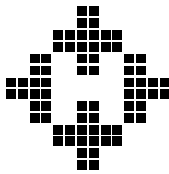


A Look at Home Care in Manitoba

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**Manitoba Centre for
Health Policy and Evaluation**
Department of Community Health Sciences
Faculty of Medicine, University of Manitoba

Noralou P. Roos, PhD
Leonie Stranc, PhD
Sandra Peterson, MSc
Lori Mitchell, MA
Bogdan Bogdanovic, BComm, BA
Evelyn Shapiro, MA

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Members of the Home Care Advisory Committee were:

- Irwin Corobow (Executive Director, Community Therapy Services Inc.),
- Cathy Donald (Home Care Manager, Brandon RHA),
- Betty Havens (Professor, Department of Community Health Sciences, University of Manitoba),
- Calvin Hawley (Policy Analyst, Manitoba Health Continuing Care),

- Valerie Kirby (Home Care Resource Supervisor, Interlake RHA),
- Margaret Lamont (Policy Analyst, Manitoba Health Continuing Care),
- Bob Layne (former Executive Director, VON Manitoba),
- Sharon Macdonald (Vice President, Community Care, WRHA),
- Sue Mackenzie (Director, Home Care Specialty Programs, WRHA),
- Marion Pringle (Director, Manitoba Health Continuing Care),
- Linda Smyrski (Director, Private and Corporate Health Services, VON Manitoba) and
- Linda Sundevic (Program Manager, Palliative, Rehabilitation and Support Services, Burntwood RHA).

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Members of MCHPE consult extensively with government officials, health care administrators, and clinicians to develop a research agenda that is topical and relevant. This strength along with its rigorous academic standards enables MCHPE to contribute to the health policy process. MCHPE undertakes several major research projects, such as this one, every year under contract to Manitoba Health. In addition, our researchers secure external funding by competing for other research grants. We are widely published and internationally recognized. Further, our researchers collaborate with a number of highly respected scientists from Canada, the United States and Europe.

We thank the University of Manitoba, Faculty of Medicine, Health Research Ethics Board for their review of this project. The Manitoba Centre for Health Policy and Evaluation complies with all legislative acts and regulations governing the protection and use of sensitive information. We implement strict policies and procedures to protect the privacy and security of anonymized data used to produce this report and we keep the provincial Health Information Privacy Committee informed of all work undertaken for Manitoba Health.

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EXECUTIVE SUMMARY

Introduction

Between 1990 and 1997, public expenditures across Canada on home care more than doubled. Manitoba was no exception to this trend: over this period the province experienced a 34% growth in the number of home care clients and a 119% increase (in constant dollars) in expenditures. Factors that may have contributed to this growth include a 24% decrease in hospital beds, a 7% reduction in the ratio of Personal Care Home (PCH) beds to the population aged 75 or more, a 13% decrease in the number of persons waiting for PCH placement, a 20% increase in the number of persons aged 75 or more (the predominant users of home and PCH care), and an increase in the longevity of elderly persons.

Manitoba does not have a computerized data system for home care similar to the one that provides individual-based information on the use of hospitals, physicians or Personal Care Homes. Therefore, Manitoba Health asked the Manitoba Centre for Health Policy and Evaluation (MCHPE) to examine the utility of using the Manitoba Support Services Payroll (MSSP) data to assess trends in access to, and use of, home care across the province. This study, therefore, in addition to evaluating the strengths and weaknesses of the current home care information system, used the available data to review the use of home care in 1998/99 and trends in its use from 1995/96 to 1998/99. This project was also undertaken as a first step towards adding home care information to the Manitoba Centre for Health Policy and Evaluation's Population Health Information System – POPULIS.

The Manitoba Home Care Program

Home care is a core program of Manitoba Health: all Regional Health Authorities (RHAs) are required to provide home care services to persons who meet the criteria of the Program's mandate. The mandate of the Home Care Program is twofold: 1) to provide services to persons assessed as having inadequate informal resources to return home from hospital or to remain in the community; and 2) to assess and place individuals in long-term care facilities if and when home care services cannot maintain them safely and/or economically at home and

to provide them with home care services until they are placed. These services are provided free of charge to those who meet the assessment criteria for admission to the Home Care Program.

The Manitoba Support Services Payroll Database

For this report, home care use was examined for all Manitoba residents over fiscal 1995/96-1998/99. Home care data for these analyses came from the Manitoba Support Service Payroll (MSSP). The MSSP is an administrative database developed by Manitoba Health in 1988 as a payroll system for direct service workers employed by the Department of Health. The MSSP now also serves as a master file of the Manitoba Home Care Program's clients and of MSSP employees, provides a means of scheduling workers and permits the generation of financial and statistical reports. The home care information that is captured in the MSSP system consists of three types of data: client data, employee data and time sheet (service) data.

Findings

Utility of Existing Home Care Data

- The MSSP client registry is an important and useful source of data on who is receiving home care services in Manitoba and over how long a period. Although some areas' case counts are 10-14% higher than those cases included in the registry, within these limits, the registry functions well as a province-wide recording system of Manitobans in receipt of home care services. However, although the data collection system makes it possible to determine who receives home care and over how long a period services are delivered, we don't know how much care is delivered. That is, major gaps in the MSSP data system must be filled in order to monitor the type and intensity of home care services delivered to Manitobans across the province.
- The MSSP data are a rich source of data on the intensity and type of home care services provided to most clients. One deficiency of this system is that of individual-level services are not recorded under block billing arrangements to clients such as those who are resident in a senior citizen's housing unit. Block, rather than individual, recording of services delivered is used in a number of RHAs in the province, and can account for large

proportions of the care delivered. For example, block care accounted for approximately 12% of the direct MSSP units (hours) delivered in Manitoba in 1998/99 and this has risen to 22% in 2000/01. Without having a system which individually records services that block clients receive, we cannot reliably use MSSP data to assess the amount of home care services which clients of differing types receive.

- Another situation that causes gaps in a province-wide data source results from services that are not paid through MSSP, such as services delivered by some of the Rural District Health Centres and therapy services delivered by agencies such as Community Therapy Services and South Central Therapy Services. The MSSP system also does not include purchased attendant services provided for the group-shared arrangements such as the FOKUS project in Winnipeg. Steps should be taken to ensure that Manitoba Health routinely obtains standard client-specific data on services delivered by outside agencies in an electronic form.
- Despite the foregoing limitations in the data, we concluded that the home care registry data, both alone and in combination with other Manitoba Health data sets, can provide important insights into how home care is delivered across the province.

A Population-Based Perspective

- Despite the fact that home care is provided at no charge to persons assessed as requiring services to return to or remain at home, remarkably few Manitobans, 2.7%, were registered in the Home Care Program in 1998/99.
- Closer examination of those who received home care suggests that the system, to which clients are admitted based on assessed “need” for care, works well. For example, while less than 1% of those aged 64 and younger received home care services, approximately one-third of those aged 85 years and older (35.7%) were receiving home care services in 1998/99. Also, those who were not married, and hence less likely to have resources at home for assisting in their care, were twice as likely to be registered with home care as those who were married.
- Despite the different challenges of delivering home care in urban versus rural settings, remarkably similar access to home care services appears to have been achieved across the province. For example, 26% of Winnipeg residents aged 75 years and older were

registered with home care in 1998/99, 23% of a similarly aged group in the rural south were registered, and 20% of those in the north. Even across RHAs and across Winnipeg sub areas – while there are important differences, which we highlight - there are also many similarities in usage patterns.

- Urban centres appeared to be responsive to home care needs of needier residents: the poorer the urban neighbourhood, the higher the use of home care by area residents.

Home Care Clients

- In 1998/99, home care served 31,298 clients: 44% were new admissions to the Program that year, the rest were already registered in the Program since the previous year. Home care clients were predominantly female (63%), aged 65 or more (79%) and not married or not living in a common-law relationship (71%). Northern Manitoba had a higher proportion of clients who were under the age of 65 than the rest of Manitoba.
- In 1998/99, 25% of home care clients received short-term care at home (1-60 days); over the period 1995/96-1998/99, 20% were short-term users.
- The average duration of home care use among 1998/99 clients increased with age, ranging from an average of 174 days for clients aged 0-64, to 222 days for those aged 65 or more. When we looked at the previous 4-year period, usage ranged from 448 days for clients aged 0-64 to 594 days for those aged 65 years and over. However, a higher proportion of those aged 0-18 and 19-44 are registered for four or more years than those aged 45-74, suggesting that, although the number of home care clients among those 0-44 is relatively small, the Home Care Program is likely to have a continuing and growing responsibility to these younger clients over time.
- Both Brandon and Burntwood had a smaller proportion of home care clients that were registered in the Program for four or more years than did the other RHAs.

Home Care Use Before a 1998/99 PCH Admission

- 8% of home care clients were admitted to a PCH in 1998/99. The vast majority (93%) of all individuals who entered a facility that year were home care clients before their PCH admission.

- The majority of home care clients who entered a PCH that year were women (64%) and neither married nor living with a common-law spouse (75%). Women were also home care clients for a longer period of time than men were before their admission to a facility.
- Since April 1, 1996, individuals were home care clients for a substantial period (an average of 537 days) prior to their 1998/99 admission to a facility, suggesting that the single-entry system works well in maintaining individuals at home as long as possible. Of these days, an average of 381 days were spent on home care before the decision was made that individuals needed institutionalization (panelling) and an additional 156 days were spent after panelling before they entered a PCH.
- Winnipeg clients had similar average total home care days before PCH entry compared to Non-Winnipeg clients (541 days compared to 531 days). The period of home care support prior to the decision to place an individual in a Personal Care Home did not vary substantially across the RHAs. An exception was found in the RHA of Brandon, which provided more limited periods of support on home care before the decision to panel individuals for PCH placement was made.
- Clients aged 85 or more were registered in the Home Care Program for a longer period before panelling than were those who were younger.
- On average, individuals were registered for home care for 80% of the time between panelling and PCH placement. The proportion of post-panel time registered on home care varied substantially in the province. South Eastman's panelled clients received home care services for 99% of the time they were panelled and waiting for placement, while Parkland residents received home care services for 55% of the time.

Home Care Use Associated with a 1998/99 Hospitalization Episode

- 9.4% of Manitoba residents who were hospitalized or had outpatient surgery in 1998/99 were discharged with home care (based on first hospitalization/outpatient procedure). This included 5.2 % who had received home care before entering hospital and 4.2% who started a new home care episode upon discharge.
- The percentage of patients who started a new home care episode following their hospitalization was somewhat higher in Winnipeg (5.2%) than in Non-Winnipeg (3.2%).

However, Non-Winnipeg residents tended to receive home care services over a longer period after hospital discharge than did Winnipeg residents.

- Assessment standards applied across the province appeared to be remarkably similar. For example, similar proportions of individuals who received home care after hospitalization were not married (a potential indicator of lack of informal support), regardless of where they lived.
- The vast majority of new admissions to home care came from patients who had been hospital inpatients; relatively few patients were discharged to home care after being a surgical outpatient (unless they had been receiving home care before their surgery).
- In urban Manitoba, rates of discharge from hospital to home care were highest among residents living in the poorest neighbourhoods compared to those living in middle income or high income neighbourhoods.

Home Care Use Before Death by 1998/99 Clients

- About 9% of those registered as home care clients in 1998/99 died that year.
- On average, individuals were registered as home care clients for 417 days (median=304 days) since April 1, 1996.
- Advancing age, being female and being unmarried were among the factors associated with spending a longer period on home care before death.
- Use of home care in the period before death was quite similar across RHAs and Winnipeg's Community Areas both in terms of the length of time individuals received home care services before death, and the amount of time home care clients spent in hospital before death. However, there were two exceptions: 1) Brandon home care clients spent fewer days on home care and significantly more time in hospital in the period before death; 2) Interlake home care clients had the opposite experience: they received home care over a longer period prior to their death, and spent less time in hospital than residents of other areas.
- Clients living in urban neighbourhoods with the lowest income were found to have significantly higher home care and hospital use before death.

Trends in Home Care use Over Time

- Home care use across the province is increasing slowly but steadily. The upward trend in rates of use and in rates of new admissions was small but significant.
- The upward trend in the rate of days clients were registered for home care per 100 residents was particularly notable. This increase in the Manitoba population's use of home care was due in part to the small but steady increase in admission rates to home care over time which is resulting in an increase in the total home care caseload.
- Overall, the average number of days a home care client was registered for home care in the year prior to PCH admission was stable over time. However, trends varied within the RHAs and the Winnipeg Community Areas (Winnipeg's sub-areas), upward in some and downward in others. On the other hand, the overall trend in the number of days clients were registered for home care services between panelling and PCH placement was downward, largely due to a decline in Winnipeg.
- Manitoba experienced a significant increase over time in the proportion of hospitalized residents who become (or continued as) home care clients after their first hospitalization episode over time, increasing from 7.7% to 9.4%. This significant upward trend was similarly experienced in both Winnipeg and Non-Winnipeg.
- The average number of days individuals received home care before death was stable over time, with relatively minor fluctuations among the RHAs and Winnipeg's Community Areas.

Notable Observations

- Winnipeg appears to be using the Home Care Program well to serve high-need populations. It was responsive to the poorest and neediest areas of the city. Residents of these areas were maintained longer at home before PCH placement and death. Winnipeg also appeared to have more targeted use of home care: there were somewhat more new admissions to home care following a hospitalization episode, and these clients received services over a shorter period, than was true in other regions.
- Brandon appears to be quite different from the other RHAs in use of home care. Brandon used less home care generally and more hospital days both before PCH admission and

before death than other regions. Although less home care use before PCH admission may be partly explained by the fact that Brandon has by far the highest ratio of PCH beds/1000 population aged 75 or more in the province, its greater use of hospital days both before death and before PCH admission suggests that hospital days may be substituting for home care instead of the reverse.

- The upward trend in the number of home care clients and in the duration of their home care use suggests that the Manitoba Home Care Program is accumulating an increasing clientele of functionally-disabled children, younger adults and elders over time. This trend needs to be taken into account by Regional Health Authorities' planning and budgeting processes.
- To ensure accountability for a program costing \$133 million a year and to improve the province's planning capability, it is important to repair the gaps in the current MSSP data system or to collect province-wide client-specific electronic data on the amount and type of services used. This system should also be capable to combining this information with data from the standardized individual assessments of home care clients.

1.0 INTRODUCTION

According to Health Canada (1998), public expenditures for community care more than doubled from \$1 billion in 1990/91 to \$2.1 billion in 1997/98 despite reduced federal transfer payments for health care, and fiscal constraints on provincial budgets. The proportion of provincial health care budgets spent on community care also rose from an average of 2.3% to 4% over the same period. Many factors contributed to this growth including hospital bed downsizing, the reduction in the ratio of long-term facility beds to the population aged 75 or older, and growth in the number of elderly persons, who are the predominant users of home care.

The province of Manitoba is no exception to this trend. Table 1.1 shows that from 1990/91 to 1998/99, the number of home care recipients increased by 34.2% (crude rate) and that expenditures for home care services increased by 121%. Over the same period (Table 1.2), the number of elderly persons (aged 75 or more) increased by 19.5% while the percentage of hospital beds/1,000 individuals decreased by 23.8%, PCH beds/1,000 individuals aged 75+ years declined by 6.5% and individuals waiting for PCH placement declined by 13.4% (crude rate). It may be likely that more elderly individuals are being discharged from hospital with home care services and/or are being maintained in the community longer than before.

Unlike most of the other provinces, Manitoba does not have a computerized home care information system. Therefore, Manitoba Health asked the Manitoba Centre for Health Policy and Evaluation (MCHPE) to examine the utility of using the Manitoba Support Services Payroll (MSSP) to assess trends in access to, and use of, home care across the province. We specifically review Manitoban's use of home care following hospitalization, prior to entry to Personal Care Home, and prior to death. This project was undertaken as part of adding home care information to the Manitoba Centre for Health Policy and Evaluation's Population Health Information System – POPULIS.

Table 1.1: Manitoba Home Care Program Highlights, 1990/91-98/99¹

	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99
Continuing care case count as of March 31	14,045	14,600	14,933	13,437	14,076	16,292	17,635	19,412	20,931
Number of persons receiving home care services ² (% change from 90/91)	24,022	25,116 (+4.6)	25,909 (+7.9)	25,121 (+4.6)	23,803 (-0.9)	24,855 (+3.5)	27,226 (+13.3)	29,838 (+24.2)	32,238 (+34.2)
Home Care Expenditures (000s), unadjusted dollars ³	\$50,891	\$56,784	\$62,837	\$60,383	\$66,272	\$81,988	\$101,959	\$111,899	\$133,417
Home care expenditures (000s) in constant dollars (% change from 90/91)	\$55,558	\$58,844 (+5.9)	\$62,837 (+13.1)	\$59,432 (+7.0)	\$64,467 (+16.0)	\$78,835 (+41.9)	\$96,461 (+73.6)	\$104,676 (+88.4)	\$122,965 (+121.3)

¹ Source: Annual reports, Manitoba Health 1990/91 to 1998/99 or Manitoba Health, Health Programs, Continuing Care staff

² Source: Continuing Care staff: Based on Continuing Care caseload at the beginning of the year plus admissions during the year

³ Note: Home Care Expenditures noted do not include central office salaries, medical supplies and equipment, and regional staff salaries and operating expenditures

Table 1.2: Changes in Number of Elderly Persons, Hospital/PCH Beds and Proportions of Individuals Entering PCH or Receiving Home Care Services, 1990/91-1998/99

	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99
Individuals 75+ years in Manitoba ¹ (% change from 90/91)	63,420	65,172 (+2.8%)	66,590 (+5.0%)	67,262 (+6.1%)	68,499 (+8.0%)	70,132 (+10.6)	71,756 (+13.1%)	73,267 (+15.5%)	75,799 (+19.5%)
Hospital beds/1000 ¹ (% change from 90/91)	5.05	4.99 (-1.2%)	4.63 (-8.3)	4.43 (-12.3)	4.36 (-13.7)	4.17 (-17.2)	4.05 (-19.8)	4.03 (-20.2)	3.85 (-23.8)
PCH beds/1000 age 75+ ¹ (% change from 90/91)	132.62	131.31 (-1.0)	130.18 (-1.8)	132.66 (0.0)	130.16 (-1.9)	126.85 (-4.4)	124.77 (-5.9)	124.75 (-5.9)	123.95 (-6.5)
PCH admissions/1000 age 75+ ¹ (% change from 90/91)	23.51	25.35 (+7.8)	25.03 (+6.5)	29.24 (+24.4)	24.26 (+3.2)	26.45 (+12.5)	27.39 (+16.5)	30.47 (+29.6)	25.84 (+9.9)
% Change in per capita PCH expenditures from 1990/91	--	-0.6	+1.9	+1.0	+2.6	+5.0	+3.7	+0.1	--
Number of persons on PCH waiting lists as of March 31 ^{2,3} (% change from 90/91)	1,333	1,360 (+2.0)	1,255 (-5.9)	1,022 (-23.3)	1,292 (-3.1)	1,329 (-0.3)	1,187 (-11.0)	1,044 (-21.7)	1,155 (-13.4)
Number of persons receiving home care services ^{2,3} (% change from 90/91)	24,022	25,116 (+4.6)	25,909 (+7.9)	25,121 (+4.6)	23,803 (-0.9)	24,855 (+3.5)	27,226 (+13.3)	29,838 (+24.2)	32,238 (+34.2)

¹ Source: Changes in health and health care use of Manitobans: 1985-1998 (with modification to 1990 as the index year by G. Finlayson)

² Source: Manitoba Health, Health Programs, Continuing Care staff

³ Note: Crude numbers, not age and sex adjusted.

1.1 The Manitoba Home Care Program

The Manitoba Home Care Program was established in 1974 through an Order-in-Council of the provincial Cabinet. It has a twofold mandate: 1) to provide home care services to persons assessed as having inadequate informal resources to return home from hospital or to remain at home in the community; and 2) to assess and place individuals in long-term care facilities if and when home care services cannot maintain them at home safely and/or economically and to provide them with home care services until they are placed.

The Manitoba Home Care Program is part of the Continuing Care spectrum that also includes supportive housing, chronic care and long-term care facilities such as Personal Care Homes. The Manitoba Continuing Care Program operates a single-entry system in which access to home care and to long term care facilities is determined by a professional assessment of needs. Decisions about the type and amount of home care services provided at home are based on the assessed need by case managers in collaboration with clients and their informal caregivers. If the individual is assessed as requiring home care, the home care services are provided free-of-charge. Home care may be delivered to persons of any age, including children, and referrals or requests for access to the Home Care Program may come from any source. Reassessments at pre-determined intervals are the basis for decisions by case managers to discharge individuals from the Program or to change the type or amount of services delivered by the Home Care Program.

Home care is considered a core service that Manitoba's twelve RHAs are obligated to deliver. Since 1997, the RHAs have been responsible for the assessment, co-ordination, and delivery of home care services and for maintaining standards, with Manitoba Health retaining responsibility for overall policy and program standards. The following are core service components of the Program for delivery by the Regional Health Authorities as appropriate to the client situation:

- Assessment – eligibility, care needs
- Care planning
- Case management
- Service co-ordination
- Health teaching
- Nursing services
- Personal care assistance
- Meal preparation
- Cleaning and laundry services
- Respite / family relief

- Therapy assessment and services
- Assessment for, and facilitation of, long term care placement (MAPP)
- Self-Managed/Family Managed Care
- Home component of Palliative Care
- Access to Adult Day Care services
- Medical equipment/supplies assessed as necessary to support the client's care plan
- Home Oxygen Therapy Program

In addition, Intravenous (I.V.) Therapy, Dialysis and Supportive Housing may be made available where there is sufficient need. Home care services, with the exception of some nursing and therapy services, are generally delivered by RHA employees. In Winnipeg, most nursing services and some home support over the period reviewed here were provided by the Victorian Order of Nurses (VON) Manitoba under contract with the Winnipeg Regional Health Authority. VON also co-ordinated short-term home care clients—those on home care for less than 60 days—in Winnipeg. Therapy services are generally, but not exclusively, provided under contract with Community Therapy Services.

1.2 POPULIS

The Population Health Information System (POPULIS), developed by MCHPE, was designed to provide population-based information on the health and health care utilization of Manitobans (Roos et al., 1999). The Home Care module of POPULIS describes how the population of Manitoba uses home care services, complementing other reports that have focused on population use of Personal Care Homes, hospitals, physicians and pharmaceuticals.

The addition of home care data to POPULIS fills a key missing piece in MCHPE's ability to analyze the population's use of health care services and the relationship between health care expenditures and health. The ability to study population-based patterns of home care use adds an important dimension to our understanding of how the population uses the mix of health care services. It allows us to ask, for instance:

- *Do regions which have closed hospital beds show an increased availability of home care services to those discharged early from acute care institutions?*

- *Is increased use of home care services enabling individuals to remain in their home longer before entry to a Personal Care Home?*
- *Does the availability of home care enable individuals to spend more time at home and less time in institutions in the period before death? Does this vary from one area to another?*
- *Do populations of higher health needs and fewer economic resources have access to home care that is proportionate to their needs?*

2.0 METHODS

The focus of this module of POPULIS is to describe population-based patterns of home care use by Manitobans and generate both regional and over-time comparisons. This report represents a “first step” in looking at home care in Manitoba using a population perspective. Analyses for this report are based on administrative payroll data for the Provincial Home Care Program. As the data are derived from a payroll system that was never intended to be used for research, we have faced several challenges. Since some of the data are presented without reporting significance testing or confidence intervals, caution must be used in interpreting the results.

2.1 Data Sources for This Study

Home care use was examined for Manitoba residents over fiscal 1995/96-1998/99. Home care data for these analyses came from the Manitoba Support Service Payroll (MSSP). Other files accessed included Personal Care Home files, hospital claims, public access census data and vital statistics reports of death.

2.1.1 The Manitoba Support Services Payroll database (MSSP)

The MSSP is an administrative database developed by Manitoba Health in 1988 as a payroll system for direct service workers employed by the Department of Health (Home Care and other Health programs workers became employees of the RHAs during the period included in this report). Over time the functionality of the MSSP expanded: in addition to the preparation and processing of payrolls, the MSSP now also serves as a master file of the Provincial Home Care Program’s clients and of MSSP employees, provides a means of scheduling workers and permits the generation of financial and statistical reports. The home care information that is captured in the MSSP system consists of three types of data: client data, employee data and time sheet (service) data. The data do not include home care information on residents living in First Nations communities whose health care needs are the responsibility of the federal government.

2.1.2 MCHPE anonymized Home Care client file

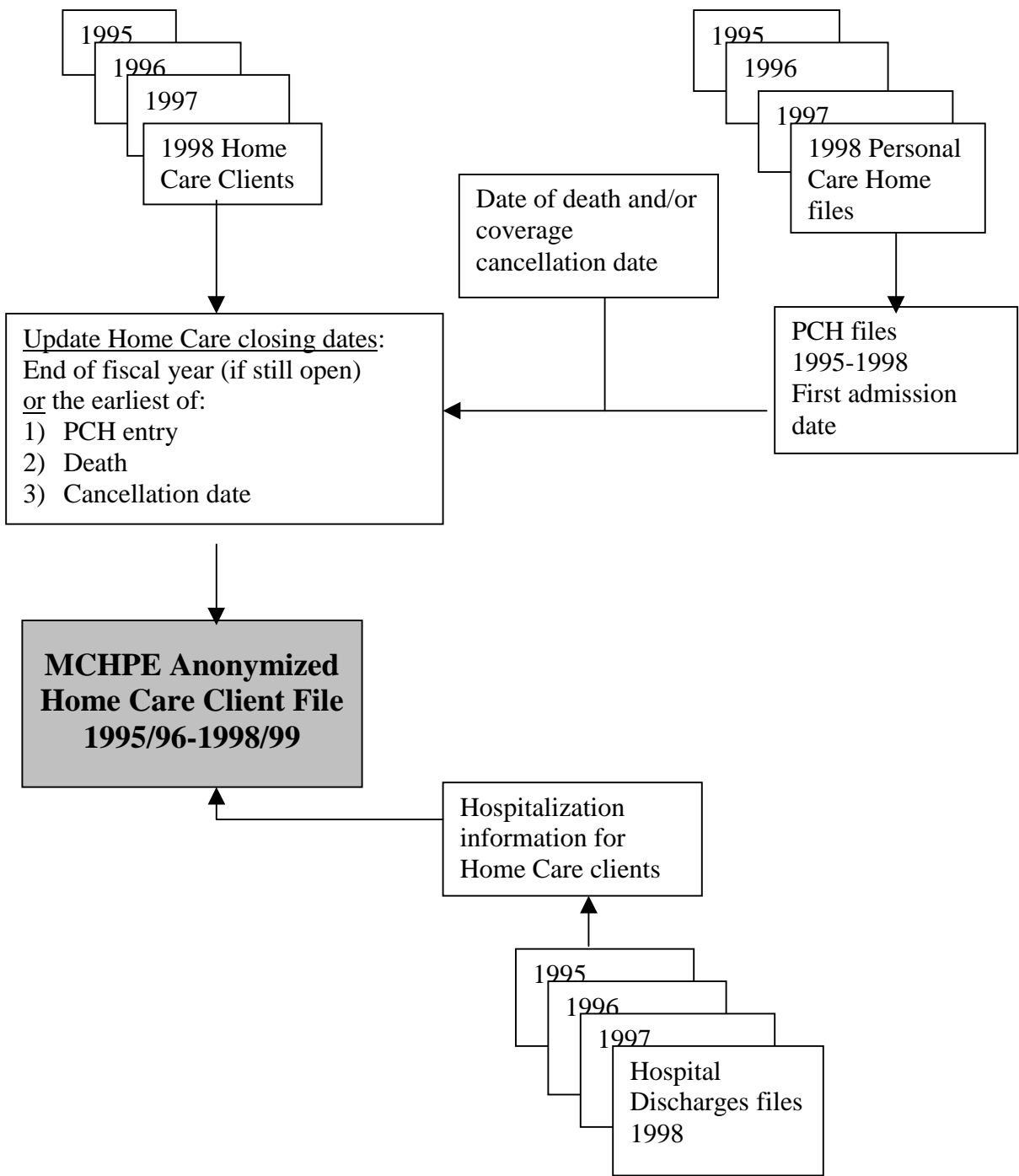
To maximize the potential of the available data and since inconsistencies had been observed around the prompt “closing” of the home care records, an anonymized (no names, no addresses are contained in the data base) MCHPE home care client file was constructed that augmented and updated MSSP information. Home care clients between April 1, 1995 and March 31, 1999 were identified and a client file was constructed based on this anonymized information (Figure 2.1). This included data from MSSP augmented by information on hospitalizations, PCH entry and end-of-coverage information (death or cancellation of health coverage). The MSSP data identified start and end dates for episodes of home care. Due to inconsistencies in the closing of home care episodes¹, the end date for each home care episode was compared against files that held similarly anonymized information on admission to Personal Care Homes, coverage cancellation and death and, where necessary, was updated. Hospitalizations from fiscal years 1995-1998 were determined for all of the clients on the Home Care registry. As a result, when a home care episode was closed, one of four potential endpoints could be identified in the registry: hospitalization, death, PCH entry or discharge in the community.

