

PLANNING THE RESTRUCTURING OF LONG-TERM CARE:  
THE DEMAND, NEED AND PROVISION OF INSTITUTIONAL  
LONG-TERM CARE BEDS IN NEWFOUNDLAND AND LABRADOR

NICOLE A. HUGHES







**Planning the Restructuring of Long-term Care: The  
Demand, Need and Provision of Institutional Long-term  
Care Beds in Newfoundland and Labrador**

**by  
Nicole A. Hughes**

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## ABSTRACT

The demand for long-term care (LTC) services in Canada is increasing because the population is aging. In Newfoundland and Labrador (NL) nursing homes (NHs) and supervised care (SC) facilities provide long-term care. There may be a mismatch between the provision of LTC beds and the needs of clients. To compare the type and annual rate of clients seeking placement to LTC, incident annual cohorts (N=1496) in five provincial health regions within Newfoundland and Labrador were compared using objective measures of disability, the Alberta Resident Classification Scores (ARCS) and the Resource Utilization Groups (RUGs III). Client's need was assessed using a decision tree and optimal distribution of LTC beds determined. Regional incidence rates by disability of clients were compared, and whether these differences were associated with differences in the rate of supervised care (SC) or nursing home (NH) beds provided.

. Within the four regions of Newfoundland little difference was observed in degree of disability, but Labrador clients differed from the island regions in age, degree and type of disability. Annual rate of presentation for LTC differed by region, with the highest incidence rate of LTC clients in regions with highest rates of supervised care (SC) beds and lowest rates of nursing home (NH) beds.

Thirty four % of applicants for LTC were referred for supervised care placement and sixty six % for nursing home. However, seven % had no functional disability being independent for activities of daily living, were continent and without cognitive impairment (CI). Fifteen % of clients recommended for nursing home had no indicators for nursing home. A decision tree suggested that optimal placement was seven % to

supportive housing, thirty four % to supervised care, 17% to supervised care for cognitive impairment, and 42% to nursing home.

In NL, a large component of institutional LTC is nursing homes, whereas the major need is for appropriate supervised care for those with modest disability, with or without cognitive impairment. Different approaches to restructuring of long term care in each region are necessary because of differences in rates of presentation for LTC and availability of nursing home and appropriate supervised care beds.

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## LIST OF ABBREVIATIONS AND SYMBOLS

ADLs	Activities of Daily Living
ARCS	Alberta Resident Classification Scores
BDL	behaviour of daily living
CBO	community based option
CCL	continence care level
CCACs	Community Care Access Centers
CI	cognitive impairment
LTC	long-term care
MDS	minimum data set
MUN	Memorial University of Newfoundland
NH	nursing home
NL	Newfoundland and Labrador
PCH	personal care home
RAI	residents assessment instrument
RCF	residential care facilities
RUGs III	Resource Utilization Groups III
SC	supervised care

## LIST OF APPENDICES

- Appendix A** Long- term Care Classification Worksheet
- Appendix B** Alberta's Resident Classification System (ARCS)
- Appendix C** Resource Utilization Groups- Version III (RUGs-III)
- Appendix D** Hughes N, McDonald J, Barrett B, Parfrey P. Planning the restructuring of long-term care: The demand, need and provision of institutional long-term care beds in Newfoundland and Labrador. Healthc Manage Forum. 2008 Summer; 21(2):6-22.

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## **Purpose**

This study will provide information on long-term care (LTC) demands, including the annual incidence of new LTC clients and their expected resource utilization in the different regions across the province. In addition, it will identify the mismatch between the needs of clients, as determined by a decision tree, and the type of beds available in Newfoundland and Labrador (NL). The results obtained can help the government to plan the restructuring of LTC to maximize current long-term care resources. The results will provide information pertaining to the addition or elimination of services or facilities where needed.

A national LTC program does not exist. Each province and territory has unique LTC options and policies. By reviewing some of these LTC strategies, real options for this province can be further explored.

# CHAPTER 1

## An Aging Population

### *1.1 Canadian Demographics and Population Aging*

There are economic, social and political challenges arising from the aging population in Canada, making LTC a major concern for the healthcare system. [1]. In 1980, 9.4% of Canada's population was age 65 years and older, by 2000 this proportion increased to 12.8%. A rapid increase is expected in the future and in 2020 this age group will constitute 18.2% of Canada's population. The percent of Canadians age 80 and older is projected to increase at a similar rate between 2000 and 2020, at which time this group will comprise 4.4% of the total population. [2]

Declining fertility rates and increased longevity are two major contributors to the shifting of the population towards older age groups. Fertility rates were between 3.0 and 4.0 children per woman in 1950, but by 1995 they fell below the replacement rate of 2.1 children per woman. Societal ideals and behavior affect fertility rates and it is projected that in Canada fertility rates will remain below replacement rates through to 2020. [2]

The life expectancy in Canada in 2001 was 79.5 years (77.0 for men and 82.0 for women), one of the longest life expectancies in the world. [3] One of the main contributors to our increased life expectancy is proper sanitation and vaccinations minimizing deaths due to infectious causes. Technological advances in our healthcare system also contribute to the likelihood of living longer. With the help of technology, diagnosis can be made earlier and treatment options expanded and improved. Elderly individuals can live longer with one or more co-morbidities.



Immigration is another factor which can affect age distributions of a population. In Canada, the rates of immigration are not high enough to affect the age composition.[2] However, out-migration of younger people from areas lacking a thriving economy is an important factor influencing the demography of the population. Net migration is more likely to produce shifts in age distribution of a particular location than aging in place. [4]

Canada's healthcare system, especially the long-term care sector, must prepare for the increases in the number of elderly people. However, baby boomers have high expectations of the health system and restructuring of the long-term care sector will be necessary to individualize care. Seniors may live longer, fulfilling lives with little change in physical and mental abilities while others may live with poverty, disease and disability. The vigorous seniors may be well educated, have various work experiences and want to continue to have an active role in society. [5] The needs of the frail elderly, on the other hand, must still be met. The healthcare system should enable seniors to maintain their independence while providing optimal care based on their personal needs as they age.

In Canada, seniors comprise a diverse faction including different ethno-cultural groups, aboriginal people and a preponderance of families living in various types of different communities. [6] Immigrants represent 26% of seniors living in Canada whose cultural and religious differences have to be appreciated. Special services, for example, interpretation of linguistic and cultural differences to avoid miscommunication, may be needed to provide optimal healthcare. Aboriginal people's health is not equal to that of the rest of the Canadian population and a high percentage live in remote areas. Aboriginal seniors must have access to the same services as the rest of Canadian seniors, but their cultural situation must be considered when deciding which approach to take. Senior

women have a longer life expectancy than men. In 1996, 58% of seniors were female and 75% of those in the 85 years and older category were female. Senior women are more likely than senior men to have some chronic health conditions, be widowed and be less financially secure. The majority of seniors live in urban areas, but 20% live in rural and remote areas. Rural seniors may have limited access to services. Some rural communities have small populations and experience difficulty financing senior care programs. All of these factors challenge the development of a thriving Canadian society for all seniors.[6]

By 2041, the senior population will constitute 22.6%, almost a quarter of the Canadian population. [6] This demographic change need not be a burden on our society if precautions are taken and changes are implemented to capitalize on what our rising senior population has to offer. A failure to examine and make necessary changes to our healthcare system, including altering the patterns of utilization of LTC services and facilities, will contribute to a financial crisis. [7]

### ***1.2 Newfoundland Demographics and Population Aging***

Newfoundland and Labrador's population size and structure is changing and this directly impacts the health and community services system. The province's 519 570 people are spread over 405 720 square kilometers of land in 700 different communities. [8] Many rural regions in the province are decreasing in population size, while the St. John's metropolitan area is increasing in proportion to the overall population. [9] Newfoundland and Labrador's population has decreased by 8.9%, almost 50 000 people, in the last 25 years while the rest of the Atlantic Provinces and Canada has increased their population. [8]

Declining birth rates and years of out-migration has affected the age distribution of the province. Children and youth (age 0-14) have decreased by 15% in 25 years in comparison with the Canadian proportion which declined by only 5.0%. The median age in this province has increased from 24.2 yrs in 1979 to 39.3 years in 2003. By 2018, it is projected to be as high as 47.0 years. [8]

Newfoundland and Labrador's current health and community services system was designed for the population twenty to thirty years ago. [9] Restructuring of our Health Care system, especially the long-term care sector is needed, so NL can meet the needs of today's and the future's population. It is a challenge for the LTC sector to provide the appropriate services and facilities in the proper locations. The long-term sector in NL has to prepare for the increasing demand that the aging population will impose.

## Chapter 2

### Long Term Care

#### *2.1 Long-term Care Definition*

LTC has been described as a variety of services that address the health, social, and personal care needs of individuals who, for any reason, have never developed or have lost some capacity for self care. The majority of LTC users are elderly persons. Services may be continuous or intermittent, but it is generally presumed that they will be delivered indefinitely to individuals who have established need, usually demonstrated by some index of functional incapacity. [10]

#### *2.2 Introduction to Long-term Care in Canada*

LTC may be provided in a variety of settings, in the community or in institutions, and it attempts to give care that enables the individual to live to their maximum potential. In Canada, the term, continuing care, has been used interchangeably with long-term care as a service concept, organizing framework and/or a part of the health system. Some provinces use 'continuing care' to describe the overall system and use "long-term care" to describe facility care. [11]

The three common components of the LTC system are institutional care, community-based services, and home-based services. The types and mix of services in each component vary between provinces and territories across Canada. [12]

Seniors in institutional care reside either in a hospital or a LTC facility. Many refer to LTC facilities as 'nursing homes' in Canada, but official terms vary. Some terms used are residential care facilities (RCFs), continuing care centers, special care homes,

and in Nunavut, 'group living environments for dependent seniors'. [11] LTC facilities house persons who can no longer be maintained safely and economically in the community with formal community care services. [13] Congregate living, assisted living residences and personal care homes also exist in some provinces in Canada. They are housing arrangements for active seniors that offer emergency response, social support and shared meals. [11]

The institutional care options provide a protective and supportive environment and residents may receive combinations of assistance with activities of daily living (ADLs), 24-hour surveillance, assisted meal service, and professional care and/or supervision. [11]

Long-term care facilities accommodate a range of ages, but the majority, approximately 85%, are seniors over 85 years of age. [6, 11] Fewer seniors are residing in LTC facilities than before. The 2001 census reported only 14% of people 75 and over was living in LTC institutions, down from 17% in 1981. This decrease is due to the increase in community care and senior's improved health.[11] Since there is a decrease in the proportion of seniors admitted to institutions with less serious problems, the seniors residing in LTC facilities now require higher and more intensive care. [6]

Community-based care programs include adult day care, respite services, day hospitals and palliative care. These provide short-term assistance and support to seniors and their families. Other programs include meal programs and transportation services. Volunteers are utilized for friendly visiting and doing errands, like shopping. Group homes or family care homes help persons with physical and/or mental disabilities.

Home-based services include homemaker, nursing and allied health services. These services are provided for seniors who live on their own but require minimal assistance. Homemaker services include housekeeping tasks, nursing services provide comprehensive care which can be curative, palliative or supportive and allied health services, for example physiotherapy and occupational therapy, provide assessment and treatment in order to rehabilitate or relieve pain. [12]

### ***2.3 Financing Long-Term Care in Canada***

Canada has universal coverage for medically necessary physician and hospital care since federal and provincial agreements in 1969. Physician and hospital care is provided to all Canadians regardless of economic status. [13] The federal and provincial government used to share in the costs of health care delivered by the provinces on a 50/50 basis. [11] In 1977, the Established Programs Financing Act changed this funding arrangement so that the provinces were block funded, mainly on a population basis rather than a proportion of overall expenditures. [11]

The Canada Health Act was introduced in 1984 setting uniform standards for hospital and physician services across the country. [14] Long-term care is not included in the Canada Health Act and a national long-term care program does not exist. Hospital and physician services are insured health services and long-term residential care, home care, adult residential care and ambulatory services are extended health services.[15] Under the block grants system, federal funding is not exclusively linked to insured health services, and provinces have the flexibility to use a portion to develop and enhance extended health care services. [13, 15]

Canada's publicly funded health care system is best described as an interlocking set of ten provincial and three territorial health insurance plans. Under the Canadian Constitution, health and social services fall under provincial jurisdiction.[16] The methods of insurance coverage are governed by common principles, but each province and territory varies in terms of health care system organization because they are responsible for the planning, administration, delivery and governance of health care services. The federal government retains a role with respect to promotion, prevention, research and service delivery to specific groups (veterans and native people living in reservations). [16]

With no federal legislation or national standards for long-term care a diverse mosaic of policies created on a province-by-province basis exists. This federal policy gap results in a variety of funding models across the country. Some provinces have privately owned nursing homes, whereas others provide only publicly operated or charitable homes. Some provinces require a payment by residents and others do not. The amount required for residents to pay also varies. Some provinces require residents to pay until assets are minimized. [14]

The estimated cost of long-term facility care in Canada in 1991/1992 was \$7.1 billion with the provinces paying \$5.4 billion, 76.1% of the total cost. [10] In Canada, LTC facilities include a mixture of public, non-profit (voluntary), and for-profit institutions. [13] Both not-for-profit (nonproprietary) and for-profit (proprietary) facilities in Canada have been government funded for many years. The ratio of these types of facilities varies between provinces. In Ontario, 52% of publicly funded nursing homes are

for-profit, whereas in Manitoba the proportion is 15%. [17] The not-for profit sector constitutes the majority of nursing home care across the country. [17]

Traditionally, long-term care facilities' funding was based on historical budgets, where the more money spent the more institutional funding was provided. [1] Between 1980 and 1995, residential and community long-term care expenditures in Ontario increased more than 400% (26 million to 2.14 billion), despite the fact that the institutional sector's growth was generally restrained in the 1990's. [1, 18] Across Canada, public home care expenditures reached almost \$2.1 billion during the 1997-98 fiscal year compared to \$1 billion in 1990-91, an increase of 11% per year. [6] The amount spent on private home care is not known but believed to be substantial. [18]

With no national standards for long-term or home care funding existing in Canada, health care policies regarding the elderly are fragmented across the country. Provincial long-term care systems differ considerably from one another but all provinces' are now aiming to rationalize care in a cost-effective manner.[15]

#### ***2.4 Single Entry System***

Most provinces have, or are developing, a 'single entry system' to make LTC placement more efficient. Ideally, there is a single point of assessment and referral, which provides a consistent screening process, and ensures only elderly individuals demonstrating need are accepted, and that the appropriate services and level of care are given. [12] By coordinating assessment, the same information is collected for residential and community-based clients entering the long-term care system. Most provincial governments have their own standardized assessment tools for all clients. These tools



may have between two to seven levels of classification that group clients. National consistency could be achieved through these common features but differences exist in provincial execution and service delivery within provinces. [12]

### ***2.5 Institutional Long-term Care in Newfoundland & Labrador***

The three options for LTC in NL are home care, supervised care (SC), and nursing home (NH) care. There are variations in the delivery and access of these services within the province because each region has their own health board. As the number of seniors increase and become more dependent, utilization of these services will increase.

Long-term care institutions in Newfoundland comprise two different types of facilities; personal care homes (PCHs) (private-for-profit and private-not-for profit) and nursing homes (NHs) (private-not-for-profit and public). PCHs accommodate persons who are ambulatory and require minimal care and/or supervision. They may receive assistance with activities of daily living (ADLs) or personal care, and have access to social/ recreational activities. Supportive services, such as meals and housekeeping are also provided. PCHs aim to provide a home-like environment. PCHs are government licensed and most are for-profit facilities, although many residents are dependent on government subsidies, the number varying between regions. NHs provide a higher level of care mainly to the elderly, but some mentally and physically handicapped individuals as well. They provide many services including medical, nursing, social services, pharmacy, dietetics, recreation, pastoral care and physiotherapy. Most residents require professional care supervised by nurses. The level of service provided depends upon funding, resource availability and client needs. [19]

There are also supportive housing options, including Elizabeth Towers in St. John's and a private for profit agency, Chancellor Park that is a long term/continuing care complex. These are privately owned retirement apartments with resident amenities and services with fees in the range of \$2500-3500 per month. In Chancellor Park, the residents receive limited home support funding from the NL government. These are different from PCHs or NHs and not included as housing options for the purpose of this thesis.

In NL, supervised care (SC) includes PCHs and beds in NHs allocated for low level care residents, who require less than 1 hour of care per day. NHs provide three levels of care: Level 1 is for low level of care clients who require less than 1 hour of care per day and for the purpose of this paper considered supervised care. Level 2 corresponds to about 2 hours of care per day, and level 3 to 3 or more hours (9). NHs are managed on a public not-for profit basis either by public or voluntary organizations, and funded by government (8). Clients with cognitive impairment (CI) may be placed in SC facilities, but are generally placed in a NH.

The Department of Health was responsible for all aspects of the PCH program prior to July 1, 1996. From 1996-2004, there were six Community Health boards accountable for the PCHs: St. John's, Eastern, Central, Western, Grenfell and Labrador. In this thesis, these are the regional boundaries utilized. In January 2004 changes were made to the boundaries of these regions but they still have the same duties. Now four regional health authorities are accountable for the PCHs; Eastern, Central, Western and Labrador/Grenfell. Although NHs are financed and regulated by the Services to Senior Citizens Program of the Department of Health and Community Services, placement

decisions are the responsibility of the four boards. [19] The Home Support Services for Seniors Program is for persons age 65 and over who reside independently in a private residence. [20] The Department of Human Resources and Employment transferred responsibility for this senior's program to the Department of Health and Community health boards as of April 1, 1995. [20]

### ***2.6 Financing of Long-Term Care in Newfoundland & Labrador***

In 2001, the Newfoundland provincial government estimated that the average cost of care in a nursing home was \$4200.00 per month. [21] This average cost is independent of the care needs of the occupant. Clients in these beds are charged up to \$2800.00 per month again regardless of the level of care required. The remaining balance is paid by provincial subsidy. Furthermore, long-term care residents are classified as private paying or subsidized. Private paying clients have a monthly income exceeding \$2,925 or liquid assets exceeding \$5,000 (\$10,000 for a couple) and pay the universal rate of board and lodging (\$2,800). Subsidized clients have a monthly income less than \$2,925 and assets less than \$5,000 single (\$10,000 for a couple). [22] The cost of board and lodging for these subsidized clients is based on a financial assessment completed by the Regional Health Authorities. The government will pay the difference between the client's income and the cost of the nursing home, leaving \$115-\$125/month for the client as spending money. [23] Most nursing homes in the province receive these government subsidies with the exception of privately owned and operated homes.

