines the use of different interventions to respond to needs related to urinary incontinence. Ontario LTC has one of the highest rates of residents with incontinence (70%). This number is exceeded only in Sweden (72%) and Finland (73%). Among those with urinary incontinence, Ontario LTC were the most likely to use scheduled toileting programs, and this rate was lowest in Ontario CCC (22%) and Sweden (21%). None of the



facilities examined tended to use bladder retraining programs, and pads or briefs are used to manage the majority of residents with incontinence.

Both bladder retraining programs and scheduled toileting programs require a high dependence on nursing staff to monitor and support the programs. Ontario LTC facilities have one of the highest proportions of residents on toileting programs (52%).

**Figure 24: Nursing Interventions for Incontinence**



## 7.6 Receipt of Mental Health Services

Data related to mental health disturbances (mental health diagnosis) and mental health problems (behaviours) were examined. As summarized in the following two tables, Ontario LTC residents had the highest proportion of residents with both mental health disturbances (61%) and problems (40%). As with previous discussions, this proportion of the population would be considered those in need of mental health services.

Figure 25: Behaviour Disturbances and Interventions

|  |                              | Ontario LTC | Ontario CCC | Sask. LTC | Man. LTC | Mississipi Michigan | Maine | South Dakota | Sweden | Finland | Neth |     |
|--|------------------------------|-------------|-------------|-----------|----------|---------------------|-------|--------------|--------|---------|------|-----|
| % with Any Behaviour Disturbances                          |                              | 61%         | 38%         | 42%       | 40%      | 31%                 | 27%   | 44%          | 34%    | 32%     | 51%  | 45% |
| <b>Types of Interventions Received Among Those in Need</b> |                              |             |             |           |          |                     |       |              |        |         |      |     |
| Health Care Interventions                                  | Psychologist <sup>1</sup>    | 0%          | 6%          | 0%        | 2%       | 1%                  | 0%    | 1%           | 1%     | 0%      | 0%   | 1%  |
|  | Mental Health Professional   | 5%          | 11%         | 2%        | 3%       | 24%                 | NA    | NA           | NA     | 1%      | NA   | 1%  |
|  | Behaviour Symptom Evaluation | 6%          | 6%          | 1%        | 2%       | 19%                 | NA    | NA           | NA     | 1%      | NA   | 0%  |
|  | Behaviour Management Program | NA          | NA          | NA        | NA       | NA                  | 63%   | 52%          | 70%    | NA      | 28%  | NA  |
| Drugs  | Antipsychotic                | 31%         | 28%         | 31%       | 35%      | 28%                 | 29%   | 25%          | 25%    | 33%     | 51%  | 45% |
|  | Anxiolytic                   | 20%         | 32%         | 20%       | 25%      | 18%                 | 26%   | 22%          | 22%    | 31%     | 54%  | 11% |
|  | Hypnotic                     | 4%          | 11%         | 14%       | 6%       | 2%                  | 0%    | 0%           | 0%     | 22%     | 0%   | 14% |
|  | Antidepressant               | 27%         | 26%         | 17%       | 29%      | 37%                 | 21%   | 27%          | 24%    | 30%     | 34%  | 16% |
|  | Any Psychotropic             | 57%         | 64%         | 57%       | 65%      | 60%                 | 55%   | 56%          | 52%    | 73%     | 81%  | 61% |
| Restraints   | Daily Restraints             | 31%         | 34%         | 36%       | 26%      | 11%                 | 25%   | 10%          | 19%    | 22%     | 19%  | 25% |
|  | Any Restraints               | 34%         | 49%         | 37%       | 31%      | 12%                 | 28%   | 12%          | 21%    | 26%     | 25%  | 27% |