2.2 Completeness and Reliability of Home Care Data

As with any first time use of data, much effort was devoted to assessing validity and reliability issues. Manitoba Health regularly compiles the number of continuing care clients registered with the home care system at month-end. After consultation with our Home Care Advisory Committee, we decided to use these figures as our standard for comparison and attempted to replicate them using the anonymized MSSP data we had received from Manitoba Health. Based on the results of the reliability checks, we decided that the data from 1995/96 through 1998/99 (the most current year of data we had available at the time) were sufficiently accurate to support a descriptive study of home care across the province.

¹ In 1998/99, 16.5% of home care episodes were not closed before death or PCH entry.

Figure 2.1: MCHPE Anonymized Home Care Client File Structure and Components



More details regarding this, and other observations presented in this section, are found in Appendix A: Completeness and Reliability of Data.

Home care episodes were initially defined using the MSSP data's recorded home care service start and end dates. As problems were identified about the prompt "closing" of the home care records once a client was no longer receiving home care the episode end dates were verified, and updated where necessary, using hospital, Personal Care Home and vital statistics records (see Section 2.3: "Conceptual issues").

2.2.1 Defining clients

The anonymized MSSP client data were examined with respect to their completeness in capturing home care clients. It was found that across Manitoba, the electronically reported MSSP home care data underestimated the number of clients by 10%. Discrepancies varied by RHA, but the largest underestimates (14% and 11% respectively) were in the Winnipeg and Interlake RHAs. Some of these differences may have resulted from differing reporting practices across regions, especially in the reporting of clients who were assessed for Personal Care Home entry (panelled), but who did not receive in-home direct services through the Home Care Program. The delivery of home care in First Nations communities is a federal responsibility and data on those served in these communities will not be available in the provincial data we are using. Areas such as Burntwood, which have a relatively high proportion of individuals living in First Nations communities, will therefore have their use of home care under-reported.

2.2.2 Capture of VON clients in MSSP data

In a separate assessment of data reliability, we compared VON and MSSP client data, focussing on the level of agreement in the data recorded independently in these two sources. Ten per cent of the clients recorded in the VON data — whom we expected to find registered in the MSSP system — were not so registered. Of these, 60% originated from hospital, and were in general a younger population with a shorter registration period on home care than the VON clients who were captured in the MSSP system. As this information was not available until the late stages of this project, these home care clients are not included in the analyses

presented in this report. They represented just over 800 VON clients who were not registered in the MSSP data in 1998/99 — this would be an addition of less than 3% to the over 30,000 clients on whom this report is based. The data for the earlier years used in this report will likely have a similar discrepancy.

We also were unable to find approximately 20% of the individuals identified in the MSSP data as receiving services from VON only, in the VON data set. This lack of correspondence may have occurred for several reasons including inaccurate coding (or absence) of the personal identifier that was used for linkage across the two files. This discrepancy only affects the validity of the data used in our analyses if the individuals identified in the MSSP data as receiving services from VON were not actually receiving home care services—this situation seems relatively unlikely.

Finally, for those individuals found in both the VON and the MSSP data set, we found very good agreement on the data recorded in both places.

2.2.3 Identifying home care services received

In this report we had also planned to comment on the type and intensity of home care services received. However, this did not prove to be feasible because the data were incomplete for Winnipeg and some rural RHAs, limiting the validity of any proposed analyses. This was primarily due to the following:

- (1) We did not have service data for outside agencies that deliver a considerable volume of home care services, such as VON and Community Therapy Services. The VON provided 10% of the total service hours for Winnipeg in 1998/99 and 68% of the total hours of nursing services.
- (2) Some of the rural District Health Centres do not contribute service information to the MSSP system.
- (3) A third limitation of the MSSP data was the use of temporary client numbers which were assigned, for example, when a single worker serves a group of clients in a senior citizens housing complex—block care. While block care clients are individually included in the MSSP client registry, services that they receive are not recorded by individual.

2.3 Conceptual Issues

Definitions of home care clients and home care “episodes” were developed and operationalized, and measures for describing the population’s use of services—such as access and intensity of use—that had been previously developed for other POPULIS modules, were adapted for use with home care data. These are described below.

2.3.1 Home Care clients

Any Manitoban who was registered as a Home Care client in the MSSP data for at least one day between April 1, 1995 to March 31, 1999 was included in the MCHPE Home Care client file. We identified individuals as new clients if they were not registered for home care on April 1 of the particular year, but were subsequently registered with the Program during the year^{2,3}.

2.3.2 Home Care episodes

Home care episodes were defined using home care service start and end dates after verification and updating using hospital, Personal Care Home and vital statistics records. The length of time an individual was a home care client did *not* reflect the number of or frequency with which services were received. Indeed, 31% of home care episodes in 1998/99 included hospitalizations⁴. Days spent in hospital while a home care client were included in our calculation of home care episode length (total days on home care) but could also be excluded when necessary.

² 95% of new clients had not been registered with the Program in the previous 6 months, 90% had not been registered in the previous year. For 6 to 8% of the new clients, the only service they appear to have received was the assessment; for all the others, their home care file remained open for a week or more during the year, and it is likely that they received one or more home care services.

³ When an individual had more than one home care episode in a fiscal year they would only be counted once as a new client. (7.8% of Home Care clients in 1998/99 had more than one episode in the year and 5.9% of the new Home Care clients had two or more home care episodes in 1998/99).

⁴ This does not include individuals who were hospitalized prior to the start of the home care episode.

2.3.3 Measures of Home Care use

To describe a population's use of home care we required indicators of access to home care and intensity of use expressed per unit of population (i.e., /100 Manitobans, or /100 residents of an RHA) and per users of home care (i.e., /100 Home Care clients).

Access to home care. In other modules of the POPULIS system we have developed measures such as per cent of the population hospitalized, the per cent of the population making at least one contact with a physician during the year, the per cent of the population aged 75 years and older resident in Personal Care Homes, and the per cent of the population receiving at least one prescription drug during the year. In the case of home care, access was similarly defined, as the per cent of the population⁵ who were registered with the Home Care Program for at least one day during the fiscal year. This measure provided a useful indicator of an individual's ability to access home care and could be implemented to provide comparisons that address inter-regional issues of access and equity.

Other indicators of access to home care used in this report include:

- (a) The number of new clients per 100 (home care) clients per year; and
- (b) The number of new clients per 100 residents per year.

Duration of Use. Home care episode(s) length (in days)—also expressed as the number of days “open” to Home Care—during a given year was used as an indicator of how long an individual was assessed as needing home care services, recognizing that it did not indicate the amount of care that a client actually received. If an individual was hospitalized while their home care file was “open”, the days spent in hospital were included in this measure.

⁵ Residents of Personal Care Homes were not excluded from the denominator for this measure or any of the other population rates.

Measures of duration included:

- (a) The number of days open per client per year, which measured the average length of a home care episode within a fiscal year. Episodes that were opened and closed on the same day were counted as having a length of one day. This is not a population-based measure because the denominator is the number of clients registered in the Home Care Program. This measure was also calculated over a 4-year period.
- (b) The number of days “open” in the Home Care Program per 100 residents per year. This population-based measure provides information on the length of home care episodes within a fiscal year standardized to a rate per 100 population, permitting inter-regional comparisons of the quantity of home care received. This measure was also calculated over a 4-year period.

2.3.4 Marital status

We also report on the marital status of home care clients since this provides a rough indicator of available home support, although we recognize that this does not indicate if the client resides with an adult child, relative or friend, or has other informal sources of support. In this report marital status of clients is categorized as married (which includes common-law relationships) or non-married (This category ‘non-married’ will include individuals who were never married, widowed and divorced.) in tables and figures. For the analyses that used 1998/99 data, marital status was determined at the beginning of fiscal 1998/99 or, if the individual was not yet a home care client, at the beginning of the home care episode. Due to some limitations in the data files, the proportion of home care clients who are married is underestimated by as much as 6%—this misclassification particularly effects individuals who became home care clients during the year.

2.3.5 Average neighbourhood income

For this report we questioned whether average household income might be used as a proxy for need for health care, with neighbourhoods with a low income requiring more services than those with higher incomes. Average household income of all residents in the neighbourhood, not just that of elderly residents is used in this calculation. To answer this question we examined the health of elderly persons (nearly 80% of home care clients in

1998/99 were aged 65+) through several indicators — mortality rates, hospital use and Personal Care Home admissions - according to the relative income of households in their neighbourhood of residence. The focus was on whether the health of older individuals, as well as the use of hospitals and nursing homes, varied systematically according to neighbourhood income characteristics. The results of this investigation are reported in Appendix B: Health of Elderly Persons in Manitoba. Patterns of mortality amongst the elderly residents of urban areas (Winnipeg and Brandon) as well as their patterns of hospital use and PCH admission made it appear reasonable to expect that the lower the average household income in their neighbourhood of residence, the greater the need for home care which elderly individuals living in these neighbourhoods would have. That is, a pattern emerged where the lower the average household income in an area, the poorer the elderly residents health, the higher their use of hospitals and the greater their rate of admission to a PCH. This suggests there would also be a greater need for and use of home care among low income urban residents.

The patterns for mortality rates, hospital use and PCH admission were less clear for those elderly persons who live in neighbourhoods of differing income characteristics in rural Manitoba. Results indicate average neighbourhood income level may not be an appropriate proxy for need for home care among older rural residents. As a result, in this report we only use access to home care across residents who live in *urban* neighbourhoods with differing income characteristics as an indicator of whether the Home Care Program is reasonably responsive to need at the population level.

Urban residents were assigned to an income quintile using the following method. Based on mean household income, the Manitoba urban enumeration areas were ranked from highest to lowest and then grouped into quintiles, with each quintile containing approximately 20% of Winnipeg and Brandon's population. Each home care client was linked to an enumeration area using the residential postal code and consequently assigned to a quintile average neighbourhood income rank. In these rankings, quintile 1 represents that 20% of Manitoba's urban population that live in enumeration areas with the lowest average household income

and quintile 5 represents that 20% of Manitoba's urban population that live in enumeration areas with the highest average household income.

2.3.6 Hospitalizations

For this report, examination of home care following hospitalization focused on an individual's first hospitalization episode or surgical outpatient procedure in a given fiscal year. Surgical outpatients were defined as patients identified in Hospital Separation Abstracts as outpatients who underwent surgery (based on Diagnostic Related Groups) in an operating room.

2.4 Analytic Approach

2.4.1 Population

Home care use was examined for all Manitoba residents over fiscal 1995/96-1998/99. Population counts are based on Manitoba Health counts as of December 31 of the appropriate year.

2.4.2 Region of residence

Manitoba is divided into twelve regional health authorities (RHAs): North and South Eastman, Central, Brandon, South Westman, Winnipeg, Marquette, Interlake, Parkland, Burntwood, Nor-Man and Churchill (Figure 2.2). For reporting purposes, the RHA of Churchill was included with Burntwood due to constraints around small population size, particularly the number of elderly individuals. Residence was assigned using either postal or municipality code to the appropriate Regional Health Authority (RHA). The shift in regional boundaries which occurred in 1996 does not affect these analyses, because residence is assigned using the postal code or municipality code of the clients as recorded in the MSSP client registry.

Figure 2.2: Manitoba's Regional Health Authorities



In many analyses, data for the Winnipeg Regional Health Authority is subdivided into its 12 Community Areas, or CAs (Figure 2.3). Small home care client numbers, which makes rates and other estimates unstable, prevented sub-areas analyses for other RHAs. In addition to reporting region of residence according to RHA, some analyses report the data grouped according to Winnipeg and Non-Winnipeg or urban and rural residence. Urban residence includes both Winnipeg and Brandon. As well, in many tables in the report, regions are collapsed into three specific regions – Winnipeg, Rural South and Northern Manitoba. Northern Manitoba is comprised of the Churchill, Burntwood, and Nor-Man RHAs while Rural South is the remainder of the Non-Winnipeg RHAs (including Brandon).

The Northern RHAs, particularly Burntwood, contain a relatively high proportion of individuals living in First Nations communities, where health care is a federal responsibility. Therefore home care rates for Burntwood (which in this report includes Churchill RHA) will likely be under-reported.

2.4.3 Time period

Figures and tables in this report are based on home care records during fiscal 1995/96-1998/99 (April 1, 1995 to March 31, 1999). All years represent fiscal years. Most of the information in this report is based on the 1998/99 fiscal year. Longitudinal analyses generally included fiscal 1995/96-1998/99, depending on data availability.

2.4.4 Rates

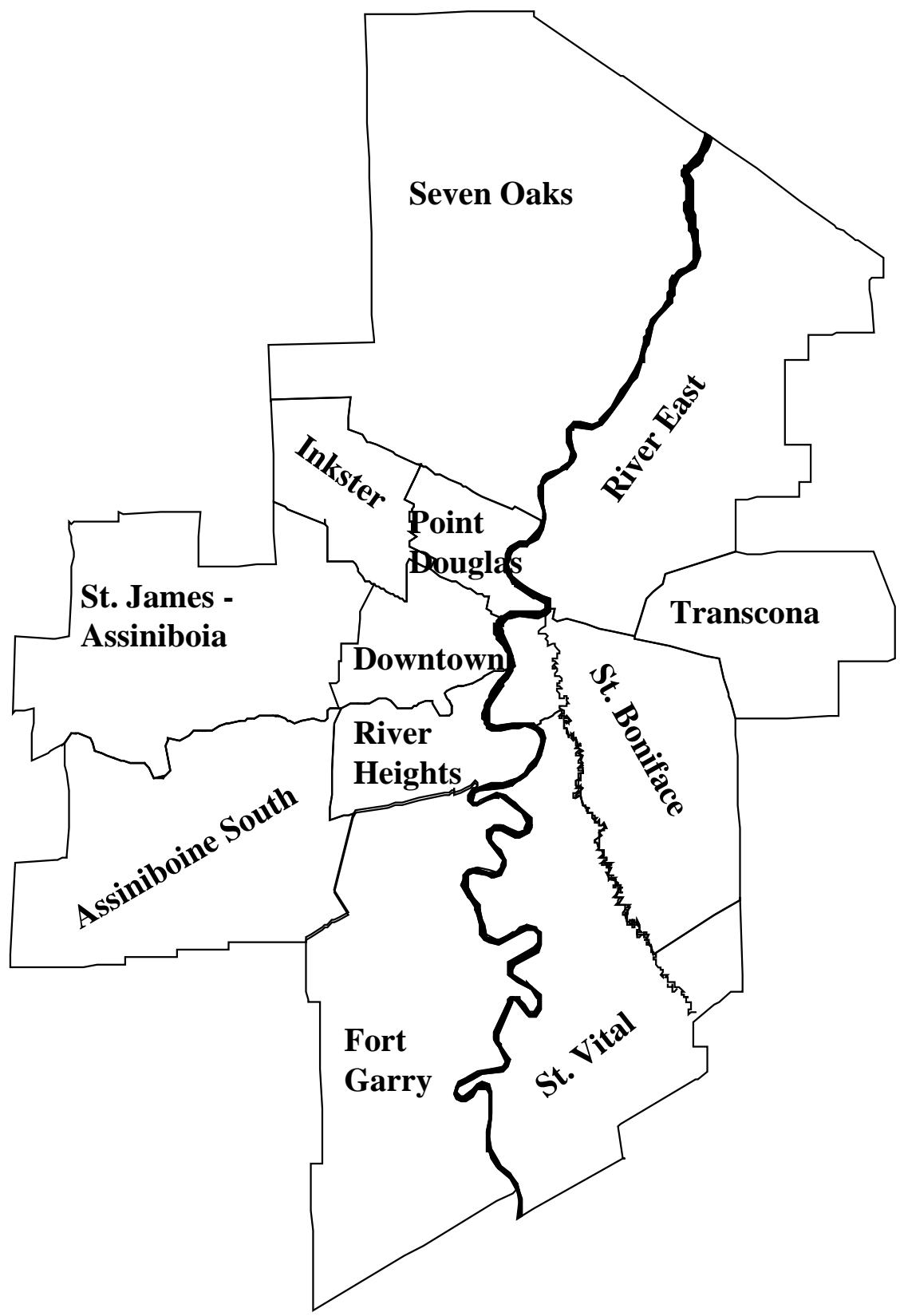
Four types of rates are reported in this study:

- (a) Crude rate/100 (home care) clients.

This describes the actual experience of the “population” of Manitoba home care clients. For example, the number of clients of an area who received home care for the first time per 100 clients of that area.

- (b) Directly adjusted rate/100 (home care) clients.

Figure 2.3: Winnipeg Community Areas



This measure is useful for inter-regional comparisons. By mathematically adjusting to the age- and sex- distribution of the entire group of clients, comparisons can be made between the regions as if each had the same client age and sex structure.

(c) Directly adjusted rate/100 residents per year.

This population-based measure is useful for inter-regional comparisons. Use of adjusted rates is preferable to crude rates since interpretation of the latter can be biased by differing population structures⁶. By mathematically adjusting for varying age and sex distributions we can generate rates that permit comparison of one region relative to another—as if each had the same population structure.⁷

(d) For “over time” comparisons, adjusted rates are calculated with reference to a standard population and year to permit comparisons which will not be affected, for example, by the aging of the population. For this study all data were standardized to the 1998/99 fiscal year.

2.4.5 Significance testing

Wherever possible, we have used statistical techniques to identify rates that are significantly different (that is, unlikely to be due to chance) from the Manitoba rate or the Winnipeg rate, using 99% confidence intervals. That is, 99% confidence intervals around the rates for each RHA and each Winnipeg Community Area were calculated and compared to the Manitoba or Winnipeg rate as appropriate. Areas whose confidence intervals do not include the Manitoba or Winnipeg rate are statistically significantly different. The use of 99% confidence intervals, rather than 95%, reflect a Bonferroni correction factor, used in situations of multiple testing in order to maintain the overall level of Type I error at 95%. Based on the

⁶ Health care utilization has been shown to be related to the age and sex distributions within a region i.e. areas that have a higher proportion of older people also generally tend to have higher health care utilization rates.

⁷ Marital status has been shown to be related to use of home care services. If there was an uneven distribution of married and non-married individuals across the province, marital status could be a potential adjustment variable in analyses, along with age and sex. To explore this issue for this report, analyses on RHA-specific home care use according to marital status were undertaken. Similar patterns of home care use were found among the regions and therefore we did not adjust for marital status in the report.

99% confidence intervals used, there is a 95% certainty that any significant differences represent real differences in rates.

Rates obtained for the RHAs have been compared to the Manitoba average, and the rates for the Winnipeg CAs have been separately compared to the Winnipeg average. Rates significantly above or below the Manitoba average are marked in the graphs with an “*”, and rates significantly above or below the Winnipeg average are marked with an “†”. For some graphs, inserting an “*” or a “†” was not feasible, such as in stacked bar graphs. However, significant differences are described in the text. Occasionally areas with rates that are much higher or lower than the Manitoba or Winnipeg rate are not statistically significantly different. This typically occurs when the population used to calculate the rate was small; since small population numbers produce large confidence intervals it would be incorrect to assume that the rate is not truly different from the Manitoba or Winnipeg rate.

Since some of the data are presented without reporting significance testing or confidence intervals, caution must be used in assuming that observed differences across groups are real.

2.4.6 Ordering of regions in tables and figures

For many of the projects undertaken at the Manitoba Centre for Health Policy and Evaluation, we have found presenting regional data ranked by premature mortality rate (PMR) to be useful. This is grounded in the belief that PMR is the best single measure to reflect the healthiness of a group of people and their need for health care services (Carstairs and Morris, 1991; Eyles et al., 1991; Eyles and Birch, 1993). An ordering of this type permits us to examine health care services and need: if health care services are targeted towards “unhealthy” populations we would expect receipt of services to be higher for residents of regions with a higher premature mortality rate.

It is, however, legitimate to question the utility of premature mortality as an indicator in a study of home care since the majority (approximately 60%) of persons in this Program are over 75 years of age. As reported in Appendix B: Health of Elderly Persons in Manitoba, we

did not find that premature mortality across regions was useful in describing the health of Manitoba's elderly population.

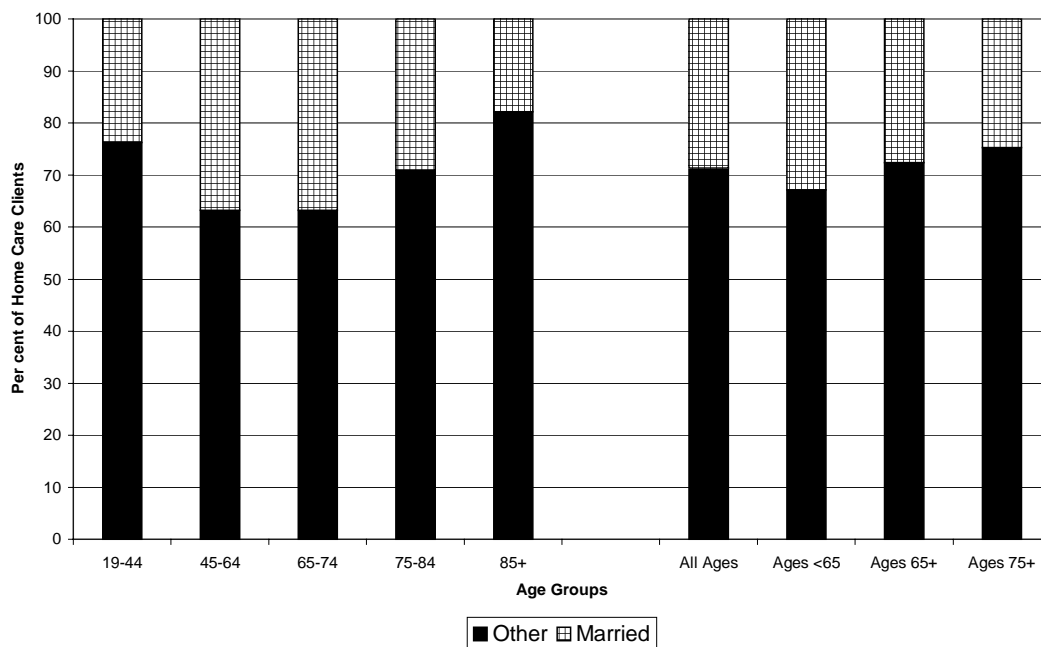
Why we do not find these patterns and how we could more accurately estimate an area's need for home care services should be the topic of another project. However, the data do not suggest a logical alternative to PMR ordering by which to present the regions, and so we use it in this report. Maintaining this order facilitates comparisons across projects. We do not use it because of any inherent explanatory power.

3.0 DESCRIPTION OF HOME CARE CLIENTS

Our analyses of home care use for the fiscal year 1998/99 are based on home care records for over 31,000 home care clients across Manitoba. A description of home care clients is shown in Table 3.1 for Manitoba, Winnipeg, rural southern Manitoba and Northern Manitoba.

Across Manitoba, 63% of home care clients were female. The majority of home care users (60.1%) were aged 75 or older. 19.3% were aged 65 to 74, 19.2% were aged 19 to 64 and 1.4% were children and adolescents aged 0 to 18. Of all home care clients, 44.1% were new clients (new clients are those who have a new home care episode opened on April 1, 1998 or later that year). Across Manitoba, 71.4% were neither married nor in a common-law relationship, although our indicator underestimates marital/common law status somewhat — see the Methods section for details. The age/sex, new client and marital status distribution of home care clients in Winnipeg and the Rural South were similar, but the North, on average, served a younger group. For every age group, the majority of those receiving home care were neither married nor in a common-law relationship (Figure 3.1). For clients of home care aged 19-44, 76.4% were not married. This dropped to a low of 63.2% for the 45-64 year olds then rose to 82.2% for the 85+ year olds.

Figure 3.1: Marital Status of Home Care Clients



**Table 3.1: Description of Home Care Clients by Region of Manitoba
– 1998/99**

	Manitoba	Winnipeg	Rural South	Northern Manitoba
Number of Clients	31,298	19,111	11,355	828
Gender				
Male	37.0%	35.7%	38.9%	40.9%
Female	63.0%	64.3%	61.1%	59.1%
Age Groups				
0-18	1.4%	1.3%	1.4%	4.0%
19-44	5.8%	6.0%	4.7%	14.6%
45-64	13.4%	14.0%	11.3%	28.7%
65-74	19.3%	20.0%	18.2%	19.8%
75-84	36.9%	36.6%	38.4%	21.9%
85+	23.2%	22.2%	25.9%	11.0%
Ages 0-64	20.6%	21.3%	17.4%	47.3%
Ages 65 plus	79.4%	78.8%	82.5%	52.7%
Ages 75 plus	60.1%	58.8%	64.3%	32.9%
New Clients [§] (all ages)				
Yes	44.1%	45.0%	42.5%	45.3%
No	55.9%	55.0%	57.5%	54.7%
Marital Status (Ages 19+)				
Married [‡]	28.6%	26.7%	31.8%	29.2%
Other	71.4%	73.3%	68.2%	70.8%

[§] Directly adjusted to the age- and sex-distribution of the client population.