Prior to the mid-1990s, personal care homes were government licensed and 'fixed' subsidies were allocated to certain homes for a specific number of beds. PCHs were

restricted to areas with an estimated high demand for beds and this promoted high occupancy and viable businesses. Licensing and capacity controls were later discontinued and new operators entered the industry in competition with previously licensed homes where the 'fixed' subsidies were retained. By 2000, there was a need for greater number of subsidies because eligible clients were restricted in their choices by unavailability of subsidies, particularly in the newer homes. Also some older homes were not able to modernize due to inadequate revenue from the existing subsidy rates. A new policy was adopted which expanded the subsidy pool and introduced 'portable' subsidy rates. Once clients were deemed appropriate for admission they could carry the subsidy to their preferred home, either a previously licensed home or new home built under the deregulated environment. Any new subsidies are now allocated to the client rather than the home. The number of portable subsidies and the subsidy rate amount increased yearly for five years, starting in 2000. In 2003/04, a total of 477 portable subsidies had been added to the system and the rate was \$1, 138.00, increased from \$923.00 in 2000. [22] Many of the older homes still have the 'fixed' subsidy rates but are not attracting clients. The newer homes do not have any subsidies attached but if a client is accepted for PCH placement and meets the financial eligibility for a government subsidy they may be accommodated within any PCH of their choice, provided the cost for a bed is at or below the government subsidized rate. There is no set charge for non- subsidized beds. Clients in subsidized beds with low income are given a "comfort" allowance of \$125.00 per month. [22]

### ***2.7 Single Entry System in Newfoundland & Labrador***

In 1995 a single entry system was introduced to the province in hopes of decreasing the size of the wait list to NHs and to more appropriately place clients, particularly those with low level needs. Before the single entry system was introduced, clients applied separately to facilities and an independent assessment was completed to determine if the client was eligible to be placed on the waitlist for each facility. A client may have been on numerous waitlists, leading to incorrect conclusions about the LTC demands and size of the waitlists. [21]

Currently, clients request institutional placement through a single entry system and nobody is denied placement. A multidisciplinary panel recommends placement to either a nursing home or personal care home. If a client applies from an acute care hospital bed they are placed in the first available appropriate LTC bed in their region and put on a waiting list for their facility of choice. [21] Once a client applies, other alternatives, like home care, are not explored by the committee. [21] Clients can express their preference and wait until a bed becomes available where they wish to be placed even if availability exists elsewhere.

### ***2.8 Institutional Long-term Care in Provinces and Territories of Canada***

In Canada, institutional long term care is provided by both publicly and privately funded NHs, assisted living environments and specialized homes for the cognitively impaired. [14] Nursing home placement is costly to the government and currently other options to house our aging population are being explored. Provinces and Territories have taken diverse approaches by providing varying services and facilities for seniors. Over

time, the provincial programs are becoming more similar to each other, with most combining the assessment need for community care with that for long-term facility care placement. Some provinces have increased their home care community services and others have invested in new living facilities. The demographic shift of a higher proportion of elderly in each age bracket; over 65, over 75 and over 85, will stress the long-term care system in Canada regardless if the system is pushed towards care in the community or institutions. [25] A more collaborative effort to find a proper solution in Canada may be effective in providing proper services to the elderly.

The following section outlines current LTC issues and developments in Canadian provinces and territories along with a brief explanation of their LTC sector.

### *British Columbia*

In British Columbia (BC), around 70% of nursing homes are nonproprietary (not-for-profit) and 30% are proprietary (for-profit). The province gives global funding to both types of facilities depending on 1) the amount of functional dependence of residents and 2) the fees obtained from residents based on their income levels. As of 2001, long-term care facilities in BC had no set regulations on how the provincial funding should be distributed between staffing, administrations or property costs. [17]

The Continuing Care Division is BC's comprehensive and integrated service delivery system for the elderly and disabled. It has all the components of LTC and home care services under one administrative umbrella utilizing a single point of entry.[26]

Clients are categorized into one of five levels of care: personal care, intermediate care 1, intermediate care 2, intermediate care 3 or extended care. The Continuing Care

system has three divisions: the LTC program, the Community Home Care Nursing program and the Community Rehabilitation program. .[26]

In BC, Nursing homes are categorized by four different levels of care according to a client's case-mix: intermediate care only (IC), intermediate and extended care (IC & EC), multi-level care, or extended care only (EC). Intermediate care facilities house residents with more functional ability and extended care facilities house more functionally dependent people. The other two provide care for clients with a range of functional abilities. [17]

In 1997, British Columbia was continuing to lead the way in meeting the needs of its elderly population for long-term care. A paper by Brody et al concluded that BC's long-term care system appeared to be essentially complaint-free, but users did experience dissatisfaction. At that time the concern was with lack of personnel in residential and home based services and the nature and lack of services. The challenge was to strengthen an already effective and efficient system by adding to the quality of life of individuals utilizing long-term care." [25]

But, more recently (Cohen, 2005), there was a debate in BC about changes in residential care and home health services for seniors. The provincial government claimed it was in the process of implementing a plan for "continuing care renewal", while seniors groups were claiming that cuts to long term residential care and home health services were leaving frail elders without affordable care. [27]

A Continuing Care Renewal plan was introduced in 2002 to limit admission to residential care to those who required the most complex care. The plan was to de-

institutionalize seniors' care and build new assisted living housing models with increasing access to home care and home support. [27]

The Continuing Care: Renewal or Retreat? Report (Cohen, 2005) shows access to LTC and home health services for BC seniors had decreased significantly from 2001-2004. There was a net reduction of 1464 residential care beds over three years. Home support (personal care) hours had been reduced by 13 hours and there was a 21% decline in the number of clients. For professional nursing home care, hours and clients declined by 8%. [27]

The level of services in BC is far below the Canadian average. In 2001, BC was close to the national average with 100.4 residential care beds per 1000 seniors aged 75 and over. In 2004, BC's bed rate had dropped 13.4% below the national average of 83.4. In addition, some regional health authorities have suffered more cuts leading to regional inequalities in care availability. [27]

The Continuing Care: Renewal or Retreat? Report (Cohen, 2005) recommended that a five-year strategic plan be recreated for new community-based, non-profit residential care, assisted living, supportive housing, and home health services. The needs of the elderly in BC were no longer being met because many could not afford private options, were deteriorating at home and then requiring medical treatment that could have been avoided. [27]



## *Alberta*

This province utilizes a single entry system and in 1996 shifted from an institutional focus to a community focus resulting in a 300% increase in their home care budget.[28]

The government of Alberta has two housing programs to help seniors live independently with minimal assistance. A senior, who is functionally independent, with or without community based services, is eligible for either of these programs and acceptance is based on need. The Seniors Lodge Program offers single/double sitting rooms, meals, housekeeping services, linen/laundry and recreational services. The lodge rates are set by local management and may vary across the province, but low-income seniors are protected to ensure that each resident is left with at least \$265 of disposable income after lodge rates. The Seniors Self-Contained Housing Program offers affordable apartments to seniors with low-incomes who cannot afford private sector housing. Rent for these apartments is 30% of a household's adjusted income. These apartments only provide emergency services.[29]

Home care services are provided based on assessed need and fall under the responsibility of the Regional Health authorities. There is no charge for professional (e.g. nursing) or support services (e.g. bathing). A referral is only made to a long-term care facility once a person can no longer be looked after in the community. Nursing homes and auxiliary hospitals provide accommodation and a range of personal care and medical services. Alberta pays for all care costs based on a resident's need and the individual is responsible for accommodation charges (\$30.62 / day for standard accommodation, \$42.00 / day for semi-private accommodation and \$48.30 / day for private

accommodation). The Alberta Seniors Benefit program assists individuals who cannot afford the accommodation fees. Residents are not charged for prescription drugs or ambulance services.[29]

Alberta also has other models of care that provide health services and living arrangements. Private assisted living facilities are apartments that offer meals, recreation activities, housekeeping and bus service for medical appointments at a cost of \$1150/month to \$4000/month. Personal care homes (PCHs) house four or more individuals and provide a homelike atmosphere. Personal care is provided at cost to the health region and lodging, meals and housekeeping are provided for a fee. Seniors day support programs are group programs intended for frail elderly or disabled persons who may require health services, rehabilitation or social and recreational activities. Other examples include adult family care, group homes, special centers for Alzheimer's disease and related disorders and transitional living settings. [29]

In Calgary, the Kerby Center is an organization run by seniors for seniors that aims to enhance the quality of life for individuals over 60 by providing active living programs, preventative services and a wealth of information. Their accommodations are privately owned residences that accommodate 1 to 3 persons and provide lodging, meals, personal assistance and support services for a set cost. They have a private bedroom, shared bathroom and a common dining area. [30]

As of 2006, the Government of Alberta is implementing new standards for continuing care health and accommodation services. The new standards aim for a higher quality of life and health care for all Albertans receiving continuing care services in home, community and facility-based settings. The Continuing Care Health Service

Standards cover all publicly-funded health care services for continuing care residents. Also, long-term care and supportive living operators will have to participate in a recognized accreditation program, which will promote best practices and continuous quality improvement. The government is increasing funding for continuing care over the next three years. By 2008-09, annual funding for continuing care initiatives will have increased by \$127 million. This funding will be used to provide: 1) enhanced benefits to low-income seniors and Assured Income for the Severely Handicapped (AISH) clients living in continuing care 2) increased grants for many seniors lodges 3) additional support for Albertans with disabilities to access community services. [31]

### *Saskatchewan*

In 1994, a population-based funding system for hospital, nursing home, home care and public health services was developed in Saskatchewan. The province was divided into geographic areas and a regional health board for each region was put in place. The funding is on a per-capita basis and each board decides how to allocate services. [15] Many other provinces have adapted a population-based funding approach under regional health authorities. Saskatchewan, as well as Ontario, mandated the implementation of the Minimum Data Set 2.0 (MDS 2.0) assessment system. The MDS is part of the Residents Assessment Instrument (RAI) and provides extensive data on residents of nursing homes, incorporating measures of physical health, functional status, psychosocial well-being etc. Saskatchewan mandated it for nursing homes in the form of RUG-III scores, a classification system based on the MDS that predicts resource utilization using

individual's clinical and functional characteristics, for either funding purposes or general descriptive purposes. [14]

Saskatchewan has the highest population of seniors in Canada, one in seven people in the province is 65 years of age or older. [31] The province has public and private housing options for seniors. All public residences are income assisted and may be subsidized. These options include social housing for seniors, life leasing for seniors and affordable housing for seniors. Low income seniors, moderate income seniors and those with special needs can obtain suitable, affordable and adequate housing with these three programs. A special-care home or a nursing home is a public institutional facility for individuals with heavy care needs that cannot be managed through home or community based services. The regional health authorities are responsible for evaluating need for individual placement. The government provides funding to the regional health authorities for special-care homes. Saskatchewan Health subsidizes approximately 77% of the overall province-wide cost of long-term care. The residents pay an income-tested charge based on annual income plus earned interest from bank accounts and investments, excluding personal assets. The resident charge ranges from \$888-\$1683 per month and is adjusted quarterly. Additional charges for prescription drugs, incontinence supplies, personal items etc. may be added. [32]

For the following private options, residents are responsible for the prices incurred. Seniors may still have their own home or live in an apartment or condominium. Abbeyfield housing is a non-profit housing organization that develops senior's housing through volunteer organizations. Seniors can maintain their independence in a supportive environment. Retirement living is another option where the elderly have their own suite

and meals, laundry, housekeeping etc is included in the monthly rate. Personal Care homes (PCHs) are privately owned and operated, but licensed and monitored by Saskatchewan Health. A personal care home provides meals, assistance with ADLs and residence. Admittance is not based on need but on resident choice. PCHs have to provide safe environments and adequate care, including health services when necessary. [32]

### *Manitoba*

Manitoba has been a leader in LTC services in Canada. It was the first province to implement the single entry system in 1974, which resulted in a reduction in NH bed use. The system was reevaluated to become more efficient in 1998. During this time Manitoba also regionalized its healthcare system to 13 health regions. [28] Manitoba has approximately 14% of its population over the age of 65.[33]

The ratio of beds in Manitoba fell from 163.9/1000  $\geq 75$  years in 1981/82 to 125.0/1000  $\geq 75$  years in 1995/96. This, in combination with a single entry system and community care has affected the facility population. In 1981/82, 55.4% of clients in institutional facility care required light/medium levels of care compared to only 22.5% in 1995/96. The level of care required by the resident population in 1995/96 was heavier and public cost per bed was increased.[13]

In 1998, Manitoba privatized the delivery of personal care services in Winnipeg, The public sector were not in favor and went on strike. The strike ended with agreement that the government privatize services for 20% of community care clients and fund an external evaluation of this change. After 2 years, without publicizing the results of the evaluation, the clients that were in the for-profit scheme returned to public delivery of

services. Comments from the Minister of Health suggested that privatizing did not save money and that other negative factors arose. [13]

This province has an extensive home care program for individuals of any age that require more care than existing supports can manage, in order to keep them in their home. Residential care is a community based housing program that provides congregate living accommodations along with care and supervision. Residential care facilities (RCFs) are licensed through Manitoba Family Services and Housing. They can be for profit or non-profit and operated by professional or non-professional staff. The Manitoba government does not subsidize residential care; however, a person may qualify for financial assistance. [34]

A PCH may be appropriate if an individual's care needs can no longer be managed at home. Only 5.6% of Manitobans over the age of 65 resided in PCHs in 2002 whereas almost a quarter, 23.9%, over the age of 85 resided in PCHs.[33] An application for PCH placement is initiated through a person's Home Care Case Coordinator or their Regional Health Authority if they are not receiving home care. Canadian citizens and permanent residents who have lived in Manitoba for the previous five consecutive years are eligible for insured personal care home services with some exceptions for those who are Canadian but do not fit this criteria. The LTC charge is based on a client's income. A reduction of the maximum daily rate may be possible by completing an Application for Reduced Residential Charges and providing a copy of a Canada Customs and Revenue Agency Notice of Assessment from the previous year. [34]

In Manitoba, the notion of 'aging in place' is closely linked to senior's housing. 'Aging in place' as a principle means not having to move from one's present residence in

order to secure essential services due to changing health and life management needs. It supports a person's choice to maintain the maximum possible level of independence in their day to day living [33]

### *Yukon*

The Continuing Care Branch provides home care, outpatient therapy and residential services for this territory. [35] Home care is provided by an interdisciplinary team based on the health requirements of the person so they can remain living at home. Occupational Therapists, Physiotherapists, Speech and Language Pathologists provide outpatient therapy services. The Community Day Program in Whitehorse provides services to individuals with physical or cognitive ailments and support to their caregivers so they can live optimally in the community; delaying institutionalization and increasing or maintaining the client's independence. When a person can no longer be sustained in the community, residential placement to either Copper Ridge Place or Macaulay Lodge in Whitehorse is arranged. The residential programs are structured by the home philosophy of care. Functioning as a community they respect and promote dignity, individual freedom, choice and lifestyle, and meaningful quality living. Their aim is to create a feeling of home and belonging for all residents by catering to one's individual needs. [35] The intermediate care program is for individuals requiring moderate assistance with activities of daily living (ADLs) and professional care or monitoring on a daily intermittent basis. There are thirty beds available with 2 respite beds. The extended care program is for persons needing extensive assistance with activities of daily living and 24 hour monitoring or professional care. The beds are at Copper Ridge, a total of 48

including 7 respite beds. The special care program provides a secure environment for clients with dementia. They need 24 hour monitoring and there are 24 beds, including 2 respite beds. In Dawson city, only intermediate and home care is provided with 11 beds and 2 respite beds. [35]

### *Ontario*

In Ontario, the publicly-funded LTC system provides a continuum of services and support to individuals, primarily seniors, living in the community or in institutions. In 1998, a Minister for Long-Term Care with Responsibility for Seniors was appointed. The LTC sector has three components: long-term care facilities, community services and Community Care Access Centers (CCACs). [36]

In April, 1998 this province had 498 NHs and homes for the aged providing care for around 57, 000 individuals. Of these 326 (66%) were NHs operated by for-profit companies, 102 (20%) were municipal run homes for the aged, and 70 (14%) were charitable homes for the aged. Community Services included in-home visiting nurses, therapists, homemakers, respite care, Meals-on Wheels and transportation. [36]

Ontario has established 43 CCACs. These CCACs are responsible for aiding residents who seek community-based long-term healthcare. They coordinate access to home services, manage placement to long-term care facilities and provide information and referral services. [12, 36, 37]

The Residential care options in Ontario enable people to reside in a place that provides accommodations with the level of support they need. There are three main types of residential care: Supportive Housing, Retirement Homes and Long-term care Homes.



Supportive housing is for those who require minimal to moderate levels of care and support to live independently. Many have rent-geared-to-income subsidies available. Retirement homes are privately owned rental accommodations for seniors who require minimal to moderate levels of care and support to live independently. Retirement homes are funded entirely by the revenues from resident fees. [38] Long-term care homes are for people who need the option of 24-hour nursing care, supervision or higher levels of care. These government regulated homes are known as nursing homes, municipal homes for the aged or charitable homes. Residents pay for accommodation charges and the care is funded by the Ministry of Health and Long-Term Care. [38]

Ontario has chosen not to implement regionalization completely, therefore its Ministry of Health and Long-Term Care decides on budgets for hospitals, nursing homes, and homes for the aged on a facility-by-facility basis. Ontario has regionalized its home care program. [15]

Ontario mandated the implementation of the MDS 2.0 as a data source for classifying complex continuing care hospitals/unit patients, according to the RUG-III system (Section 3.2). The province began using RUG-III for reimbursement to complex continuing care hospitals/unit patients in spring 2001. It is now a part of the hospital funding formula for complex continuing care. [12, 14] By 2002, the Resident Assessment Instrument-Home Care (RAI-HC) was mandated for all home care clients expected to be on service for over 60 days.[39] The CCACs use the RAI-HC to assess needs and determine services for home care clients. In 2005, the RAI-Mental Health (RAI-MH) was mandated for use in all adult in-patient beds in psychiatric hospitals/units, including acute, long stay, forensic and geriatric psychiatry. The RAI 2.0, also known as MDS 2.0,

is to be implemented for all LTC facilities in Ontario. An InterRAI Contact Assessment began in May 2006. This InterRAI and the Ontario Ministry of Health and Long-Term Care will collaborate to develop a contact assessment that will be used as the brief assessment of all CCAC clients. [39]

In 2000/01, the government announced an additional \$92 million for long-term care community services with CCACs to receive \$70.1 million. Of the total \$1.6 billion in 2000/01 spent, \$1.1 billion went to CCACs. In 1998/99, CCACs helped more than 400,000 people and it was expected in 2000/01 to aid more than 420,000. The plan projected that the administrative funds saved by this system would then be reinvested in front-line health services in Ontario. [37]

### *Quebec*

Quebec has created 16 regional health boards to organize services and allocate budgets to community organizations and institutions located within their region. [16] LTC facilities cater to individuals requiring supervised residential care due to physical or mental disability. [16] Support and assistance provided in public LTC residential facilities are free-of-charge, although a contribution, geared to income, is necessary for food and lodging. Home care is free-of-charge. [16]

The rate of institutionalization of people in LTC facilities has decreased from 5% of Quebec's total population in 1994 to 4% in 2000. [16] Around 70% of residents in LTC facilities are over the age of 75 and most require assistance with personal care, while the proportion with cognitive disabilities has continually risen over time. Since these types of facilities were designed to provide medical services it has been difficult to

adapt to the needs of cognitively impaired clients and prioritize quality of life. Seniors who can no longer live at home and are not well off have limited choices and institutional accommodation is usually the only option. There are a number of public and private residential or extended care centers that offer support, supervision services as well as rehabilitative, psychosocial and nursing care and medical services. [16]

Around 50% of the clientele requiring home support services are over the age of 65. (30) There are a range of home support services offered by the public system and their partners, with the demand being highest for personal and domestic assistance to compensate for functional limitations (mobility in the home, dressing, meals, laundry) and specialized care and services (medical care, nursing care, general rehabilitative services, psychosocial services) (30). Home care is delivered mostly by local community service centers. They are the major providers of professional care and services (medical, nursing, rehabilitative, psychosocial) and personal assistance services (hygiene and mobility assistance). They contract domestic activities (preparing meals, shopping, and housekeeping), civic support and respite relief to private agencies and community organizations. Community groups contribute to home-support by providing varying forms of support to care-givers, preparing and delivering hot meals to homes, accompaniment on outings, and transportation (30).