Figure 26: Mental Health Problems and Interventions

|  |                            | Ontario LTC | Ontario CCC | Sask. LTC | Man. LTC | Michigan | Sweden | Netherlands |
|--|----------------------------|-------------|-------------|-----------|----------|----------|--------|-------------|
| % with Mental Health Problems                              |                            | 40%         | 34%         | 32%       | 32%      | 17%      | 30%    | 38%         |
| <b>Types of Interventions Received Among Those in Need</b> |                            |             |             |           |          |          |        |             |
| Health Care Interventions                                  | Psychologist               | 1%          | 8%          | 0%        | 1%       | 2%       | 0%     | 1%          |
|  | Mental Health Professional | 6%          | 14%         | 2%        | 2%       | 28%      | 2%     | 3%          |
|  | Group Therapy <sup>1</sup> | 0%          | 2%          | 0%        | 4%       | 0%       | 2%     | 1%          |
| Drugs  | Antipsychotic              | 33%         | 25%         | 27%       | 32%      | 29%      | 35%    | 37%         |
|  | Anxiolytic                 | 25%         | 36%         | 26%       | 32%      | 27%      | 35%    | 16%         |
|  | Hypnotic                   | 5%          | 14%         | 14%       | 8%       | 5%       | 37%    | 19%         |
|  | Antidepressant             | 46%         | 42%         | 34%       | 55%      | 50%      | 47%    | 24%         |
|  | Any Psychotropic           | 73%         | 75%         | 68%       | 81%      | 75%      | 84%    | 64%         |
| Restraints   | Daily Restraints           | 21%         | 28%         | 25%       | 17%      | 7%       | 19%    | 20%         |
|  | Any Restraints             | 24%         | 39%         | 26%       | 19%      | 9%       | 24%    | 22%         |

The tables above shows the prevalence of persons with needs related to behaviour disturbances and the types of interventions those individuals received. Residents were considered to have a need with respect to behaviour disturbances if they showed any occurrence of verbal abuse, physical abuse, socially inappropriate behaviour, and wandering or resisting care in the last week. The rate of behaviour disturbances of this type are substantially higher in Ontario LTC compared to other settings.

Less than 6% of Ontario LTC residents had any intervention related to evaluation of “talk” therapies while 31% received an antipsychotic or restraint (34%) which are similar findings for other Canadian LTC facilities. Patients in CCC were considerably more likely to have contact with a psychologist or mental health professional.

The dominant approach to managing behaviour disturbance is the use of psychotropic medication. To put this in context, patients with behaviour disturbances were about ten times more likely to receive a psychotropic medication than to be in contact with a mental health professional or have an evaluation or be part of a behaviour management program. It is also reasonably common for restraints to be used among persons with behaviour disturbance.

The lowest rate of restraint use in Canada was in Manitoba. The highest rate in Canada was in Ontario CCC ranging between 34% and 49% of persons with behaviour disturbances.

The percentage of persons with behaviour disturbances in U.S. nursing homes was substantially lower than in Ontario LTC while the rates of contact with a psychologist were comparable to LTC. Residents in Michigan were much more likely to have received a

behaviour symptom evaluation or contact with a mental health professional in the last 90 days compared to Ontario LTC. The rates of use of psychotropic medications were similar between the Ontario and U.S. sites, but the use of restraints was substantially lower in Michigan and Maine. The majority of residents in Mississippi, Maine and South Dakota received behaviour management programs, but it is uncertain what the nature of these programs were.

Swedish and Dutch residents were also less likely to have received behaviour symptom evaluations and mental health professional in the last 90 days compared to Ontario sites. Residents in Finland were the most likely to receive psychotropic medications with over 80% receiving at least one of those types of medication. In addition, the majority of Finnish residents received an anti-psychotic medication if they had behaviour disturbances present. The rates of restraint use in this sub-population in the European homes were somewhat lower than in Ontario LTC.

Residents with mental health needs include individuals with diagnoses of depression, anxiety disorders, bi-polar disorders, schizophrenia as well as individuals having hallucinations, delusions or Depression Rating Scale of three or more. Based on this definition, the rate of persons with mental health needs ranged between 32% and 40% in the Canadian sites. Residents of LTC were unlikely to receive contact with a psychologist and were also unlikely to receive group therapy. Persons with mental health problems in CCC were substantially

more likely to have been seen by a mental health professional as these professionals are more available in this setting than in a long term care facility.