[‡] Married in all tables and figures in the report includes common-law relationships

3.1 Description of Clients by RHA

Table 3.2 shows the characteristics of home care clients for each Regional Health Authority. The proportion of females to males was relatively similar across the RHAs but Burntwood had the lowest proportion of females (55.6%). South Westman had the largest proportion of elderly clients with 74.0 % aged 75 or more, while this age group comprised only 13.9% of Burntwood's home care clients. The percentage⁸ of clients aged 65 years and older who were new in 1998/99 (Figure 3.2), ranged from 32.7% to 48.4% across the regions, with the lowest proportion of new clients occurring in Interlake and the highest proportion in Brandon. Across the Winnipeg Community Areas, the range was even smaller, from 36.9% to 45.6%. Across the RHAs for clients aged 0 to 64 (Figure 3.3), the per cent of clients that were new ranged from 51.2% to 61.1%, with the exception of Burntwood, which had a significantly higher proportion of new clients than the Manitoba average at 65.4%. Across the Winnipeg CAs the per cent of new clients (among those aged 0-64) ranged from 50.1% to 61.4%.

3.2 Types of Home Care Clients.

Individuals may be clients of the Home Care Program for a number of reasons. In sections 6 to 8, we look at the use of home care 1) after hospitalization, 2) prior to entry to Personal Care Homes and around panelling (the point at which an individual is assessed as needing Personal Care Home placement), and 3) prior to death. These categories are not necessarily mutually exclusive—that is, an individual could have become a home care client after a hospitalization that occurred in 1998/99 and also died in 1998/99. This individual would have been included in both the sections examining home care use after hospitalization and in the section examining home care use prior to death. However, by definition, the individuals in the prior to death section of this report are not in the section examining home care use

⁸ Directly adjusted to the age- and sex-distribution of the client population

Table 3.2: Description of Home Care Clients by RHA – 1998/99

	Manitoba	South Eastman	Central	Brandon	South Westman	Winnipeg	Marquette	North Eastman	Interlake	Parkland	Burntwood [†]	Nor-Man
Number of Clients	31298	1212	2140	1129	965	19111	1125	883	2126	1775	331	497
Gender												
Male	37.0%	39.9%	39.5%	37.8%	34.4%	35.7%	37.3%	43.1%	39.7%	38.8%	44.4%	38.6%
Female	63.0%	60.1%	60.5%	62.2%	65.6%	64.3%	62.7%	56.9%	60.3%	61.2%	55.6%	61.4%
Age Groups												
0-18	1.4%	1.7%	1.8%	0.8%	1.2%	1.3%	0.6%	1.6%	1.5%	1.1%	6.9%	2.0%
19-44	5.8%	8.6%	4.4%	5.5%	2.7%	6.0%	2.4%	5.2%	5.9%	3.0%	23.6%	8.7%
45-64	13.4%	13.9%	8.8%	14.8%	7.7%	14.0%	8.8%	14.5%	14.7%	8.5%	39.3%	21.7%
65-74	19.3%	15.9%	16.6%	20.0%	14.4%	20.0%	15.7%	20.0%	21.4%	19.5%	16.3%	22.1%
75-84	36.9%	36.7%	40.2%	37.0%	40.6%	36.6%	40.5%	35.0%	37.3%	38.8%	10.3%	29.6%
85+	23.2%	23.2%	28.1%	21.9%	33.4%	22.2%	31.9%	23.7%	19.1%	29.1%	3.6%	15.9%
Ages 0-64	20.6%	24.2%	15.0%	21.1%	11.6%	21.3%	11.8%	21.3%	22.1%	12.6%	69.8%	32.4%
Ages 65 plus	79.4%	75.8%	85.0%	78.9%	88.4%	78.8%	88.1%	78.7%	77.9%	87.4%	20.3%	67.6%
Ages 75 plus	60.1%	59.9%	68.3%	58.9%	74.0%	58.8%	72.4%	58.7%	56.4%	67.9%	13.9%	45.5%
New Clients [§] (all ages)												
Yes	44.1%	38.0%	44.1%	51.0%	46.4%	45.0%	46.3%	39.3%	36.6%	41.8%	42.9%	43.7%
No	55.9%	62.0%	55.9%	49.0%	53.6%	55.0%	53.7%	60.7%	63.4%	58.2%	57.1%	56.3%
Marital Status (Ages 19+)												
Married	28.6%	36.3%	31.6%	32.7%	28.7%	26.7%	29.9%	34.3%	33.3%	28.2%	33.8%	26.3%
Other	71.4%	63.7%	68.4%	67.3%	71.3%	73.3%	70.1%	65.7%	66.7%	71.8%	66.2%	73.7%

[§] Directly adjusted to the age- and sex-distribution of the client population

[†] The number and per cents for Burntwood include Churchill home care clients

Figure 3.2: Per cent New Clients, Ages 65+, 1998/99

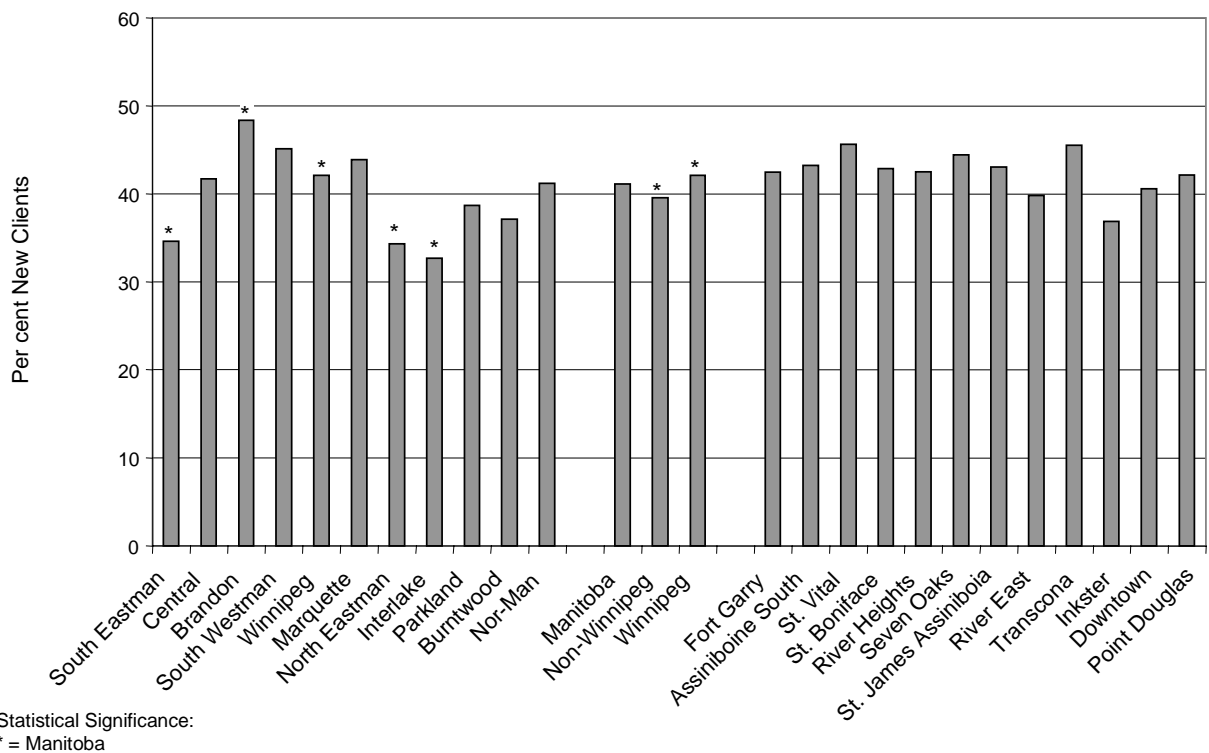
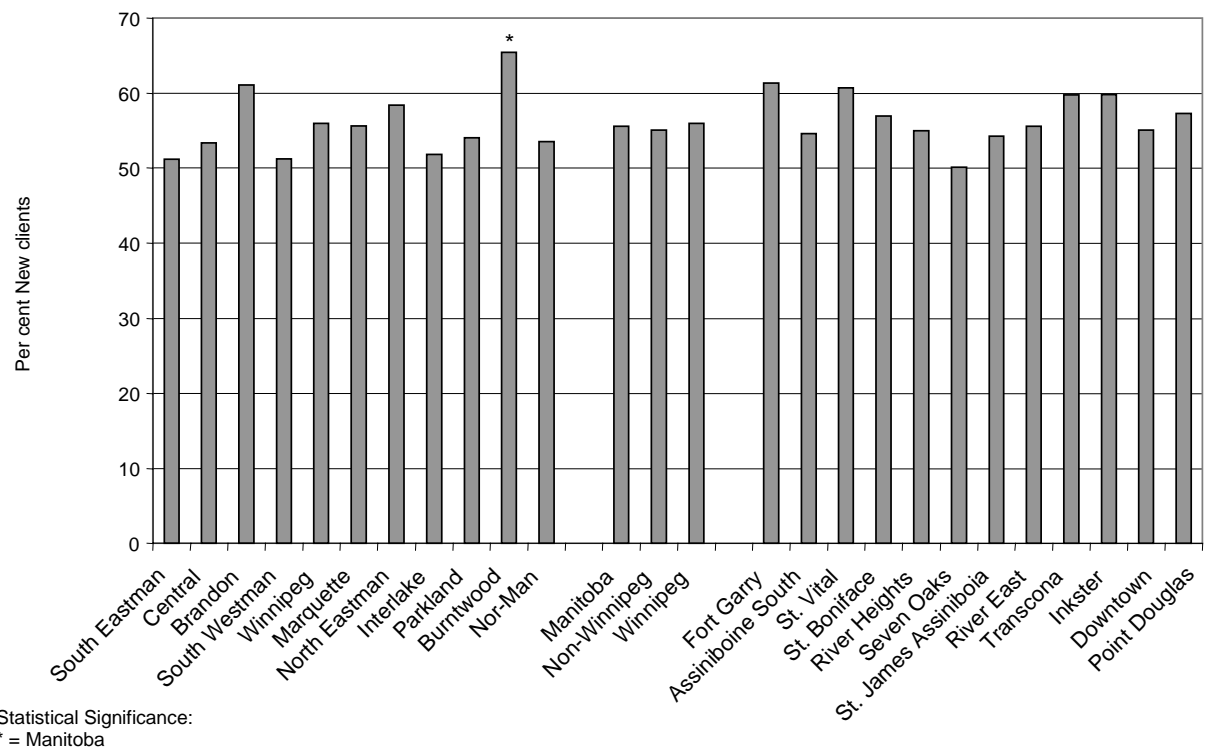


Figure 3.3: Per cent New clients, Ages 0-64, 1998/99



prior to entry to Personal Care Home—that is, individuals who were on home care, entered a Personal Care Home and then subsequently died were not in the prior to death section. Only individuals who died prior to entry to nursing home are included in the “use prior to death” section.

Of all the clients who received home care in 1998/99, 8% were admitted to a Personal Care Home in 1998/99 (Table 3.3). By summing the total number of days that home care files were open in 1998/99, we obtained the total number of “days open” in 1998/99 for all clients who were registered in 1998/99 (over 6,600,000 days). Similarly, we obtained the total number of days open during the 4-year period for all clients who were registered in 1998/99 (over 17,600,000 days). Thus we can determine that the home care clients who were admitted to a Personal Care Home in 1998/99 accounted for 6% of the total home care days in 1998/99 and 9% of the days over the 4-year period. Over 13,000 individuals were identified as home care clients within 30 days of discharge from their first hospitalization or outpatient surgical procedure⁹ in 1998/99. This represented 43% of all home care clients in 1998/99. Note that this group could be separated into those who were clients of home care before they entered hospital (within 30 days prior to hospitalization) (55%) and those who were not home care clients just prior to their hospitalization (45%). The clients who were already on home care accounted for 24% of all home care clients and used 34% of the total home care days in 1998/99 and 36% of the total days of home care over the 4-year period. Clients whose home care episode started within 30 days after their hospitalization, but who were not on home care immediately prior to the start of the hospitalization (19%), accounted for 9% of the total home care days in 1998/99 and 4% over the 4-year period. Nine per cent of home care clients died while on home care—these clients accounted for 6% of the home care days in 1998/99 and 8% of the days over the 4-year period.

⁹ For our analysis, surgical outpatients were defined as patients identified in Hospital Separation Abstracts as outpatients, and who underwent major surgery (based on Diagnostic Related Groups) in an operating room.

Forty-six per cent of home care clients in 1998/99 did not enter a Personal Care Home, or have a home care episode associated with their first hospitalization, or die while on home

Table 3.3: Home Care and Hospitalizations, Personal Care Homes and Death – 1998/99

	Per cent of Clients	Per cent of Total Home Care Days open in 1998/99	Per cent of Total Home Care days open over the 4-year period
Home Care Client Admitted to PCH in 1998/99			
Yes	8%	6%	9%
No	92%	94%	91%
On home care within 30 days after first hospitalization [‡] in 1998/99			
Yes – had home care just prior to hospitalization	24%	34%	36%
Yes – but did not have home care just prior to hospitalization	19%	9%	4%
No	57%	57%	60%
On Home Care at time of death			
Yes	9%	6%	8%
No ^{‡‡}	91%	94%	92%
Overall			
None of the above	46%	50%	49%
PCH hospital and/or died	54%	50%	51%

[‡] Hospitalizations include inpatient hospitalization and surgical outpatient procedures. For our analysis, surgical outpatients were defined as patients identified in Hospital Separation Abstracts as outpatients, and who underwent surgery (based on Diagnostic Related Groups) in an operating room.

^{‡‡} Either did not die, in 1998/99, or died while not on home care (home care episode closed prior to death).

care in 1998/99. These clients accounted for 50% of the home care days in 1998/99 and 49% over the 4-year period. These home care clients are likely a diverse group comprising both young and elderly clients. Some elderly persons may be those who would otherwise require admission to a long-term care facility. Others may be elderly adults (or non-elderly adults) who have serious functional disabilities but are able to continue living at home because they have enough informal help from relatives to manage with some home care services such as personal care and home help. Still others are frail elders whose capacity to live in safe and

sanitary conditions is compromised by their reduced energy to cope with performing all the necessary tasks by themselves. Finally, this group may also include multiply-handicapped children who have a primary caregiver at home and for whom an institutional placement is inappropriate. This group will also include young adults and adults who are seriously disabled as a result of trauma or a deteriorating disease but who choose to remain as independent as possible at home and in the community.

3.3 Summary

- Our analyses are based on home care records for over 31,000 home care clients across Manitoba in the fiscal year 1998/99.
- 63% of home care clients were female.
- 79% of home care users were aged 65 or older; 60% were aged 75 or older.
- South Westman had the largest proportion of elderly clients, with 74% aged 75 or more; in Burntwood this age group comprised only 13.9% of their home care clients.
- 71% were neither married nor in a common-law relationship.
- 44% were new clients.
- Of all the clients who received home care in 1998/99:
 - 8% were admitted to a Personal Care Home in 1998/99
 - 43% were identified as home care clients within 30 days of discharge from their first hospitalization or outpatient surgical procedure in 1998/99.
 - 9% of home care clients died while on home care
 - 46% of home care clients did not belong to any of these groups. These home care clients are likely a diverse group comprising both young and elderly clients who are able to remain at home in the community through the help they receive from the Home Care Program.

4.0 DURATION OF HOME CARE USE

For home care clients whose files were open for at least one day in 1998/99, Table 4.1 shows the distribution of total length of time that they were registered with home care during 1998/99 and over a four-year period from 1995/96 to 1998/99. The data are presented for Manitoba overall and then separately for Winnipeg, Rural Southern Manitoba and Northern Manitoba. During 1998/99, 25.2% of Manitoba's home care clients were in the Program 1-60 days (usually referred to as short-term; 2.6% of these home care clients were only open for 1 day). Over one-third of the clients were registered for the full year, suggesting that they had probably been receiving home care for some time previously.

We also assessed how long individuals who were registered for at least one day in 1998/99 were supported on home care over the full 4-year period (1995/96 to 1998/99). About one-fifth of the clients were clearly short-term: over the 4-year period they were only registered with home care for 60 days or less. An additional 15.5% were registered with the Program for up to 6 months (61-180 days) and 13.2% more were registered to receive services for up to 364 days during the four-year period. This could have included one continuous episode, or multiple shorter ones. A substantial group of clients were registered with the Program over longer periods of time, 11.2% for 4 years or more. Usage patterns were similar across the North, South and Winnipeg.

We also examined both the mean¹⁰ (average) number of days a client was registered for services, and the median duration of use. The median duration of use is the length of time at which half of the clients had a shorter duration and half a longer duration. Both means and medians are presented in the tables because the mean may be skewed by a few very long or very short cases while the median is insensitive to these outliers. In general, the graphs and the text present means since the mean can be directly adjusted to the age- and sex-distribution of the client population so that meaningful comparisons can be made across the

¹⁰ The mean has been directly adjusted to the age- and sex- distribution of the 1998/99 clients.

**Table 4.1: Days Open to Home Care by Region of Manitoba
1998/99 and 1995/96 to 1998/99**

	Manitoba	Winnipeg	Rural South	Northern Manitoba
Duration of Use in 1998/99				
1-60 days	25.2%	26.9%	22.1%	28.0%
61-180 days	19.6%	19.1%	20.3%	20.5%
181-364 days	18.6%	18.1%	19.5%	19.2%
Full year	36.6%	35.9%	38.1%	32.2%
Median Duration of Use in 1998/99. The mean [§] is presented in brackets.				
All Ages	225 (212)	217 (208)	246 (219)	191 (220)
Ages 0-64	122 (174)	115 (172)	143 (181)	106 (161)
Ages 65 plus	253 (222)	243 (217)	267 (228)	252 (236)
Ages 75 plus	275 (229)	267 (225)	286 (235)	290 (244)
Duration of Use over the 4-year period				
1-60 days	19.6%	21.2%	16.7%	22.7%
61-180 days	15.5%	15.2%	15.9%	16.3%
181-364 days	13.2%	12.7%	13.8%	15.3%
1 year - < 2 years	17.5%	17.0%	18.4%	17.8%
2 years - < 3 years	11.4%	11.3%	11.7%	10.0%
3 years - < 4 years	11.6%	11.6%	11.8%	9.3%
4 + years	11.2%	11.0%	11.8%	8.6%
Median Duration of Use over the 4-year period. The mean [§] is presented in brackets.				
All Ages	392 (564)	380 (557)	417 (575)	298 (568)
Ages 0-64	185 (448)	175 (448)	210 (457)	177 (395)
Ages 65 plus	443 (594)	431 (585)	464 (606)	449 (612)
Ages 75 plus	496 (626)	486 (617)	507 (638)	524 (647)

[§] Means have been directly adjusted to the age- and sex-distribution of the client population

regions. In addition, mean values can also be tested to determine if the difference between regions is significant. The mean duration of use during 1998/99 ranged from 174 days for clients who were aged 0-64 to 222 days for those aged 65+. For the older population, the mean duration of use over four years was 594 days compared to 222 days in the one-year period; the differences were not quite as great in the younger group (448 versus 174).

4.1 Duration of Home Care Use across RHAs and Winnipeg CAs

Table 4.2 presents the same set of data on duration of use for each of the Regional Health Authorities. Looking across the RHAs, Burntwood had a higher proportion of short-term clients in 1998/99 compared to the other RHAs—40.2% of Burntwood's clients were short-term clients whereas the other RHAs ranged from 18.5% to 30.5%. Both Brandon and Burntwood had a smaller proportion of home care clients that were registered with the Program for 4 or more years—5.3% for Brandon and 6.0% for Burntwood, versus 9.6% to 15.7% for the other RHAs.

Table 4.2 and Figure 4.1 present the mean duration per client aged 65 years and older across the RHAs. Across Manitoba, home care clients averaged 564 days open per client in the 4-year period. The average number of days open per client for Winnipeg (585) was not significantly different from the Non-Winnipeg average (606). (Brandon and Central were significantly lower than the Manitoba average, at 462 and 558 days open per client respectively, and South Eastman, North Eastman, Interlake and Parkland were significantly higher with 637 to 711 days open per client.) Figure 4.1 also presents data on the Winnipeg Community Health Areas, where the range in mean days open is from 535 to 644 days per client. For clients aged 0 to 64 (Figure 4.2 and Table 4.2) the range in mean duration of use across the RHAs is from 347 for Burntwood to 519 for South Westman. Across the Winnipeg CAs, the mean duration ranged from 358 to 537 days per client.

Figures 4.1 and 4.2 also present the median value of duration for each RHA and Winnipeg CA. While the median values are much smaller than the means, the observed patterns of means and medians across the areas are very similar.

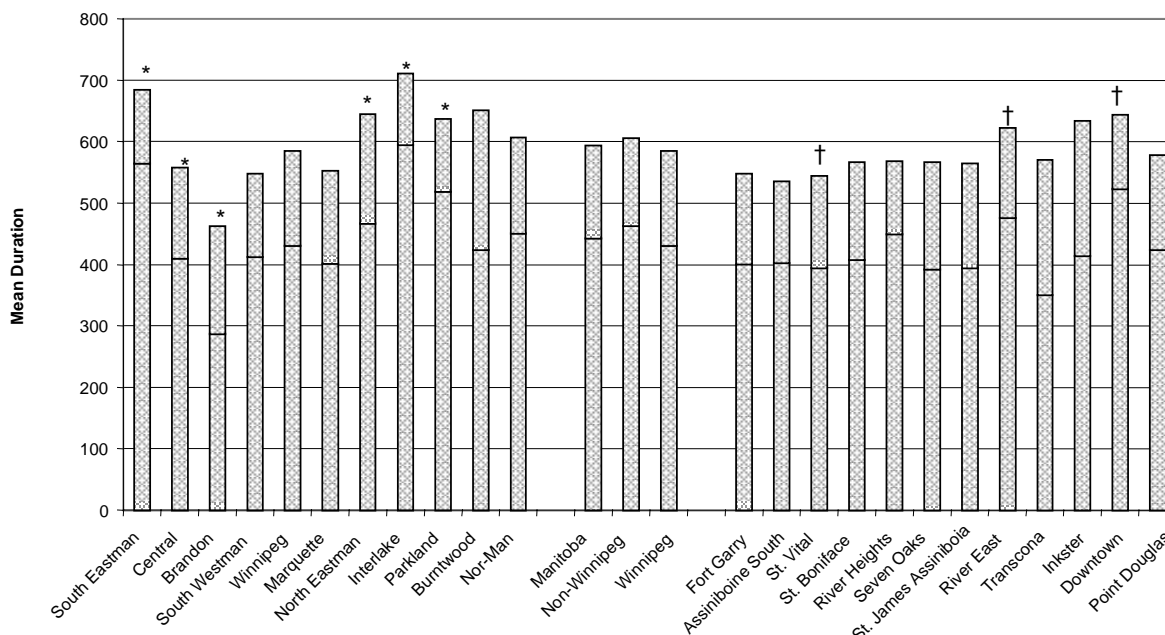
Table 4.2: Days open to Home Care by RHA – 1998/99 and 1995/96 to 1998/99

	Manitoba	South Eastman	Central	Brandon	South Westman	Winnipeg	Marquette	North Eastman	Interlake	Parkland	Burntwood [†]	Nor-Man
Duration of use in 1998/99												
1-60 days	25.2%	22.5%	23.9%	30.5%	21.0%	26.9%	20.5%	19.7%	18.5%	21.2%	40.2%	19.9%
61-180 days	19.6%	19.5%	20.0%	22.7%	23.0%	19.1%	22.0%	20.3%	19.8%	17.9%	19.6%	21.1%
181-364 days	18.6%	16.8%	19.1%	20.2%	19.2%	18.1%	22.7%	18.8%	20.8%	18.3%	15.1%	21.9%
Full year	36.6%	41.2%	37.0%	26.7%	36.8%	35.9%	34.8%	41.2%	40.8%	42.6%	25.1%	37.0%
Median Duration of Use in 1998/99. The mean [§] is presented in brackets.												
All Ages	225(212)	274(228)	234(212)	157(183)	220(212)	217(208)	233(212)	279(234)	282(235)	289(227)	98(211)	221(228)
Ages 0-64	122(174)	104(169)	152(189)	96 (150)	166(188)	115 (172)	150 (181)	112(175)	177(191)	180(199)	72 (148)	178 (184)
Ages 65 plus	253(222)	326(244)	247(218)	173(191)	233(218)	243 (217)	243 (220)	326(247)	309(249)	302(235)	211 (227)	267(240)
Ages 75 plus	275(229)	335(249)	259(224)	185(197)	244(223)	267(225)	261(227)	357(264)	336(255)	317(241)	260(237)	306(248)
Duration of Use over the 4-year period												
1-60 days	19.6%	15.6%	18.6%	24.5%	15.5%	21.2%	15.5%	14.2%	13.4%	16.7%	33.5%	15.5%
61-180 days	15.5%	15.8%	16.4%	18.9%	16.7%	15.2%	17.0%	16.4%	14.6%	13.4%	16.3%	16.3%
181-364 days	13.2%	11.5%	12.5%	15.0%	16.0%	12.7%	16.3%	14.0%	14.2%	12.8%	13.3%	16.7%
1 year - < 2 years	17.5%	17.9%	18.5%	16.9%	18.8%	17.0%	18.8%	22.3%	17.9%	17.9%	14.2%	20.1%
2 years - < 3 years	11.4%	11.9%	12.9%	9.5%	10.8%	11.3%	11.6%	8.6%	12.1%	13.2%	8.5%	11.1%
3 years - < 4 years	11.6%	13.0%	10.5%	9.9%	12.6%	11.6%	9.9%	11.3%	12.2%	14.0%	8.2%	10.1%
4 + years	11.2%	14.3%	10.6%	5.3%	9.6%	11.0%	11.0%	13.1%	15.7%	11.9%	6.0%	10.3%
Median Duration of Use over 4-years. The mean [§] is presented in brackets.												
All Ages	392(564)	480(638)	393(546)	252(445)	395(542)	380(557)	380(529)	434(591)	512(661)	486(604)	182(589)	387(578)
Ages 0-64	185(448)	163(461)	256(497)	113(378)	270(519)	175(448)	203(437)	135(385)	240(468)	265(477)	116(347)	246(465)
Ages 65 plus	443(594)	565(684)	410(558)	287(462)	413(548)	431(585)	402(553)	467(645)	595(711)	519(637)	424(651)	451(607)
Ages 75 plus	496(626)	612(715)	443(587)	328(484)	461(571)	486(617)	442(586)	499(696)	694(757)	584(668)	576(681)	521(649)

[§] Means have been directly adjusted to the age- and sex-distribution of the client population