A new policy for the frail elderly by the Ministry of Health and Social Services was adopted in 2001. The two major problems this policy hoped to address were access to services and fragmentation of response to needs. This policy strived to meet the needs of the elderly more appropriately, disregarding the idea that older persons do not belong in the short-term care system. It proposed the creation of three component integrated

services system, responsible for organization, clinical components and management. Each territory was given full responsibility for their elderly population, including all health and social services that this population may require, and power over the territorial budget that would eventually lead to the establishment of a budget specifically for services for the frail elderly. [16]

Up until this point, LTC services focused on compensating for disabilities, but now early intervention, treatment, rehabilitation and standardized accessibility across the province of Quebec are primary focuses. Quebec hoped to restructure front-line services because access to general medical services is difficult. The system allows the province to be better prepared for the expected increase in the elderly population and put in place a range of services more suitable to their complex needs. Combining responsibility with management of the funding for seniors brings clinical and administrative decisions closer together. This policy involves change in organizational logic but is influenced by trends in practice and intervention. [16]

### *New Brunswick*

New Brunswick spends nearly 10% of its health budget on home care, which is double the provincial average. [40] All Regional Hospital Cooperation's provide home health care through the New Brunswick Extra-Mural Program, the "hospital without walls" which began in 1981.[40] The mission of the Extra-Mural Program is to provide a range of coordinated health care services to promote, maintain and restore health for people all ages to help them obtain quality of life.[41] The program employs over 640 full-time professionals and cared for almost 20 000 patients in 2002. The program's staff

does the in-home visits while physicians admit and discharge individuals and prescribe treatment. Over 70% of the clients require nursing care. There has been no formal research on cost efficiency but more than 55% of patients are referred directly from the community, avoiding emergency room visits or hospitalizations. [40]

Elderly patients have support from the Extra-Mural Program but other home support services like, counseling, personal care, homemaker and relief care are also available. Adult Day centers assist seniors to stay in their own homes by providing rehabilitative, recreational, educational, social and/or health services. “Meals on Wheels” delivers nutritious meals to people’s homes to those who cannot prepare their own food. [41]

Adult residential options are available for seniors who can no longer live at home. The facilities are approved and monitored by the Department of Family and Community Services. Special care homes are for adults and seniors who do not require a high level of care and nursing services on a regular basis. Community residences are for those requiring a high level of care, but not professional nursing care on a regular basis. Nursing homes are for individuals requiring a high level of care and nursing services on a regular basis. The Nursing Home and Adult Placement Branch of the Department of Family and Community Services is responsible for managing the nursing home program and provides subsidies for those who cannot cover the cost of nursing home care. [41]

### *Nova Scotia*

In Nova Scotia, there are three types of LTC facilities; community based-options (CBOs), residential care facilities (RCFs) and NHs.[42] CBOs assist the resident in self-

care skills. [43] One type of CBO is Community Residences, family homes in which accommodation and minimal supervision is provided for three or less seniors who are not immediate family members of the operator. Another type of CBO, Small Option Homes, provide support or supervision for three or less seniors in a purchased or rented unit and has trained staff on location at all times. [43] There are 28 CBOs approved by the Department of Health, mostly located in the Sydney and Halifax areas, and are owned and operated by private individuals or organizations. [42]

Homes for Special Care include RCFs and NHs. RCFs provide supervisory and/or personal care in a residential setting to four or more persons. There is trained staff available for the residents on a 24 hour basis. NHs provide personal and/or skilled nursing care in a residential setting to individuals who require the availability of nursing staff at all times. [43]

Clients requesting LTC facility placement are categorized as RCF, NH1 or NH2. RCF clients are placed in a CBO or a RCF and NH1 or NH2 clients are placed in NHs. The degree and intensity of care required by the individual determines NH1 or NH2 categorization. [43]

The Department of Health made significant changes to its LTC services, especially how it's funded and how residents pay for its services, as of January 1, 2005. Residents who live in CBOs, RCFs, or NHs are no longer required to pay for their health care costs or use their assets to pay for accommodation costs. The Department of Health covers health care costs and the residents pay accommodation fees, as well as personal expenses similar to seniors living in the community. The accommodation rates are based on the average operating costs of the three different types of LTC facilities in Nova

Scotia; CBOs maximum accommodation rate is \$43 per day, RCFs is \$43.50 and NHs is \$73.50 with no additional fee for private rooms. If seniors pay these maximum fees, no financial assessment is needed and they keep all remaining income and assets.

Individuals may apply to have their rate reduced through an income based financial assessment. [44]

### *In Conclusion*

As outlined above, Canada has a diverse range of options for seniors in need of minimal to maximal assistance. It is important to evaluate the feasibility, cost effectiveness, health and social benefits and satisfaction with the various LTC options across Canada, in addition to options provided in other countries, to restructure NL's LTC sector appropriately. This thesis starts to explore some of these factors but further research is needed for definitive recommendations.

## Chapter 3

### Defining Disability in the Elderly

#### *3.1 Resident Assessment Instrument*

In the long-term care sector, resource utilization could be more efficient if clients were placed appropriately according to the degree of their disability and needs. Placement decisions with appropriate levels of care could be greatly improved if the decisions could be made in an objective and reproducible manner, based on easily collected data from client assessments and supporting documents.[45]

In 1987, the US implemented the Nursing Home Reform Act. The Health Care Financing Administration developed and mandated the use of a standardized resident assessment instrument (RAI).[46] The primary use of the RAI is clinical, to assess residents on admission to a nursing home, annually following placement, if status significantly changes and to develop individualized plans of care.[47] The first major component of the national resident assessment system for nursing home facilities was the Minimum Data Set (MDS) for nursing homes. The MDS provides extensive data on residents of nursing homes. It incorporates measures of physical health, functional status, psychosocial well-being, dietary status, comprehension, vision, hearing, communication skills, activity preferences, potential for self-care improvement and indicators of quality of life.[48] The MDS for nursing home version 2.0 is used for the resident assessment process in nursing homes in the US, Canada, Holland, Japan and several other countries.[46, 49] The MDS 2.0 provides a structure and language to understand long-term care and describes the nursing home population for planning and policy efforts.[48]



Interrater reliability of items and internal consistency of MDS summary scales is usually good to excellent. [49, 50] The validity is good for assessing ADLs, cognitive functions and diagnoses, and moderate for behavior, mood, vision and pain scales. [49, 50]

### ***3.2 Resource Utilization Groups III***

The two other components of the RAI are the Resident Assessment Protocols which guide the assessor through the best practice of care planning for common problems experienced by the elderly and the Resource Utilization Groups (RUGs), a classification system based on the MDS that predicts resource utilization using individual's clinical and functional characteristics. [51] The RUGs is one of the tools utilized in this paper to categorize clients.

A number of countries have validated the Resource Utilization Groups, Version III (RUGs III) instrument since its development in the US. [52] Validation studies have been performed in the US, Japan, Spain, Sweden, England and Wales and when compared the RUGs-III system appeared robust in a wide variety of settings. The RUGs III system functioned consistently in these countries, identifying similar relative patterns of staff care time between the more ill and the more physically dependent individuals. [52] RUGs III is being implemented for nursing home payment in many states in the US. It can also be used in management, staffing levels and quality assurance. [53]

The RUGs tool identifies the needs of chronic care nursing home residents by grouping together individuals with similar patterns of resource use. [52] The RUGs III instrument identifies unique characteristics of residents that result in differential patterns of resource utilization. [54] RUGs III was designed to provide superior discrimination in

classifying low-volume/high-cost/high acuity patients by considering medical conditions, services or treatments and psychosocial factors as well as Activities of Daily Living and Behaviors of Daily Living. [55] The RUGs III tool uses three dimensions to categorize a resident.

The first dimension includes seven hierarchical groups which are ranked by cost (Special Rehabilitation, Extensive Services, Special Care, Clinically Complex, Impaired Cognition, Behavior Problems, and Reduced Physical Function). [52] Clients can qualify for more than one group but are placed in the most resource intensive group. [28] There is also an ADL Index Ordinal Scale ranging from a summation of 4 (completely independent) to 18 (high dependency) by combining toileting, eating, bed-to-chair transferring and bed mobility. The third dimension involves services, such as nursing rehabilitation, and problems, such as depression. [54]

### ***3.3 Alberta Resident Classification System***

In 1988, the Alberta Resident Classification System (ARCS) was introduced by the Alberta government to measure the care requirements of residents in LTC and provide case-mix information so funding would no longer be global but based on resident need. [56] LTC clients who required similar levels of staff resources to meet their care needs are grouped together into seven different groups. This objective tool is utilized in this paper.

The classification system has seven levels (A-G) where A clients are the most independent and G are the most dependent. The interrelationship between ADLs, BDLs and Continence level of care (CCLs) determines the seven levels, each associated with

increased resource utilization based on the degree of the client's disability. [56] The four indicators in the ADL domain include the need for assistance with eating, toileting, dressing and transferring. In the BDL domain the two indicators are the frequency of nursing intervention required for (1) residents who have difficulty coping with problems of everyday living and (2) resident behaviors that put the resident and others at risk for injury. The two indicators for the CCLs domain include urinary and bowel incontinence. [56, 57]

The purpose of the ARCS did not include policy and planning efforts but some believe this classification data could be helpful in this aspect. [58] Others suggest that the ARCS does not take clinical complexity into account, does not differentiate between resource utilization enough, and that the levels are not homogenous to resource requirements. [59]

In this paper, RUGs-III and ARCS are both utilized to categorize institutional LTC clients.

## Chapter 4

### Design and Methods

#### *4.1 Previous Long-term Care Studies by the MUN Clinical Epidemiology Group*

Since 1995, the Clinical Epidemiology Division at Memorial University in conjunction with the Department of Health and Community Services have been studying the LTC sector across the province and making recommendations based on their findings. To plan for future LTC facilities, regional studies were conducted to determine the pattern of use and demand for long-term institutional care.

Following the introduction of the single entry system to Newfoundland, the Clinical Epidemiology Division first assessed the institutional care provided in the St. John's region. This first study by O'Reilly et al studied an inception cohort of new clients applying to the single entry system in 1995/96 and also a cohort of clients on a waitlist on a single day. This study concluded that the single entry system improved appropriateness of NH bed utilization. However, efficiency of placement did not improve because of inadequate numbers of PCH beds in the city of St. John's and dependence on NHs.

In McDonald et al (2005), serial studies of incident clients to the single entry system for LTC in the St. John's region of Newfoundland have demonstrated a mismatch in need for and provision of SC and NH beds (9). For this thesis, the study was extended to include all regions of the province to plan the restructuring of residential LTC. Data were collected with the following objectives (a) to determine the type of clients seeking placement (b) the population rate of referral for LTC and the needs of these clients, and (c) the match between need and provision of SC and NH beds. Incident annual cohorts of

clients applying for LTC in five regions of NL (St. John's, Eastern, Central, Western and Labrador) were evaluated and some compared.

Survival of clients was calculated from 2 studies of incident cohorts completed in the St. John's region in 1995/6 and 1999/2000. [60] In this paper, these average survival times from placement are used and assumed to be the same for each region. Multiplying average survival time from placement with the annual incident rate of client types provides the number of beds required.

The purpose of the current project is to steer planning of restructuring of the residential LTC sector across the regions in NL. To plan appropriately, the annual incidence of clients, their types of disability, their resource utilization and natural history is needed. These factors combined with predictions of changing demographics and expected mortality can give a clearer picture of the LTC needs of the elderly in NL now and in the future.

#### ***4.2 Research Design***

Five cohorts of clients (N = 1,496) who applied, over one year, for institutional placement in LTC in different regions of the province were studied. These regions included St. John's (1999/2000: N = 433), Eastern (2000/1: N = 386), Central (2001/2: N = 448), Western (1997/8: N = 178) and Labrador 1997/8: N = 51) (see Figure 1)

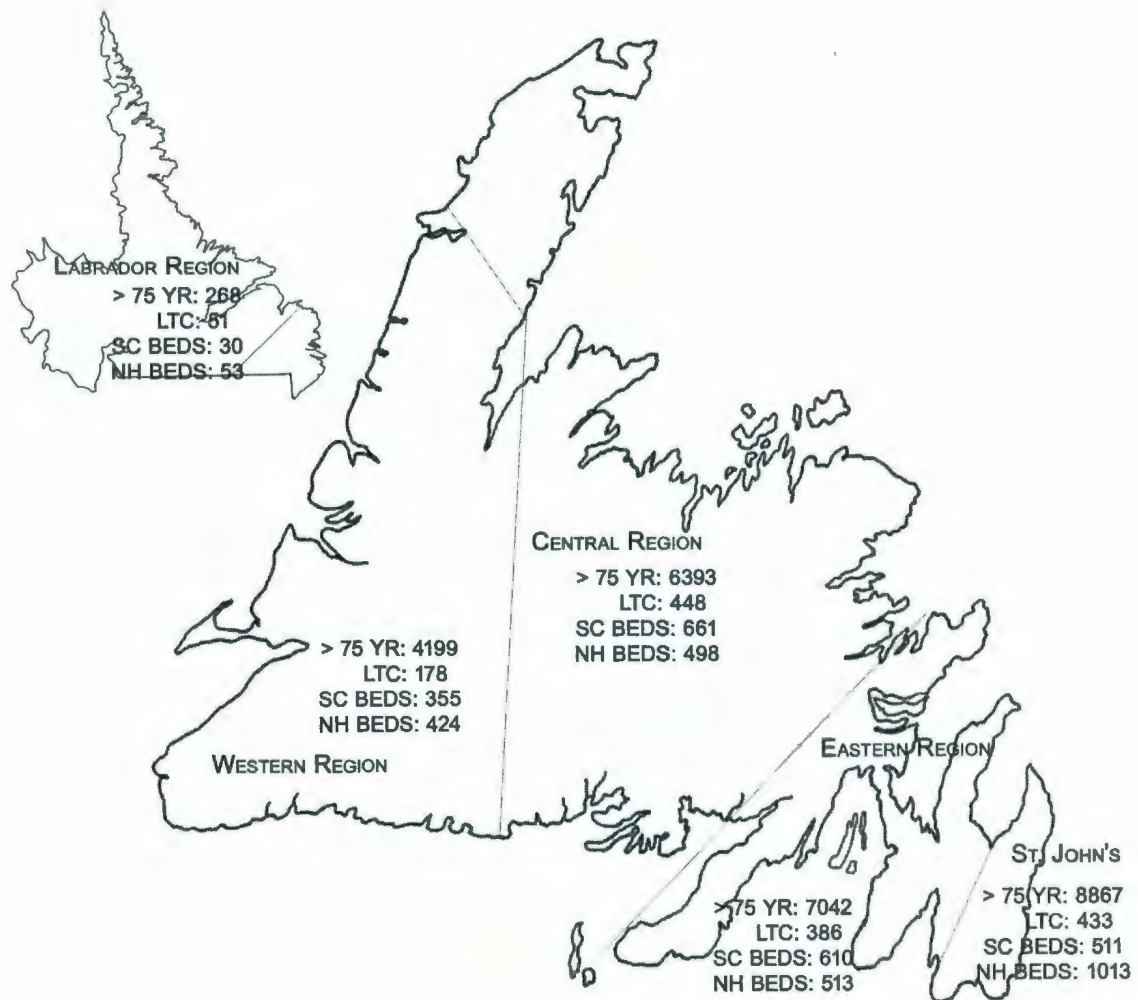


Figure 1 Outlines the geographic boundaries of the 5 regions, the population numbers at risk of those greater than 75 years, the number of clients who applied for LTC, the number of supervised care (SC) beds provided and the number of nursing home (NH) beds provided.

Using the number of people in the population greater than 65 years as the denominator, the incident rate of clients in Labrador was 63, whereas in NL was 24, therefore greater than 75 years was the denominator.

The research team extracted necessary data from the adult long term care form collected by the single entry system on each client. (Section 4.4, 4.5 & Appendix A)

The research team assessed clients by:

- Regional annual incidence rates of new clients requesting institutional long term care (LTC)
- Characteristics and demographics of clients
- Type of placement recommended by the single entry system
- RUGs-III classification and ARCS levels of care for each client
- Optimal placement using a decision tree with the following placement options; appropriate housing, supervised care for those with modest disability, supervised care for those with cognitive impairment, and nursing home care.

Other assessments included:

- Appropriateness of client placement determined by comparing actual initial placement decision by the single entry panel with optimal placement as determined by the decision tree using preset criteria
- Interregional comparisons of client's characteristics, population rates of presentation by disability level, and appropriateness of client placement decision making
- The optimal rate of LTC beds required per 1000  $\geq$  75 years in each region
- Evaluation of an association between type of beds available in a particular region and rates of client presentation.

### ***4.3 Sample Selection***

#### ***4.3.1 Study Population Inclusion Criteria***

In each region, all clients who were assessed for placement by the Community Health Single Entry System from April 1 of the study year to March 31 of the following year were identified.

#### ***4.3.2 Study Population Exclusion Criteria***

Clients were excluded for study if they were admitted for short-term respite, were internal transfers or veterans (N = 326). Clients with data missing from their charts or whose charts were unable to be located were not analyzed. (N=133)

Following data collection, clients were deemed ineligible for study if they submitted a precautionary application (did not accept placement when offered), withdrew from the waitlist, or were from another region making a duplicate application.

(Figure 2)



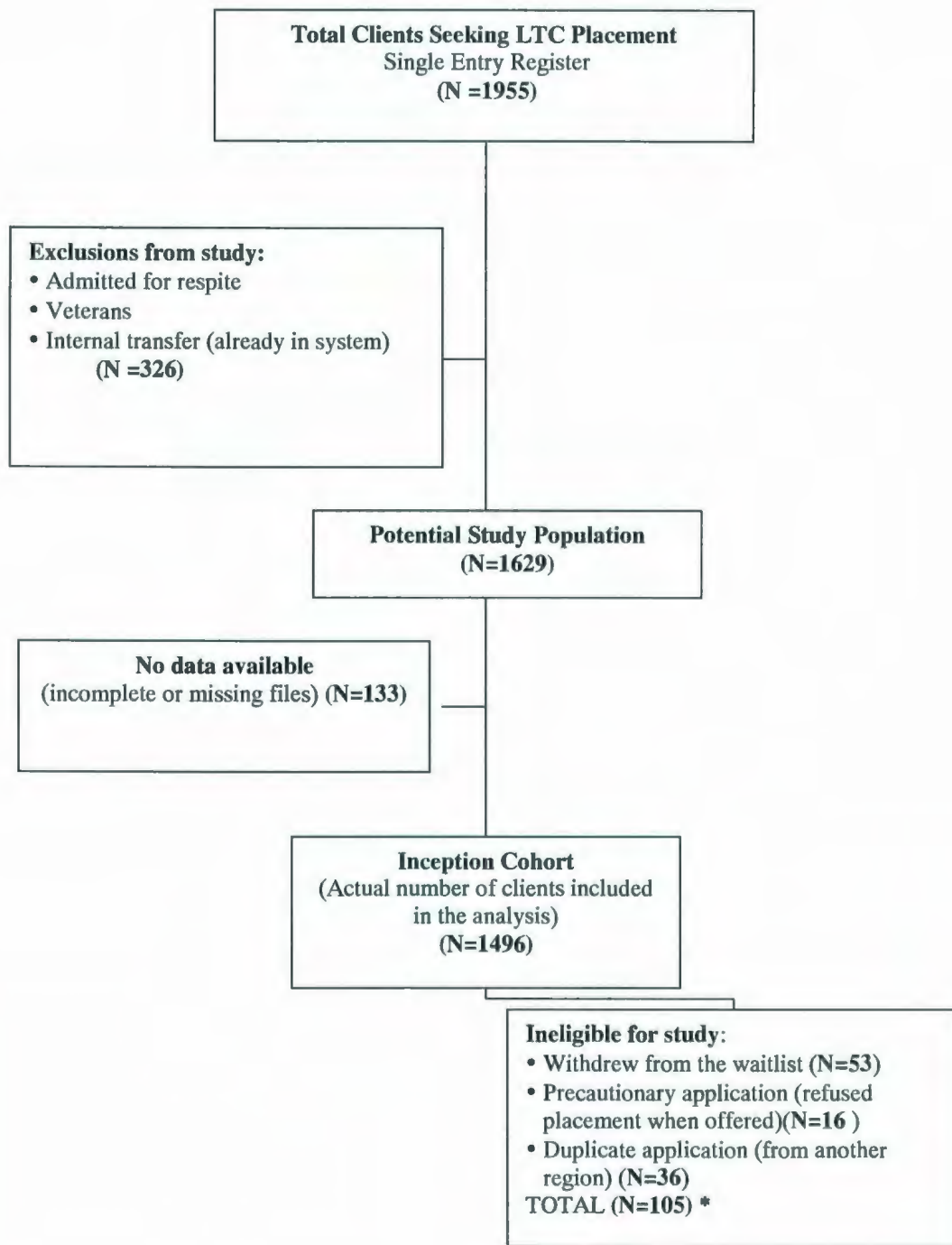


Figure 2: Incidence of long-term care clients seeking placement, with number excluded, no data available and number ineligible for study by reason.