The rate of mental health needs in Sweden and the Netherlands are comparable to the Ontario rates. Access to psychosocial interventions tends to be relatively low, particularly compared to Ontario CCC. In Dutch facilities, there is a considerably higher rate for use of anti-psychotic medication even though the overall use of psychotropic medication is lower.

There are a few differences in the rates of restraint use in Ontario, Sweden and the Netherlands with respect to LTC.

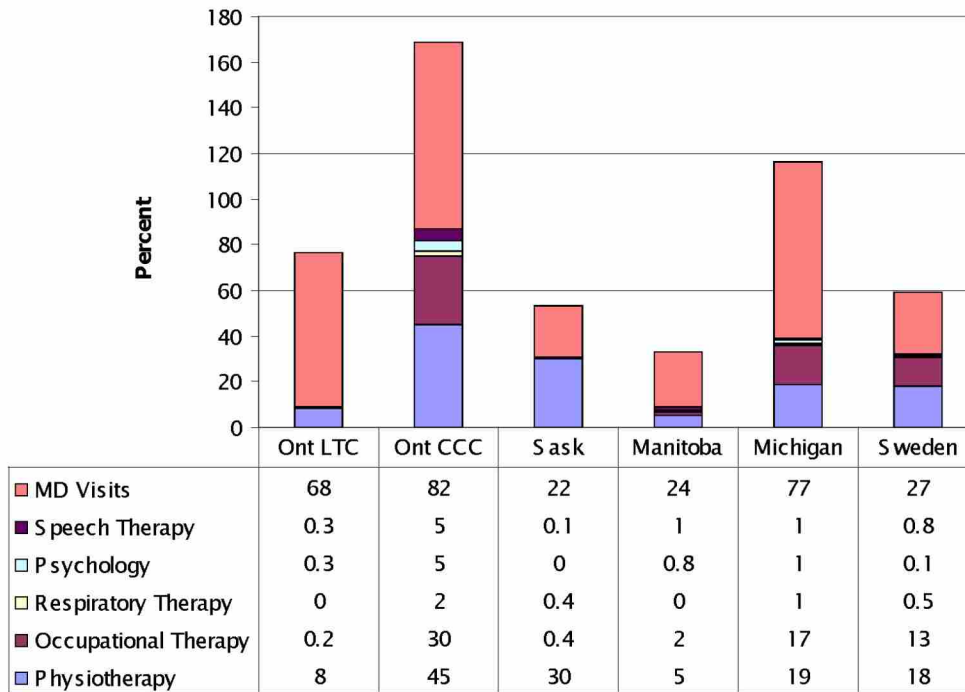
The nursing implications of these findings are important. Generally, pharmaceutical approaches require less staff time than behaviour management and evaluation programs. As a result, if staff resources are limited, pharmaceutical approaches may be the preferred course of action over psychosocial interventions.

Given the high proportion of residents in Ontario LTC with cognitive problems related to Alzheimer's or a dementia (53%), this presents a high resource demand for care providers in the Ontario LTC setting.

## **7.7 Receipt of Rehabilitation Services**

This section examines the receipt of therapy services for all persons residing in long term care facilities or chronic hospitals within the comparison sites. The following table shows the receipt of rehabilitation therapies, psychology and physicians visits.

Figure 27: Percentage of all Residents Receiving Professional Services



Results for U.S. states were comparable, as were results for European countries representative sites are presented here.



In each of the care settings, a small minority of individuals received speech therapy, respiratory therapy or psychology, but those recipients are more likely to be found in Ontario CCC.