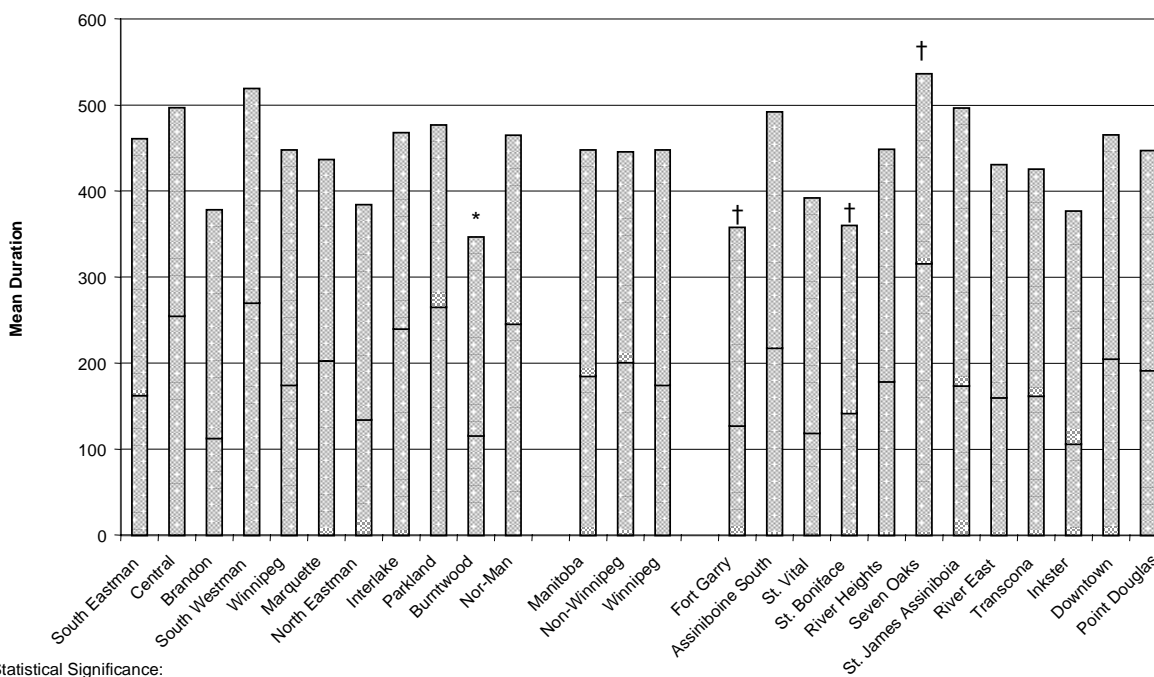
[†] The number and per cents for Burntwood include Churchill clients

Figure 4.1: Mean Duration over 4 years, Ages 65+
 The mean is the total height of the bar, the median is represented by the horizontal bar



Statistical Significance:
 * = Manitoba † =Winnipeg

Figure 4.2: Mean Duration over 4 years, Ages 0-64
 The mean is the total height of the bar, the median is represented by the horizontal bar

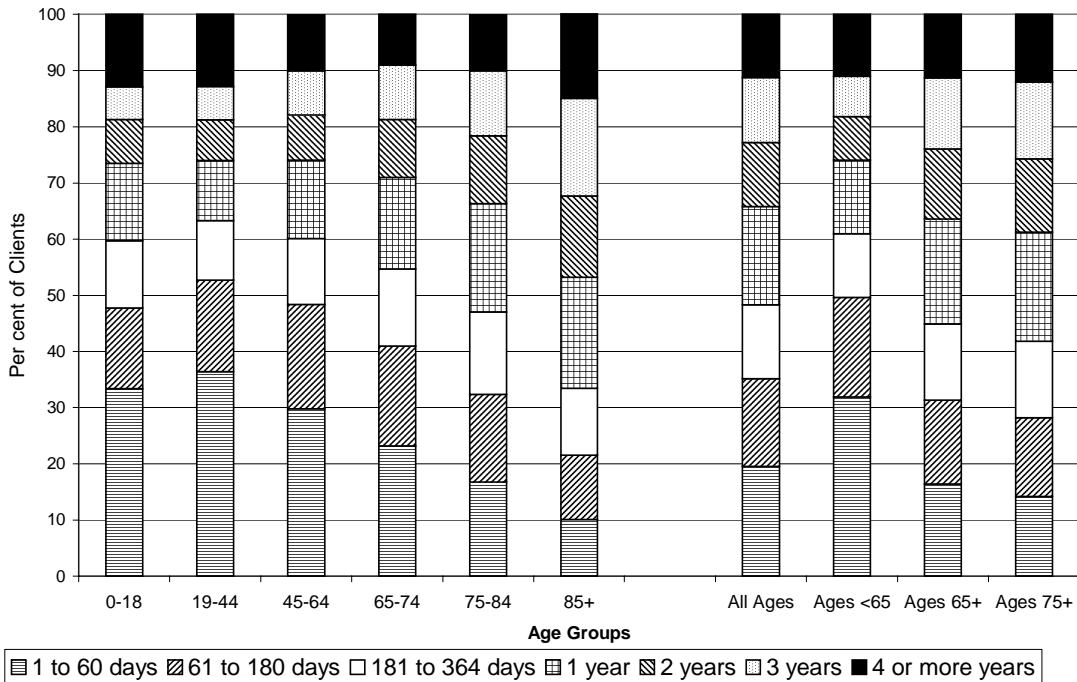


Statistical Significance:
 * = Manitoba † =Winnipeg

4.2 Duration of Home Care Use by Age of Client

Figure 4.3 shows the distribution of home care clients' duration on home care by age groups. For home care clients who were younger (0 to 64 years), the majority of clients (61%) had a duration on home care of less than 1 year. For clients aged 65 plus, the majority of clients (55%) had a duration on home care of 1 year or more. Importantly, almost 20% of the younger home care clients had received home care services for three years or more (Figure 4.3). While they are a relatively small group, since they are likely to remain at home longer, these data suggest that home care will have a continuing and growing responsibility to this group.

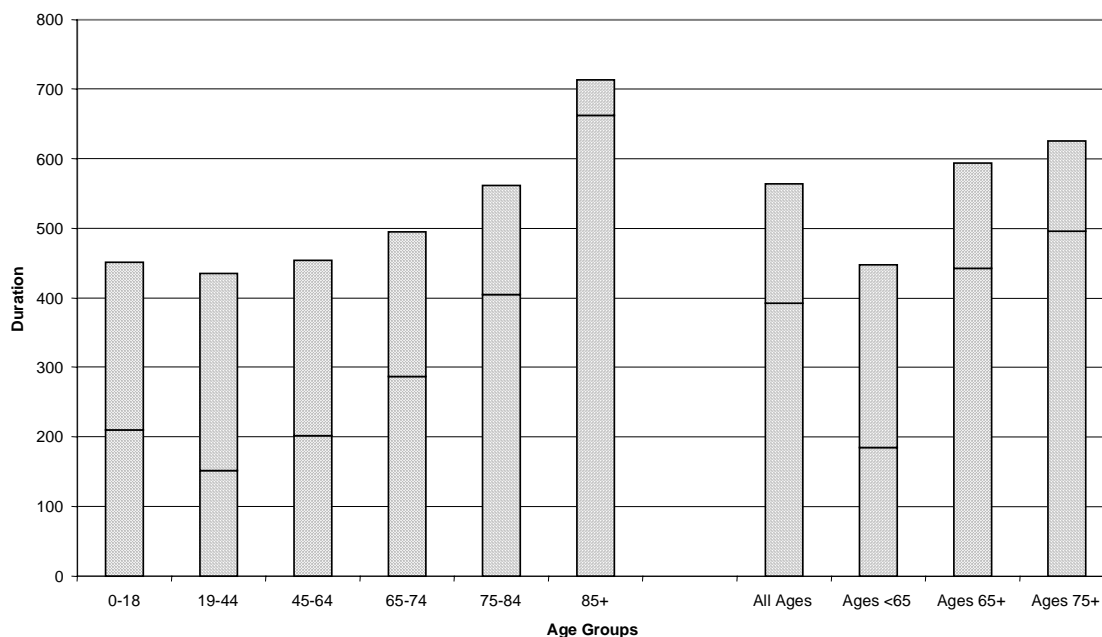
Figure 4.3: Duration over 4 years for Home Care Clients by Age Groups



The mean number of days registered in home care over the 4-year period was 451 days for clients aged 0 to 18 years and 435 days for clients aged 19 to 44 years (Figure 4.4). The mean days registered per client then increased to 713 for the 85 years old and older age group.

Figure 4.4: Mean and Median Duration of Home Care Use over 4 years by Age Group

The mean is the total height of the bar, the median is represented by the horizontal bar



4.3 Summary

Of the individuals who were registered with the Home Care Program for at least one day in 1998/99:

- 25% were in the Program 1-60 days; over 1/3 were registered for the full year.
- 11% were registered with the Program for 4 years or more.
- Burntwood had a higher proportion (40%) of short-term clients in 1998/99 compared to the other RHAs.
- Both Brandon and Burntwood had a smaller proportion of home care clients than the other RHAs that were registered with the Program for 4 or more years—5% and 6% respectively.
- For clients aged 0-64:
 - 61% had a duration on home care of less than 1 year.
 - Almost 20% received home care services for three years or more.
 - The mean duration of use during 1998/99 was 174 days.
 - The mean duration of use over the four-year period was 448 days.

- For clients aged 65+:
 - 55% had a duration on home care of 1 year or more.
 - The mean duration of use during 1998/99 was 222 days.
 - The mean duration of use over the four-year period was 594 days.
- The mean duration over 4 years per client aged 65 years and older was significantly lower than the Manitoba average for Brandon and Central and significantly higher for South Eastman, North Eastman, Interlake and Parkland.
- While the median values of duration are much smaller than the means, the observed patterns of the means and medians across the areas were very similar.

5.0 USE OF HOME CARE ACROSS THE PROVINCE OF MANITOBA

While the previous two sections focussed specifically on the characteristics of those who use home care in different parts of the province, Table 5.1 summarizes the use of home care from a population¹¹ perspective; that is what proportion of residents in various areas of the province actually use home care services. A population perspective enables us to make comparisons across the province of how home care use varies, after controlling for differences which exist in the age and sex characteristics of residents of different areas. A population perspective also focuses attention on those who do not receive services, as well as on those who do. All rates have been directly adjusted to the age- and/or sex- distribution of the 1998 population, where relevant, to reduce bias in making comparisons.

Overall, 2.7% (2.7 clients per 100 residents) of Manitoba residents were registered in the Home Care Program for at least one day during 1998/99 (Table 5.1). This figure represents those who had received services in the previous year, as well as individuals who were new to home care in 1998/99. Females were statistically significantly more likely to use home care than males. Home care use increased with age: only 0.7% of Manitobans under 65 years were registered with home care, compared to 19.9% aged 75-84 years and 35.7% aged 85 years and older. Finally, a higher proportion of those who were not married used home care services.

In 1998/99, 1.2% of Manitobans were new clients (that is, they started receiving home care after April 1, 1998/99). The per cent of Manitobans who were new clients also increased with age from 0.1% for residents aged 0 to 18 to 11.5% for those aged 85 years and older. Although not presented in Table 5.1, females were found to have a small but slightly higher likelihood than males of becoming a new client in every age group except for those aged 0 to 18 and 85 and older.

¹¹ Residents of Personal Care Homes were included in the denominators.

Table 5.1: Population-Based Measures of Home Care Use – 1998/99

	Per cent of population who were Home Care clients in 1998/99	Per cent of population who were new Home Care clients in 1998/99	Days open in the Home Care Program in 1998/99 per 100 residents	Days open in the Home Care Program over 4-year period per 100 residents
All Manitoba [§]	2.7%	1.2%	578	1,537
Gender ^{§§§}				
Male	2.5%	1.2%	489	1,264
Female	2.9%	1.2%	638	1,718
Age Groups ^{§§}				
0-18	0.1%	0.1%	26	64
19-44	0.4%	0.2%	68	180
45-64	1.7%	0.9%	305	776
65-74	7.4%	3.7%	1,462	3,645
75-84	19.9%	8.7%	4,316	11,068
85+	35.7%	11.5%	8,545	24,848
All Ages [§]	2.7%	1.2%	578	1,537
Ages 0-64 [§]	0.7%	0.4%	113	291
Ages 65 plus [§]	15.7%	6.5%	3,486	9,338
Ages 75 plus [§]	24.5%	9.4%	5,615	15,323
Marital Status ages 19+ [§]				
Married	2.6%	1.0%	599	1,523
Other	5.0%	2.4%	983	2,646

[§] Directly adjusted to the age- and sex-distribution of the December 1998 population

^{§§} Directly adjusted to the sex-distribution of the December 1998 population

^{§§§} Directly adjusted to the age-distribution of the December 1998 population

The number of days spent in the Home Care Program in 1998/99 per 100 Manitobans was 578. Note that this figure is somewhat difficult to grasp – and it is most meaningful when used to make comparisons across groups. The numerator was calculated by summing the number of days registered in home care across individuals; the denominator is based on Manitoba population counts as of December 31, 1998. The number of days spent in the Home Care Program per 100 residents captures both the proportion of residents who were registered at least one day in the Program in 1998/99, and the duration of the period over which they were registered to receive services in 1998/99. Over the four-year period, the number of days spent in the Home Care Program per 100 residents was 1,537. This number captures both the proportion of residents who were registered at least one day in the Program in 1998/99, and the duration time (possibly multiple episodes) over which they were registered to receive services in the four-year period. Once again, rates were generally higher for females than males (data not shown).

Figure 5.1 shows the per cent of the population who were home care clients during 1998/99 by marital status¹² and by age group. The marital status of home care clients provides a rough indicator of available home support. We recognize that some individuals who are not married may reside with an adult child, relative or friend, or have other informal sources of support. Nevertheless, even using this rough indicator we did find that, across all age groups, persons who were neither married nor in a common-law relationship were much more likely to receive home care. For example, persons aged 65+ who were not married were 1.8 times more likely to be registered with the Home Care Program than their married counterparts. The patterns observed from this population-based analysis echo the earlier findings that focused only on those clients who were actually registered with the Home Care Program.

¹² Our indicator underestimates marital/common-law status somewhat—see the methods section for details.

**Figure 5.1: Per cent of Population who were Home Care Clients
By Marital Status and Age Group, 1998/99**

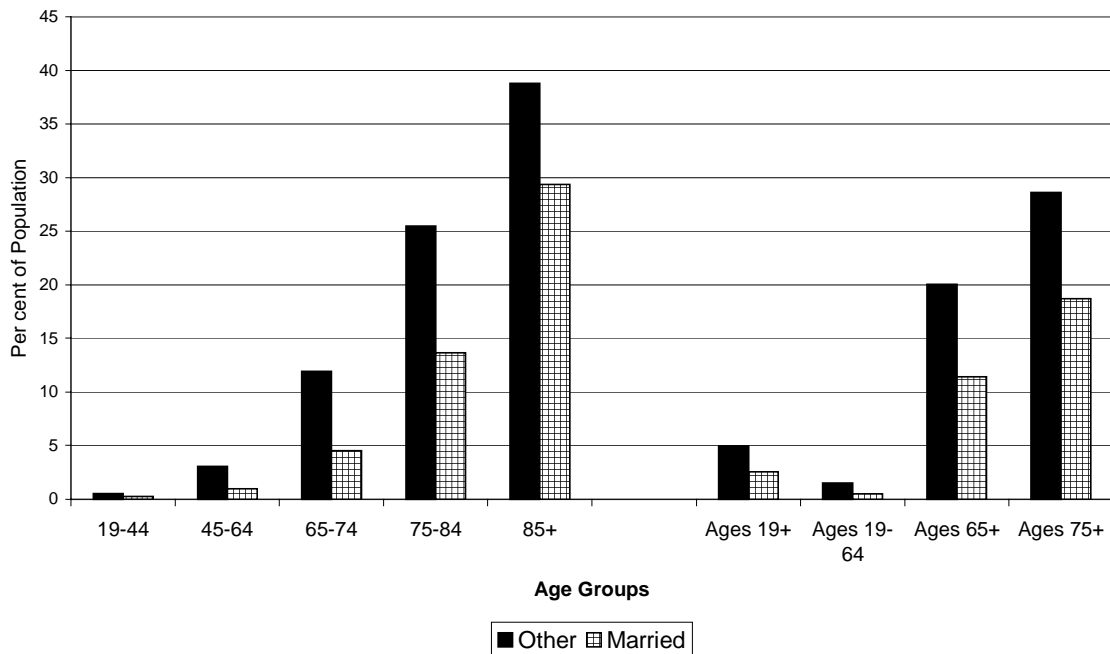


Table 5.2 summarizes the use of home care across the regions of Manitoba. For most age groups, Winnipeg residents were somewhat more likely to use the home care system and to be new clients to the home care system in 1998/99 than the average Manitoban resident. Note that although most of the differences were statistically significant, they were also quite small. Similarly, residents of Rural Southern Manitoba were less likely to use the home care system and to be new clients in 1998/99 than the average Manitoban resident. Again, the differences were quite small. For all age groups combined, residents of Winnipeg had a significantly higher number of days open per 100 residents (for both days in 1998/99 and days over the 4-year period) than the average Manitoban resident, whereas residents of Rural Southern Manitoba had a significantly lower number of days open per 100 residents. The number of days registered per 100 Northern Manitoba residents, although smaller than the Manitoba rate, did not differ significantly from the Manitoba rate (the numbers for Northern Manitoba are based on a smaller number of home care clients and the confidence intervals around this value are larger as a result).

**Table 5.2: Population-Based Measures of Home Care Use across
Regions of Manitoba – 1998/99**

	Manitoba	Winnipeg	Rural South	Northern Manitoba
Per cent of population who were Home Care clients in 1998/99				
Age Groups ^{SS}				
0-18	0.1%	0.2%	0.1%	0.1%
19-44	0.4%	0.4%	0.4%*	0.4%
45-64	1.7%	1.9%*	1.4%*	2.1%*
65-74	7.4%	8.1%*	6.4%*	8.0%
75-84	19.9%	20.9%*	18.7%*	17.3%
85+	35.7%	37.0%*	34.5%	26.6%*
All Ages ^S	2.7%	2.9%*	2.5%*	2.6%
Ages 0-64 ^S	0.7%	0.7%*	0.5%*	0.8%*
Ages 65 plus ^S	15.7%	16.6%*	14.6%*	14.1%
Ages 75 plus ^S	24.5%	25.5%*	23.3%*	20.4%*
Per cent of population who were new Home Care clients				
Age Groups ^{SS}				
0-18	0.1%	0.1%	0.1%	0.1%
19-44	0.2%	0.3%	0.2%*	0.3%
45-64	0.9%	1.0%*	0.8%*	1.1%
65-74	3.7%	4.2%*	3.0%*	3.9%
75-84	8.7%	9.4%*	7.9%*	7.6%
85+	11.5%	12.4%*	10.5%*	8.3%
All Ages ^S	1.2%	1.3%*	1.0%*	1.2%
Ages 0-64 ^S	0.4%	0.4%*	0.3%*	0.5%*
Ages 65 plus ^S	6.5%	7.0%*	5.7%*	5.9%
Ages 75 plus ^S	9.4%	10.0%*	8.6%*	8.0%
Days open in the Home Care Program in 1998/99 per 100 residents				
Age Groups ^{SS}				
0-18	26	28	23	24
19-44	68	73	64	47*
45-64	305	328*	260*	375
65-74	1,462	1,557*	1,312*	1,661
75-84	4,315	4,411	4,191	4,042
85+	8,545	8,723	8,420	6,654

	Manitoba	Winnipeg	Rural South	Northern Manitoba
All Ages [§]	578	601*	545*	559
Ages 0-64 [§]	113	123*	98*	126
Ages 65 plus [§]	3,486	3,593*	3,343*	3,272
Ages 75 plus [§]	5,615	5,734	5,481	4,962
Days open in the Home Care Program over 4-year period per 100 residents				
Age Groups ^{§§}				
0-18	64	74	55	47
19-44	180	199	163	99*
45-64	776	835	656*	975
65-74	3,645	3,928*	3,211*	4,027
75-84	11,068	11,408	10,595	10,575
85+	24,848	25,096	24,765	18,383
All Ages [§]	1,537	1,606*	1,438*	1,434
Ages 0-64 [§]	291	319*	247*	314
Ages 65 plus [§]	9,338	9,664*	8,899*	8,452
Ages 75 plus [§]	15,323	15,695	14,884	13,089

*Those marked with a * are significantly higher or lower than the Manitoba average for that age group.

[§] Directly adjusted to the age- and sex-distribution of the December 1998 population

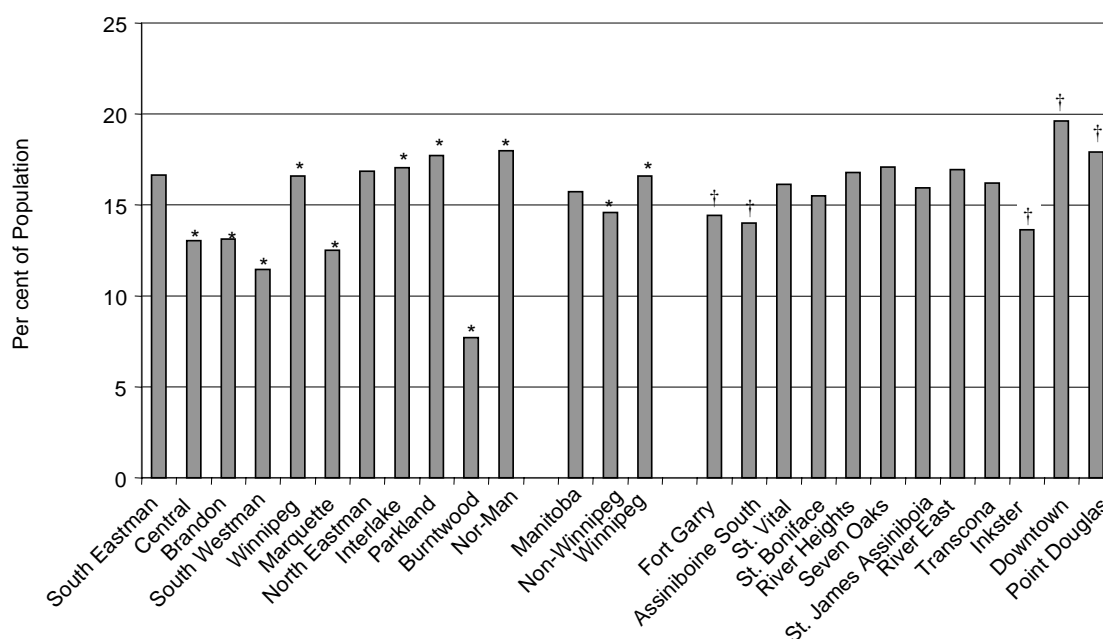
^{§§} Directly adjusted to the sex-distribution of the December 1998 population

5.1 Use of Home Care across RHAs and Winnipeg CAs

Figure 5.2 shows the per cent of the population aged 65 years and over that had at least one day registered with the Home Care Program by RHA and Winnipeg CAs. This figure represents long-time home care clients who received services in the previous year, as well as individuals who were new to home care in 1998/99. Use of home care was statistically significantly higher for Winnipeg residents than for Non-Winnipeg residents—16.6% of Winnipeg residents aged 65 and older were home care clients in 1998/99 compared with 14.6% of Non-Winnipeg residents aged 65 and older. Those areas of the province whose residents had significantly higher rates of using home care than the Manitoba rate were Winnipeg, Interlake, Parkland and Nor-Man; in these areas 16.6% to 18.0% of the population aged 65 and older used home care in 1998/99. In other areas of the province rates of use

were lower, ranging from 7.7% to 13.1%; Burntwood rates appear particularly low. However, in comparison to other RHAs, Burntwood RHA contains a relatively high proportion of elderly individuals living in First Nations communities, where health care is a federal responsibility. Our provincial data do not capture the extent home care is available and provided in First Nations communities. Thus the rates for Burntwood are potentially under-reported.¹³

**Figure 5.2: Per cent of Population who were Home Care Clients
Ages 65+, 1998/99**



Statistical Significance:
* = Manitoba † =Winnipeg

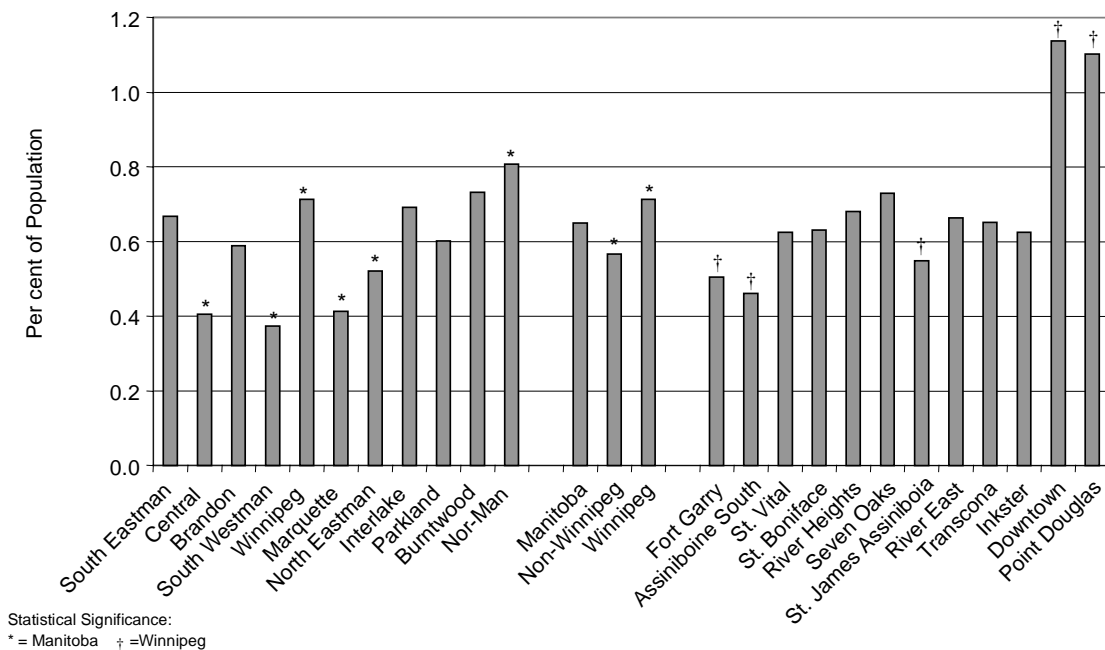
Across Winnipeg CAs, rates of use were quite similar, with Fort Garry, Assiniboine South and Inkster residents having the lowest rates of contact (respectively 14.4%, 14.0% and 13.6% of residents aged 65 years and older). Downtown and Point Douglas residents had significantly higher rates than the Winnipeg average (19.6% and 17.9% respectively). Very

¹³ Some low rates may be due to under-reporting of clients to the MSSP client registry (Appendix A: Completeness and Reliability of Date). Since Winnipeg and Interlake regions have the highest rates of under-reporting (estimated as 14% and 11% respectively in 1998/99), their high rates of use may also be understated.

similar patterns of use to those presented in Figure 5.2 were found when analyses focused on the population aged 75 and older. Winnipeg residents aged 75 and older had a slightly higher (statistically significant) rate of using home care in 1998/99 than Non-Winnipeg residents aged 75 and older, with 25.5% of Winnipeg residents being registered for at least one day of home care during the year compared with 23.1% of Non-Winnipeg residents.