#### ***4.4 Client Assessment by the Single Entry System***

The single entry system collected 35 pages of data on each client using the Newfoundland and Labrador Continuing Care Assessment for Adult Long term care form, which includes demographic data, degree of disability, clinical problems, home support, difficulties with ADLs and clinical and social history. Clients were then categorized by a multidisciplinary team, into levels 1, 2, 3 or 4 according to perceived hours of care necessary. Level 1 clients are mostly placed in PCHs or level 1 NH beds (SC). Level 2, 3 and 4 clients are recommended for NH care. Clients with mild to moderate cognitive impairment (CI) are normally referred to NH.

#### ***4.5 Client Assessment by the Research Team***

##### ***4.5.1 Classification Systems***

Using the Newfoundland and Labrador Continuing Care Assessment for Adult Long term care form, the research team extracted data to complete the activities of daily living (ADLs), behaviour of daily living (BDL) and continence care level (CCL) score, which, in combination, provide the composite Alberta Resident Classification Score. [56] The classification system has seven levels (A-G) where A clients are the most independent and G are the most dependent. The interrelationship between ADLs, BDLs and Continence level of care (CCLs) determines the seven levels, each associated with increased resource utilization based on the degree of the client's disability. [56] The four indicators in the ADL domain include the need for assistance with eating, toileting, dressing and transferring. In the BDL domain the two indicators are the frequency of nursing intervention required for (1) residents who have difficulty coping with problems

of everyday living and (2) resident behaviors that put the resident and others at risk for injury. The two indicators for the CCLs domain include urinary and bowel incontinence. [56, 57] An “A” score corresponds to a mean of 31 minutes of nursing time, including direct (face-to-face) and indirect care activities, and a “G” score corresponds to a mean of 119 minutes. [5]

The RUGs-III classification was also completed using data from the Newfoundland and Labrador Continuing Care Assessment. This system uses three dimensions to classify a resident. The first dimension consists of seven hierarchical groups that are ranked by cost: special rehabilitation, extensive services, special care, clinically complex, impaired cognition, behaviour problems and reduced physical function.[54]. Clients can qualify for more than one group but are placed in the most resource intensive group. [28] The second dimension is an ADLS index Ordinal Scale ranging from a summation of 4 (completely independent) to 18 (high dependency) by combining toileting, eating, bed-to-chair transferring and bed mobility. The third dimension indicates the need for expanded services, such as nursing rehabilitation, and clinical problems such as depression. The RUGs system also includes the presence or absence of cognitive impairment (CI) and wandering/behaviour problems.[54]

#### ***4.5.2 Decision Tree Procedure***

To determine optimal placement, a decision tree that integrated data from the ARCS and RUGs-III classification was used (see Figure 3). Those with a RUGs-III indicator, excluding cognitive impairment, or two or more RUGs III indicators were designated for nursing home care. Those who were independent for ADLs, continent and

not cognitively impaired were designated for appropriate housing. People with cognitive impairment and no other RUGs III indicator were designated for supervised care designed for the cognitively impaired. The designations were compared to the actual placement recommendation by the Single Entry Panel. **(Figure 3)**

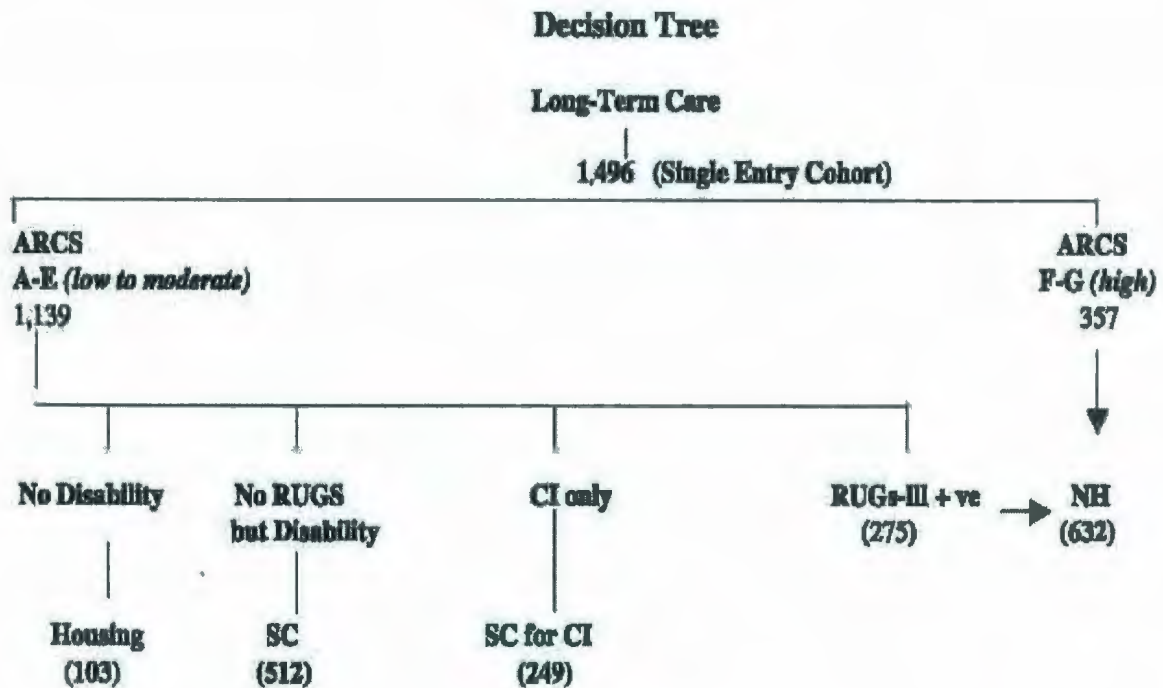


Figure 3 The decision tree used to determine need for long-term care.

ARCS: Alberta resident classification score; RUGS: Resource Utilization Group; SC: Supervised Care; CI: Cognitive impairment; NH: Nursing Home

#### 4.6 Bed Numbers

The number of PCHs and NH beds in each region was obtained from the Regional Health Authorities. The number of people aged  $\geq 65$  years and  $\geq 75$  years in the population from the year the region was studied was obtained from Population Projections Newfoundland and Labrador. In Newfoundland regions, the rate of beds available was determined using the number of people  $\geq 75$  years in the region as the denominator. The *annual incidence rate* of clients was calculated by using the actual number of eligible clients recommended for personal care and nursing homes as the numerator, and the number of people  $\geq 75$  years in the region as the denominator. If the

number of people in the population greater than 65 years was used as the denominator, the incident rate of clients seeking placement in Labrador was 63, whereas in NL was 24. The *optimal placement rate* of clients requiring LTC defined by disability was also calculated. Rates have been adjusted for the proportion of clients for whom no data was available.

Survival of clients, by various definitions, was obtained from follow-up of the incident cohorts in the St. John's region identified in 1995/6 and 1999/2000. [60] Need for beds were calculated by multiplying the number of incident clients per year by average survival in years.

#### ***4.7 Statistical Analysis***

All data analysis was completed with the Statistical Package for Social Sciences (SPSS) version 11.5 Comparisons of cohorts were made using independent sample, 2-tailed, t –test for continuous variables and chi-squared test for categorical variables. A p value less than 0.5 was taken to indicate statistical significance. Life expectancy following placement was calculated as mean and median time to death following the decision of the single entry panel.

#### ***4.8 Ethics***

The Human Investigations Committee (HIC) of Memorial University of Newfoundland (MUN) approved the study protocol. The client's informed consent was not necessary because data was collected through chart abstractions. Each client was given a study number for database entry and confidentiality was maintained by not using

names on any documents or reports. Access to the extraction forms used in this study was confined to individuals involved in the study.

## Chapter 5

### Results

This chapter is divided into three major sections. The first describes characteristics of the LTC clients and demand for the whole province. As well as the characteristics and demographics of the annual incidence cohorts of five regions (St. John's, Eastern, Central, Western and Labrador) defined by the Health and Community Services Boards boundaries previous to the change in January 2004. The second section describes the appropriateness of client placement. Actual placement decisions made by the single entry committee and optimal placement decisions made by the research team are presented. The final section estimates number and type of beds required for each region based on objective criteria and a few assumptions.

#### *5.1.1 Demographics and Characteristics of LTC Clients in NL*

In the five regions (St. John's, Eastern, Central, Western and Labrador) a total of 1496 clients living in Newfoundland and Labrador were recommended for placement. Mean age was 81 + 9.5 years, 95% were  $\geq 65$  years, 61% were female, 39% resided in an acute care hospital, 48% had low level (A-B) ARCS scores, 24 % had cognitive impairment and/or behavior problems and 36% had no clinical indicators for nursing home. Seven percent were independent for activities of daily living, continent and had no cognitive impairment (**Table 5.1**). Reasons that "independent" clients were seeking placement included social, emotional and environmental factors such as housing issues, lack of support and apprehension about isolation.



The demographic and clinical characteristics of clients in the four island regions of Newfoundland were similar, but Labrador differed from the island groups. The regional data was collected over several years but the findings were likely attributed to geography and not time. (Figure 1) A previous study compared the demographic and clinical characteristics of two St. John's incident cohorts for 1995/96 and 1999/00 and found no differences between the two. [60]

Comparison by region revealed no significant difference in the age or degree of disability in the four Newfoundland regions. (Table 5.1) However, compared to Newfoundland, the mean age of clients in Labrador was significantly younger, 76 versus 81 years ( $P < .001$ ), significantly less were female (41% vs. 62%,  $P = .003$ ), significantly more had cognitive impairment or behaviour disorders as the major reason for placement (53% vs. 23%,  $P < .001$ ), and only 16% compared to 36% in Newfoundland had no clinical indicators for nursing home placement ( $P = .003$ ). (Table 5.2)

**Table 5.1**  
**Demographic and Clinical Characteristics of Annual Cohorts of Clients Seeking Placement in Long-term Care by Health Region**

	St. John's		Eastern		Central		Western		Labrador		Province	
Mean Age ± SD	81± 9.7		81± 8.5		81± 9.1		80± 10.1		76± 13.8		81 ±9.5	
	N	%	N	%	N	%	N	%	N	%	N	%
<b>Female</b>	288	67	230	60	279	62	93	52	21	41	911	61
<b>Location at Application:</b>												
<b>Community</b>	197	46	178	46	246	55	78	44	24	47	723	48
<b>Acute Care</b>	167	39	168	44	149	33	7	43	24	47	585	39
<b>Chronic Care</b>	69	16	40	10	49	11	23	13	3	4	184	12
<b>RUGs III Clinical Indicators:</b>												
<b>Special rehab, Extensive services, &amp; Special care</b>	16	4	4	1	10	2	-	-	2	4	32	2
<b>Clinically complex</b>	83	19	51	13	65	15	37	21	5	10	241	16
<b>Cognitive impairment</b>	90	21	109	28	94	21	45	25	27	53	365	24
<b>Behavior problems</b>												
<b>Reduced Physical Function</b>	85	20	103	27	100	22	30	17	9	18	327	22
<b>No Clinical Indicators (RUGs -)</b>	159	37	119	31	179	40	66	37	8	16	531	36
<b>Alberta Resident Classification Score:</b>												
<b>Low level (A, B)</b>	198	46	182	47	224	50	93	52	27	53	724	48
<b>Medium level (C-E)</b>	137	32	106	27	111	25	47	26	14	28	415	28
<b>High level (F,G)</b>	98	23	98	25	113	25	38	21	10	20	357	24
<b>Clients with low ARCS (A-B) and no RUGs Clinical Indicators</b>	135	31	113	29	172	38	53	30	6	12	479	32
<b>Independent for ADL's, Continent and no CI</b>	31	7	16	4	43	10	12	7	1	2	103	7

**ADL: activities of daily living, CI: cognitive impairment**

**Functional Disability** based on ADL's (7 indicators – eating, dressing, bathing, grooming, toileting, transferring and indoor mobility); **Continence** (2 indicators - urinary and bowel management); **Behavior** (2 indicators – potential for injury to self/others i.e. aggression etc. & Inability to cope) **Independent** defined as: 1) 'completing own care with ADL's (Eating, Dressing, Bathing, Grooming & Toileting, Transferring and Indoor Mobility) with or without equipment/ special devices; and/or 2) No alteration or Alteration but manages care independently for **Urinary and Bowel management** 3) and/or No intervention or Intervention required, but less frequently than once a week for **Behavior** – 'Potential for Injury' and Ineffective Coping”

**Table 5.2****Characteristics and Degree of Disability of Clients Requesting Long- term Care  
Comparison of Labrador vs. Remainder of Province**

	Remainder of Province (4 Regions) N=1445		Labrador N= 51		P-value
Mean Age $\pm$ SD	81 $\pm$ 9.2		76 $\pm$ 13.8		.000*
	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	
Female	890	62	21	41	.003*
Cognitive Impairment /Behavior Problems <sup>o</sup>	338	23	27	53	.000*
NO RUG's Clinical Indicators	523	36	8	16	.003*

\*Significant difference, p-value < 0.05

<sup>o</sup> Cognitive Impairment and Behavior Problems as defined by RUGs III Clinical Indicators

### ***5.1.2 Objective Disability Assessment of Clients Recommended for Supervised Care and Nursing Home Care***

Of the clients recommended for SC, 97.7% had low care needs (ARCS A or B) and 2.3 % had intermediate care needs (ARCS C-E). Of the clients placed in NHs, 22.7% had low care needs (ARCS A,B), 41.0% had intermediate (ARCS C-E) and 36.3% had high care needs (ARCS F,G).

Using the RUGs III instrument, 76.4% recommended for SC had no clinical indicators for NH. No clients with reduced physical function were recommended for SC. 17.2% of SC clients had cognitive impairment or behavior problems and only 6.4% had a higher RUGs III category. Of the NH clients, 14.2% had no clinical indicators for NH,

33.2 % had reduced physical function and 28% had cognitive impairment or behavior problems and (Table 5.3)

**Table 5.3**  
**Care Requirements Measured by ARCS and RUGs III, Objective Disability Tools, for Clients Recommended to Supervised Care and Nursing Home Care**

<b>ARCS</b>	<b>NL SC Placement n=512</b>	<b>NL NH Placement n=984</b>	<b>NL SC &amp; NH Placement n=1496</b>
<b>A-B Low</b>	97.7% n=500	22.7% n=224	48.4% n=724
<b>C-E Intermediate</b>	2.3% n=12	41.0% n=403	27.7% n=415
<b>F-G High</b>	-	36.3% n=357	23.9% n=357
<b>RUGs III</b>			
<b>Special Rehab, Extensive Services &amp; Special Care Requirements</b>	0.2% n=1	3.2% n=31	2.1% n=32
<b>Clinically Complex</b>	6.2% n=32	21.2% n=209	16.1% n=241
<b>Cognitive Impairment &amp; Behavior Problems</b>	17.2% n=88	28.2% n=277	24.4% n=365
<b>Reduced Physical Function</b>	0.0% n=0	33.2% n=327	21.9% n=327
<b>No Clinical Indicators</b>	76.4% n=391	14.2% n=140	35.5% n=531

**5.1.3 Differences Between Regions in Supervised Care and Nursing Home Care Recommendations by the Single Entry System**

Despite little differences in population characteristics between the island regions, there were differences in the level of care recommended for clients in the regions.

Labrador and St. John's had the least number of clients recommended for SC, 21.6% and 28.0% respectively. Eastern had 33.2% SC clients, Western had 35.0% and Central had 41.7%. (Table 5.4)

**Table 5.4**

**Actual Placement Distribution of Long-term Care Clients by Region**

	<b>St. John's 1999-2000 n=433</b>	<b>Eastern 2000-2001 n=386</b>	<b>Central 2001-2002 n=448</b>	<b>Western 1997-1998 n=178</b>	<b>Labrador 1997-1998 n=51</b>	<b>NL N=1496</b>
	<b>%</b>	<b>%</b>	<b>%</b>	<b>%</b>	<b>%</b>	<b>%</b>
<b>Supervised Care (SC)</b>	28.0 n=124	33.2 n=128	41.7 n=187	35.0 n=62	21.6 n=11	34.2 n=512
<b>Nursing Home (NH)</b>	72.0 n=309	66.8 n=258	58.3 n=261	65.0 N=116	78.4 n=40	65.8 n=984

Although little difference in degree of disability for those seeking placement was evident across the Newfoundland regions, the incidence rate of clients/1,000  $\geq$  75 years seeking placement differed substantially: 43/1,000 people  $\geq$  75 years in the Western region, 49 in St. John's, and 55 and 70 in the Eastern and Central regions, respectively.

(Table 5.5) Using a chi-squared statistical test there was a statistically significant difference,  $p=0.001$ , between the incidence rate of clients per 1,000  $\geq$  75 years in the Newfoundland regions. (Table 5.6) The region with the highest incidence rate of LTC

clients had the highest rates of supervised care beds provided but the lowest rates of nursing home beds available (Table 5.5). The demographic and clinical characteristics of the clients in Labrador differed from the four island regions. Importantly, the clients in Labrador were significantly younger (mean age 76 vs 81;  $p < 0.001$ ). Using the number of people in the population  $\geq 65$  years as the denominator, the incidence rate of clients seeking placement in Labrador was 63, whereas in Newfoundland it was 24/1,000 population  $\geq 65$  years. Therefore, Labrador was not included in the annual incidence rate calculations and  $\geq 75$  years of age was chosen as the denominator.