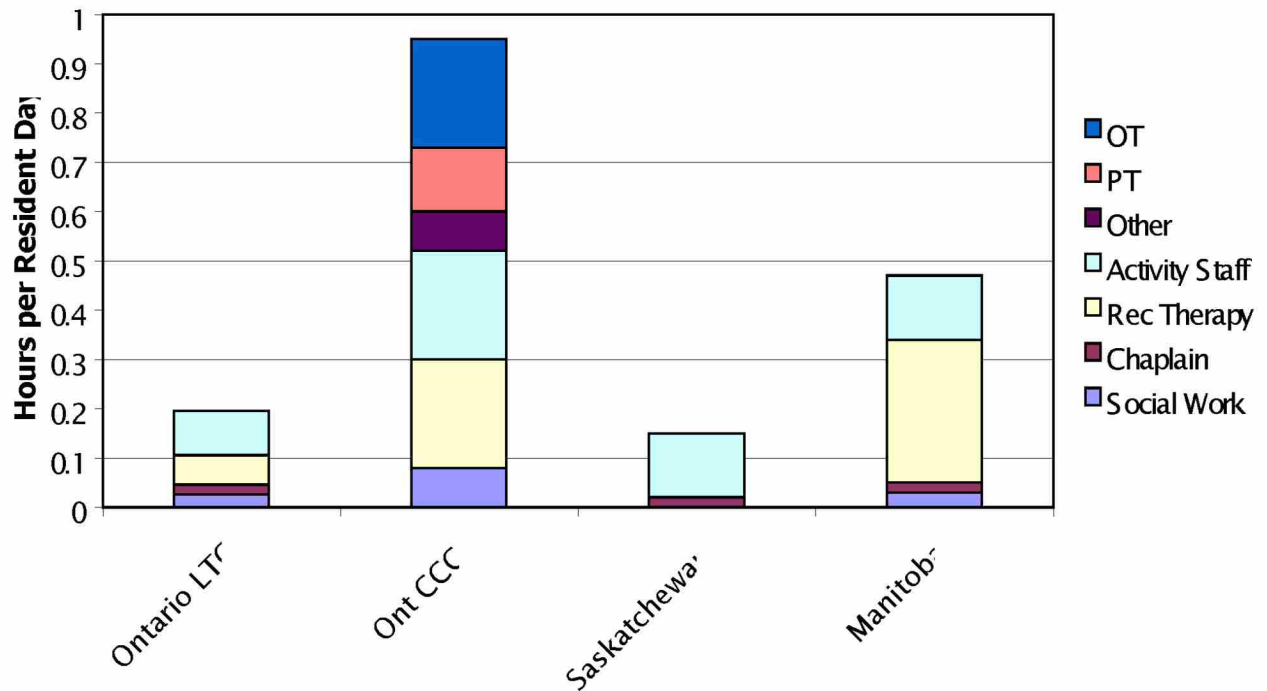
With respect to physical therapy, Ontario CCC followed by residents of Saskatchewan LTC facilities were most likely to receive physical therapy, while residents in Manitoba are least likely to receive those services. There are a few differences between Ontario LTC and Manitoba. Occupational therapy is a service only likely to be received by patients in Ontario CCC.

There are also marked differences in the number of MD visits within a two-week window. The rate of physicians visits to Ontario CCC is four times the rate of Saskatchewan facilities and Ontario LTC has a three times greater rate than noted for Manitoba. The rate in Manitoba is only slightly higher than in Saskatchewan.

In the United States, residents are substantially more likely to receive rehabilitation services than LTC residents in Ontario. This almost certainly a reflection of differences in the payment system in the U.S., which provides support for access to rehabilitation services in nursing homes. Access to psychology is comparably low in Ontario LTC and facilities in the U.S., which is not surprising given that psychology is not included in the prospective payment system. Patients in Ontario CCC are about five times as likely to receive the services of a psychologist compared to the other settings.

The amount of time provided by staff to residents for therapies is summarized in the following graph.

Figure 28: Program Staff Time by Setting



*Rehabilitation Potential*

This section focuses on two issues: 1) the identification of persons with needs for specific services, and 2) the tendency to receive services or interventions relevant to those needs among the subgroup of individuals with the need present.