Patterns of use of home care services by the population aged 0 to 64 (Figure 5.3) were generally similar to those patterns discussed above in the older population, although of course much lower.

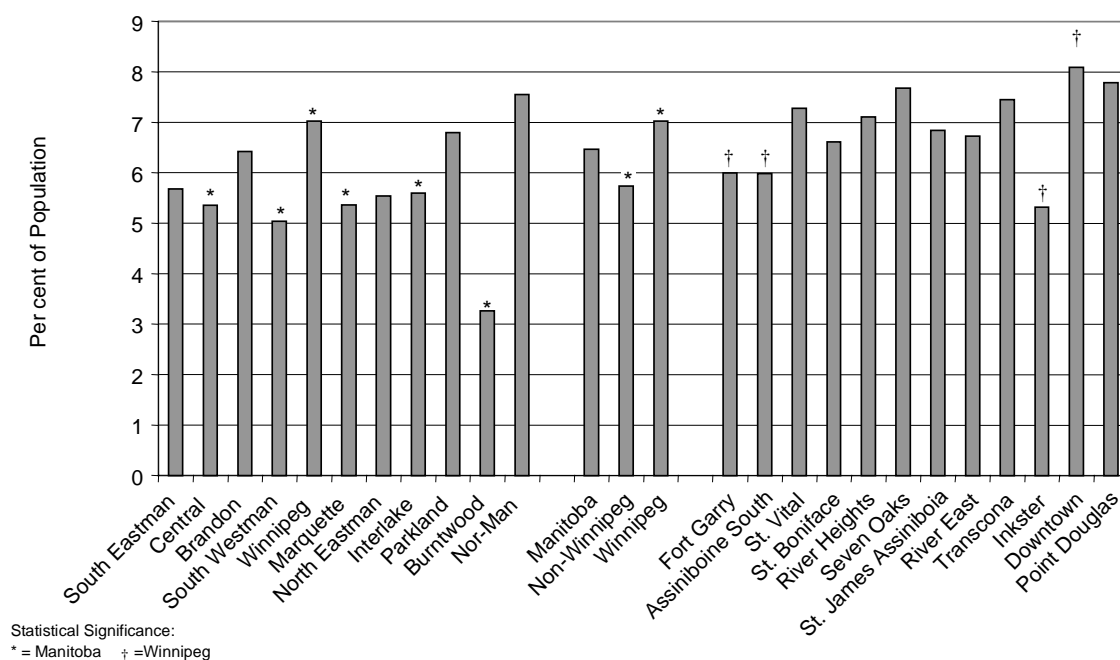
**Figure 5.3: Per cent of Population who were Home Care Clients
Ages 0-64, 1998/99**



Across the Winnipeg CAs, areas with the lowest rates were Fort Garry, Assiniboine South and St. James Assiniboia, at 0.5% each. The highest rates of use were in the Downtown and Point Douglas areas of Winnipeg (1.1% each). For this younger population, premature mortality order is a meaningful reflection of health, so it is not unexpected that Burntwood and Nor-Man RHAs and the Downtown and Point Douglas areas of Winnipeg had the highest rates of use. Recall that in the figures the RHAs and Winnipeg CAs are presented according to the region's premature mortality rate: those on the left had healthier younger

populations with relatively few deaths per 1000 individuals aged 74 and under, while those on the right experienced increased mortality among individuals aged 74 and under. The number of new clients per 100 residents is also an indication of the use of home care (Figure 5.4). These are individuals who were not receiving home care services at the beginning of the year, but who accessed home care for at least one day during 1998/99. Again, only data on the population aged 65 years and older is presented, although patterns across the RHAs and the Winnipeg CAs were very similar for those aged 75 years and older. The rate of new clients is similar across the province. Although Winnipeg rates were statistically significantly higher than Non-Winnipeg rates, with 7.0% of Winnipeg residents aged 65 and older being new clients as compared with 5.7% of Non-Winnipeg residents aged 65 and older, these differences are in fact remarkably small.

**Figure 5.4: Per cent of Population who were New Home Care Clients
Ages 65+, 1998/99**

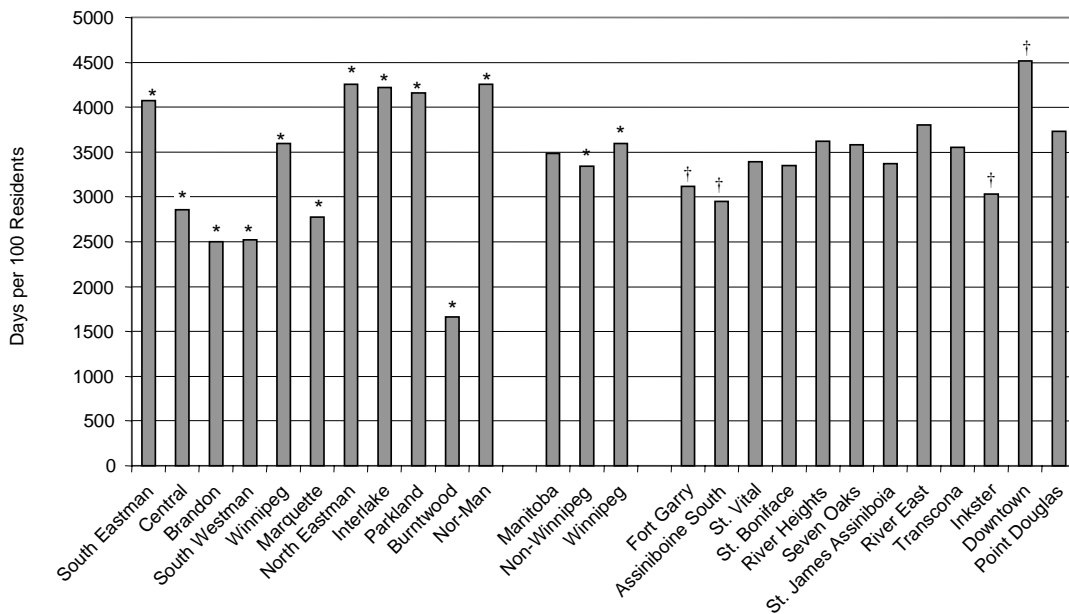


The per cent of new home care clients in the population aged 0 to 64 across the province was very low—less than 0.6%. Although a figure for the data is not presented here, we found the rates were similar across Winnipeg and Non-Winnipeg residents, although again, slightly higher use by young Winnipeg residents compared to young Non-Winnipeg residents (0.4% versus 0.3%) was found.

Days open to home care per 100 residents is influenced both by the number of individuals in each area who have accessed home care during the year and the average number of days their file was open. This rate does not tell us the number of days that a client is actively receiving home care services, nor the type of services the client is receiving.

Figure 5.5 shows the number of days open in the Home Care Program per 100 residents aged 65 and older in 1998/99 by RHA and Winnipeg CAs. In general, areas that had a high number of days open per 100 residents were the same areas that had a relatively higher proportion of their population receiving at least one day of home care. Winnipeg residents had 3,593 days open to the Home Care Program per 100 residents aged 65 and older, compared with 3,344 days per 100 Non-Winnipeg residents aged 65 and older (a statistically significant difference).

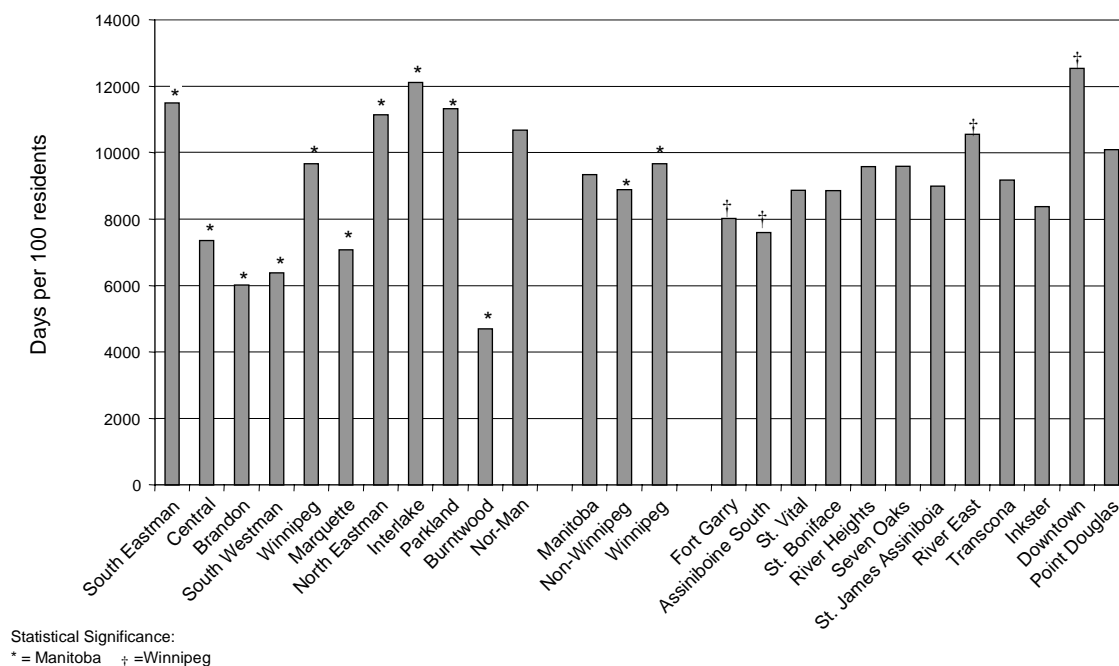
**Figure 5.5: Days Open to Home Care per 100 Residents
Ages 65+, 1998/99**



Statistical Significance:
* = Manitoba † =Winnipeg

Figure 5.6 shows days registered with home care for the 4-year period per 100 residents aged 65 and older. The observed pattern is very similar to that for days open per capita over the one-year period, 1998/99.

**Figure 5.6: Days Open to Home Care per 100 Residents
Ages 65+, 1995/96 to 1998/99**



5.2 Home Care Use by Relative Affluence of Neighbourhood

As shown in Appendix B, the health of Manitoba's elderly residents varies across neighbourhoods according to the relative affluence of the area. In urban areas (Winnipeg and Brandon) the lower the average household income in the neighbourhood of residence,¹⁴ the higher the mortality rate (particularly for males), the higher the use of hospitals, and the more likely individuals were to be admitted to a Personal Care Home. Given these patterns, it would seem reasonable to expect that elderly persons living in lower income neighbourhoods in urban areas would have somewhat higher needs for home care services than those who live in high income urban areas. Since less clear patterns were found between differing levels of household income and health indicators among elderly persons in rural Manitoba, this report focuses only on home care use in relation to urban neighbourhood income levels.

¹⁴ Residents of urban Manitoba (Winnipeg and Brandon) were separately divided into five socioeconomic groups. We used data from the 1996 Canadian Census public use database describing the mean household income characteristics of the neighbourhoods in which Manitoba residents lived. Census data were aggregated at the geographic unit of the enumeration area; an enumeration area has an average population of 700 people.

5.2.1 Urban neighbourhood income levels and Home Care use

The poorer the neighbourhood of residence, the higher was the use of home care in urban areas of Manitoba (Table 5.3). For home care clients ages 65 and older living in Winnipeg and Brandon, a statistically significant trend was observed across income groups: in the poorest neighbourhoods, 21.2% of the population age 65 and older were home care clients whereas in the wealthiest neighbourhoods, only 12.8% of the population age 65 years and older were home care clients. The number of new clients per 100 residents aged 65 years and older, as well as the number of days open to home care per 100 residents ages 65 years and older also followed this pattern, with the individuals from the poorer neighbourhoods having a higher use of home care services. Although not shown here, the use of home care by urban residents ages 0 to 64 and for residents 75 years and older both followed a similar pattern. For a graph indicating the Winnipeg areas in which the lower income neighbourhoods are located, see Figure B4 in Appendix B (Health of Elderly Persons in Manitoba).

Table 5.3: Home Care Use by Urban Neighbourhood Income Quintiles, Ages 65 years and older, 1998/99

Neighbourhood Income – Urban Areas	Per cent of the population who were home care clients in 1998/99 [§]	Per cent of population who were new home care clients in 1998/99 [§]	Number of Days open in 1998/99 per 100 residents [§]	Number of Days open over 4-year period per 100 residents [§]
Q1 (Lowest)	21.2%	8.8%	4,870	12,974
Q2	17.1%	7.6%	3,729	9,811
Q3	15.0%	6.8%	3,255	8,427
Q4	13.7%	5.8%	2,961	7,656
Q5 (Highest)	12.8%	6.0%	2,742	6,686

[§] Directly adjusted to the age- and sex-distribution of the December 1998 population

5.3 Summary

- Four population measures of home care use were employed:
 - the per cent of the population who were home care clients in 1998/99
 - the per cent of the population who were new home care clients in 1998/99
 - days open in the Home Care Program in 1998/99 per 100 residents
 - days open over the four-year period per 100 residents.
- Overall, 2.7% of Manitoba residents were registered in the Home Care Program for at least one day during 1998/99.
- Females were significantly more likely to use home care than males.
- Home care use increased with age.
- A higher proportion of those who were not married used home care services.
- 1.2% of Manitobans were new clients.
- The per cent of Manitobans who were new clients increased with age.
- The number of days spent in the Home Care Program in 1998/99 per 100 Manitobans was 578.
- Over the four-year period, the number of days spent in the Home Care Program per 100 residents was 1,537.
- For residents aged 65 years and older, across the four measures of home care use,
 - Central, South Westman, Marquette and Burntwood consistently had lower rates than the Manitoba rates, and Brandon often had lower rates.
 - Winnipeg rates were consistently higher than the Manitoba rates, and Interlake and Parkland often had higher rates.
 - Fort Garry and Assiniboine South consistently had lower rates than the overall Winnipeg rates, and Inkster often had lower rates.
 - The Downtown consistently had higher rates than the overall Winnipeg rates.
- The poorer the neighbourhood of residence, the higher was the use of home care in urban areas of Manitoba.

6.0 HOME CARE FOLLOWING HOSPITALIZATION

To review the patterns of home care use after discharge from hospital in 1998/99, we focused on the first hospitalization episode or surgical outpatient¹⁵ procedure which Manitobans had in the 1998/99 fiscal year. Our review identified 13,379 individuals, of all ages, who were home care clients within 30 days of discharge, representing 43% of all home care clients in 1998/99¹⁶. Viewed somewhat differently, 9.4% of those who were hospitalized or had outpatient surgery in 1998/99 (first episode only), were home care clients after discharge.

We divided those who received home care services after they had been hospitalized into two groups: 1) the Pre-and-Post Hospitalization group, comprised of individuals who had already been receiving home care before they were admitted to hospital or had outpatient surgery and who continued receiving home care after discharge; and 2) the Post-Hospitalization group, comprised of individuals who had not been registered as home care clients for at least 30 days prior to being hospitalized and who then began receiving home care services after their hospitalization/outpatient episode (within 30 days of discharge). The Pre-and Post group is expected to be a more vulnerable group. They likely had functional deficits and inadequate informal supports prior to their hospital admission, explaining their prior use of home care.

Table 6.1 classifies those who were hospitalized (or had outpatient surgery in 1998/99) into three groups: those who were hospitalized and not discharged to home care (fully 90.6% of individuals hospitalized were so classified), those who did not receive home care before being hospitalized but who were discharged as clients of home care (4.2%), and those who received home care before hospital admission and were discharged to the Home Care Program (5.2%). The likelihood of receiving home care varied markedly by age. Very few patients aged 0-64 received home care after discharge, but among those aged 85+, over 41%

¹⁵ Surgical outpatients were defined as patients identified in Hospital Separation Abstracts as outpatients who underwent surgery (based on Diagnostic Related Groups) in an operating room.

¹⁶ A small number of VON home care clients were not included in analysis for this report, of which some may have registered for home care after hospital discharge. This group is described in more detail in Appendix A's section: Capture of VON Clients in MSSP Data.

were registered on home care after the first hospital episode. Marital status did not seem to influence home care use after discharge: the same proportion of married (which includes common-law relationships) and non-married patients received home care after discharge. Patient status however, did have some influence. Inpatients were much more likely to receive home care after hospitalization (12.4%) than were surgical outpatients (3.2%). Table 6.1 also indicates that residents of Northern Manitoba were less likely to receive home care after being hospitalized than were residents of the Rural South or Winnipeg.¹⁷

Table 6.1: Summary of Home Care Use within 30 Days of First Hospital Discharge or Outpatient Procedure in 1998/99

		Hospitalized- Not Discharged to Home Care Patients (%)	Post- Hospitalization Home Care Clients (%)	Pre-and-Post Hospitalization Home Care Clients (%)	Row Total (N)
Manitoba		90.6%	4.2%	5.2%	143,251
Gender	Female	90.5%	4.0%	5.5%	86,535
	Male	90.9%	4.4%	4.7%	56,716
Age	0-64	97.3%	1.6%	1.1%	102,604
	65-74	84.0%	8.3%	7.7%	16,329
	75-84	71.1%	12.4%	16.5%	16,773
	85+	58.3%	11.3%	30.4%	7,545
Marital Status	Married	91.4%	4.3%	4.3%	55,362
	Not Married	90.2%	4.1%	5.7%	87,889
Patient Status	Inpatient	87.6%	5.8%	6.6%	96,128
	Outpatient Surgery	96.8%	0.8%	2.4%	47,123
Region	Winnipeg	89.5%	5.1%	5.4%	72,699
	Rural South	91.1%	3.4%	5.5%	59,471
	Northern Manitoba	96.4%	1.8%	1.8%	11,081

¹⁷ Individuals who were hospitalized are reported in the tables and graphs according to their place of residence, not where hospitalization occurred.

Winnipeg was the region that had the highest proportion of patients discharged to home care. However, since Winnipeg residents' use of hospitals is considerably lower than that of Non-Winnipeg residents¹⁸, Winnipeg's overall use of home care after hospitalization may be similar to Non-Winnipeg's use.

Table 6.2 presents the same three groups and their characteristics but organizes the information in a different manner. The characteristics of those who were hospitalized but received no home care services can be compared with the characteristics of those who did receive home care services. For example, the gender distribution is similar for all three groups, with the majority being women. The age characteristics of the three groups however are not similar: the Pre-and-Post Hospitalization clients were much older, with nearly a third 85 years and older and less than 15% under age 65. Those who were newly admitted to home care following hospitalization were also much older than those who did not receive home care following hospitalization but not to the same degree as the Pre-and-Post Hospitalization group. Table 6.2 also indicates that a higher proportion of individuals who received home care following discharge were not married compared to those who did not receive home care after hospitalization. As well, while more than a third of all surgery is now done on an outpatient basis, 94.1% of those who became home care clients following their hospital experience had been inpatients and only 5.9 % had been treated on an outpatient basis. On the other hand, among those who had been receiving home care before their hospital episode, 15% were treated on an outpatient basis and then discharged back to home care, while 85% were treated on an inpatient basis.

¹⁸ Black C, Roos NP, Fransoo R, and Martens P. (1999). *Comparative indicators of population health and health care use for Manitoba's Regional Health Authorities: A POPULIS project*. Winnipeg, MB: Manitoba Centre for Health Policy and Evaluation. In 1998/99 rural Manitobans had 196 hospitalizations per 1000 residents, Brandon residents 145, and Winnipeg residents 128. These rates are adjusted for the different age and sex compositions of the populations.

Table 6.2: Summary of Post-Hospitalization and Pre-and-Post Hospitalization Home Care Clients and Hospital Patients Not Discharged to Home Care in 1998/99*

		Hospital-No Home Care Patients	Post-Hospitalization Home Care Clients	Pre-and-Post Hospitalization Home Care Clients
Manitoba (N)		129872	5969	7410
Gender	Female	60.3%	58.5%	63.9%
	Male	39.7%	41.5%	36.1%
	Total (%)	100%	100%	100%
Age	0-64	76.8%	28.0%	14.6%
	65-74	10.6%	22.7%	17.0%
	75-84	9.2%	34.9%	37.4%
	85+	3.4%	14.4%	31.0%
	Total (%)	100%	100%	100%
Marital Status	Married	39.0%	28.3%	31.7%
	Not Married	61.0%	71.7%	68.3%
	Total (%)	100%	100%	100%
Patient Status	Inpatient	64.8%	94.1%	85.0%
	Outpatient Surgery	35.2%	5.9%	15.0%
	Total (%)	100%	100%	100%
Region	Winnipeg	50.1%	62.4%	52.7%
	Rural South	41.7%	34.3%	44.5%
	Northern Manitoba	8.2%	3.3%	2.8%
	Total (%)	100%	100%	100%

* Based on all first hospitalizations or outpatient procedures in 1998/99

6.1 Home Care after Hospitalization and Outpatient Surgery

As mentioned above, overall, 9.4% of Manitoba residents hospitalized or having an outpatient procedure in 1998/99 (first episode only) were discharged to home care. This varied by RHA from a high of 10.4% of Winnipeg's hospitalized residents to less than 5% of Burntwood's hospitalized residents who were admitted to home care after hospital (Figure

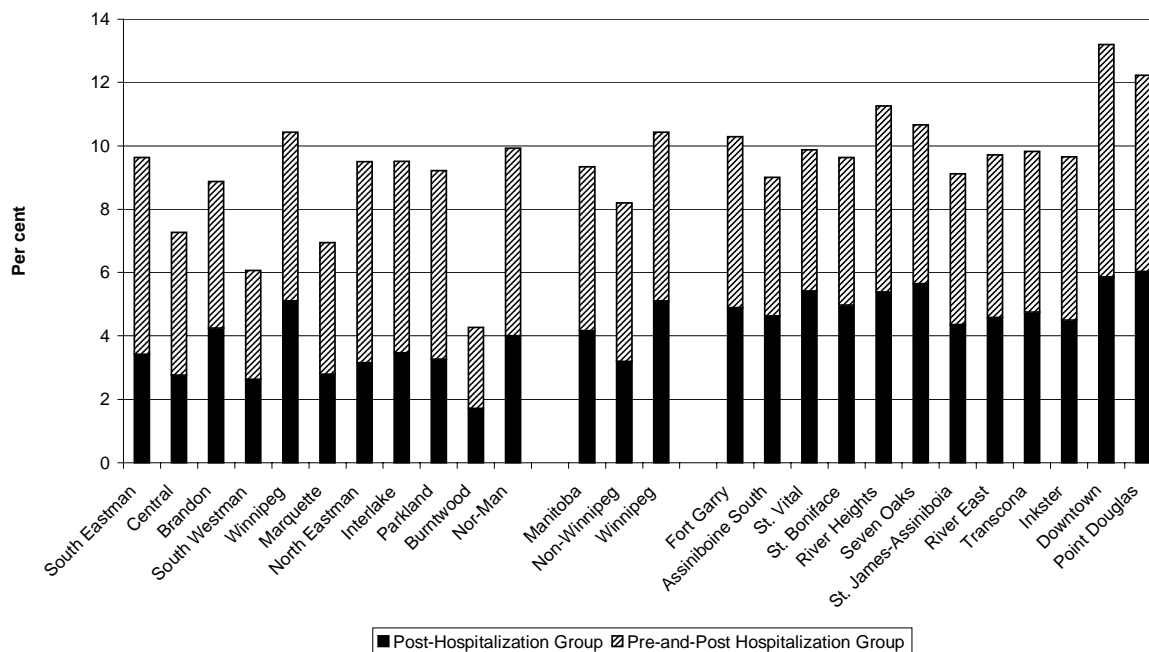
6.1).^{19,20} South Westman, Central and Marquette residents also had relatively low rates of home care after hospitalization. Among the Winnipeg CAs, both Downtown and Point Douglas reported rates significantly higher than the Winnipeg average, at 13.2 % and 12.2% respectively. Rates across the rest of the Winnipeg areas were reasonably similar, around 9-10%.

If we focus on those individuals who had not been receiving home care before the hospitalization (the Post-Hospitalization group at the bottom area of the bar graph, Figure 6.1), 4.2% of Manitobans became home care clients following discharge from hospital. Winnipeg had a significantly higher proportion of Post-Hospitalization clients (5.1% of discharged patients) than Non-Winnipeg (3.2 %). Rates at which individuals became new clients of home care after being hospitalized varied little across Winnipeg. Significantly higher admissions to home care following hospitalization were seen in the Downtown (5.9%) and Point Douglas (6.1%) areas. The lowest Winnipeg Community Area rate (4.4% in St. James-Assiniboia) was still higher than the average rate for Non-Winnipeg RHAs. The rates in the Non-Winnipeg RHAs varied somewhat more. Brandon had the highest proportion of Post-Hospitalization clients (4.3%) while Burntwood had the lowest (1.7%). With the exception of Brandon and Nor-Man, all Non-Winnipeg RHAs reported significantly lower rates of Post-Hospitalization clients than the Manitoba rate.

¹⁹ All rates in Figures 6.1, 6.2 and 6.3 are age- and sex-adjusted.

²⁰ Individuals who were hospitalized are reported in tables and graphs according to their place of residence, not where hospitalization occurred.

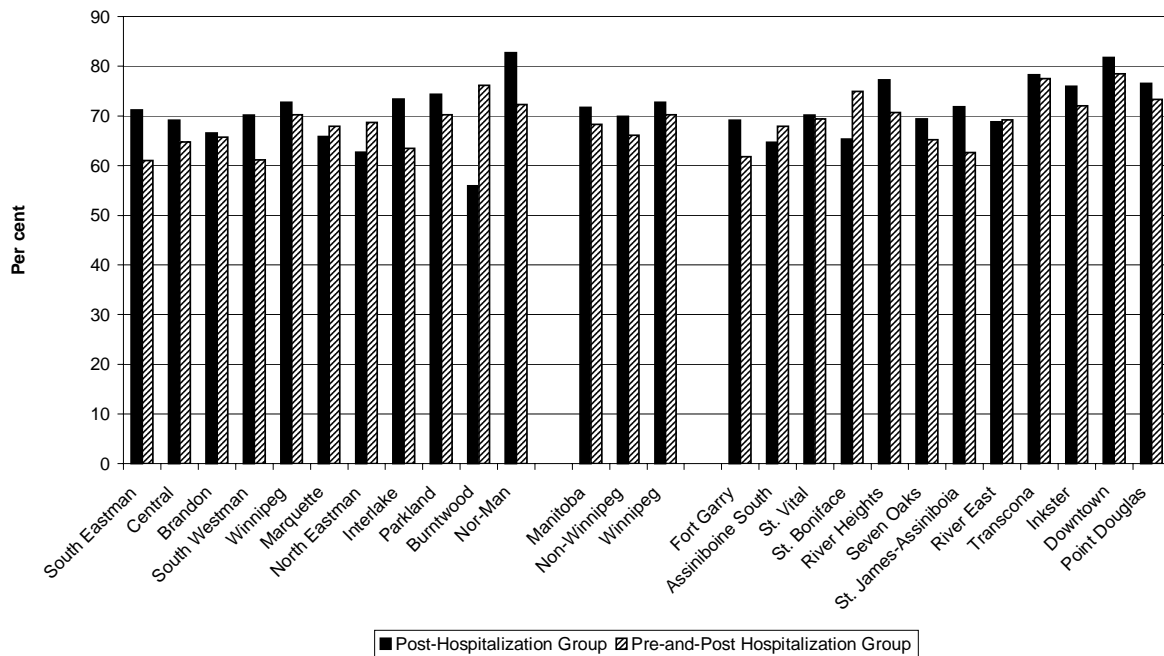
**Figure 6.1: Per cent of Residents Hospitalized in 1998/99
who Registered for Home Care
within 30 Days of Discharge by Region**



6.2 Marital Status

As described previously, one of the key reasons for establishing the Home Care Program was to provide home care services to persons who had inadequate informal resources to allow them to return home from hospital. As indicated in Table 6.2, the great majority of clients entering home care within 30 days of hospital discharge were not married. Figure 6.2 suggests that provincially similar assessment standards are being applied; in Manitoba, 68.3% of the Pre-and-Post Hospitalization group and 71.7% of the Post-Hospitalization group were not married. Very similar proportions were found across the Winnipeg and Non-Winnipeg areas.