**Table 5.5**

**Annual Incidence Rate of Clients for Placement in Long-term Care and Rate of Long-term Care Beds per Population  $\geq$  75 Years by Region**

	<b>St. John's</b>	<b>Eastern</b>	<b>Central</b>	<b>Western</b>
<b>Population <math>\geq</math> 75 yrs.</b>	8,867	7,042	6,393	4,199
<b>Year studied</b>	1999/00	2000/01	2001/02	1997/08
<b>N clients studied</b>	433	486	448	178
<b>Rate/1000 pop <math>\geq</math> 75 years:</b>				
<b>Incidence of NH Clients</b> 95% CI	35 31-39	37 32-41	41 36-46	28 23-33
<b>Incidence of SC Clients</b> 95% CI	14 12-17	18 15-22	29 25-34	15 12-19
<b>Incidence of LTC Clients</b> 95% CI	49 45-54	55 50-61	70 64-77	43 37-49
<b>Rate of NH Beds</b> 95% CI	114 108-121	73 67-79	78 72-87	101 92-111
<b>Rate of SC Beds</b> 95% CI	58 53-63	87 81-94	103 96-111	85 76-93
<b>TOTAL Rate of LTC Beds</b> 95% CI	172 164-180	160 151-168	181 172-191	186 174-198

**NH: nursing home , SC: supervised care, CI: confidence interval**

**Table 5.6**  
**Comparison of Annual Incidence Rate of Clients for Long-term Care Placement per Population  $\geq$  75 Years by Region in Newfoundland**

	<b>St. John's 1999-2000</b>	<b>Eastern 2000-2001</b>	<b>Central 2001-2002</b>	<b>Western 1997-1998</b>
<b>Number of Clients Studied</b>	433	386	448	178
<b>Population <math>\geq</math> 75 years</b>	8,867	7,042	6,393	4,199
<b>Incidence of LTC clients</b>	49	55	70	43

The incidence rate of clients recommended for supervised care was 19/1,000  $\geq$  75 years, with the highest rate in the Central region, 29/1,000  $\geq$  75 years. Ninety-eight percent of the supervised care clients had low-level resource requirements (A-B, ARCS) and 77% had no RUGs-III clinical indicators for nursing home placement. (Table 5.3)

The incidence rate of clients recommended for nursing home care was 36/1,000 population  $\geq$  75 years, with a range of 28-41 across regions. Twenty-two percent of these clients had low levels of resource utilization (A-B, ARCS) and 15% had no RUGs-III clinical indicators for nursing home placement. Regions with the highest proportion of nursing home clients who had no clinical indicators for nursing homes were those with the highest rate of nursing home beds – St. John's and the Western region. Central had the highest incidence rate of SC clients per 1000 of the population  $\geq$  75 years and the highest rate of SC beds per 1000 of the population  $\geq$  75 years. (Table 5.5 & 5.7)



**Table 5.7****Degree of Disability in Clients Recommended for Supervised Care  
And Nursing Home Care**

	<b>St. John's</b>	<b>Eastern</b>	<b>Central</b>	<b>Western</b>	<b>NL</b>
<b>Number of SC Clients</b>	124	128	187	62	501
<b>% of Clients with ARCS (A-B)</b>	98	98	99	94	98
<b>% Without RUG's III Indicators</b>	84	66	82	69	77
<b>Number of NH Clients</b>	309	258	261	116	944
<b>% of Clients with ARCS (A-B)</b>	25	22	15	30	22
<b>% Without RUG's III Indicators</b>	18	14	10	20	15

**5.2 Optimal Placement**

Using the decision tree, the optimal placement for Newfoundland and Labrador was 7% to appropriate housing, 34% to supervised care, 17% to supervised care for cognitive impairment and 42% to nursing home care (see Figure 3.1). **Table 5.8** shows the optimal LTC placement by region. The incidence rate of clients who needed appropriate housing was 3.8/1,000 population  $\geq$  75 years (range 2-7). The incidence rate for supervised care was 19.1/1,000 population  $\geq$  75 years (range 13-27), for supervised care for cognitively impaired it was 8.4/1,000 population  $\geq$  75 years (range 6-10), and for nursing home care the incidence rate was 23.2/1,000 population  $\geq$  75 years (range 17-28) (**Table 5.9**).

**Table 5.8**

**Optimal Long Term Care Option Based on the Decision Tree by Region**

	St. John's n=433		Eastern n=386		Central n=448		Western n=178		Labrador n=51		Newfoundland & Labrador n=1496	
	N	%	N	%	N	%	N	%	N	%	N	%
<b>Appropriate Housing</b>	31	7	16	4	43	10	12	7	1	2	103	7
<b>Supervised Care (SC)</b>	128	30	153	40	170	38	54	30	7	14	512	34
<b>SC for Cognitively Impaired</b>	85	20	43	11	54	12	41	23	26	51	249	17
<b>Nursing Home</b>	189	44	174	45	181	40	71	40	17	33	632	42

**Table 5.9**

**Incidence Rate of Clients for Long-term Care per 1000  $\geq$  75 years, Defined by Optimal Long Term Option by Region**

<b>Optimal LTC Option</b>	<b>St. John's</b>	<b>Eastern</b>	<b>Central</b>	<b>Western</b>	<b>Newfoundland</b>
<b>Appropriate Housing</b>	3.5	2.3	6.7	2.9	3.8
<b>Supervised Care</b>	14.4	21.7	26.6	12.9	19.1
<b>SC for Cognitively Impaired</b>	9.6	6.1	8.4	9.8	8.4
<b>Nursing Home</b>	21.3	24.7	28.3	16.9	23.2

### 5.3 Differences Between Beds Needed and Available

Bed need was calculated by multiplying the annual incidence rate of clients (defined by optimal LTC option) by the survival of the respective groups. The supervised care group included those who were deemed independent and needed only appropriate housing. Thus the number of supervised care beds needed was 70/1,000 population  $\geq$  75 years (rate = 23 x survival = 3.05 years) and rate of supervised care beds available was 81. The rate of supervised care beds needed varied substantially by region. The biggest mismatch of supervised care beds needed versus provided occurred in the Western region (48 vs. 85 beds). In the St. John's region, few supervised care beds were available in the city of St. John's and the beds outside of the city were often empty.[60] In table 5.10 the column St. John's refers to the region and not the city. The rate of nursing home beds provided was 92/1,000 population  $\geq$  75 years, and ranged from 114 in St. John's to 73 /1,000 population  $\geq$  75 years in the Eastern region. Using the decision tree, the rate of nursing home beds needed was 46 beds/1,000 population (range 34-56), and of supervised care for the cognitively impaired, the rate was 20 beds/1,000 population (range 15-23). The mismatch between nursing home beds provided and those needed for nursing home or supervised care for the cognitively impaired was substantial for the St. John's and Western regions. (Table 5.10)

The percent difference between Optimal SC (including both SC and SC for cognitively impaired) and Actual SC placement decisions had the biggest discrepancy in St. John's, 22% and the least in Central, 8%. The proportion of LTC beds that are provided for SC was lowest in St. John's, 34% and highest in Central, 57%. This may

imply that if more appropriate placement options suitable to client needs were available in each region, actual placement decisions may better reflect optimal placement decisions. The proportion of LTC beds in the regions of Newfoundland that are optimally recommended for SC (including both SC and SC for the cognitively impaired) was similar, ranging from 64% in Eastern to 69% in Central. This is expected, as the degree of disability of clients was similar in the 4 regions of the island. (Table 5.11)

**Table 5.10**  
**Rate of Long-term Care Beds Required per 1000  $\geq$  75 years, Defined by Optimal Long-term Option, Compared to Rate of Beds Provided by Region**

<b>Optimal LTC Option</b>	<b>St. John's (city)</b>	<b>Eastern</b>	<b>Central</b>	<b>Western</b>	<b>Newfoundland</b>
<b>Supervised Care*:</b>					
Provided	58	87	103	85	81
Needed	55	73	102	48	70
<b>SC for Cognitively Impaired:</b>					
Provided	-	-	-	-	-
Needed	23	15	20	23	20
<b>Nursing Home:</b>					
Provided	114	73	78	101	92
Needed	42	49	56	34	46

**\*Includes clients appropriate for housing who are independent, continent and have no cognitive impairment**

**Table 5.11**

**Comparing Differences Between Actual & Optimal Supervised Care Placement Decisions with the Proportion of Supervised Care Beds in The Regions of Newfoundland**

	<b>St. John's</b>	<b>Eastern</b>	<b>Central</b>	<b>Western</b>
<b>% Difference Between Optimal* and Actual SC Placement Decisions</b>	22%	18%	8%	18%
<b>Proportion of LTC Beds in Region that are Provided for SC</b>	34%	54%	57%	46%
<b>Proportion of LTC Beds in Region that are optimally* Recommended for SC</b>	65%	64%	69%	68%

- **Optimal SC includes SC and SC for cognitively impaired**

## **Chapter 6**

### **Discussion**

This study assessed the annual demands for institutional LTC across five regions of the province. The provincial and future demands of the LTC sector were also evaluated. In this section the limitations of the study, the need for alternative housing options for those with low to modest care needs and those with cognitive impairment and policy directions to improve the LTC sector will be discussed.

#### **6.1 In Summary**

The studies of Newfoundland and Labrador clients seeking placement in LTC demonstrated that 1) the degree of disability was similar in the 4 regions of the island but different in Labrador, 2) the rates of presentation for LTC were different by region, with the highest rate being in Labrador, 3) the highest rates of presentation for LTC on the island of Newfoundland were in regions with the highest rates of supervised care beds and lowest rates of nursing home beds, 4) there was a mismatch between type of beds provided and need, manifested by clients recommended for supervised care who had no disability and clients with modest disability or cognitive impairment recommended for nursing home care, 5) there were differences in rates of provision of nursing home and supervised care beds by region, implying that different approaches to restructuring of long term care in each region will be necessary.

Labrador has a different demographic profile. The majority of NL's 875 aboriginal people aged  $\geq 65$  years live in Labrador. Labrador also has a smaller proportion of people  $\geq 75$  years, only 1.8% of the population. Nonetheless, the rate of

presentation to LTC was much higher in Labrador. In addition, clients were younger and had more disability, indicating either earlier onset of frailty in Labrador or more adverse informal/formal support networks compared to Newfoundland.

Despite the similar distribution of disability in clients presenting for LTC in each Newfoundland region, the rates differed substantially and may reflect supply induced demand. It is possible that the large availability of supervised care beds in Central Newfoundland may have induced those with disability to present to the single entry system for placement, which increased the demand for both supervised care and nursing home beds. It is also possible that out-migration across the province has decreased the informal support system and forced the elderly with disability to seek placement in LTC.

The opposite may have occurred in the St. John's region, where a deficit of supervised care beds in the City of St. John's may have depressed demand and limited the rate of presentation for LTC. This is important because as the supervised care sector expands to better match services with need, it is possible that increased supply, if publically funded, will generate further demand. In this situation it will be critical to apply appropriate criteria for utilization of new services.

It was shown that a higher proportion of SC beds provided in the Central region led to better placement decisions as actual placement was closer to optimal placement compared to the St. John's region where there was a lower proportion of SC beds. This may be because more appropriate placement options for client need were offered in the Central region. It may also be that the existence of new placement options influences decision making by the single entry system. The panel behavior may change over time, and preferably should coincide with optimal placement decisions. In the future, additional

factors like community supports and family preferences may play a bigger or lesser role in LTC decision placements.

In Newfoundland and Labrador, there is a mismatch between need and services provided, and a dependence on high cost, nurse intensive nursing homes. The elderly want to maintain independence, privacy, social contact, and dignity for as long as possible.[5] However, at the same time, they do not want to be a burden to their family and want the security that their needs will be provided for by LTC institutions.

Nonetheless, in Newfoundland and Labrador, 7% of clients for LTC were independent for activities of daily living, continent and not cognitively impaired. Their needs should not be met by increasing LTC institutions but, rather, by appropriate housing.

Furthermore, 17% of clients had modest disability and cognitive impairment. They did not require nursing home care, but specialized services targeted to problems of behavior and wandering. In addition 15% of clients recommended for nursing home had no RUGS -III indicator for nursing home placement, the majority of whom would likely be better served by supervised care.

In addition to the system wide mismatch of services to needs, there are regional disparities in the current provision of supervised care and nursing home beds and in client incidence rates. This implies that restructuring must differ by region. All regions need to limit the admission of clients without criteria for supervised care or nursing home care and to provide supervised care for the cognitively impaired. In the St. John's region, supervised care beds are needed in the City of St. John's and in Western, followed by downsizing of the nursing home sector. As the number of people  $\geq 75$  years increases over time, the size of each LTC sector will have to increase.



## 6.2 Limitations of Study

This study included data from 5 different studies at different points in time and the rates may have increased over time. The data was obtained from each client's Newfoundland and Labrador Continuing Care Assessment for Adult LTC form so bias may have been present during the nurse's initial assessment. Also, the information was based on perceptions of the clients so the severity of their disabilities may be overestimated or underestimated since subject bias could have occurred. Only a small number of charts were unavailable making the results generalizable to the population.

Limitations of the analysis include: 1) the classification systems, while objective, fail to include factors known to the assessment committee that could change the LTC recommendation for the client, 2) the choices for management of clients with cognitive impairment are somewhat arbitrary and some characteristics such as aggressive behavior may settle over time, and 3) it is likely that some SC facilities can provide adequate care to clients with some RUGS III indicators for nursing home placement. For example, in one region, 100 cases were diagnosed as having cognitive impairment. However, 13 had aggressive behavior, 43 had wandering/abnormal behavior, and 44 had mild dementia. It is likely that some of the latter groups could receive adequate care in non-specialized and possibly less expensive supervised care facilities. Despite these limitations, the conclusions that a mismatch exists between services provided and need seems reasonable.

When making predictions for the future LTC sectors the following assumptions were made:

- The annual LTC demand for each region was accurate and will be consistent year to year

- The proportion of people in each region  $\geq 75$  years of age will be stable over time
- The degree of disability and mortality after assessment will be constant over time
- The survival average time for placement of clients for SC, SC + and NH was similar to that observed in St. John's region for 1997 and 2001 cohorts
- The population projections for 2014 are accurate
- There will be a SC + option in each region
- That community supports (formal and informal) and subsidy policies will not change
- That client perceptions of desirability of options will not change

Predictions of future need for LTC facilities are dependent on the assumptions made. Further demographic change may not be accurate based on current census information. In Newfoundland and Labrador, there has been substantial out-migration of working-age adults and their families due to the demise of the fishery, [8] which may increase the rate of presentation of the elderly for LTC. Supply-induced demand may occur. As LTC options improve, particularly in the supervised care sector, more elderly may choose to leave their homes. On the other hand, home based interventions may improve and the elderly may not leave their homes until substantial disability has become manifest. Survival in LTC may improve. New technologies and drugs may improve the survival of the elderly while in LTC, or people may enter LTC facilities at earlier phases of their disease.

### 6.3 Alternative Housing Options

As outlined in section 2.9 (Institutional Long-term care in Canada), the provinces and territories in Canada have a wide range of institutional LTC options suited for the varying needs of the elderly population. Congregate living and assisted living residence are housing arrangements for clients who require minimal supervision and support with Activities of Daily Living. Social support, shared meals and emergency response may also be available. Examples in Canada include Supportive Housing in British Columbia, Seniors Apartments in Alberta and New Brunswick, Assisted/Supportive Living in Saskatchewan and Ontario and Enriched Housing Units in Nova Scotia. [12] In Newfoundland, PCHs and NHs are the primary residence options for seniors in the province. For some seniors, especially those with mild to moderate care needs and cognitive impairment, these choices are not optimal.

Many Canadians, seniors in particular, see the institutional model of nursing home care as socially isolated, highly regulated and depersonalized. Their care delivery is structured so efficiency and safety is maximized. Quality of life may therefore be impaired because of limited places of interaction and congregation.[61] This dissatisfaction of NH care combined with the increasing elderly population, shortage of beds, increasing cost of nursing home care and better health of seniors resulted in an awareness of the gap in care for seniors between independent senior housing for those with no functional impairments and nursing homes that cater to the chronically ill. [62]

Assisted living facilities (ALFs) were modeled after Dutch residential settings and have attempted to fill the gap in the continuum of care. [62] ALFs are the fastest-growing type of senior housing in the United States (US) and house between 600 000 and 1

million elderly US persons. [61, 63] According to the Assisted Living Quality Coalition an ALF is:

A congregate residential setting is needed that provides or coordinates personal services, 24-hour supervision and assistance (scheduled and unscheduled), activities, and health related services; designed to minimize the need to move; designed to accommodate individual residents' changing needs and preferences; designed to maximize residents' dignity, autonomy, privacy, independence, and safety; and designed to encourage family and community involvement.[64]

ALFs hope to shift elderly living options from institutional, medically based housing models to residential, therapeutic ones. They are designed to create a community with mental and physical stimulation especially for elderly who are socially isolated. [61] The most promising models of ALFs attempt to integrate with the surrounding communities. Some examples are found in Northern Europe (Rotterdam, Amsterdam, and Finland) where senior complexes are in neighborhoods with schools, community centers, businesses and retail shops and parks. [65]

The number of elderly with low to moderate care needs will increase as the population continues to age. The demands for alternatives that promote quality of life and independence should increase accordingly. An ALF type residence may be a realistic option for Canada, adapting to senior's needs by providing optimal housing.

#### **6.4 Dementia and Housing for the Cognitively Impaired**

In Newfoundland and Labrador, a substantial number of clients seeking LTC had varying levels of dementia and behavior problems. At the First World Alzheimer

Congress it was estimated that the prevalence of dementia in the industrialized world will increase from 13.5 million in 2000, to 36.7 million in 2050. [66] Dementia inflicts physical, emotional and economic tolls on the patient and caregiver. [67] Most persons with progressive dementia will be institutionalized at some point and it is a leading cause of NH admissions. [67] In the US, between 23% and 42% of residents in residential care/assisted living (RC/AL) facilities have moderate or severe cognitive impairment, as do over half of nursing home residents. [68] These numbers may under identify those with cognitive impairment if proper assessments were not utilized.