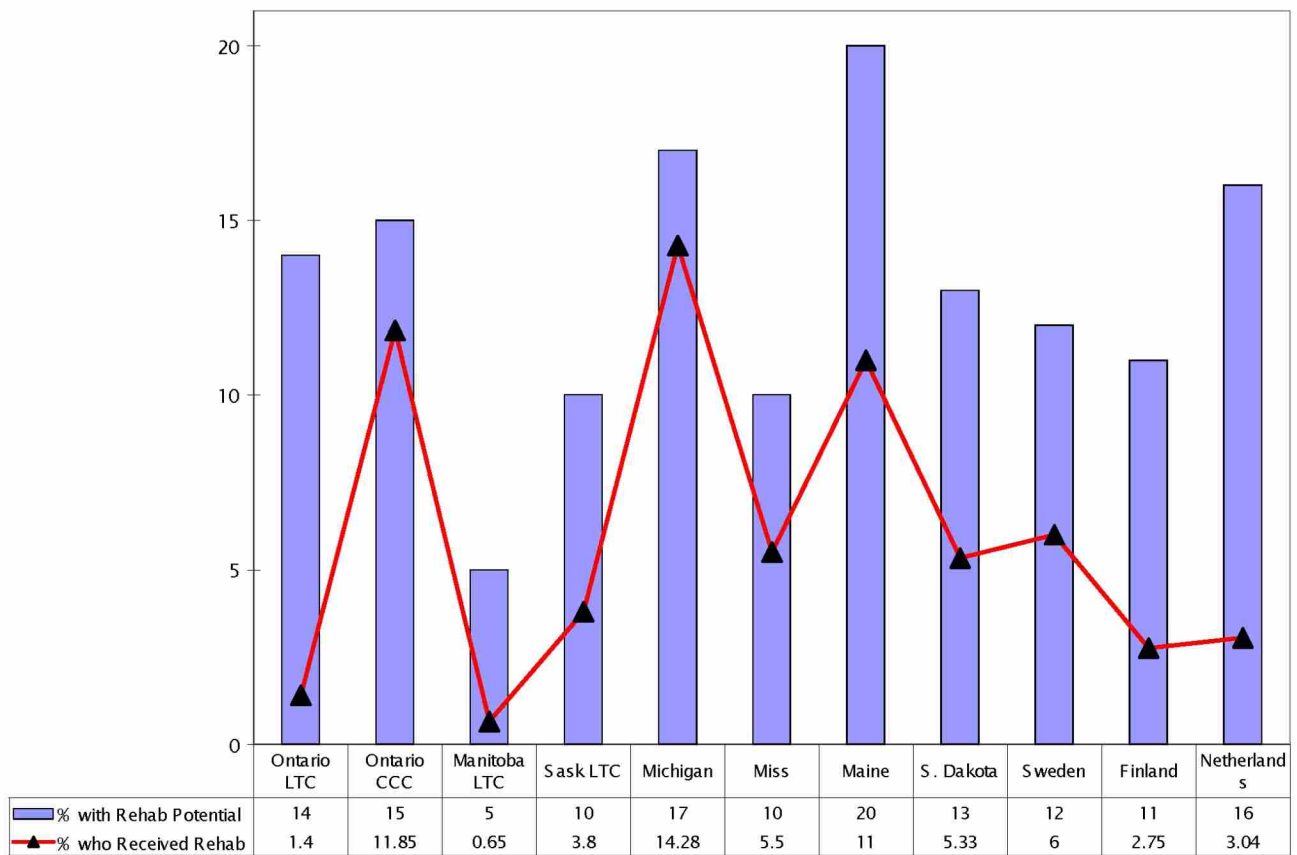
As shown in the following graph, the percentage of people with rehabilitation potential based on the MDS 2.0 was similar across settings, with Ontario LTC and CCC at about 14%, Saskatchewan at approximately 10% and Manitoba at about 5%.