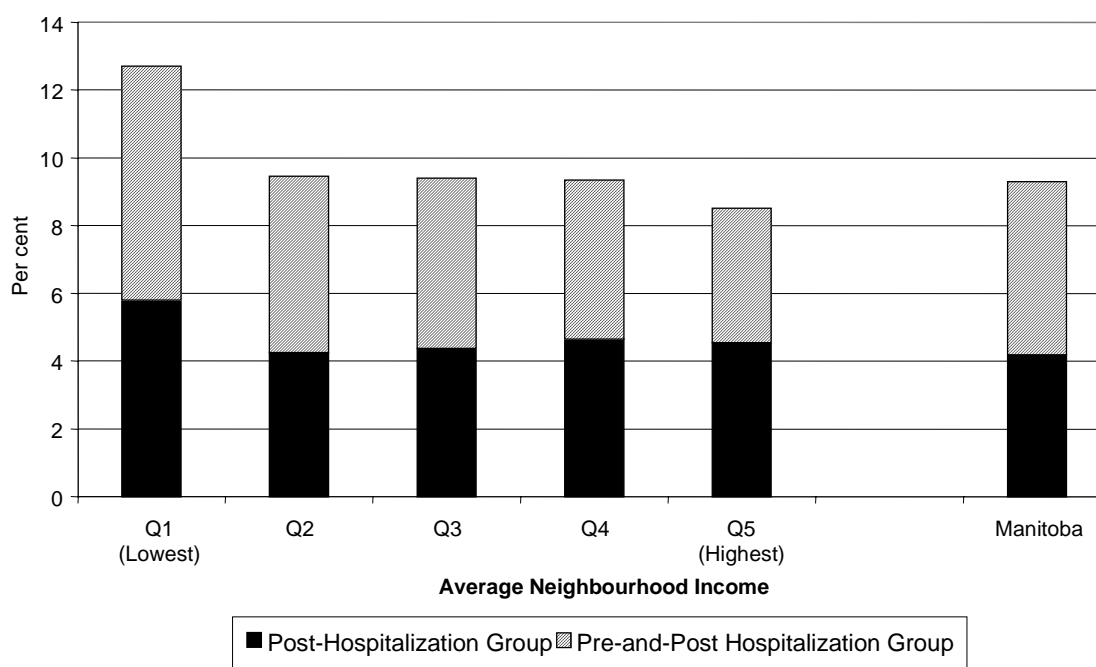
Figure 6.2: Per cent of Non-Married Individuals among Clients Registered for Home Care within 30 Days of Discharge in 1998/99 by Region



6.3 Variation by Neighbourhood Income

Figure 6.3 describes home care use after hospitalization by the relative affluence of the individual's neighbourhood of residence. In urban Manitoba (Winnipeg and Brandon), the percentage of both Pre-and-Post Hospitalization and Post-Hospitalization clients was highest among those living in the poorest neighbourhoods (Q1=6.9% and 5.8% respectively). Both groups were significantly larger than the Manitoba average of 5.1% Pre-and-Post Hospitalization clients and 4.2% Post-Hospitalization clients. The proportion of Post-Hospitalization clients in the second wealthiest neighbourhoods (Q4=4.7%) was also found to be significantly higher than the Manitoba average for this group. Conversely, the proportion of Pre-and-Post Hospitalization clients in the wealthiest neighbourhoods (Q5=4.0%) was found to be significantly lower than the Manitoba average.

Figure 6.3: Per cent of Urban Residents Hospitalized in 1998/99 who Registered for Home Care within 30 Days of Discharge by Average Neighbourhood Income Quintile



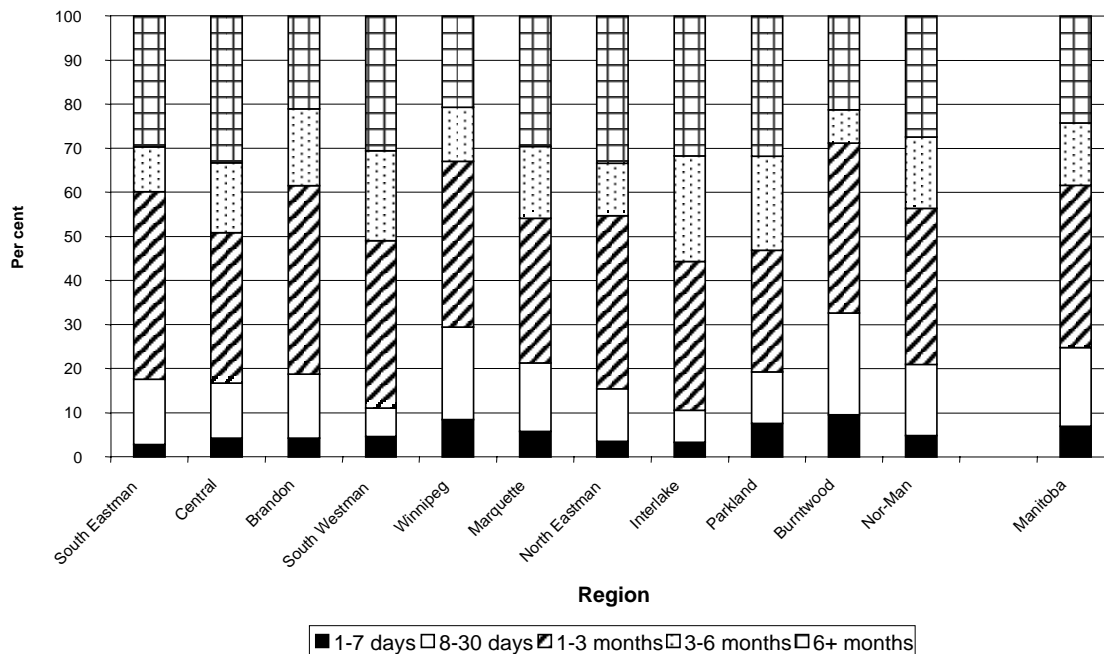
6.4 Duration of Home Care after Discharge

To provide some indication of how long individuals were clients of home care following hospital discharge, we looked at the length of time clients were registered with the Program for those individuals who had not been receiving home care at the time of their entry to hospital (or having outpatient surgery). Since 1998/99 was the most recent year of home care data available to us, we focused exclusively on Post-Hospitalization clients discharged from hospital in the first half of the 1998/99 fiscal year (April 1, 1998 to September 30, 1998) to determine how long they were clients of the Home Care Program after discharge. This enabled us to track length of home care registration for at least 6 months following hospital discharge (or more depending on when the client was discharged in the first half of the fiscal year). We could, therefore, determine what proportion of Post-Hospitalization clients were registered in home care after discharge for 1-7 days, 8-30 days, 1-3 months, 3-6 months, and over 6 months.

Figure 6.4 presents these findings for Manitoba and for the RHAs. In Manitoba, 7.0% of the clients were registered for 1-7 days after discharge and 17.7% were registered for 8-30 days.

The largest proportion were registered in home care after discharge for 1-3 months (37.0%), another 14.2% for 3-6 months, and 24.1% for over 6 months.

Figure 6.4: Length of Registration in Home Care for Post-Hospitalization Home Care Clients Discharged between April 1, 1998 and September 30, 1998



The most striking aspect of these data is the shorter period of post-hospital home care use by Winnipeg and Burntwood clients as compared to the other RHAs: 8.4% of Winnipeggers were discharged from home care within a week or less, and 21.0% received home care for 8-30 days. Only Burntwood's home care clients had similar short-term use of home care after hospitalization (32.7% of clients were registered for home care for less than 30 days). Conversely, a smaller proportion of Winnipeg and Burntwood Post-Hospitalization clients were still home care clients more than three or six months after discharge than any other RHA (32.9% and 28.8% respectively). To identify the reasons for these differences particularly if they reflect similar differences in service use patterns, warrants further investigation.

6.5 Summary

- 9.4% of Manitoba residents who were hospitalized or had a surgical outpatient procedure in 1998/99 were discharged to home care (based on first hospitalization/outpatient procedure)
- While there was similar use of home care after hospitalization for residents regardless of where they lived in Winnipeg, there was more variation across the RHAs. Only 4.3 % of Burntwood residents received home care services following hospital discharge compared to 9.9% of Nor-Man's and 10.4% of Winnipeg's.
- Of those who received home care following discharge from hospital in 1998/99, 55% had already been receiving home care before they were admitted to hospital
- Age was a strong predictor of whether an individual received home care services following hospitalization. While less than 3 % of those aged 0-64 received home care services after being hospitalized, over 41% of those aged 85 years and older were discharged from hospital with home care services, and most of them had been clients of home care before they were hospitalized.
- The majority of clients entering home care within 30 days of hospital discharge were not married. Very similar proportions of non-married clients were found across the Winnipeg and Non-Winnipeg regions, suggesting that similar assessment standards are being applied.
- The vast majority (89.1%) of patients discharged from hospital to home care had been treated as inpatients rather than as surgical outpatients.
- A higher proportion of individuals who had home care before hospitalization had their surgery performed on an outpatient basis (15%) and were then discharged back home with home care services in place than did those who only received home care after discharge, not prior to hospitalization (5.9%).
- In urban Manitoba, rates of discharge from hospital to home care were highest among residents living in the poorest neighbourhoods compared to those living in middle income or high income neighbourhoods.
- Based on a six-month follow-up, Winnipeg residents who had a higher rate of Post-Hospital use of home care than did Non-Winnipeg residents, were also discharged more rapidly from home care within the following six months than all other RHAs, except for Burntwood.

7.0 HOME CARE USE BEFORE PERSONAL CARE HOME ADMISSION

One of the objectives of Manitoba's Continuing Care Program is to assess and place persons in a long-term care bed if they can no longer be maintained at home safely or economically with home care services and to provide them with services at home until they are placed. Hence one focus of this report is to describe the use of home care services both before panelling for Personal Care Home (PCH) placement and also between the time of panelling and admission to a facility. In Manitoba an individual is assessed by a panel of experts for the need to receive care in a PCH. When referring to "panelling" or an individual being "panelled" in this report we are referring to the date when the panel of experts recommended that the individual be admitted to a Personal Care Home.

In this section we describe the use of home care services for home care clients who entered a PCH in 1998/99. Approximately 8% of clients who were registered at least one day in home care in 1998/99 entered a PCH the same year. This represented the vast majority (93%) of all individuals who entered a PCH that year. We also examine the length of time individuals were home care clients over the 365 days preceding PCH admission and the total number of days registered as a home care client going back over all episodes of home care to April 1, 1996. In addition, we examine the days of home care use between PCH panelling and PCH admission.

Table 7.1 provides a summary of home care use before PCH admission. Both mean and median numbers of days of use are shown. However, means are used when making comparisons in figures because they can be age- and sex-adjusted. Region specific data for regions that had 50 or fewer home care clients entering a PCH in 1998/99 (the RHAs of Burntwood, Nor-Man, and North Eastman, and the Winnipeg CAs of Inkster and Transcona) are not reported in the tables and figures, though data for residents of these regions are included in the Winnipeg/Non-Winnipeg totals.

**Table 7.1 Average Home Care Days before Personal Care Home Entry
from April 1, 1996, to Date of Entry to PCH, 1998/99**

		1-180 days	6mth-1year	1-2years	2-3years	Total (N)	Mean	Median
Manitoba		21%	17%	24%	39%	2403	537	543
Sex	Male	25%	17%	25%	32%	873	489	453
	Female	18%	16%	23%	42%	1530	564	609
Age	0-64	29%	20%	21%	30%	56	487	374
	65-74	25%	20%	22%	33%	251	478	430
	75-84	23%	18%	27%	33%	935	501	456
	85+	18%	15%	22%	45%	1161	582	656
Marital Status	Non-married	21%	16%	23%	40%	1796	541	561
	Married	20%	20%	25%	36%	607	526	510
Region	Winnipeg	20%	16%	25%	39%	1396	541 [§]	573
	Rural South	21%	18%	22%	38%	981	532 [§]	514
	Northern Manitoba	23%	12%	42%	23%	26	468 [§]	476
RHA	South Eastman	12%	12%	25%	51%	67	619 [§]	737
	Central	22%	19%	21%	37%	214	518 [§]	470
	Brandon	23%	24%	24%	29%	131	469 [§]	400
	South Westman	26%	22%	19%	33%	93	468 [§]	380
	Marquette	21%	17%	24%	38%	138	539 [§]	562
	Interlake	17%	14%	24%	45%	134	588 [§]	663
	Parkland	24%	16%	19%	41%	158	535 [§]	569

[§] Age- and sex-adjusted values

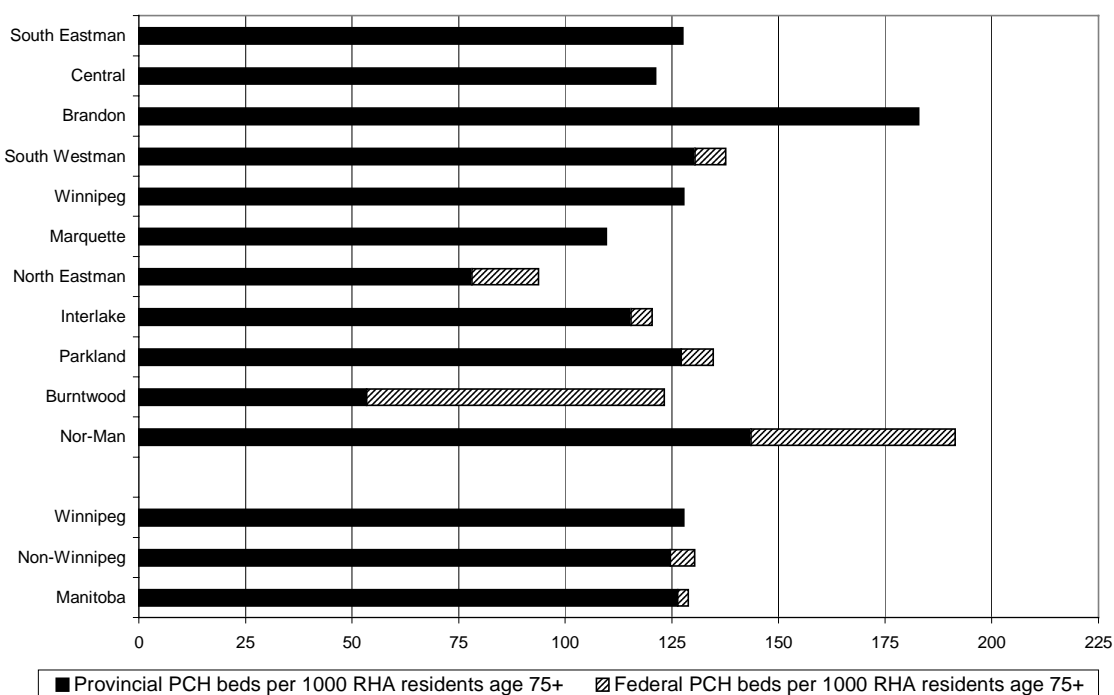
Summary Table 7.1 highlights several patterns in home care use before PCH entry. Individuals aged 85+ years were supported for the longest time before PCH entry, consistent with the goal of permitting individuals to stay in their homes as long as possible. Women spent more time before PCH placement registered as home care clients than did men, as did individuals who were unmarried compared to those who were married. Seventy-five per cent of home care clients who entered a PCH in 1998/99 were not married. Table 7.1 also indicates that, since April 1, 1996, individuals living outside Winnipeg generally spent fewer days as home care clients before PCH entry than did Winnipeg residents. Residents in Winnipeg and the Rural South are similar in the length of time they spend on home care before PCH admission, but stays by Northern Manitoba residents are somewhat shorter. A larger proportion of residents in Northern Manitoba received home care for 1-2 years and a lower percentage received home care for 2-3 years compared to the rest of the province. However, the smaller number of individuals in the northern regions of the province make their estimates somewhat unreliable.

7.1 Availability of Personal Care Home Beds by Region

The number of PCH beds available in a region can play an important role in PCH use as well as length of time to PCH admission once an individual is panelled. Figure 7.1 gives the ratio of PCH beds/1000 individuals aged 75+ years, including both provincial and federal PCH bed ratios²¹. The figure indicates PCH beds per 1000 individuals aged 75+ varies considerably between the regions. North Eastman has the lowest ratio with only 93.7 PCH beds, both federal and provincial, while Nor-Man has the highest ratio at 191.3 beds. Brandon has the highest ratio of provincial PCH beds at 182.9 PCH beds while Burntwood has the lowest ratio at 53.4 PCH beds per population age 75+. The Winnipeg and Non-Winnipeg provincial bed ratios are similar — at 127.7 and 124.6 PCH beds/1000 aged 75+ respectively. Adding the federal beds brings the Non-Winnipeg beds to 130.3/1000. Note

also that Figure 7.1 reports on the number of PCH beds available per residents aged 75 years and over. While this is an appropriate denominator for most RHAs since the great majority of the PCH residents is in this age group, this is less true for Burntwood and Nor-Man RHAs. Burntwood and Nor-Man have a higher proportion of PCH residents who are younger - under age 75. For example, in 1998/99, 86.4% of PCH residents in Winnipeg were aged 75 or older. This percentage was even higher in Rural South RHAs at 88.1%. In comparison, in Northern Manitoba (Burntwood/Churchill and Nor-Man), the proportion of PCH residents age 75 or older was lower at 76.9%.

Figure 7.1: Supply of Personal Care Home Beds, 1998/99



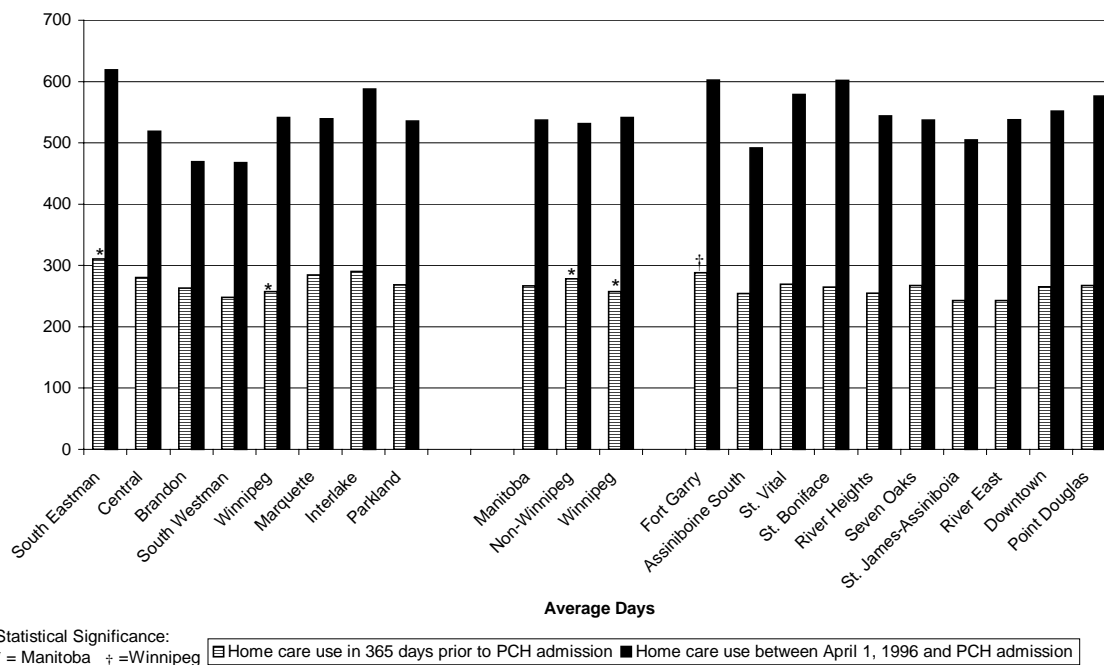
²¹ The provincial PCH bed ratios were calculated based on provincial PCH bed numbers in 1998/99 and population numbers for individuals age 75+ in 1998/99. Federal PCH bed ratios were calculated based on Federal PCH bed numbers in March, 2000 and population numbers for individuals age 75+ in 1998/99.

7.2 Home Care Use prior to PCH Admission

7.2.1 The year before Personal Care Home admission

Home care clients who entered a PCH in 1998/99 spent an average of 266 days registered with home care in the 365 days before their PCH admission (Figure 7.2). Most RHAs reported similar home care averages to this provincial average. However, the RHA of Winnipeg reported rates of home care use that were significantly lower from the Manitoba average (258 days) while the South Eastman RHA reported a significantly higher average at 311 days. In comparing the Winnipeg CAs to the Winnipeg average number of days registered with home care in the year before PCH admission, only Fort Garry differed significantly from Winnipeg, reporting 288 days on average.

Figure 7.2: Average Home Care Days in the 365 Days prior to PCH Admission and Average Home Care Days since April 1, 1996 for Clients Admitted to PCH in 1998/99 by Region



7.2.2. Over time before admission

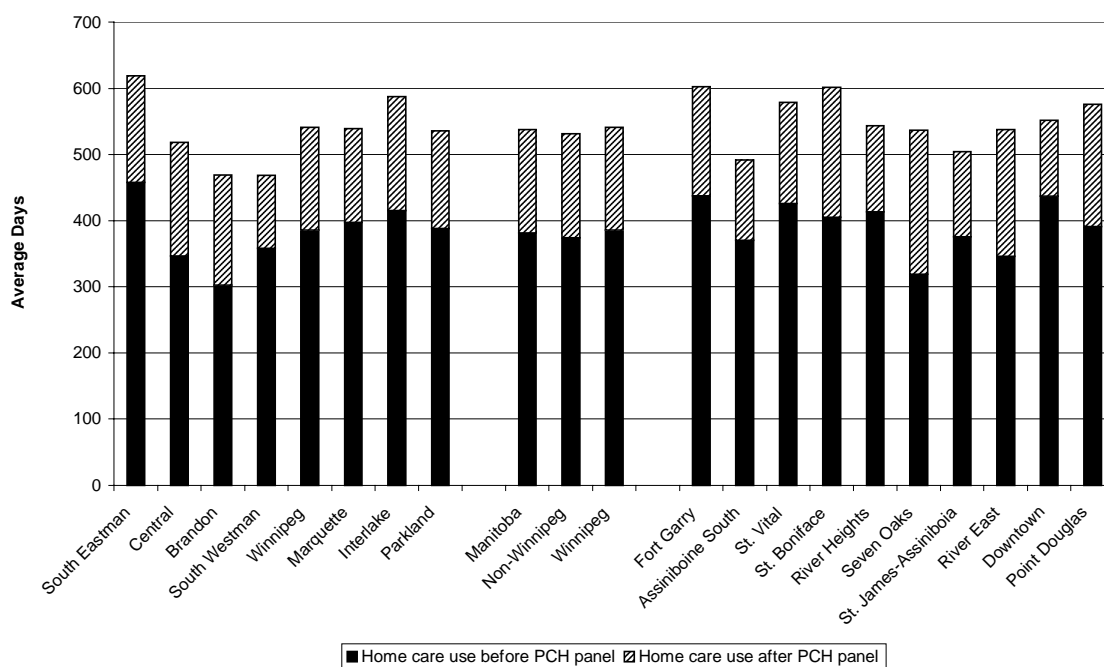
Since April 1, 1996, persons admitted to a PCH in 1998/99 were registered with home care for an average of 537 days (Figure 7.2). Across RHAs there was some variation in the length of time that individuals admitted to a PCH in 1998/99 had been home care clients since 1996, but none of the differences were found to be significantly different from the provincial

average. Similarly, none of the Winnipeg CAs differed significantly in home care use from the Winnipeg average.

7.2.3. Home care use before and after PCH panelling

Home care use before PCH admission can be divided into the number of days on home care before being panelled for PCH admission and the number of days on home care between panelling and PCH admission. As Figure 7.3 shows, home care use before PCH admission was primarily driven by the days on home care before the decision was made that PCH placement was appropriate rather than by the days spent on home care between panelling and PCH entry. Home care clients admitted to a PCH in 1998/99 spent on average 381 days registered on home care before the panelling decision. Both Winnipeg and Non-Winnipeg reported similar number of days. Among the RHAs, only Brandon was found to differ significantly from the Manitoba average. The Brandon RHA had significantly fewer home care days prior to panelling (on average 303 days). Conversely, none of the Winnipeg CAs significantly differed from the Winnipeg average in home care days before panelling. Similar to home care use before panelling, the average number of home care days between

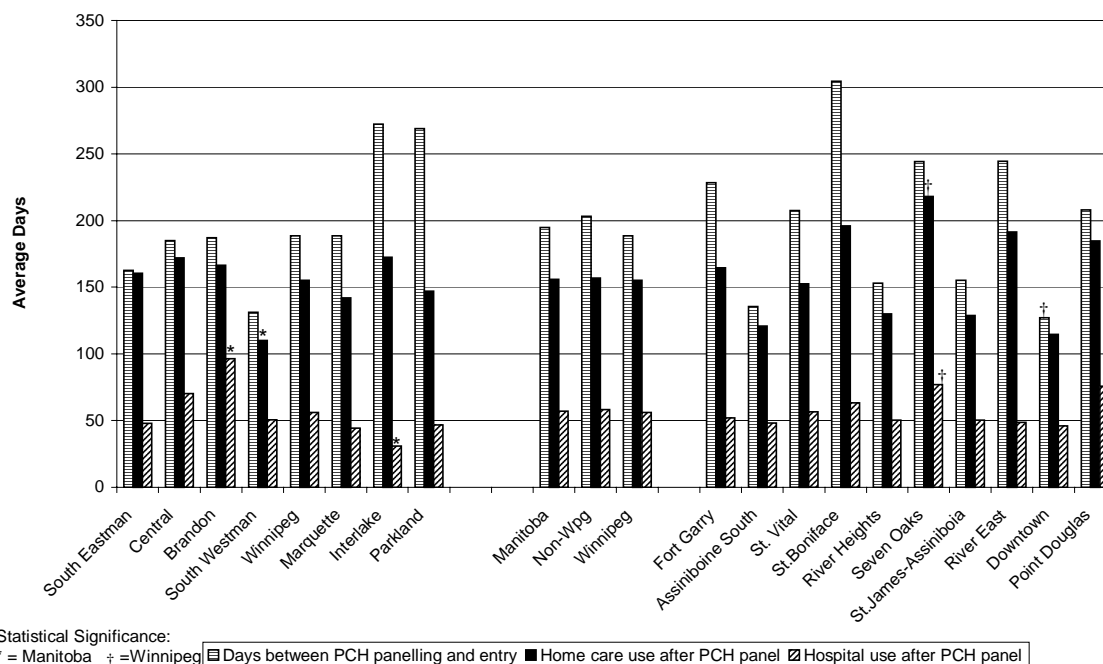
Figure 7.3: Average Home Care Days since April 1, 1996 Before and After PCH Panelling for Clients Admitted to PCH in 1998/99 by Region



panelling and PCH entry was very similar across the regions (Figure 7.3). No significant difference existed between Manitoba's average of 156 days and the Winnipeg and Non-Winnipeg averages (155 and 157 respectively). Moreover, the RHAs and Winnipeg CAs all reported similar values. One exception among the RHAs was South Westman, which had a significantly lower average of 110 days on home care between PCH panelling and admission. The exception among the Winnipeg CAs was Seven Oaks, with a significantly higher average than Winnipeg, at 218 days on home care between PCH panelling and admission.