Dementia is a chronic progressive mental condition that adversely affects higher cortical functions. [69] It is a pathological process interfering with a person's ability to function independently. There are several conditions and diseases with dementia symptoms. [70] Alzheimer's disease (AD) is the most common form of dementia seen in the elderly, affecting around 60% of those diagnosed. [66] The most common symptom in AD is memory loss, specifically short-term memory and immediate recall.[69] Progression of AD is associated with declines in higher cognitive abilities (language, thinking, reasoning, memory) and functional abilities (activities of daily living) and by the development of neuropsychiatric problems and behavioral disturbances.[71] Risk factors for AD include advanced age, family history, lower education, gender (more females are affected) and the ApoE4 gene. [72] The etiology of AD is unknown. [69] Its characteristic insidious onset combined with slow deterioration makes diagnoses of this disorder difficult. A person is often diagnosed as having AD once cognitive impairment is sufficient to interfere with normal social functioning and other causes of dementia have been excluded. [72]

Multi-infarct or vascular dementia represents 10% to 20% of dementia cases. It is characterized by the presence of focal neurological signs and a stepwise progression of symptoms. Early gait changes at onset with a history of multiple cerebrovascular accidents (CVAs) help to differentiate this type of dementia. Risk factors include coronary artery disease and hypertension. Around 20% of dementia clients have dementia with Lewy bodies. The early symptoms are not associated with memory like AD patients, but include impairments with attention, logical thinking and spatial and time perceptions. In dementia with Lewy bodies there are fluctuations in both memory and cognition. Within a year, the patient usually develops parkinsonian motor problems and visual hallucinations. All types of dementias are so severe that function, safety and quality of life are all affected. (66)

The longitudinal Canadian Study of Health and Aging (CSHA) began in 1991 with follow-ups in 1996 and 2001. The study was national in scope with over 10 000 participants. It was estimated that 252 600 people, 8% of the population  $\geq 65$  years in Canada, met the criteria for dementia. Of this 8%, 5.1% or approximately 161 000 people were living in the community with AD. Approximately 2% of the population  $\geq 65$  developed dementia each year from 1991-1996. The study concluded that if incidence and survival rates did not change, the population of Canadians  $\geq 65$  with AD is projected to increase to more than 380 000 by the year 2020. [73]

Historically, middle to late stage dementia patients have been admitted to institutional settings. [74] The institutional setting and education of staff in a nursing home usually offer the traditional model of medical care. An individual's right to maximum autonomy is not as important as caring for their basic and medical needs in

NHs, thus decreasing their quality of life and personal responsibility. (66) A nursing home's environment can be stark, with little meaningful activity and home-like attributes are lacking. [74] In this environment persons with dementia can become dependent on caregivers. The will to live may be lost if the individual no longer feels a sense of purpose and fulfillment from engaging in roles and activities. Behavior problems may worsen and increase caregiver burden. (66) Some believe the emphasis should shift from medical and physical care needs for the dementia patients to physical and emotional comfort and resident choice. [74]

Studies have shown that elderly persons can function better in an environment that is quiet and encourages ADLs and cognitive stimulation. Behavior problems, which occur in 90% of persons with dementia, can be minimized through caregiver skill and environment modifications. [74] The ALFs provide dementia-specialized facilities with space for wandering, specially trained staff, appropriate activities and family support. [67] Some places in Canada and the US have also implemented special care units (SCUs) or special care facilities (SCFs) for elderly people with dementia. SCUs are usually attached to a traditional institutional facility while SCFs are separate entities specifically built for people with dementia. [74] SCUs were developed on the premise that a prosthetic physical environment and a supportive social environment would reduce excess disability and improve quality of life. Although changes can be implemented including appropriate staffing and activities, structural features of NHs such as long corridors and lack of access to safe outdoor areas limit these facilities for the management of those with dementia. Studies of SCUs have reported no improvements over traditional care in terms of cognition, function or behavior of residents. [74]

Different outcomes, like autonomy or quality of life, may have been more appropriate to judge improvements over traditional models. SCFs are designed and staffed to provide specialized living environments for dementia persons. These models aim to reduce excess disability by providing a comfortable and home-like environment that offers choice, privacy, more personal contact and meaningful activity. [74]

Dementia management is an emerging area in healthcare. It involves a goal-directed interdisciplinary program that recognizes the unique needs of a person with dementia. Team members work together to achieve a common goal. It strives to allow the dementia patient to achieve maximum functioning, safety, well-being and quality of life. (66) They capitalize on remaining abilities instead of teaching patients what they can not do. The program does not demand too much or too little. Programs designed to stimulate remaining cognitive abilities have been shown to maintain cognition and behavior while improving emotional functioning. (66)

Warchol (2004) states that a dementia program must be interdisciplinary, theory-based and outcome focused. It must contain the following 6 elements to be successful:

- A sound theoretical foundation
- Commitment of facility owners, management and front-line staff
- Cognitive Assessment tools
- Dementia training for all staff
- Skilled occupational, physical and speech program therapists
- Specialized programs including therapeutic activities, ADL programs, rehab dining programs etc (66)



In Newfoundland, many clients with impaired cognition and/or behavior problems and low to moderate disability are placed in nursing homes (**Table 5.3**). The choices for those with dementia are limited and many clients are inappropriately placed in NHs or PCHs that are not designed to maintain quality of life and minimize disability. Persons with dementia should live in settings that suit their special needs. This in turn will benefit the individual with dementia, their families and caregivers while reducing inappropriate and possible costly nursing home placements.

### **6.5 Policy Directions**

As the number of elderly and their life expectancy continues to rise, so does the demand for LTC services. NL's health care system should ensure that clients are receiving optimal care and use of existing resources is optimized.

There is a mismatch between the actual placement of clients by the single entry system and the research team's optimal placement decisions. Many clients are placed in a higher level of care than they seem to require. The overuse of NH beds by those with low to modest disability, with or without CI, is expensive and can negatively affect the client's quality of life. Provinces like New Brunswick have been successful with extensive home care programs. Also, alternative institutional accommodations, like ALFs, should be considered.

Many clients with cognitive impairment are placed in NHs. The number of dementia cases is expected to increase in the future. NHs are not the optimal choice for those suffering from dementia and it may be a more expensive accommodation option. It is possible that the development of new facilities specific to dementia clients would be of

benefit to clients, their families, their caregivers and the provincial government. An interdisciplinary dementia program that focuses on the special needs of dementia patients may be an option for Newfoundland and Labrador. On March 7, 2006 it was announced that eight new dementia duplexes with 10 bed spaces in each will be developed along with a new traditional nursing home in Corner Brook. Then NL Minister J. Ottenheimer stated,

“These dementia duplexes represent a new model of residential care for Newfoundland and Labrador that has been successful in other jurisdictions. The social model is designed to promote independence, dignity and improve quality of life for elderly residents with mild to moderate dementia. This new model of care will offer residents a home-like environment which will make the transition from home easier and will allow for optimum functioning for the resident.” (3)

Ideally, the other regions of the province could initiate similar projects to provide better care for the cognitively impaired elderly across the province. Further research would be necessary to determine the best housing model whether it be, an ALF, SCU, SCF or a newer dementia housing option not discussed in this thesis.

The LTC applicants across Newfoundland had similar demographics and characteristics while Labrador generally differed. (Table 5.1-5.2) But, it is important to assess each region's LTC needs separately. This geographically large province has over 500 000 people spread over 700 different communities. [8] Many rural regions in the province are decreasing in population size, while the St. John's metropolitan area is increasing in proportion to the overall population. [9] The total population of NL is decreasing since the collapse of the cod fishery resulted in a net-out migration of people.

In addition, it is important to consider the predicted population trends and the facilities that currently exist in each region. The optimal placement of clients did not match the actual placement of clients by the single entry system. (Table 5.11) Central region's actual placement was closest to the optimal placement decisions, with an 8 % difference between optimal and actual SC placement decisions. But, as previously discussed, Central had the highest incidence rate of SC clients per 1000 of the population  $\geq 75$  years and the highest rate of SC beds per 1000 of the population  $\geq 75$  years, which may reflect a supply-induced demand. St. John's, on the other hand, had the lowest rate of SC beds per 1000 of the population  $\geq 75$  years, the lowest incidence rate of SC clients 1000 of the population  $\geq 75$  years and a greater mismatch between actual and optimal placement decisions than Central. Since there are few PCHs located in the city of St. John's, the opposite may have occurred and depressed LTC demand. By knowing the characteristics of clients presenting to the single entry system in each region, the numbers and types of beds currently available for institutional care in each region, the population predictions and the influence of supply and demand a better estimate can be made for future LTC demands.

The introduction of a single entry system to NL helped improve LTC delivery, but a client who requests institutional placement is not denied placement, but are then recommended to a NH or PCH. Other alternatives, like home care, are not explored by the committee. [21] Client preference, not assessed need, can sometimes also determine placement. [21] This can also lead to inappropriate and costly NH placement. Clients have to apply for home support separately so there are two entry points to LTC services

and not just one as in other provinces, like Manitoba. A true single entry system would be more efficient and cost-effective.

## Chapter 7

### Conclusions and Recommendations

Every province in Canada is struggling with the pressures on the health care system created by the aging population. LTC options differ between provinces and these options, together with demographic and geographic differences, make comparisons between provinces difficult. However, this paper demonstrates that comparisons are possible because commonly used evaluation tools and regular census information are available to all LTC administrations in Canada. It is likely that across Canada, as is the case in Newfoundland and Labrador, different approaches to the structuring of LTC will be necessary in each region because of differences in the current availability of alternative LTC options, in formal and informal support systems, in demand and changing demography.

In Newfoundland and Labrador there is currently a mismatch between services required for LTC and need, which varies by region. Predictions of future demand must be revised regularly as the assumptions underlying the predictions may change. However, any plans to restructure long-term care should take into account the demand, need and current provision of institutional beds in each region.

#### **Key findings:**

- Because appropriate facilities are unavailable to match client need, some clients with modest disabilities with or without CI are placed in NHs (Table 5.3; RUGs III: 28.2% with cognitive impairment and behavior problems are placed in NHs, Table 5.7: ARCS A-B; 22% of NH clients have low care requirements, RUGs III; 15% of NH clients have no clinical indicators)

- Labrador differed from the four island regions in most regards, including case mix and incidence rate (Table 5.2; Labrador was significantly younger, less were female, more had cognitive impairment or behavior disorders and only 16% vs 36% had no clinical indicators for NH placement)
- There is a mismatch between actual placement of clients and optimal placement of clients in the regions across NL (Table 5.4; Actual Placement 34.2% SC and 65.8% to NH, Table 5.8; Optimal Placement 7% Appropriate Housing, 34% SC, 17% SC for Cognitively Impaired, 42% NH)
- If more appropriate placement options suitable to client needs were available in each region, actual placement decisions may better reflect optimal placement decisions (Table 5.11; Difference between Optimal and Actual SC placement decisions was greatest in St. John's (22%) and least in Central (8%) and the proportion of SC beds provided was lowest in St. John's (34%) and highest in Central (57%)

### **Recommendations for Policy Makers:**

- The single entry system in NL should be changed so placement decisions are based on need, allowing for preference once this condition is met. A true single entry system should be also implemented in NL with one entry point for home care and institutional care. The current single entry system is for institutional placement and nobody is denied placement. Home care is not considered an option but may be most appropriate, especially for low and intermediate care clients. Currently both ARCS and RUGs III tools are utilized in the Long Term

Care Classification Worksheet. (Appendix A) It may be possible to modify this worksheet to include assessments for home care.

- Supportive housing options to accommodate clients with low to moderate disabilities need to be available in all areas. Assisted Living Facilities, for example, may be more appropriate than Nursing homes or Personal Care Homes to maintain quality of life and independence.
- All regions should consider introducing appropriate housing for clients with cognitive impairment. (Table 5.8; SC for Cognitive Impairment was optimal placement for 17% of clients) An interdisciplinary dementia program, in a SCU, SCF or dementia duplex environment, that focuses on their unique needs may be appropriate. Further research is needed to recommend the best model.

### **Future Directions:**

- Further research is needed to appropriately plan the restructuring of the residential LTC sector in NL. This thesis did not consider home care as an option for LTC placement in the decision tree because data was collected through the single entry system. Additional research analyzing the utilization of home care services in NL in regards to regional annual incidence rates, client characteristics and inter-regional differences would assist policy makers with restructuring the LTC sector. It may also be important to consider the feasibility, cost effectiveness, health and social benefits, satisfaction with the various LTC options, community and personal supports, private housing options and possible future financial changes in subsidies to recommend the best model.

- In the past several years there have been no major developments in this province's LTC program. A Long-Term Care and Community Supports Strategy is being developed in Newfoundland and Labrador that will be implemented over the next couple of years. Significant changes are expected to the existing Home Care and Long-Term Care Programs.



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**LONG TERM CARE CLASSIFICATION WORKSHEET**

**COHORT** \_\_\_\_\_

**Computer (CC #)** \_\_\_\_\_

**Initials:** \_\_\_\_\_ **Age:** \_\_\_\_\_ / **Birth Date** \_\_\_\_\_ **ID Number:** \_\_\_\_\_ **(MCP)**

**Sex:** \_\_\_\_\_ **Assessment date :** \_\_\_\_\_ **Residence (to determine Health Region )** \_\_\_\_\_  
(by community health assessors') Currently waiting from at time of Assessment (home, hospital etc.) \_\_\_\_\_

**Panel Date** \_\_\_\_\_ **Panel Level of Care (1-4)** \_\_\_\_\_ **Was Protective Care Reco** \_\_\_\_\_

**Panel Placement Decision :** \_\_\_\_\_ **Nursing Home** \_\_\_\_\_ **Personal Care Home**

**Comment on Clients Choice ? - Note 1<sup>st</sup> & 2<sup>nd</sup> choices** \_\_\_\_\_

**If recommended for Personal Care Home: note if Private Pay** \_\_\_\_\_ **or Subsidized** \_\_\_\_\_

**Comments if portable subsidy or other and if waitlisted for portable subsidy** \_\_\_\_\_

**Current Status:** on the day the researcher extracted data from LTC application ) **Date:** \_\_\_\_\_

- .. **Placed in LTC:** *NH or PCH(circle);* **Date Placed** \_\_\_\_\_ **Name of Facility** \_\_\_\_\_
- .. Still actively on waiting list for Institutional Placement \_\_\_\_\_
- .. Receiving Home Support Services, not currently on waitlist \_\_\_\_\_
- .. Receiving Home Support Services/ also on waiting list for placement \_\_\_\_\_
- .. **Deceased** while waiting \_\_\_\_\_ ( Note date of death if available)
- .. **Other** \_\_\_\_\_ (eg. Note if precautionary, referred out of region, withdrew & note approximate date this occurred)

**Home Care Functional Needs Indicators - put in appropriate scores below**  
*'9' is used if it doesn't apply i.e. toileting - incontinent-does not toilet'*

<b>*Eating</b> <input type="checkbox"/> <i>note if g-tube feeds</i>	<b>Bathing</b> <input type="checkbox"/>
<b>*Toileting</b> <input type="checkbox"/> <i>note if incontinent/attends, does not toilet</i>	<b>Grooming</b> <input type="checkbox"/>
<b>*Transferring</b> <input type="checkbox"/>	<b>Indoor Mobility</b> <input type="checkbox"/> <i>note if cane, wheelchair</i>
<b>*Dressing</b> <input type="checkbox"/>	<b>*Outdoor Mobility</b> <input type="checkbox"/>
<b>Potential for Injury</b> <input type="checkbox"/> <i>Note specifics: wandering, aggressive etc</i>	<b>Memory</b> <input type="checkbox"/> <i>Note specifics if available</i>
<b>Coping</b> <input type="checkbox"/> <i>note specific: depression, chronic anxiety etc.</i>	<b>Sum of 13 Functional Need Indicators</b> _____ *
<b>Urinary Management</b> <input type="checkbox"/> <i>Note if indwelling catheter in place</i>	<b>Functional Need Score (1-5)</b> *categories with n/a, totals will be adjusted by computer 1- (1-5) 2 - (6-10) 3-(11-20) 4-(21-25) 5-(26-62)
<b>Bowel Management</b> <input type="checkbox"/> <i>Note if ileostomy, colostomy in place</i>	

**Comments: in this section (Reason for seeking placement, social supports network etc. and relevant diagnosis**  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Informal Supports: (Y/N)** \_\_\_\_\_  
*(unpaid & unsupervised persons eg. family, friends)* \_\_\_\_\_

**Support services currently in place** \_\_\_\_\_  
*(type & quantity if available)* \_\_\_\_\_

**Resident Classification System 'RCS'** (using translation Paradigm from APPI; computer generated from score on first page )

Eating  Potential for Injury  Urinary Continence   
 Toileting  Ineffective Coping  Bowel Continence   
 Transferring  **BDL Score**  **CCL Score**   
 Dressing   
**ADL Score**

**RESIDENT CLASSIFICATION SCORE**  (A-Low to G-Very High)

**RUGs III Professional Care Requirements** ✓ all that apply and comment below if necessary- could be more than one;  
*(based on RUGs III seven Hierarchical Categories with each category having a number of conditions; see RUG's descriptors)*

Special Rehabilitation  Impaired Cognition   
 Extensive Clinical Services  Behaviour Problems   
 Special Care  Reduced Physical Function   
 Clinically Complex

**Comments:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

\*RUGs ADL: (used to assess ADL's/reduced physical function, score below- refer to RUGs index ordinal scale)

**Bed Mobility**  **RUGs-III ADL Index Ordinal Scale**

	<u>ADL Variables</u>	<u>Score</u>
<b>Toilet Use</b> <input type="checkbox"/>	<b>Bed Mobility</b>	Independent or supervision 1
	<b>Transfer</b>	Limited assistance 2
<b>Eating</b> <input type="checkbox"/>	<b>Toilet use</b>	Extensive assistance or total dependence:
		Other than 2-person physical assist 4
		2 or more persons physical assist 5
	<b>Eating</b>	.....
		Independent or supervision 1
		Limited assistance 2
		Extensive assistance or total dependence 3

**RUGs III ADL SCORE**  sum of ADL's (ranges from 4 "completely independent" to 18 "high")

## Appendix B

### Alberta Resident Classification System (ARCS)

The Alberta Resident Classification System for Long Term Care Facilities was developed to assist in determining the nursing care requirements of residents within LTC facilities. The aim in developing the classification system was to produce classification categories which grouped residents with similar types of care requirements and similar amount of nursing care needs. Eight indicators were found to predict variation in nursing resource use and these are derived from three care domains: Activities of Daily Living (ADL), Behaviors of Daily Living (BDL) and Continuing Care (CCL). Each of these indicators measure the extent to which an individual requires assistance with or intervention for a particular activity, behavior, or care requirement.

#### **Predictors within each of the three domains:**

##### **• Activities of Daily Living (ADL) Indicators**

1. Eating
2. Dressing
3. Toileting
4. Transferring

##### **• Behavior (BDL) Indicators:**

5. Ineffective Coping
6. Potential for Injury to Self and Others

##### **• Continuing Care (CCL) Indicators:**

7. Urinary Continence
8. Bowel Continence

### Nursing Resource Use for the ARCS Categories

*Source - "Alberta Patient Classification System for Long Term care Facilities: Final Report" Semradek J et al.*

Measure of resource use was computed from actual time spent by providers caring for patients. Both direct (face to face) and indirect care activities were included in measuring the time spent. Indirect care activities were defined as those tasks specific to an individual patient but not performed in his or her presence. These included such items as charting, family consultation and coordination with other providers. To allow comparison across providers and summation of individual provider measures into a composite index, staff time was measured in a common unit, relative labor cost weights. (A minute of RN time was counted as a minute of RN equivalent time (relative weight = 1.00. Since RNA and NA salaries were lower than RN salaries, their weights were less than one; thus a minute of RNA time was less than a minute of RN time.

A resident's score on each of the eight indicators is combined using a series of decision rules which place the individual in one of seven classification categories. These categories labeled A through G are ranked ordered from low to high in terms of care requirements and resource use. Weights were assigned to each category based on the differences between the nursing resources used by residents in the seven categories.



Table 1

## Mean Nursing Resource Use for ARCS Categories

Categories	Weighted Nursing time (RN, RNA, NA)		
	Mean	S.D.	Relative Weight**
A	30.92	18.36	1.00
B	43.21	23.63	1.40
C	59.68	24.47	1.93
D	69.88	31.78	2.26
E	89.57	34.88	2.90
F	105.12	37.90	3.40
G	119.20	44.32	3.86

Table taken from the "Alberta Patient Classification System for Long Term care Facilities: Final Report" Semradek J et al.

\*\*Relative weight = Mean Resource Use Category  $i \div$  Mean Resource Use for category A ( $i = A, B, C \dots G$ ). When these weights are standardized, with category A having a weight of 1.0, then resource use measures for the seven categories are noted above in Table 1. (Category B resident requires, on average, 1.4 times as much nursing care time as a category A resident, and a category G resident requires 3.86 times as much)

**Alberta Resident Classification (ARCS) Category Definition –**  
**Description of Type of Resident within each Category**

**Category 'A'** - patients with low ADL's, low BDL's and non-med incontinence problems. They have little or no functional impairment who require minimal supervision, although they may require a supportive environment to function at their potential levels (e.g. patients prepared for independent living or who require supervision to prevent deterioration in their condition).

**Category 'B'** - patients with a low ADL and a med to high BDL, or those with a med-low ADL and a low to medium BDL. These combinations require about the same levels of care (e.g. patients with minor physical handicaps that require restorative rehab, or in patients with mild cognitive impairment- early Alzheimer's). Higher BDL's are offset by lower ADL's in this category. Patients with highest level of incontinence are excluded.