The rehabilitation potential algorithm used to identify rehabilitation potential is dependent on three factors: 1) the presence of an ADL impairment; 2) the presence of no more than moderate cognitive impairment; and 3) client or staff belief that function could improve in ADLs. This algorithm is much more restrictive than the rehabilitation potential Resident Assessment Protocol (RAP) in the current version of the MDS 2.0, which identifies all persons with any disability as having rehabilitation potential. The algorithm used here can be much more useful for targeting rehabilitation services because almost all patients in CCC trigger the existing RAP. In Ontario CCC, 51% of persons triggering the rehabilitation potential algorithm received occupational therapy in the previous week. Virtually no residents of Ontario, Manitoba, and Saskatchewan LTC receive any occupational therapy. About 73% of those triggering this algorithm received physical therapy in Ontario CCC compared with only 10% of Ontario LTC residents. The Ontario LTC rate is lower than in Manitoba and substantially lower than in Saskatchewan.

The data shows that the percentage of residents with rehabilitation potential in U.S. nursing homes ranges from 10% to about 20%. In each state, residents are more likely to receive physical therapy or occupational therapy compared with Ontario LTC. This is particularly true for Michigan. In fact, nursing home residents of Michigan are even more likely to receive rehabilitation services than Ontario CCC among individuals who have rehabilitation potential. This is not simply because Michigan provides broad-based access to rehabilitation services, given that only about 20% of all Michigan residents receive occupational or physical therapy. Rather, rehabilitation in Michigan is highly targeted to those individuals most likely to benefit.

Residents in Sweden and Finland are more likely to receive physical therapy in the presence of need than counterparts in Ontario LTC. Swedish residents are also substantially more likely to receive occupational therapy, although in both countries the rate of receipt of these therapies is lower than Ontario CCC. The prevalence of rehabilitation potential was comparable to Ontario Levels.

Figure 29: Percentage of Residents Receiving Rehab Therapies





## 8. Discussion and Conclusions

As the following table illustrates, Ontario LTC facilities have a resident population which have higher care needs than a number of other jurisdictions. In almost all cases, residents in Ontario LTC facilities receive less nursing, aide and therapy care than found in the majority of comparators. Some of the table cells are blank due to unavailability of direct comparison data.

**Figure 30: Summary of Levels of Service against Selected Clinical Indicators**

|                  | Mean CMI* | % with Rehab Potential | % who Receive Rehab with Rehab Potential | Therapy Hrs/Res/Day | % who Receive Nsg Rehab | % with Behaviour Problems | Nsg (RN,RPN, Aide) Hrs/Res/Day |
|------------------|-----------|------------------------|--|---------------------|-------------------------|---------------------------|--------------------------------|
| Ontario LTC      | 0.75      | 14                     | 10                                       | 0.17                | 32                      | 61                        | 2.04                           |
| Ontario CCC      | 1.31      | 15                     | 79                                       | 0.86                | 55                      | 38                        | 3.25                           |
| Manitoba LTC     | 0.8       | 5                      | 13                                       | 0.41                | 16                      | 40                        | 2.44                           |
| Saskatchewan LTC | 0.85      | 10                     | 38                                       | 0.13                | 10                      | 42                        | 3.06                           |
| Michigan         | 0.79      | 17                     | 84                                       | NA                  | 14                      | 31                        | 3.4                            |
| Mississippi      | 0.81      | 10                     | 55                                       | NA                  | 26                      | 27                        | 4.2                            |
| Maine            | 0.97      | 20                     | 55                                       | NA                  | 61                      | 44                        | 4.4                            |
| S. Dakota        | 0.84      | 13                     | 41                                       | NA                  | 42                      | 34                        | 3                              |
| Sweden           | 0.79      | 12                     | 50                                       | NA                  | 32                      | 32                        | NA                             |
| Finland          | 0.93      | 11                     | 25                                       | NA                  | 36                      | 51                        | NA                             |
| Netherlands      | NA        | 16                     | 19                                       | 0.7                 | 20                      | 45                        | 3.3                            |

\* mean CMI is based on the RUG-III CMI and is driven by resource use

*Populations Receiving Long Term Care*

In many ways, the sample of residents of Ontario LTC facilities are similar to those sampled in Manitoba, Saskatchewan, Finland, Sweden and the Netherlands. Namely, they are affected by a substantial degree of impairment in cognition and functional ability, and tend to have a similar age and sex distribution. On the other hand, they tend to be different from Ontario complex continuing care facilities and nursing homes in at least some U.S. states (Michigan in particular), where the level of clinical complexity and health instability is greater.