Figure 7.4 shows the average number of days between panelling and PCH admission and compares this to the average number of days between panelling and admission that was spent on home care. Previously noted, the regions were generally similar in the amount of time that clients were registered on home care between panelling and PCH admission. As Figure 7.4 indicates, individuals generally averaged 195 days between panelling and admission to a PCH for which an average of 156 of those days (80% of the time) they were also registered as home care clients. Clients in the Winnipeg region spent 82% of their post-panel time on home care while clients in the Non-Winnipeg region spent 77% of their post-panel time registered with home care. Within Winnipeg CAs, the proportion of post-panel time spent on home care before PCH admission ranged from a high of 90% for Downtown to a low of 64% in St. Boniface. With a bit more variation, the proportion of time individuals were registered as home-care clients in Non-Winnipeg RHAs ranged between 99% in South Eastman to 55% in Parkland.

Figure 7.4: Average Days, Average Home Care Days and Average Hospital Days since April 1, 1996 between PCH Panelling and Entry for Clients Admitted to PCH in 1998/99 by Region



7.3 Hospital Use Post-Panelling

Figure 7.4 also shows the average number of days spent in hospital between PCH panelling and admission. Often individuals remained registered with home care during a hospitalization; the “days on home care” column therefore may include days during which the individual was actually in hospital. On average, Manitobans spent 57 days in hospital between PCH panelling and admission. Nearly identical rates were found for Winnipeg (56 days) and Non-Winnipeg (58 days). Two RHAs differed significantly from the provincial average; Brandon was significantly higher (96 days in hospital) and Interlake significantly lower (31 days in hospital). Only one Winnipeg CA differed significantly from the Winnipeg average with residents of Seven Oaks reporting a greater number of hospital days (77 days). However, proportionally Seven Oaks’ hospital use is similar to most of the Winnipeg CAs since it has one of the longer time periods between PCH panelling and admission. The average proportion of post-panel time spent in hospital was 30% for Winnipeg (Seven Oaks was 32%). Conversely, the RHAs of Brandon and Interlake still maintained their outlier status, even when considering hospital use as a proportion of post-

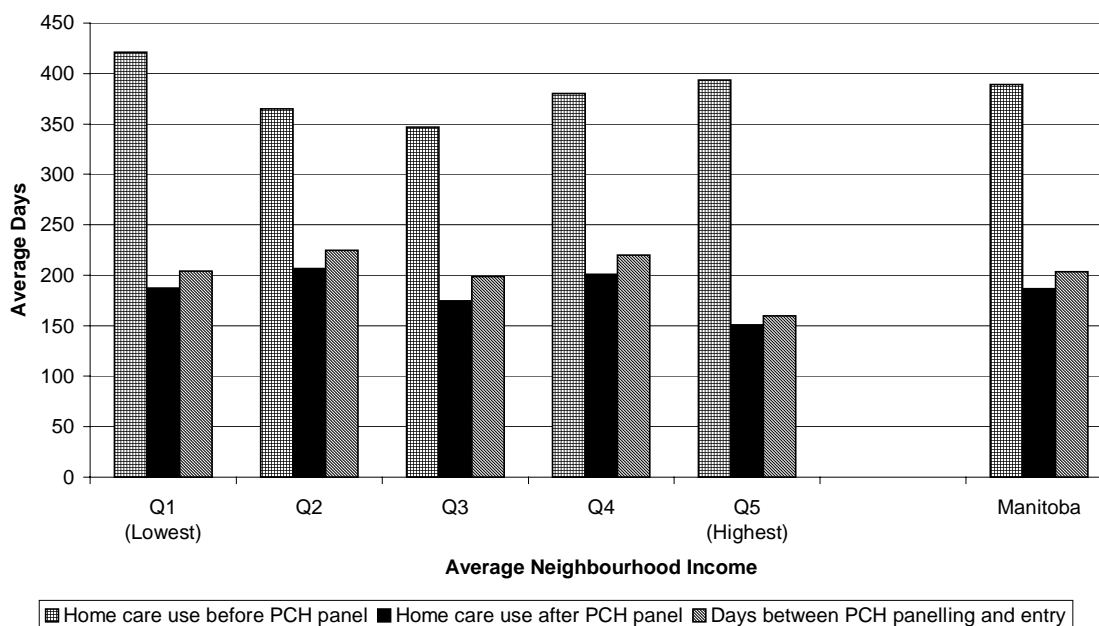
panel time. The average proportion of post-panel time spent in hospital was 29% for Manitoba. In comparison, Brandon was considerably higher at 51% and Interlake was considerably lower at 11%.

7.4 Neighbourhood Income and Home Care Use before Personal Care Home Admission

Figure 7.5 shows the average total home care days before nursing home admission in 1998/99 (before and after panelling) for urban individuals (Winnipeg and Brandon residents) according to the relative affluence of their neighbourhood of residence²². The figure also indicates the average time period between PCH panelling and admission by neighbourhood income. No significant differences were found in the analysis of home care use before PCH panelling in the various urban neighbourhood income quintiles when compared to the Manitoba average (389 days). Among home care use post-PCH panelling, again no significant differences were observed (Manitoba = 187 days). Neighbourhood income of subsequent PCH residents was also unrelated to the average total days between panelling and nursing home entry.

²² This analysis was performed only on home care clients entering a nursing home in 1998/99 whose neighbourhood income could be determined; 94% admitted to a PCH had income information.

Figure 7.5: Average Days and Average Home Care Days since April 1, 1996 Before and After PCH Panelling for Urban Clients Entering PCH in 1998/99 by Income

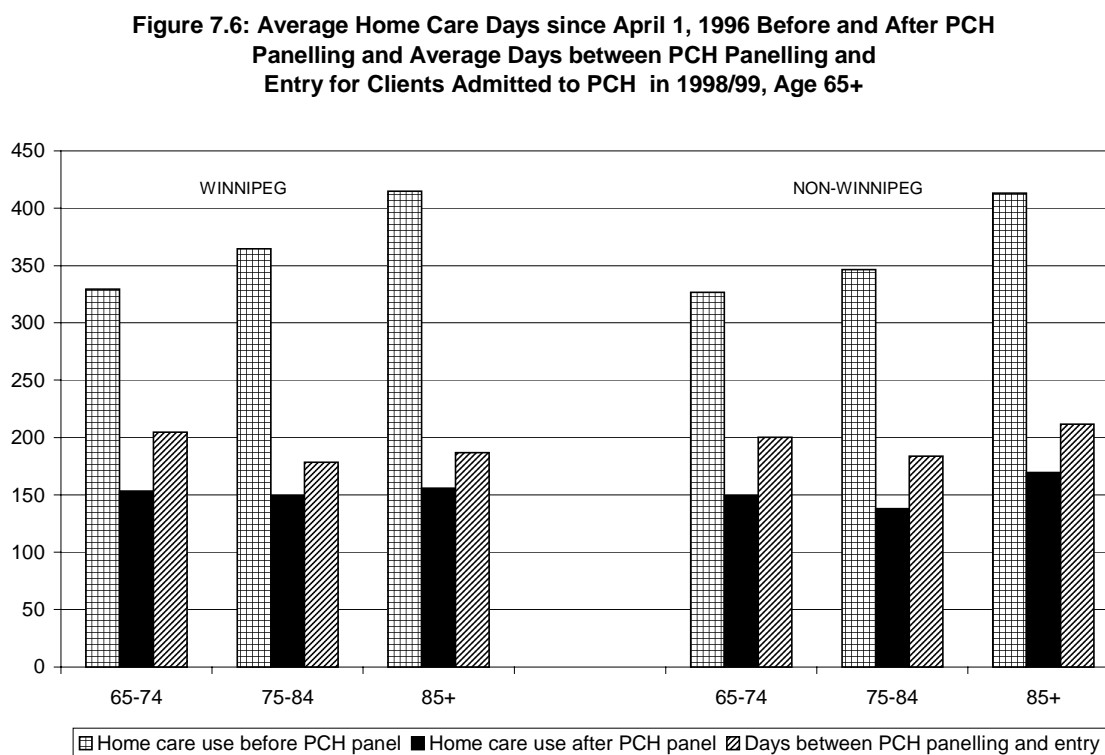


7.5 Age Variations in Home Care Use before Personal Care Home Admission

Examination of home care use before PCH admission by different age groups indicated similar patterns in Winnipeg and Non-Winnipeg (Figure 7.6). The focus of this examination was clients aged 65 years and older since very few home care clients admitted to a PCH in 1998/99 were under the age of 65. Figure 7.6 indicates that clients in the oldest age group (age 85+) spent more time on home care before PCH panelling than did the other age groups (415 days in Winnipeg, 413 days outside Winnipeg). No significant differences in the amount of time on home care before PCH panelling were found between the same age groups in Winnipeg and Non-Winnipeg.

The interval between panelling and PCH entry again indicated much similarity between the same age groups both in and outside Winnipeg (Figure 7.6). In Winnipeg, the average time period between PCH panelling and entry ranged from 187 to 205 days and outside Winnipeg it ranged from 184 to 212 days. The length of time registered with home care during this

panelled time period was also similar among the age groups (Figure 7.6). No significant differences were found between Winnipeg and Non-Winnipeg. Average home care days after PCH panelling ranged from 149 to 156 days in Winnipeg and 138 to 169 days outside Winnipeg.



7.6 Insights on Home Care Use prior to PCH Entry across Manitoba

While this report represents our first, preliminary effort to describe home care use across the province, by putting together information in this and other reports it becomes possible to gain insights into patterns of care delivery. For example, residents of the RHA of Brandon had fewer days on home care before entry to PCH (mean= 469, median=400 days; Table 7.1) compared with the provincial average of 537 days (median=543 days).

Brandon also had higher proportions of home care clients admitted to a PCH in 1998/99 than the provincial average (data not shown), a significantly shorter amount of time on home care before clients were panelled for PCH (Figure 7.3) and higher average hospital days between panelling and PCH admission (Figure 7.4). This suggests that Brandon may rely too heavily

on hospital beds, as a potential holding place for panelled clients (as noted previously and indicated in Figure 7.1, Brandon has the highest ratio of provincial PCH beds to residents aged 75+ in the province), and is not making as much use of home care to maintain its residents at home as are other areas of the province. This observation is supported by a previous Manitoba Centre for Health Policy and Evaluation report that showed 1995/96, Brandon residents aged 75 years and older received more days of care in Personal Care Homes than residents of any other area of the province (Black et al, 1999²³).

7.7 Summary

- 8% of home care clients entered a Personal Care Home in 1998/99. This represented 93% of all individuals who entered a PCH in that year
- The majority of Home Care clients entering a PCH in 1998/99 were women (64%) and not married (75%)
- Women were home care clients longer than were men before entering a PCH; women averaged 564 days (median=609) while men averaged 489 days (median=453 days)
- In the time period since April 1, 1996, individuals were supported by the Home Care Program in their homes for a substantial period prior to PCH entry: on average 537 days (median of 543) before PCH admission – 381 days prior to panelling and 156 days after panelling.
- Winnipeg clients had similar average total home care days before PCH entry compared to Non-Winnipeg clients (541 days compared to 531 days).
- The period of home care support prior to the decision to place an individual in a Personal Care Home did not vary substantially across the RHAs. An exception was found in the RHA of Brandon, which provided more limited periods of support on home care before the decision to panel individuals for PCH placement was made.

²³ Black C, Roos NP, Fransoo R, and Martens P. (1999). *Comparative indicators of population health and Health care use for Manitoba's Regional Health Authorities: A POPULIS project*. Winnipeg, MB: Manitoba Centre for Health Policy and Evaluation.

- Winnipeg and Non-Winnipeg residents did not significantly differ in their length of time between PCH panelling and entry. More variation was reported among individual RHAs and Winnipeg CAs but variations were not significantly different from the provincial/Winnipeg averages.
- On average, individuals were registered for home care for 80% of the time after panelling for PCH placement. The proportion of post-panel time registered on home care varied substantially in the province. South Eastman's panelled clients received home care services for 99% of the time they were panelled and waiting for placement, while Parkland residents received home care services for 55% of the time. Less variation in this proportion was reported in the Winnipeg CAs (64-90%).
- Average neighbourhood income in an individual's urban neighbourhood of residence did not have a significant effect on their home care use before or after panelling for admission to a PCH.
- Clients aged 85 and older received home care for a longer period of time before PCH panelling than younger clients.

8.0 HOME CARE BEFORE DEATH

Home care plays an important role in enabling individuals to remain at home during the period before their death. Approximately nine per cent of home care clients in 1998/99 died while their home care file was active, indicating they were likely receiving services²⁴ in the period prior to their death. The age characteristics of those who were receiving home care services in the period before death were as follows: 0-64 – 16.6%, 65-74 – 20.6%, 75-84 – 37.5% and those aged 85 years and older made up 25.3% of the group.

In this section we examine the length of time individuals were registered as home care clients over 365 days before death as well as the in the time period before death since April 1, 1996. The analyses undertaken in this section were carried out only on home care clients who died in 1998/99 (i.e., individuals still registered as a home care client at time of death). Table 8.1 provides a summary of home care use in the three years before death and provides both means and medians for comparison. As in previous chapters, the figures in this chapter provide only means since they can be age and sex adjusted for more meaningful comparisons between the regions or categories being presented. Data for regions that had 50 or fewer home care clients dying in 1998/99 (Burntwood RHA and Inkster CA) were not presented in the RHA/Winnipeg CA analyses for figures due to the small numbers but their data were included in the Manitoba/Winnipeg/Non-Winnipeg totals.

In Table 8.1, both the means and the medians show that: women were registered for home care for a longer period before death than men: 32% of female home care clients were

²⁴ Individuals who were receiving home care services, then admitted to a Personal Care Home and who died in a Personal Care Home were not included in these analyses.

Table 8.1: Average Home Care Days before Death from April 1, 1996 for Clients Dying in 1998/99

		1-180 days	6 months-1 year	1-2 years	2-3 years	Row Total	Mean	Median
Manitoba		39.1%	14.8%	17.5%	28.7%	2919	417	304
Sex	Male	44.5%	13.7%	16.8%	25.0%	1397	378	237
	Female	34.2%	15.7%	18.1%	32.1%	1522	452	369
Age	0-64	62.9%	14.7%	10.4%	11.9%	469	243	112
	65-74	50.0%	15.9%	13.8%	20.3%	558	331	180.5
	75-84	35.3%	16.3%	19.5%	28.8%	1059	429	336
	85+	23.2%	12.0%	21.2%	43.6%	833	557	622
Marital Status	Non-married	35.4%	13.8%	17.2%	33.6%	1777	430 [§]	382
	Married	44.8%	16.2%	18.0%	21.0%	1142	386 [§]	221
Region	Winnipeg	38.3%	15.3%	17.3%	29.1%	1697	421 [§]	305
	Rural South	40.4%	13.7%	17.3%	28.6%	1135	404 [§]	294
	Northern Manitoba	36.8%	19.5%	23.0%	20.7%	87	480 [§]	326
RHA	South Eastman	45.9%	11.9%	13.8%	28.4%	109	411 [§]	220
	Central	39.2%	11.8%	19.3%	29.7%	212	412 [§]	335
	Brandon	45.5%	14.0%	18.2%	22.4%	143	365 [§]	237
	South Westman	40.0%	9.5%	19.0%	31.4%	105	401 [§]	376
	Marquette	41.7%	18.4%	21.4%	18.4%	103	329 [§]	220
	North Eastman	43.0%	14.0%	15.1%	27.9%	86	413 [§]	250
	Interlake	36.7%	13.6%	19.1%	30.7%	199	441 [§]	362
	Parkland	44.8%	24.1%	17.2%	13.8%	178	271 [§]	199
	Nor-Man	32.8%	17.2%	25.9%	24.1%	58	493 [§]	361

[§]Age- and sex-adjusted values

on home care for 2-3 years in the three-year period before death as compared to only 25% of men. Also, those age 85+ were registered longer in the three years before death: 44% of this age group were registered for home care for 2-3 years in the three year period before death. On the other hand, 63% of clients age 0-64 were open to home care for only 1-180 days in the three-year period before death. Non-married clients were also longer home care users than their married counterparts with 34% on home care for 2-3 years before death compared to 21% for married clients. Table 8.1 also indicates that clients in Northern Manitoba, on average, used home care for more days before death than individuals in Rural South and Winnipeg; the Northern Manitoba data were strongly influenced by the patterns of service to Nor-Man clients.

8.1 Age Variations

The older the home care client at the time of death, the longer their average use of home care services (figure not included). In the year before death, home care clients aged 85+ years spent more time on home care than the younger age groups, both in and outside Winnipeg. Among the age groups no significant home care differences were found between Winnipeg and Non-Winnipeg clients. Those aged 85+ were registered on home care for 276 days on average while those aged 75-84 spent about 236 days registered on home care in the year before death. The 65-74 age group spent about 193 days and the 0-64 age group spent the least amount of time on home care in the year before death with an average of about 157 days.

8.2 Home Care and Hospital Use before Death

Average days on home care and in hospital in the year before death are presented in Figure 8.1. Clients who are registered with home care may retain their client status while they are in hospital, so there may be an overlap between their hospital stay and their status as a home care user. Figure 8.1 suggests considerable similarity across the Winnipeg and Non-Winnipeg areas both in terms of average hospital use and average days registered on home

care. However clients in some areas, such as Brandon, spent fewer days on home care in the year before death than the provincial average (203 days versus 227 days) and averaged significantly more days in hospital (75 days versus a provincial average of 49 days). Conversely, Interlake clients averaged more days on home care in the year before death (239 days) and significantly fewer days in hospital (36 days). Clients in Nor-Man spent significantly more days on home care (268 days) in the year before death. Among the Winnipeg CAs little difference was found for home care and hospital use in the year before death. Only clients in the Downtown CA used home care on average significantly longer (253 days) compared to Winnipeg’s average of 230 days in the year before death. For hospital use only Assiniboine South clients differed significantly, spending fewer days in hospital (31 days) compared to Winnipeg’s average of 49 days in the year before death.

Figure 8.1: Average Home Care Days and Hospital Days in the 365 Days Before Death for Clients Dying in 1998/99 by Region

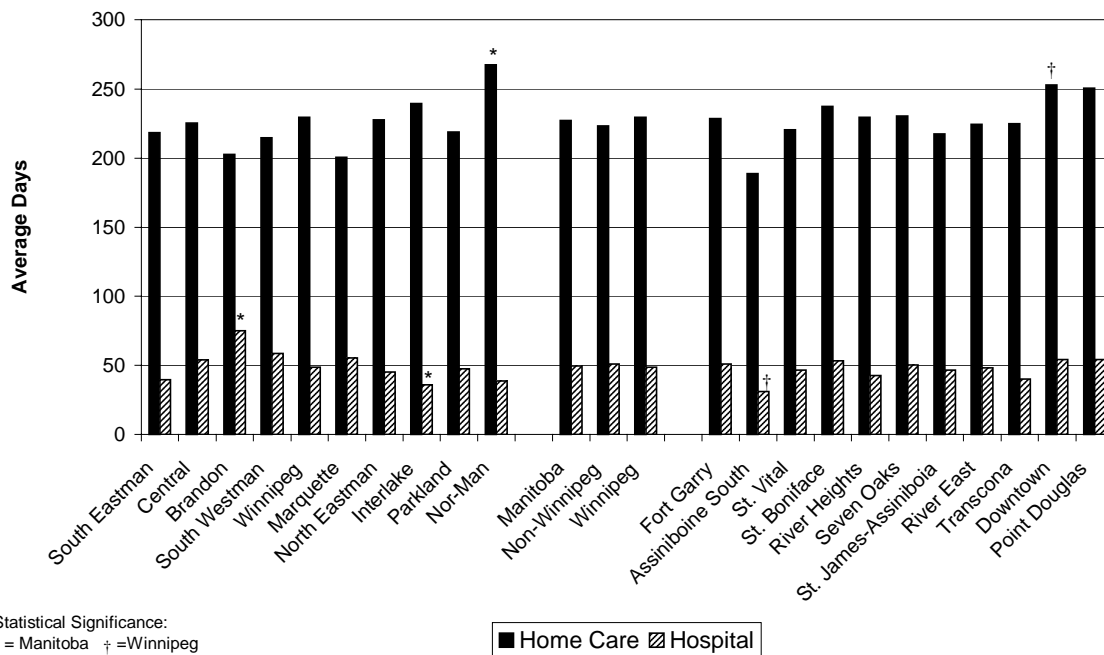
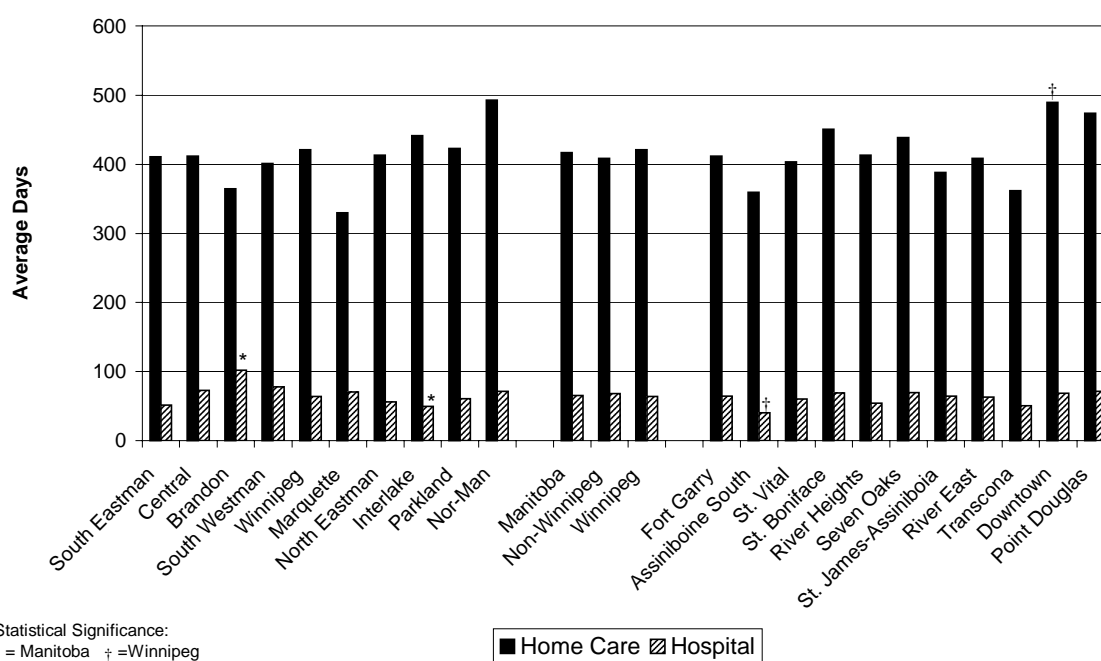


Figure 8.2 examines average home care use and hospital use over the period from April 1, 1996 until the time of the client’s death in 1998/99. Similar patterns among the regions were found for this time period as were found in the year before death presented in Figure 8.1. Once again considerable similarity was found between Winnipeg and Non-Winnipeg areas. However, Brandon was still found to have averaged significantly more days in hospital (102

days) compared to the provincial average (66 days). Interlake was also significantly different again with a lower average of 50 days in hospital in the three years before death. Significant differences among the Winnipeg sub-areas were again reported in the same two CAs with clients in the Downtown CA using more home care on average (490 days) compared to Winnipeg's average of 421 days in the three years before death. For hospital use, Assiniboine South remained significantly lower with an average of 40 days in hospital compared to Winnipeg's average of 64 days in the three years before death.

Figure 8.2: Average Home Care and Hospital Days since April 1, 1996 for Clients Dying in 1998/99 by Region

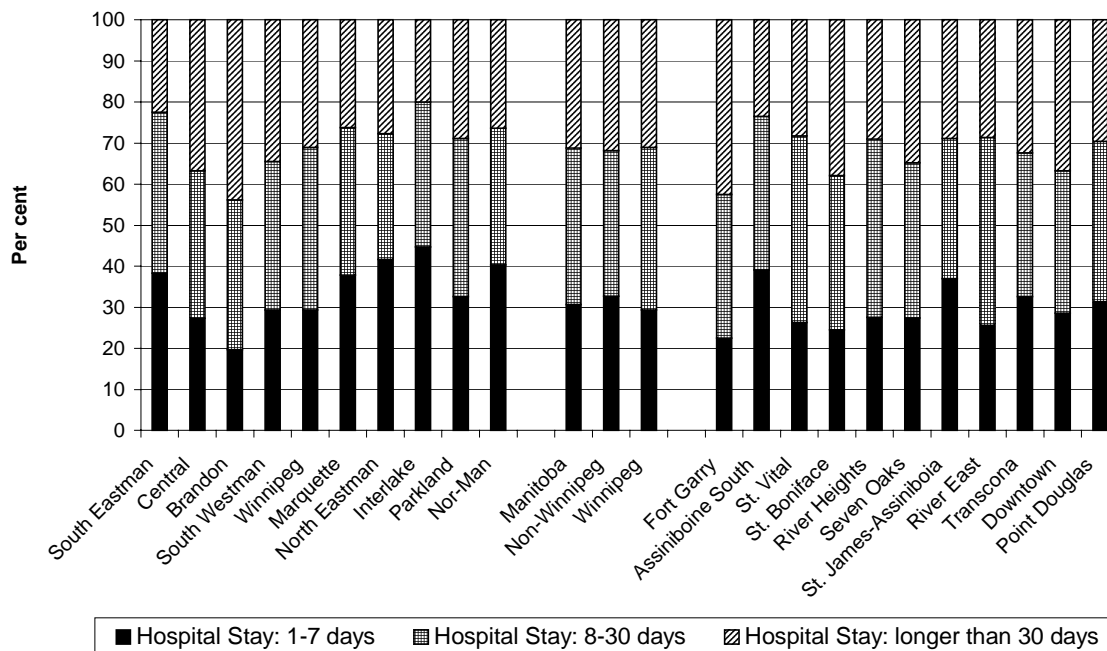


Seventy-seven per cent of the home care clients who died in 1998/99 in Manitoba, died in hospital (Winnipeg 77.5%, Non-Winnipeg 76.1%)²⁵. The percentage of in-hospital deaths was relatively constant across Winnipeg sub-areas ranging from 74-82%, but there was more variation among the other RHAs (figure not included). Brandon reported the highest

²⁵ Approximately 60% of Manitoba deaths in 1998-99 occurred in hospital versus 77% of the deaths of home care clients. However, any conclusions that might be drawn regarding the in-hospital mortality of home care clients would have to be based on analyses that adjusted for factors such as age and cause of death (accident etc).

proportion of home care recipients dying in hospital (86%) and Nor-Man the lowest (66%). In-hospital deaths of home care clients in 1998/99 were examined according to the length of the final hospital stay, using the following categories: death within a week of admission, death within 8-30 days and hospital stays of more than 30 days that ended in death (Figure 8.3). Overall, the proportion of home care clients who had a hospital stay of more than 30 days was 31%. Death within one week occurred in 31% of cases overall and death within 8-30 days occurred 38% of the time. Consistent with the data in Figures 8.1 and 8.2, the proportion of Brandon home care clients who died in hospital with a length of stay of more than a month was significantly higher at 44%. The Interlake Program maintained clients at home longer, with a significantly higher proportion of individuals dying within a week of admission (45%). None of the Winnipeg CAs differed significantly from Winnipeg's rates in their rate of death for the three time periods presented in Figure 8.3.