**Category 'C'** - comprise three clusters of patients. As in 'B', the clusters represent different combinations of ADL and BDL levels: lowest ADL with highest BDL, med-low ADL with high BDL and med ADL with low-med BDL levels. However, in 'C', the BDL's are higher for any given ADL level than they are for 'B'. Patients with highest level of incontinence are also excluded (patients with early stage multiple sclerosis requiring little physical care, but are emotionally liable, or stroke patients with moderate physical deficits who need emotional support).

**Category 'D'** - comprise the largest number of combinations: patients whose combined ADL and BDL would have put them in A, B, or C but who have incontinence of both bowel and bladder; patients with no or occasional incontinence if they have med-low ADL's and very high BDL's, med ADL's and high BDL's, or med-high ADL's and BDL's from low-high (paraplegics having bowel/bladder retraining, younger CVA, MS, organic brain syndrome etc.).

**Category 'E'** - four different combinations: patients with lower ADL's must have either med-high CCL's

or very high BDL's. Patients with med-low ADL's *only* if very high BDL's **and** need management or retraining for urinary incontinence. Those with medium ADL's and high BDL's and bladder management problems are also in this category. Patients with no or low incontinence are in this category only if they have very high BDL needs. Patients with med-high or high ADL requirements, whether they require management of urinary incontinence or have no incontinence, if they do not have very high BDL requirements (very frail, confused elderly, old stroke patient, severely arthritic patient, alcoholic with Korsakoff's syndrome, brain injured patient).

**Category 'F'** - primarily patients with heavy care requirements: highest ADL's who also have some incontinence problems. Without the highest ADL's a patient could fit in category F, if the physical care requirements (ADL and incontinence) are complicated by behavior problems. Patients with very high BDL's are not included unless they have lower ADL's (advanced dementia, bedridden, non mobile with incontinence, MS, or palliative care).

**Category 'G'** - Highest BDL's and med-high ADL's. Those with med-high ADL requirements must also have some incontinence (advanced neurological diseases such as MS, ALS, Huntington's disease, Palliative Care, severe dementia requiring high physical care, severe rheumatoid arthritis).

The following matrix (below) determines the resident's classification category based on ADL, BDL, and CCL levels of care.

The letter from the cell in the matrix in which the resident's appropriate ADL, BDL, and CCL levels meet, is the Resident Classification Category (A-G) for the individual.

**Matrix for Classifying Residents ARCS Scores:**

*Based on Activities of Daily Living, Behavior of and Continence Levels*

ADL Level	BDL Level	CCL (Continence Levels)			
		0 -None	1 - Low	2 - Med	3 - High
1--Low	1-Low	A	A	A	D
	2-Med	B	B	B	D
	3-High	B	B	B	D
	4-V.High	C	C	C	D
2-Med. Low	1-Low	B	B	B	D
	2-Med	B	B	B	D
	3-High	C	C	C	D
	4-V.High	D	D	E	E
3-Med	1-Low	C	C	C	D
	2-Med	C	C	C	D
	3-High	D	D	E	E
	4-V.High	E	E	F	F
4-Med. High	1-Low	D	D	E	E
	2-Med	D	D	E	E
	3-High	D	D	E	E
	4-V.High	F	G	G	G
5-High	1-Low	E	F	F	F
	2-Med	E	F	F	F
	3-High	E	F	F	F
	4-V.High	G	G	G	G

## Resource Utilization Groups (RUGs III)

Residents' functional status and major physical conditions explain the resource use in nursing homes. RUGs classification system groups nursing home residents by resident characteristics so as to explain resource use. Data of two types were studied for this classification system: *measures of resource use and resident characteristics*.

**Resource use** was collected by self reporting by staff (nurses, therapists, etc.) of the total time they spent over a 24 hour period caring for each resident, including time directly involved in providing care or indirectly provided through interactions with other staff, physicians, family and others that benefited the resident. Wage-weighted staff times were developed as the resource measure. The weights acknowledge the differences in cost of care provided by ( e.g. registered nurse or a nurse's aide).

**Resident classification** was assessed using a version of the MDS - Minimum data set - resident demographics, medical condition, diagnosis, mental function, ADL's, behavior problems and services provided. Care was taken to use patient characteristics that could reliably be assessed or audited, which would reduce the possibility of nursing homes classifying residents into more expensive categories with little change in the actual cost of resources used.

*RUGs III has seven hierarchy categories: special rehabilitation, extensive care, special care, clinically complex, impaired cognition, behavior problems and reduced physical function; describing types of residents in decreasing order of resource use.*

**Special Rehabilitation** - four subcategories - based on amount of therapy resources (any combination of physical, occupational, or speech therapy) provided to the resident, with further splits based on ADL scores.

4 subcategories:

- very high intensity multidisciplinary rehabilitation-450 minutes or more of rehabilitation therapy, at least 5 days per week of one type of therapy, and at least two of the three therapies provided.
- high intensity rehabilitation -300 minutes or more of rehabilitation therapy per week, and at least 5 days per week of one type of therapy.
- medium intensity rehabilitation -150 minutes or more of rehabilitation therapy per week, and at least 5 days per week of rehabilitation therapy.
- low intensity rehabilitation - 45 minutes or more of rehabilitation therapy per week, at least 3 days per week of rehabilitation therapy, and at least two types of nursing rehabilitation occurring at least 5 days per week.

- 2) **Extensive Services**-Residents who have a RUG-III ADL index score of at least 7 and who meet at least one of the following criteria :parenteral feeding, suctioning, tracheostomy, ventilator/respirator
- 3) **Special Care**-Residents who have a RUG-III ADL index score of at least 7 and who meet at least one of the following criteria: , burns, coma, fever, with vomiting, weight loss, pneumonia, or dehydration, multiple sclerosis, pressure ulcers or stage 3 or 4, quadriplegia, septicemia, intravenous medications, radiation treatment, tube feeding.
- 4) 4) **Clinically Complex**-Residents who meet at least one of the following criteria: aphasia ,aspirations ,cerebral palsy, dehydration, hemiplegia, internal bleeding ,pneumonia, stasis ulcer, terminal illness, urinary tract infection, chemotherapy, dialysis, four or more physician visits per month, ,respiratory or oxygen therapy, ,transfusions, wound care other than pressure ulcer care, including active foot care dressings  
OR;

- residents who meet the criteria for the extensive services or special care categories but who have a RUG-III ADL index score of 4 - 6.

5) **Impaired Cognition**-Residents with a RUG-III ADL index score of 4 to 10 who have cognitive impairment in all three of the following dimensions: decision making (not independent; orientation (any problem recalling current season, location of own room, staff names or faces, or that he/she is in a nursing home).; short-term memory loss.

6) **Behavior Problems**-Only residents with a RUG-III ADL index score of 4 to 10 are classified in this category. Residents who display daily problems with: inappropriate behavior, physical abuse, verbal abuse, wandering or with hallucinations.

7) **Reduced Physical Functions** -Residents who do not meet the conditions of any of the earlier categories, including those who would meet the criteria for the impaired cognition or behavior problems categories but have a RUG-III ADL index of more than 10.

*The ADL index is a summary measurement of functional capacity, produced by combining four ADL measures (toileting, eating, bed-to-chair transfer and bed mobility)*

# Planning the restructuring of long-term care: The demand, need and provision of institutional long-term care beds in Newfoundland and Labrador

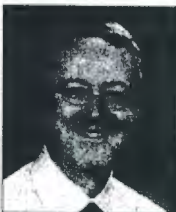
by Nicole Hughes, Jacqueline McDonald, Brendan Barrett, and Patrick Parfrey



Nicole Hughes is a candidate for a master's degree in clinical epidemiology and a medical student at Memorial University.



Jacqueline McDonald is a Research Nurse Coordinator at Eastern Health. She has been active in research of the long-term care system for over a decade.



Brendan Barrett is a Professor of Medicine at Memorial University, a staff nephrologist at Eastern Health, and an active clinical epidemiology researcher.



Patrick Parfrey is a University Research Professor at Memorial University Medical School, a staff nephrologist at Eastern Health, and an active clinical epidemiology researcher.

## Abstract

The Canadian population is aging. In Newfoundland and Labrador, nursing homes and supervised care facilities provide Long-Term Care (LTC). There may be a mismatch between the provision of LTC beds and clients' needs. To compare the type and annual rate of clients seeking placement to LTC, incident annual cohorts (N = 1,496) in five provincial health regions within Newfoundland and Labrador were compared using objective measures of disability. Client need was assessed using a decision tree and the optimal distribution of LTC beds was determined.

Within the four island regions, little difference was observed in degree of disability, but Labrador clients differed from the island regions in age, degree and type of disability. A decision tree suggested that optimal placement was 7% to housing, 34% to supervised care, 17% to supervised care for cognitive impairment and 42% to nursing home care.

In Newfoundland and Labrador, institutional LTC is dependent on nursing homes, whereas the major need is for appropriate supervised care for those with modest disability, with or without cognitive impairment. Different approaches to restructuring of long-term care in each region are necessary because of the differences in rates of presentation for LTC and differences in availability of nursing home and appropriate supervised care beds.

In 2006, 6.5% of Canada's population was 75 years and older.<sup>1</sup> By 2021, this age group will constitute 7.8% of the population, and 4.4% of the population will be more than 80 years of age.<sup>2,3</sup> Demographic change has been exacerbated in Newfoundland and Labrador by out-migration of 9% of its population during the past 25 years,<sup>4</sup> mostly the result of people leaving out-port communities in search of job opportunities elsewhere. In 2006, 5.7% of Newfoundland and Labrador's population was  $\geq$  75 years and in 2021 it is predicted that this age group will comprise 9.1% of the population.<sup>5</sup>

Long-term care is intended for those who have never developed or have lost some capacity for self-care. It is generally delivered to people who have demonstrated need by some index of functional capacity.<sup>6</sup> Components of LTC service delivery include institutional care, community-based services and home-based services. Institutional long-term care facilities include nursing homes and a variety of supervised care facilities, which vary from province to province.<sup>7</sup>

In Newfoundland and Labrador, supervised care includes personal care homes and beds in nursing homes allocated for low-level care residents who require less than one hour of care per day. These facilities accommodate people who are ambulatory and require modest levels of care and/or low supervision. Personal care homes are government licensed, private for-profit institutions and funded by clients or government subsidies.<sup>8</sup>

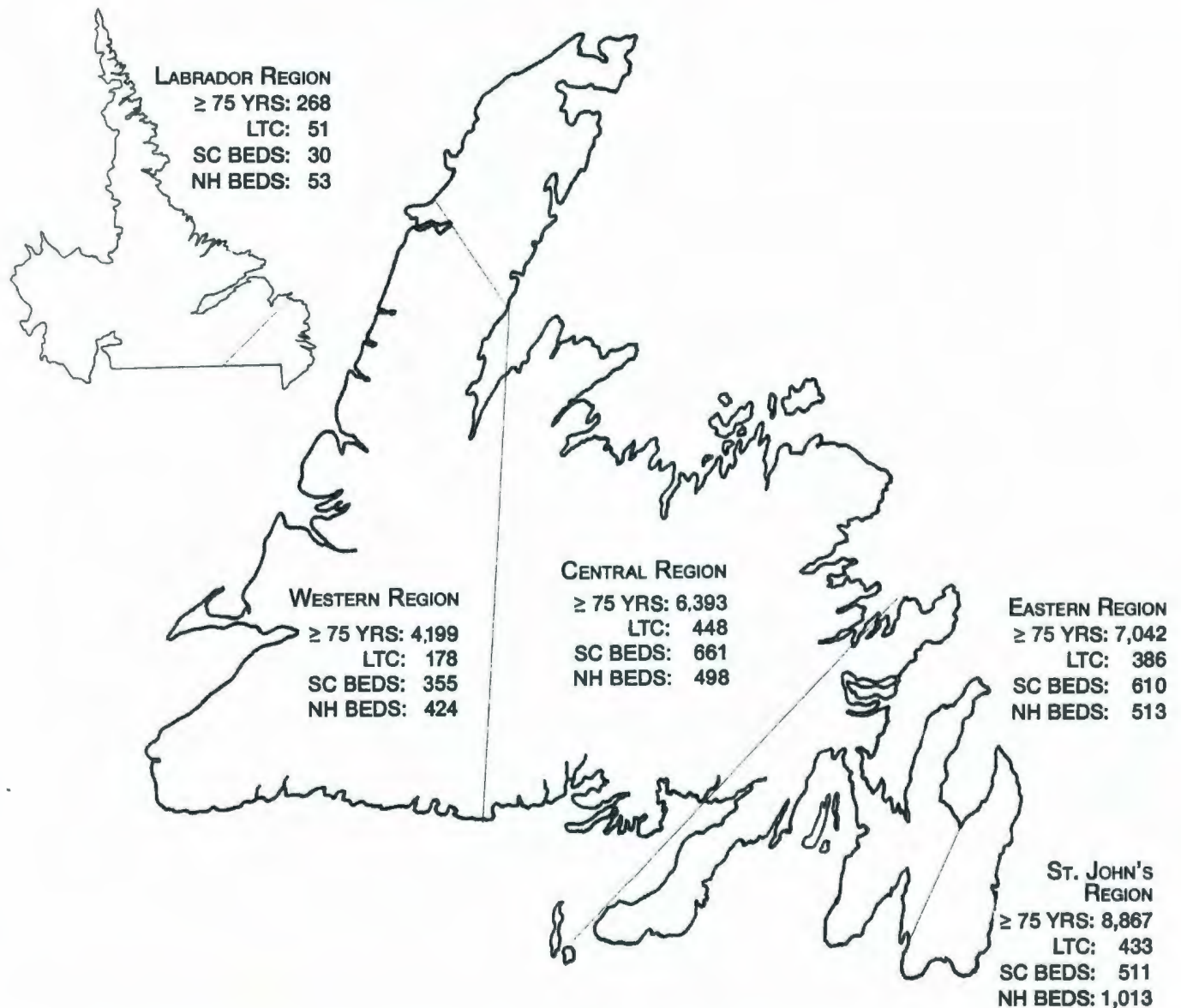


Figure 1. The five regions of the Province of Newfoundland and Labrador, with population  $\geq 75$  years, number of Long-Term Care (LTC) clients studied who applied for placement in one year, the number of Supervised Care (SC) and Nursing Home (NH) beds provided.

Nursing homes provide three levels of care. Level 1 is for clients who require less than one hour of care per day and, for the purpose of this paper, is considered supervised care. Level 2 corresponds to about two hours of care per day, and Level 3 to three or more hours.<sup>9</sup> Nursing homes are managed on a not-for-profit basis either by public or voluntary organizations and funded by government.<sup>8</sup> Clients with cognitive impairment may be placed in supervised care facilities, but are generally placed in a nursing home.

Clients request institutional placement through a single entry system and no one is denied placement. A multi-disciplinary panel recommends placement to either a nursing home or personal care home. Clients who apply from an acute care hospital bed are placed in the first available bed in their region and put on a waiting list for their facility of choice.

A LTC client's needs may be assessed by the Resource Utilization Group-III (RUGs-III) classification, derived from the Minimum Data Set and developed in the United States.<sup>10</sup> It is a validated tool that is predictive of resource utilization using the individual's clinical and functional characteristics.<sup>11</sup> Another classification is the Alberta Resident Classification System (ARCS), which is associated with increasing levels of resource utilization.<sup>12</sup> The ARCS does not take clinical complexity into account and may not adequately differentiate between resource utilization.<sup>13</sup>

Serial studies of incident clients to the single entry system for LTC in the St. John's region of Newfoundland have demonstrated a mismatch in the need for and provision of supervised care and nursing home beds.<sup>9</sup> The study was extended to include all regions of the province to plan restructuring of

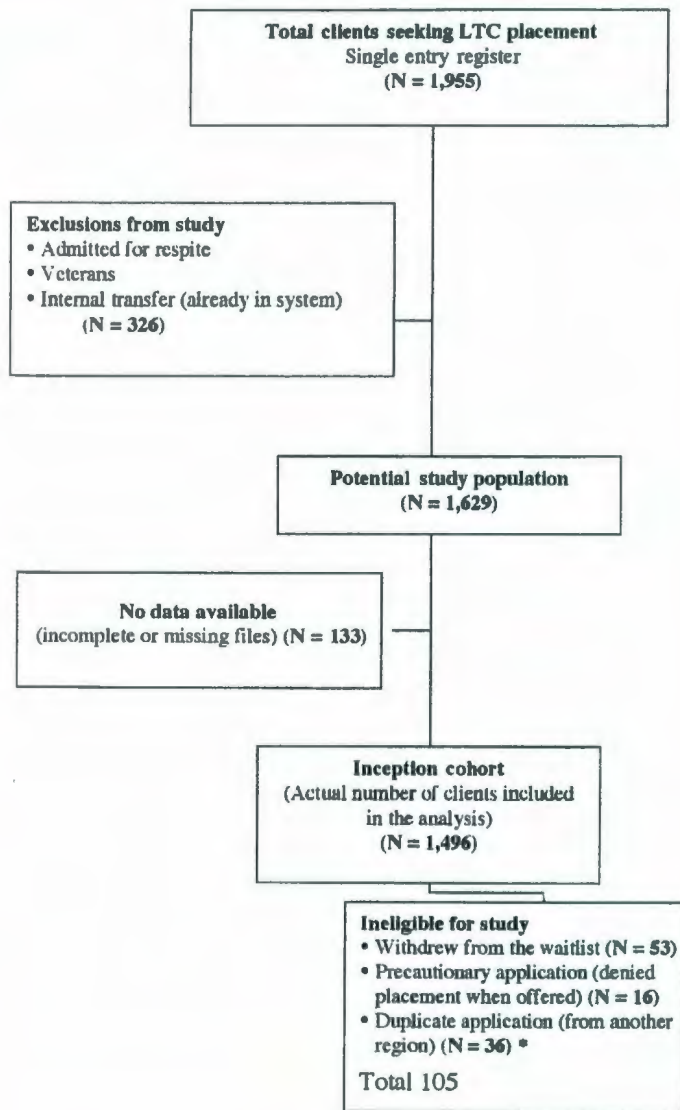


Figure 2. Incidence of long-term care clients seeking placement, with number excluded, no data available and number ineligible for study by reason.

residential LTC. Data were collected with the following objectives: (a) to determine the type of clients seeking placement, (b) the population rate of referral for LTC and the needs of these clients, and (c) the match between need and provision of supervised care and nursing home beds. Incident annual cohorts of clients applying for LTC in five regions of Newfoundland and Labrador (St. John's, Eastern, Central, Western regions and Labrador) were evaluated and compared.

#### Methods

Five cohorts of clients (N = 1,496) who applied, over one year, for placement in LTC in different regions of the province were studied. These regions included St. John's (1999/00: N = 433), Eastern (2000/1: N = 386), Central (2001/2: N = 448), Western (1997/8: N = 178) and Labrador (1997/8: N = 51) (see Figure 1). All clients who were assessed for placement by the Community Health Single Entry System from April 1 of the

study year to March 31 of the following year were identified. Clients were excluded for study if they were admitted for short-term respite, were internal transfers or veterans. Following data collection, clients were deemed ineligible for study if they did not accept placement when offered, withdrew from the waitlist or were from another region and making a duplicate application (see Figure 2).