The rates of depression in the Ontario LTC and the Dutch samples were high compared with other settings. A substantial amount of literature has pointed to the under-detection and under-treatment of depression in long term care settings (Hirdes, et al., 2000), and these results merit further investigation. One of the more striking findings, for Ontario, was the relatively high rate of need related to behaviour disturbance in Ontario LTC (about 60%). The only sample relatively similar to this rate was from Finland (about 50%). Behaviour disturbances pose a serious threat to quality of life for other residents and their visitors. It can adversely affect the quality of work life for staff, and it can lead to ostracization and stigmatization of the person with the behaviour problem. Therefore, the effective treatment and on-going management of behaviour disturbance should be an important priority for any jurisdiction. These results suggest that further investigation of this issue should be a major priority for Ontario.



*Case-Mix*

Ontario LTC was generally comparable to the samples obtained in Manitoba, Saskatchewan, Finland, Sweden and the Netherlands. On the other hand, Ontario CCC was more similar to the U.S. states examined, and this is especially true for Michigan. However, a greater emphasis on rehabilitation, rather than an entire shift toward post-acute care including medical treatments skewed the RUG-III CMI distribution in Michigan.

These results indicate differences in the case mix for Ontario LTC and Ontario CCC. Some, but certainly not all, of these differences is a function of access to rehabilitation services. Part of this variance is also due to the fact that case mix index is not a reflection of need but rather of what services were received. The need analysis indicated that there is a considerable proportion of the population in both settings with similar levels of need. The present findings show that the *average* case-mix index for CCC is higher than the average for LTC in Ontario. Any efforts to address equity of service levels between these two points of the continuum should support similar needs with similar resources.

*Receipt of Nursing Care, Treatments, Therapies and Services*

There are considerable variations in the types of interventions used in the various care settings examined here. Ontario LTC and CCC are clearly differentiated in terms of medical treatments, nursing services including rehabilitation, mental health services and rehabilitation. Without exception, Ontario LTC residents receive less nursing care than their counterparts.

Ontario LTC's rate of physical therapy is at least half that seen in the samples from Saskatchewan, Michigan, Maine, South Dakota, Sweden and the Netherlands. Also, residents of nursing homes in the U.S. and Sweden are much more likely to be seen by an occupational therapist than in Ontario LTC. Occupational therapy is an important intervention that can be used to reduce impairments in ADL, which are in turn major predictors of resource utilization. It would be interesting to compare relative outcomes in ADL impairment in these jurisdictions over time.

It was also interesting to note the differences in MD visits in this study. Ontario LTC residents were about three times more likely to be seen by a physician in the last two weeks than their counterparts in Saskatchewan, Manitoba and Sweden. This suggests that the medical coverage for Ontario LTC residents is about as good as or better than seen elsewhere. However, one cannot necessarily impute equivalent quality of medical care from similar quantities of medical contact. Although the Dutch rates for this variable appear low, this may be a function of definitional differences with respect to this item. Since the Netherlands has

full-time nursing home physicians, the Dutch facilities in this study code this variable for visits outside the nursing home physician's routine visit.

As noted above with respect to case-mix, the data on medical treatments shows that the U.S. states studied have a greater emphasis on at least some treatments (e.g., IV medication, ostomy, oxygen therapy) than Ontario LTC.

*Responses to Need - Rehabilitation and Restorative Care*

There are pronounced differences in the access to physical therapy and occupational therapy between persons with comparable needs in Ontario LTC and CCC facilities. An individual with rehabilitation potential is at least seven times more likely to get physical therapy in CCC than his/her counterpart in LTC (78.5% compared with 9.8%, respectively). Moreover, none of the LTC residents studied received occupational therapy when they had rehabilitation potential compared with about 50% of CCC patients.

These discrepancies to access to services are not only evident within Ontario. Indeed persons with similar levels of need are considerably more likely to receive physical therapy in Saskatchewan (38.1%), Michigan (82.3%), Maine (53.4%), Mississippi (51.3%), South Dakota (38.6%), Sweden (41.9%), and Finland (25.3%) than in Ontario LTC. Practice patterns with respect to occupational therapy in Ontario LTC are consistent with Manitoba, Saskatchewan, Finland and the Netherlands (all get almost no occupational therapy), but Sweden and the U.S. states are more likely to provide this service to nursing home residents in need.

The basis for a substantial portion of this variation could have its roots in the funding system. In jurisdictions where funding is provided for rehabilitation, it is substantially more likely to be received by persons in need.

*Mental Health and Behaviour Disturbance*

In many of the jurisdictions studied, the primary clinical response to either mental health problems or behaviour disturbance is the use of psychotropic medications. While these medications certainly have an important role to play, the approach is generally not one balanced by access to mental health professionals. Mental health professionals such as psychologists appear to play a minor role in dealing with mental health needs or behaviour disturbance in all the jurisdictions studied.

If the interventions considered are expanded to access to any mental health professionals, behaviour symptom evaluations or group therapy the rates remain below ten percent for people with needs related to behaviour disturbance or mental health in Ontario LTC, Saskatchewan, Manitoba, Sweden, and the Netherlands. In contrast, the rates for access to mental health professionals and behaviour symptom evaluations are considerably higher in Michigan for persons with behaviour disturbances. That being said, even in Michigan the minority of LTC residents in need receive mental health services.

One prominent finding in these analyses is the relative high rate of use of restraints (trunk, limb or chair that prevent rising) in Ontario LTC and CCC. For example, persons with mental health needs are about three to four times more likely to be restrained daily in Ontario LTC and CCC, respectively, compared with similar individuals in Michigan. Similar patterns are found with respect to persons with behaviour disturbance (particularly when more recent U.S. data are used). However, it should also be noted that restraint use in Sweden, Finland and the Netherlands approaches Canadian rates. Therefore, the primary difference here is that the most recent data in the U.S. show considerably lower levels of restraint use compared with other countries.

Given the strong indication for mental health needs, effective management of these needs will be an important challenge in LTC. Similar resident profiles in other jurisdictions have access to more resources for mental health services.

*Summary - Determining Appropriate Level of Service for Long Term Care Facilities*

This study examined needs in multiple dimensions using common measures in a way that allows direct comparisons at the individual level. This type of comparison provides a more accurate assessment of equity of access to services between sectors or across jurisdictions, because it ensures that there is at least some homogeneity in the populations being examined.

The central question of “How much service should we provide in a long term care facility?” needs to consider the following:

- ∞ A comparison of service levels across jurisdictions requires a reference point such as a common understanding of resident characteristics,
- ∞ The most appropriate level of service must be put in the context of the overall resources available to the society as a whole and to spending in other sectors of the health care system,
- ∞ There is probably a minimum threshold of spending that will mean the difference between unacceptable care and care that meets rudimentary standards. Effectively, this means that more resources are likely to always have the potential to yield somewhat better quality, and policy makers must make a subjective, value-based judgement about what quality is “good enough”,
- ∞ Factors such as wage rates and benefits, operating costs, labour laws, union contracts, infrastructure and regulatory environments all must be taken into account before any conclusions may be made about staffing levels, and
- ∞ Comparisons of services at the facility level are likely to be severely constrained by the inability to ensure that similar populations are being considered. *Facility* level data tell us almost nothing about the extent to which the *individuals* in those facilities receive adequate care. The only reasonable way to compare long term care services across jurisdictions is to compare the experience of individuals. By looking at resident specific information in this project, some of these constraints have been addressed, and

- ∞ Patient satisfaction and outcome measures are also important components to incorporate into decisions regarding appropriate levels of care.