The single entry system collected 35 pages of data using the Newfoundland Continuing Care Assessment for Adult Long-Term Care form, which includes demographic data, degree of disability, clinical problems, home support, difficulties with Activities of Daily Living (ADL), clinical and social history. From this document, data were obtained to complete the ADL, Behaviour of Daily Living (BDL) and Continence Care Level (CCL) score, which, in combination, provide the composite Alberta Resident Classification Score.<sup>12</sup> This score ranges from A to G based on the client's degree of disability, as measured by need for assistance with ADL (eating, toileting, dressing and transferring), frequency of nursing interactions for coping or behaviour problems, urinary and bowel incontinence.<sup>12,14</sup> An "A" score corresponds to a mean of 31 minutes of nursing time, including direct (face-to-face) and indirect care activities, and a "G" score corresponds to a mean of 119 minutes.<sup>15</sup>

The RUGs-III classification was also completed. This system uses three dimensions to classify a resident. The first dimension consists of seven hierarchical groups that are ranked by cost: special rehabilitation, extensive services, special care, clinically complex, impaired cognition, behaviour problems and reduced physical function.<sup>16</sup> Clients may qualify for more than one group but were placed in the most resource-intensive group. The second dimension is an ADL index and the third indicates the need for expanded services, such as nursing rehabilitation, and clinical problems such as depression. The RUGs system also includes the presence or absence of cognitive impairment and wandering/behaviour problems.<sup>16</sup>

To determine optimal placement, a decision tree that integrated data from the ARCS and RUGs-III classification was used (see Figure 3). Those with a RUGs-III indicator were designated for nursing home care. Those who were independent for ADL, continent and not cognitively impaired were designated for appropriate housing. People with cognitive impairment were designated for supervised care designed for the cognitively impaired. The designations were compared to the actual placement recommendation by the Single Entry Panel.

The number of personal care homes and nursing home beds in each region was obtained, as was the number of people aged 65 ≥ years and ≥ 75 years from the year the region was studied. In Newfoundland regions, the rate of beds available was determined using the number of people ≥ 75 years in the region as the denominator. The annual incidence rate of clients was calculated by using the actual number of eligible clients recommended for personal care and nursing homes as the numerator, and the number of people ≥ 75 years in the region as the denominator. The optimal placement rate

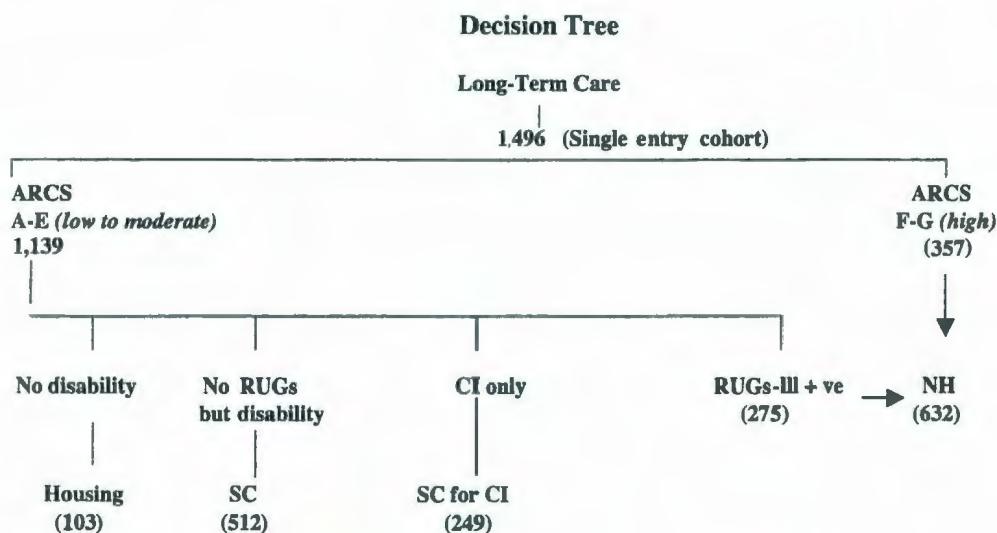


Figure 3. The decision tree used to determine need for long-term care.  
 ARCS: Alberta resident classification score; RUGs: Resource Utilization Group; SC: Supervised Care; CI: Cognitive Impairment; NH: Nursing Home

TABLE 1  
 Demographic and clinical characteristics of annual cohorts of clients seeking placement in long-term care by health region

	St. John's		Eastern		Central		Western		Labrador		Province	
	N	%	N	%	N	%	N	%	N	%	N	%
Mean Age ± SD	81 ± 9.7		81 ± 8.5		81 ± 9.1		80 ± 10.1		76 ± 13.8		81 ± 9.5	
Female	288	67	230	60	279	62	93	52	21	41	911	61
Location at application												
Community	197	46	178	46	246	55	78	44	24	47	723	48
Acute care	167	39	168	44	149	33	7	43	24	47	585	39
Chronic care	69	16	40	10	49	11	23	13	3	4	184	12
RUGs-III Clinical indicators												
Special rehab, extensive services, and special care	16	4	4	1	10	2	-	-	2	4	32	2
Clinically complex	83	19	51	13	65	15	37	21	5	10	241	16
Cognitive impairment behaviour problems	90	21	109	28	94	21	45	25	27	53	365	24
Reduced physical function	85	20	103	27	100	22	30	17	9	18	327	22
No clinical indicators (RUGs-III)	159	37	119	31	179	40	66	37	8	16	531	36
Alberta Resident Classification Score												
Low level (A,B)	198	46	182	47	224	50	93	52	27	53	724	48
Medium level (C-E)	137	32	106	27	111	25	47	26	14	28	415	28
High level (F,G)	98	23	98	25	113	25	38	21	10	20	357	24
Clients with low ARCS (A-B) and no RUGs-III clinical indicators	135	31	113	29	172	38	53	30	6	12	479	32
Independent for ADL, continent and no CI	31	7	16	4	43	10	12	7	1	2	103	7

Note. ADL: Activities of Daily Living; CI: Cognitive Impairment.

of clients requiring LTC defined by disability was also calculated. Correction was made for the proportion of clients with missing data.

Survival of clients, by various definitions, was obtained from follow-up of the incident cohorts in the St. John's region identified in 1995/6 and 1999/00<sup>9</sup> Need for beds were calculated by multiplying the number of incident clients per year by survival in years.

**Analysis**

Comparisons of cohorts were made using an independent sample, 2-tailed, t-test for continuous variables and chi-squared test for categorical variables. A P-value of less than 0.05 was taken to indicate statistical significance. Life expectancy following placement was calculated as median time to death following the decision of the Single Entry Panel, by survival analysis using the Statistical Package for Social Sciences.



TABLE 2

Annual incidence rate of clients for placement in long-term care and rate of LTC beds per population  $\geq 75$  years by region

	St. John's	Eastern	Central	Western
Population $\geq 75$ yrs.	8,867	7,042	6,393	4,199
Year studied	1999/00	2000/01	2001/02	1997/08
N clients studied	433	486	448	178
Rate/1000 pop $\geq 75$ yrs.				
Incidence of NH clients	35	37	41	28
95% CI	31-39	32-41	36-46	23-33
Incidence of SC clients	14	18	29	15
95% CI	12-17	15-22	25-34	12-19
Incidence of LTC clients	49	55	70	43
95% CI	45-54	50-61	64-77	37-49
Rate of NH beds	114	73	78	101
95% CI	108-121	67-79	72-87	92-111
Rate of SC beds	58	87	103	85
95% CI	53-63	81-94	96-111	76-93
TOTAL rate of LTC beds	172	160	181	186
95% CI	164-180	151-168	172-191	174-198

Note. NH: Nursing Home; SC: Supervised Care; CI: Cognitive Impairment.

### Ethics

The Human Investigation Committee of the Medical School of Memorial University of Newfoundland approved the study protocol.

### Results

In Newfoundland and Labrador, 1,496 clients were recommended for placement in the five regions. Mean age was 81 + 9.5 years, 95% were  $\geq 65$  years, 61% were female, 39% resided in an acute care hospital, 48% had low-level (A-B) ARCS scores, and 36% had no clinical indicators for nursing home care. Seven percent were independent for activities of daily living, continent and had no cognitive impairment (Table 1). Reasons that "independent" clients were seeking placement included social, emotional and environmental factors such as housing issues, lack of support and apprehension about isolation.

Comparison by region revealed no significant difference in the age or degree of disability in the four Newfoundland regions (Table 1). However, compared to Newfoundland, the mean age of clients in Labrador was significantly younger, 76 versus 81 years ( $P < .001$ ), significantly less were female (41% vs. 62%,  $P = .003$ ), significantly more had cognitive impairment or behaviour disorders as the major reason for placement (53% vs. 23%,  $P < .001$ ), and only 16% compared to 36% in Newfoundland had no clinical indicators for nursing home placement ( $P = .003$ ).

Although little difference in degree of disability was evident across the Newfoundland regions, the incidence rate of clients/1,000  $\geq 75$  years seeking placement differed substantially: 43/1,000 people  $\geq 75$  years in the Western region, 49 in St. John's, and 55 and 70 in the Eastern and Central regions, respectively. The region with the highest incidence rate of LTC clients had the highest rates of supervised care beds provided

TABLE 3

Degree of disability in clients recommended for Supervised Care (SC) and Nursing Home (NH)

	St. John's	Eastern	Central	Western	NL
Number of SC Clients	124	128	187	62	501
% of clients with ARCS (A-B)	98	98	99	94	98
% without RUGs-III indicators	84	66	82	69	77
Number of NH Clients	309	258	261	116	944
% of clients with ARCS (A-B)	25	22	15	30	22
% without RUGs-III indicators	18	14	10	20	15

but the lowest rates of nursing home beds available (Table 2). Using the number of people in the population  $\geq 65$  years as the denominator, the incidence rate of clients seeking placement in Labrador was 63, whereas in Newfoundland it was 24/1,000 population  $\geq 65$  years.

The incidence rate of clients recommended for supervised care was 19/1,000  $\geq 75$  years, with the highest rate in the Central region, 29/1,000  $\geq 75$  years. Ninety-eight percent of the supervised care clients had low-level resource requirements (A-B, ARCS) and 77% had no RUGs-III clinical indicators for nursing home placement (Table 3).

The incidence rate of clients recommended for nursing home care was 36/1,000 population  $\geq 75$  years, with a range of 28-41 across regions. Twenty-two percent of these clients had low levels of resource utilization (A-B, ARCS) and 15% had no RUGs-III clinical indicators for nursing home placement. Regions with the highest proportion of nursing home clients who had no clinical indicators for nursing homes were those with the highest rate of nursing home beds – St. John's and the Western region (Table 3).

### Optimal placement

Using the decision tree, the optimal placement for Newfoundland and Labrador was 7% to appropriate housing, 34% to supervised care, 17% to supervised care for cognitive impairment and 42% to nursing home care (see Figure 3). Table 4 shows the optimal LTC placement by region. The incidence rate of clients who needed appropriate housing was 3.8/1,000 population  $\geq 75$  years (range 3-7). The incidence rate for supervised care was 19/1,000 population  $\geq 75$  years (range 13-27), for supervised care for cognitively impaired it was 8/1,000 population  $\geq 75$  years (range 6-10), and for nursing home care the incidence rate was 23/1,000 population  $\geq 75$  years (range 17-28) (see Table 5).

### Match between beds needed and available

Bed need was calculated by multiplying the annual incidence rate of clients (defined by optimal LTC option) by the survival of the respective groups. The supervised care group included those who were deemed independent and needed only appropriate housing. Thus, the number of supervised care beds needed was 70/1,000 population  $\geq 75$  years (rate = 23 x survival = 3.05 years) and rate of supervised care beds available was 81. The rate of supervised care beds needed var-

**TABLE 4**  
Optimal long-term care option based on the decision tree, by region

	St. John's N = 433		Eastern N = 433		Central N = 433		Western N = 433		Labrador N = 433		Newfoundland & Labrador N = 433	
	N	%	N	%	N	%	N	%	N	%	N	%
Appropriate Housing	31	7	16	4	43	10	12	7	1	2	103	7
Supervised Care (SC)	128	30	153	40	170	38	54	30	7	14	512	34
SC for Cognitively Impaired	85	20	43	11	54	12	41	23	26	51	249	17
Nursing Home	189	44	174	45	181	40	71	40	17	33	632	42

ied substantially by region. The biggest mismatch of supervised care beds needed versus provided occurred in the Western region (48 vs. 85 beds) (see Table 6). In the St. John's region, few supervised care beds were available in the city and the beds outside of the city were often empty.<sup>9</sup>

The rate of nursing home beds provided was 92/1,000 population ≥ 75 years, and ranged from 114 in St. John's to 73/1,000 population ≥ 75 years in the Eastern region (see Table 6). Using the decision tree, the rate of nursing home beds needed was 46 beds/1,000 population (range 34-56), and of supervised care for the cognitively impaired, the rate was 20 beds/1,000 population (range 15-23) (see Table 6). The mismatch between nursing home beds provided and those needed for nursing home or supervised care for the cognitively impaired was substantial for the St. John's and Western regions (see Table 6).

**Discussion**

The studies of Newfoundland and Labrador clients seeking placement in LTC demonstrated that (1) the degree of disability was similar in the four Newfoundland regions but different in Labrador, (2) the rates of presentation for LTC were different by region, with the highest rate in Labrador, (3) the highest rates of presentation for LTC in Newfoundland were in regions with the highest rates of supervised care beds and lowest rates of nursing home beds, (4) there was a mismatch between type of beds provided and need – this was manifested by clients recommended for supervised care who had no disability and clients with modest disability or cognitive impairment recommended for nursing home care, and (5) there were differences in rates of provision of nursing home and supervised care beds by region, implying that different approaches to restructuring of long-term care in each region was necessary.

Unlike Newfoundland, Labrador has a different demographic profile, with the majority of Newfoundland and Labrador's 875 Aboriginal people aged ≥ 65 years living in Labrador, which also has a smaller proportion of people ≥ 75 years (1.8%) compared to Newfoundland. Nonetheless, the rate of presentation to LTC was much higher in Labrador compared to Newfoundland. In addition, clients were younger and had more disability, indicating either earlier onset of frailty in Labrador or more adverse informal/formal support networks compared to Newfoundland.

**TABLE 5**  
Incidence rate of clients for long-term care per 1,000 ≥ 75 years, defined by optimal long-term option, by region

Optimal LTC Option	St. John's	Eastern	Central	Western	NL
Appropriate Housing	3.5	2.3	6.7	2.9	3.8
Supervised Care (SC)	14.4	21.7	26.6	12.9	19.1
SC for Cognitively Impaired	9.6	6.1	8.4	9.8	8.4
Nursing Home	21.3	24.7	28.3	16.9	23.2

**TABLE 6**  
Rate of long-term care beds required per 1,000 ≥ 75 years, defined by optimal long-term option, compared to rate of beds provided, by region

Optimal LTC Option	St. John's	Eastern	Central	Western	NL
Supervised Care (SC)					
Provided	58	87	103	85	81
Needed	55	73	102	48	70
SC for Cognitively Impaired					
Provided	-	-	-	-	-
Needed	23	15	20	23	20
Nursing Home					
Provided	114	73	78	101	92
Needed	42	49	56	34	46

\*Includes clients appropriate for housing who are independent, continent and have no cognitive impairment.

Despite the similar distribution of disability in clients presenting for LTC in each Newfoundland region, the rates differed substantially and may reflect supply-induced demand. It is possible that the large availability of supervised care beds in Central Newfoundland may have induced those with a disability to present to the single-entry system for placement, which increased the demand for both supervised care and nursing home beds. It is also possible that out-migration has decreased the informal support system and forced the elderly with disability to seek placement in LTC.

The opposite may have occurred in the St. John's region, where a deficit of supervised care beds in the city of St. John's may have depressed demand and limited the rate of presentation for LTC. This is important because as the supervised care sector expands to better match services with need, it is possible that increased supply will generate further demand. It will therefore be critical to apply appropriate criteria for utilization of new services.

In Newfoundland and Labrador, there is a mismatch between need and services provided, and a dependence on high-cost, nurse-intensive nursing homes. The elderly want to maintain independence, privacy, social contact and dignity for as long as possible.<sup>17</sup> However, at the same time, they do not want to be a burden to their family and want the security of knowing that their needs will be provided by LTC institutions. Nonetheless, in Newfoundland and Labrador, 7% of clients for LTC were independent for activities of daily living, continent and not cognitively impaired. Their needs should not be met by increasing the number of LTC institutions but, rather, by appropriate housing. Furthermore, 17% of clients had modest disability and cognitive impairment. They did not require nursing home care, but specialized services targeted to problems of behaviour and wandering. In addition, 15% of clients recommended for nursing home care had no RUGs-III indicator for nursing home placement, the majority of whom would likely be better served by supervised care.

In addition to the system-wide mismatch of services to needs, there are regional disparities in the current provision of supervised care and nursing home beds and in client incidence rates. This implies that restructuring must differ by region. All regions need to limit the admission of clients without criteria for supervised care or nursing home care and to provide supervised care for the cognitively impaired. In the St. John's region, supervised care beds are needed in the city of St. John's and in the Western region, followed by downsizing of the nursing home sector. As the number of people  $\geq 75$  years increases over time, the size of each LTC sector will have to increase.

The limitations of this analysis include: (1) incident cohorts were identified at different times and the rates may increase with time, (2) the classification systems, while objective, fail to include factors known to the assessment committee that could change the LTC recommendation for the client, (3) the choices for management of clients with cognitive impairment are somewhat arbitrary and some characteristics such as aggressive behaviour may settle over time, and (4) it is likely that some supervised care facilities can provide adequate care to clients with some RUGs-III indicators for nursing home placement. For example, in one region, 100 cases were diagnosed as having cognitive impairment. However, 13 had aggressive behaviour, 43 had wandering/abnormal behaviour and 44 had mild dementia. It is likely that some of the latter groups could receive adequate care in non-specialized supervised care facilities. Despite these limitations, the conclusions that a mismatch exists between services and need seems reasonable.

Predictions of future need for LTC facilities are dependent on the assumptions made. Further demographic change may not be accurate based on current census information. In Newfoundland and Labrador, there has been substantial out-migration of working-age adults and their families due to the demise of the fishery industry,<sup>4</sup> which may increase the presentation rate of the elderly for LTC. Supply-induced demand may occur. As LTC options improve, particularly in the super-

vised care sector, more elderly may choose to leave their homes. On the other hand, home-based interventions may improve and the elderly may not leave their homes until substantial disability has become manifest. Survival in LTC may improve. New technologies and drugs may improve the survival of the elderly while in LTC, or people may enter LTC facilities at earlier phases of their disease.

Every province is struggling with the pressures on the health care system created by the aging population. LTC options differ between provinces and these options, together with demographic and geographic differences, make comparisons between provinces difficult. However, this paper demonstrates that comparisons are possible because commonly used evaluation tools and regular census information are available to all LTC administrations in Canada. It is likely that across Canada, as is the case in Newfoundland and Labrador, different approaches to the structuring of LTC will be necessary in each region because of differences in the current availability of alternative LTC options, in formal and informal support systems, in demand and changing demography.

In conclusion, in Newfoundland and Labrador there is currently a mismatch between services required for LTC and need, which varies by region. Predictions of future demand must be revised regularly as the assumptions underlying the predictions may change. However, any plans to restructure long-term care should take into account the demand, need and current provision of institutional beds in each region.

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**JOHN KNOCH, CHE**  
EXTRA Fellow (2006)  
Executive Director  
Clinical Support Services  
David Thompson Health Region  
(Alberta)

**ELAINE RANKIN**  
EXTRA Fellow (2006)  
Primary Care Coordinator  
Population Health and Research  
Cape Breton District Health  
Authority

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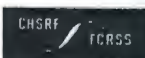
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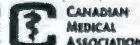
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