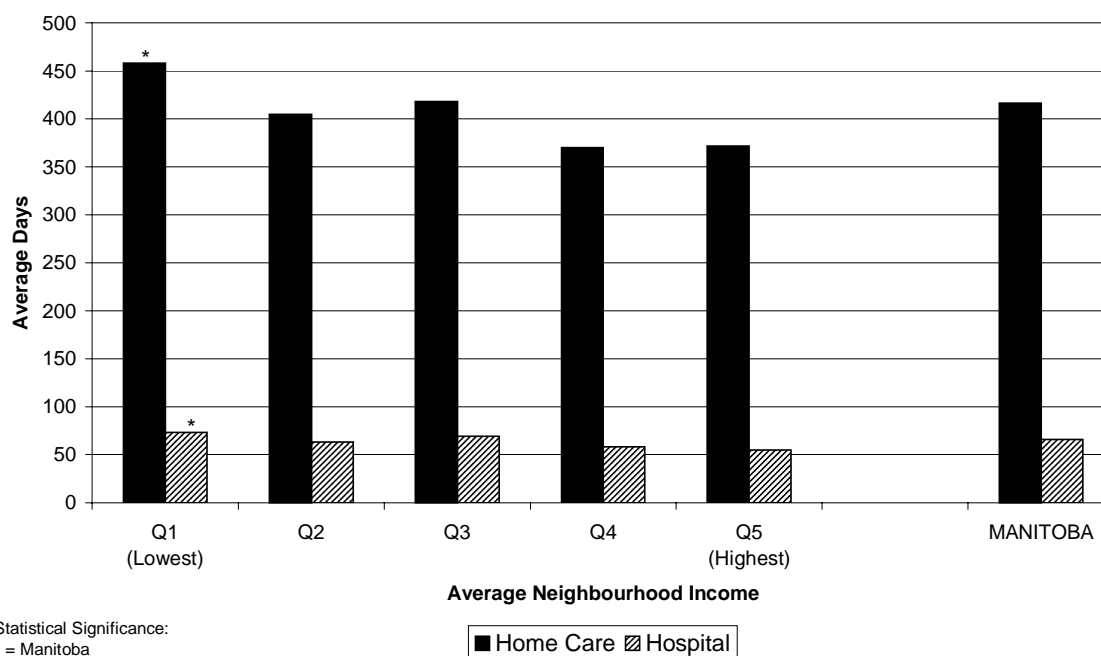
Figure 8.3: Length of Final Hospital Stay for Home Care Clients Dying In-Hospital in 1998/99 by Region



8.3 Neighbourhood Income and Home Care and Hospital Use before Death

Examining average days on home care, since April 1, 1996, before death by average urban (Winnipeg and Brandon) neighbourhood income level (Figure 8.4), indicated that clients living in urban neighbourhoods with the lowest income level received home care services for the longest period in the three years prior to death. The average number of days registered for home care was significantly higher at 458 days compared to the provincial average of 416 days. Moreover, this lowest income group averaged significantly more days in hospital (73 days) before death, compared to Manitoba (66 days). Clients in the other income levels had home care and hospital use similar to provincial averages.

Figure 8.4: Average Days Registered for Home Care since April 1, 1996 for Urban Clients Dying in 1998/99 by Average Neighbourhood Income Quintile



8.4 Marital Status and Home Care Use before Death

Generally, individuals who were not married spent more time on home care in the three years before death than married clients, although the difference is not great: on average 430 days versus 386 days (figure not included). Very similar averages to this were found for both Winnipeg and Non-Winnipeg areas overall. The relative number of days registered for home

care varied both across RHAs and Winnipeg CAs but only one significant difference was found. The CA of Assiniboine South reported significantly lower home care use before death among its married clients (244 days on average) compared to Winnipeg's average for married clients of 380 days.

8.5 Summary:

- Approximately nine per cent of home care clients in 1998/99 died during that year (2,919 deaths)
- Individuals on average were registered for home care for 417 days in the three years before death (median=304 days)
- The majority of home care clients dying in 1998/99 were women (52%) and not married (61%)
- Women were registered for home care for a longer period of time before death than men (452 days on average versus 378 days)
- Non-married clients were registered for home care for a longer period of time before death than married clients (454 days on average versus 359 days) although once age- and sex-adjusted this difference in use narrows (430 days versus 386 days)
- Generally, the older you were when you died, the longer you would have spent on home care (consistent with the goals of keeping individuals in their homes as long as possible and also enabling individuals to remain at home during the period before their death). The oldest age group studied (age 85+) were registered longer on home care before death (mean=557 days; median=622 days) than the other age groups.
- On average, individuals were registered for home care for over one third (378 days; 38%) of the three years before death and 62% (227 days) of the year before death
- Examination of home care use in the year before death found few significant differences among the regions. Only clients in Nor-Man were registered for significantly more days on home care before death. The Winnipeg CA of Downtown reported the only significant difference from Winnipeg with clients registered for home care longer before

death. Similar patterns found in the year before death were found for home care use in the three years before.

- Little significant variation existed in hospital use before death among home care clients of the RHAs and Winnipeg CAs. Only the RHAs of Brandon and Interlake reported significant differences with more hospital days recorded in Brandon and less in Interlake.
- Clients living in urban neighbourhoods with the lowest income were found to have significantly higher home care and hospital use before death.

9.0 HOME CARE OVER TIME

This part of this review measures the accessibility and duration of home care use for each of the fiscal years 1995/96 to 1998/99 to assess changes in patterns of use over time²⁶. We also examine home care use over time prior to panelling for or entry into a Personal Care Home (PCH), after discharge from a hospital, as well as prior to death. However, in these last three scenarios, home care use is reported only for individuals who were home care clients in the fiscal years 1996/97-1998/99.

In the regional analyses, areas that had 50 or fewer home care clients for the years in question are not reported due to their small numbers, but their data were included in Manitoba and Winnipeg or Non-Winnipeg totals, as appropriate. This size cut-off is a factor in the subsections dealing with the number of clients using home care before PCH admission and before death. Trend tests were used to determine if changes found over time in patterns of use were statistically significant (using a p-value less than .05). However, due to the small number of years analysed for a trend, our power to detect a significant trend was reduced in the sub-sections that use only three years of data (i.e., PCH, hospitalization and death sections). It is important to keep in mind that it is a lack of data that may be resulting in fewer significant findings in those sections even when a trend seems evident. Significant trends identified in analyses are described in the text. It was not feasible to indicate significant trends directly on the over time graphs due to the layout of the graphs.

9.1 Accessibility Over Time

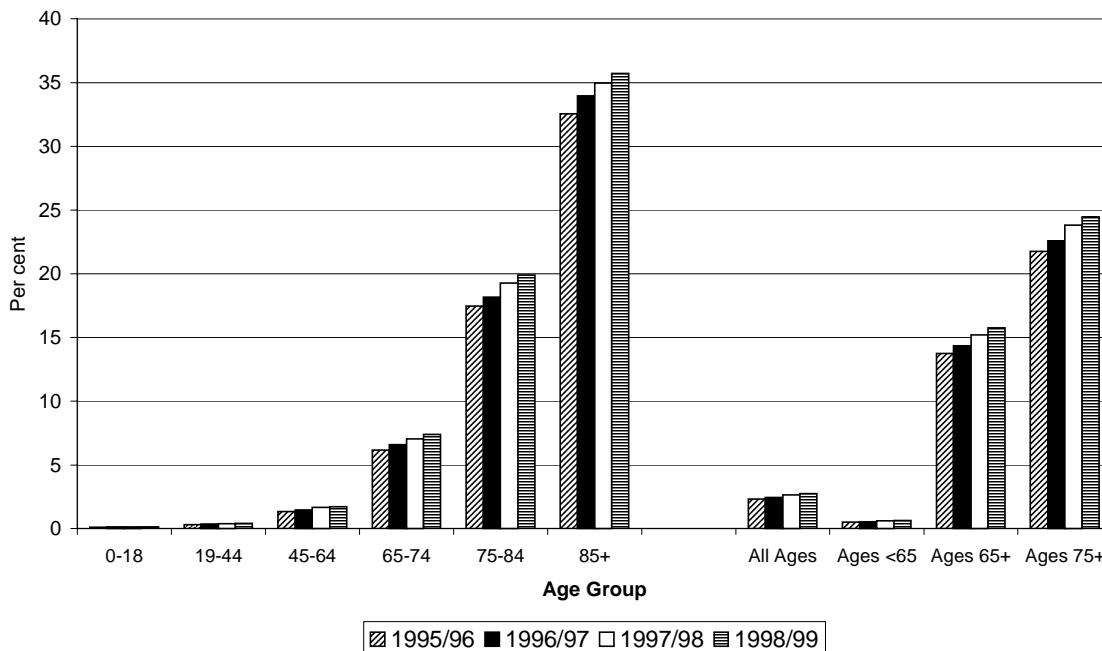
9.1.1 Access

As Figure 9.1 shows, overall the increases in access over time were small but significant: the proportions of Manitobans using home care increased from 2.3% in 1995/96 to 2.7% in 1998/99. Those aged 85 and older experienced the largest increase of just over 3%, growing

²⁶ For analyses on access, new admissions and days open to home care, residents of Personal Care Homes have not been removed from the denominators.

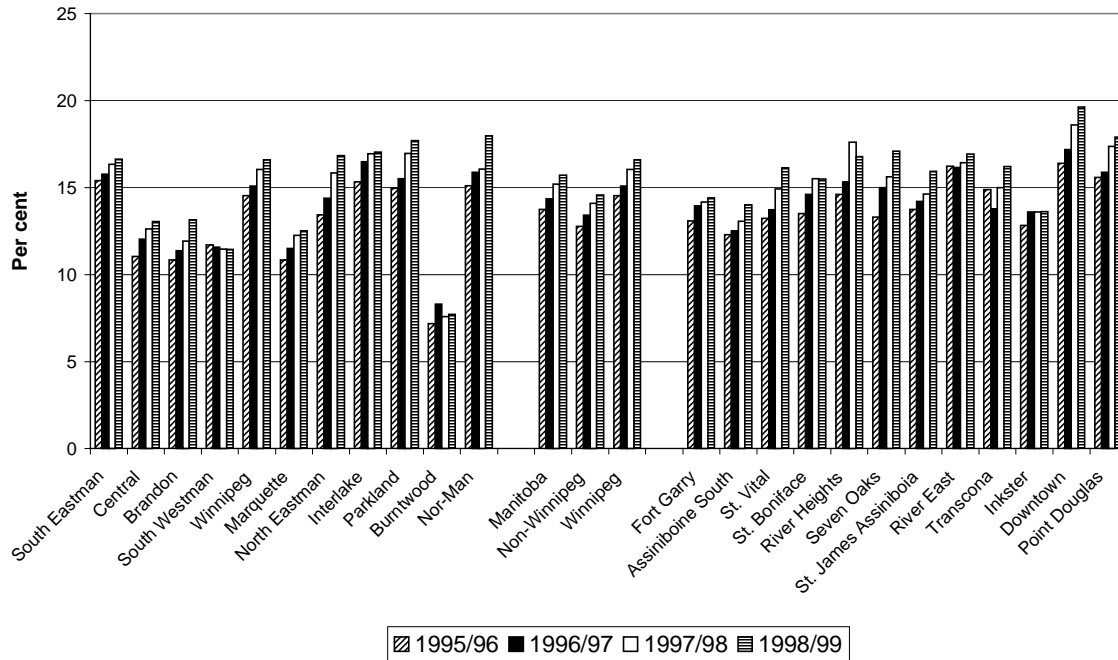
from 32.6% in 1995/96 to 35.7% in 1998/99. The trend upward in every age group was significant.

Figure 9.1: Per cent of Population that were Home Care Clients, Over Time by Age Group



Changes in access rates across the areas over time for the population aged 65 and over shows small annual increases in the proportion of those using home care in almost every region and in Winnipeg CAs (Figure 9.2). Increases in rates ranged from 0.53% in Burntwood to 3.3% in North Eastman for the RHAs and from 0.71% in River East to 3.2% in Downtown for the Winnipeg CAs. The Winnipeg and Non-Winnipeg increase in rate of access over time are similar at 2.1% and 1.8% respectively. Again, although small, the upward trends found in the RHAs and Winnipeg CAs were significant except for the RHAs of Burntwood, South Westman and South Eastman, and in the Winnipeg CAs of River East, Transcona and Inkster.

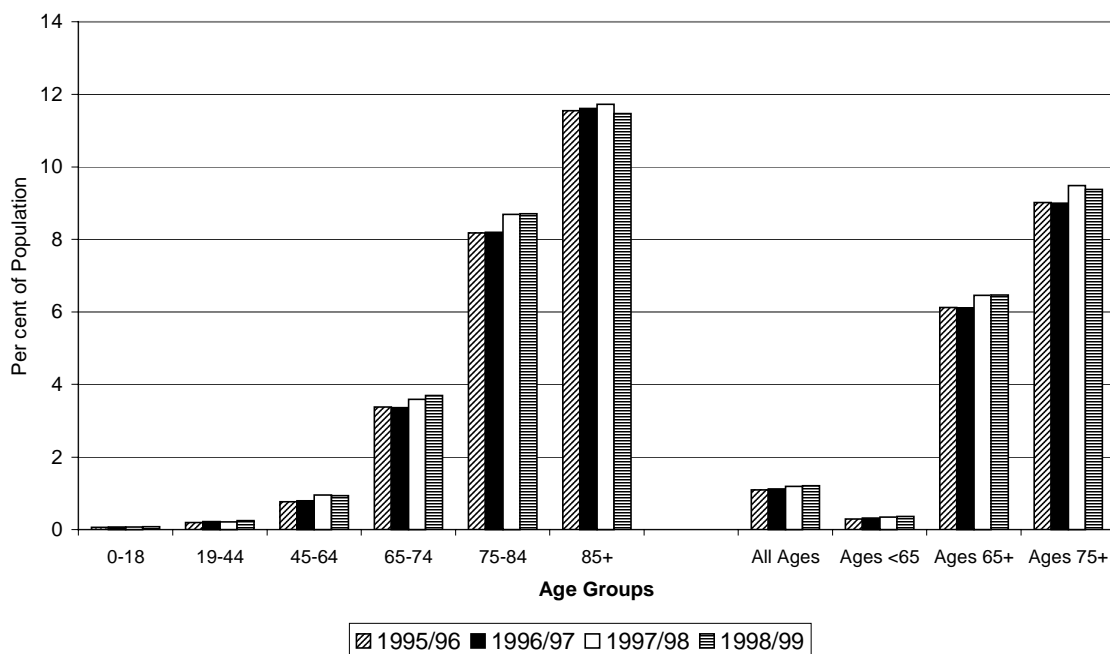
Figure 9.2: Per cent of Population Ages 65+ who were Home Care Clients, Over Time by Region



9.1.2 New admissions

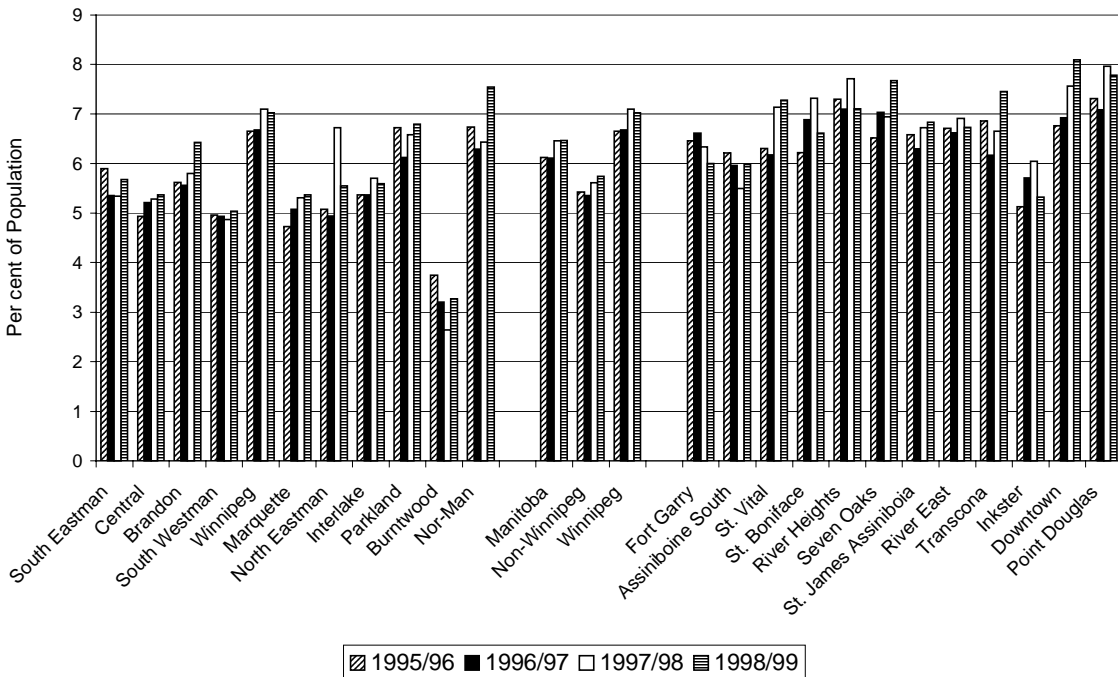
Changes in rates of new admissions to home care each year per 100 residents were also examined. As presented in Figure 9.3, the upward trend in rates of new admissions per 100 residents over time since 1995/96 was small but significant for all age groups (e.g. in the 75-84 age group rates grew from 8.17-8.72 new clients per 100 residents over time) except for the 85+ age group in which the rate went up from 11.54 to 11.72 between 1995/96 – 1996/97, and then fell to 11.46 new admissions per 100 residents in 1998/99.

Figure 9.3: Per cent of Population who were New Home Care Clients, Over Time by Age Group



There were similar increases in the rate of new home care admissions in the Winnipeg and Non-Winnipeg areas – although they started from different levels (Figure 9.4). In 1995/96 new admission rates for those aged 65 years and older ranged from 3.7 to 7.3 across the regions. In 1998/99, new admission rates ranged from 3.3 to 8.1 per 100 residents ages 65 and over. While the upward trend in rates was statistically significant for Manitoba and the Winnipeg and Non-Winnipeg areas, only the trend in the RHAs of Brandon and North Eastman reached statistical significance while among the Winnipeg CAs, this was true only for St. Vital, Seven Oaks and Downtown.

Figure 9.4: Per cent of Population Ages 65+ who were New Home Care Clients, Over Time by Region

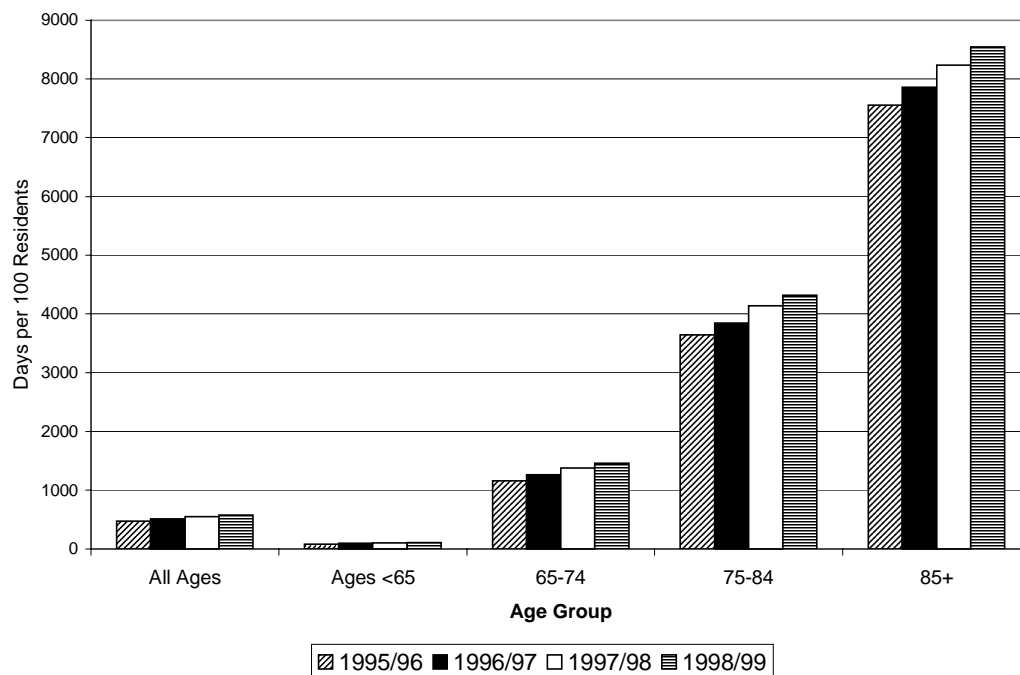


9.1.3 Days open to Home Care per 100 residents

To monitor changes in duration of home care use over time, clients’ rates of days open to home care per 100 residents were examined. This measure is influenced both by the number of individuals who have accessed home care during the year and the number of days that their file has been open during the year. While this measure does not reflect the amount of home care services delivered to clients in the different areas, it captures the length of time over which residents in different areas were assessed as needing services.

Figure 9.5 depicts the changes in these rates that have occurred among different age groups. The overall rate of open days in Manitoba rose from 477.7 in 1995/96 to 577.8 days per 100 residents in 1998/99, an increase of 20.9%. As the figure indicates, the rate of days open has increased annually for each group and all were found to be significant increases. Since the upward trend in the rate of access to home care (reflected in the proportion of the population with at least one day of home care over the period) was small even though it was significant, this annual increase in clients and the increase in the length of time individuals were open to home care combined to increase the rate of days open per 100 residents, over this period.

Figure 9.5: Number of Days Open to Home Care per 100 Residents, Over Time by Age Group

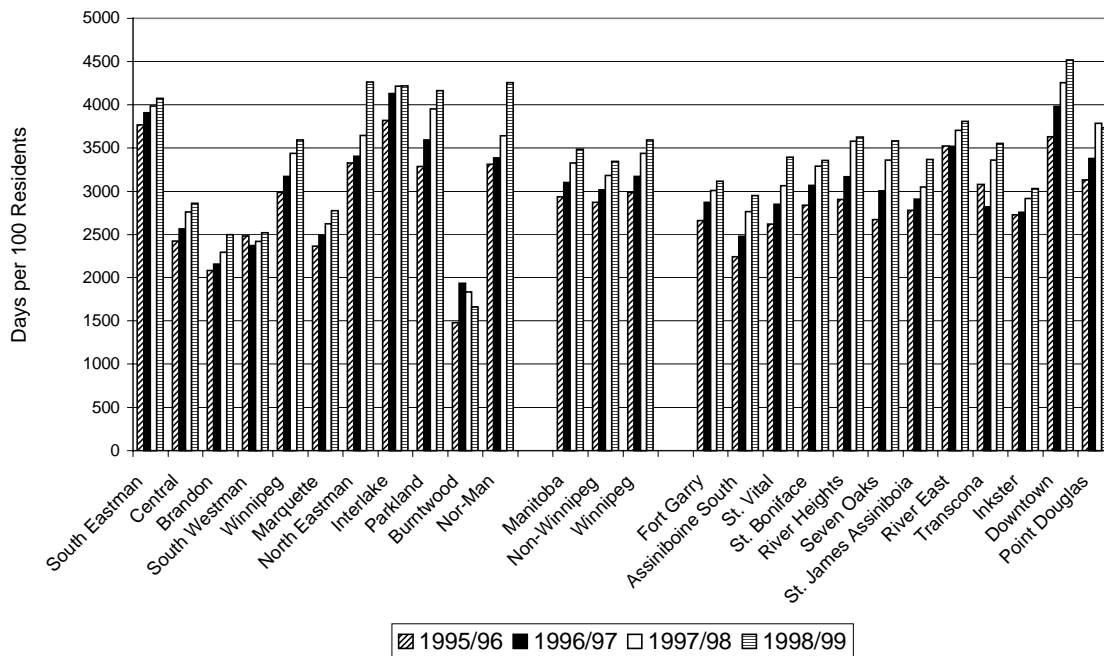


The older age groups all show increases in the average number of days home care files were open per 100 residents over the four years with the 65-74 age group reporting the largest percentage increase. The 65-74 age group increased from 1159.2 to 1461.9 days (26.1% rise), the 75-84 age group rose from 3641.4 to 4315.7 days (18.5% rise) and the 85+ age group increased from 7552.0 to 8545.1 (13.2% rise) days open per 100 residents. Although not presented here, we examined the rate of increase in the days open among the younger age groups separately. They experienced less of an increase in days open than did the older age groups, but their increases amounted to a greater percentage change due to the fewer numbers of days open initially. Thus for example, the days open for the 0-18 age group increased from 17.3 days to 25.5 days per 100 residents, a 47.4% increase.

The increases in rates of days open per 100 residents aged 65 years and over indicate similar rates and rates of change in days open in Winnipeg and Non-Winnipeg (Figure 9.6). However, there is more variation across the areas. For example, in the age 65+ age group, the South Westman RHA has the lowest increase in days open (1.5%) and Nor-Man has the highest increase in days open with a 28.6% increase. Among the Winnipeg CAs, River East

has the smallest increase (8.0%), and Seven Oaks had the highest increase (34.0%) in days open. The Downtown CA had the highest rate of days open for each of the four years examined, increasing from 3628.8 to 4518.9 days open (24.5% increase) per 100 residents aged 65 and older. A significant upward trend was found for all the regions with few exceptions. Among the Winnipeg CAs the notable exception was Inkster, even though it has seen an increase in rates by 11% over time. For the RHAs, no significant trend was found for South Eastman, South Westman and Burntwood.

Figure 9.6: Days Open to Home Care per 100 Residents Ages 65+, Over Time by Region

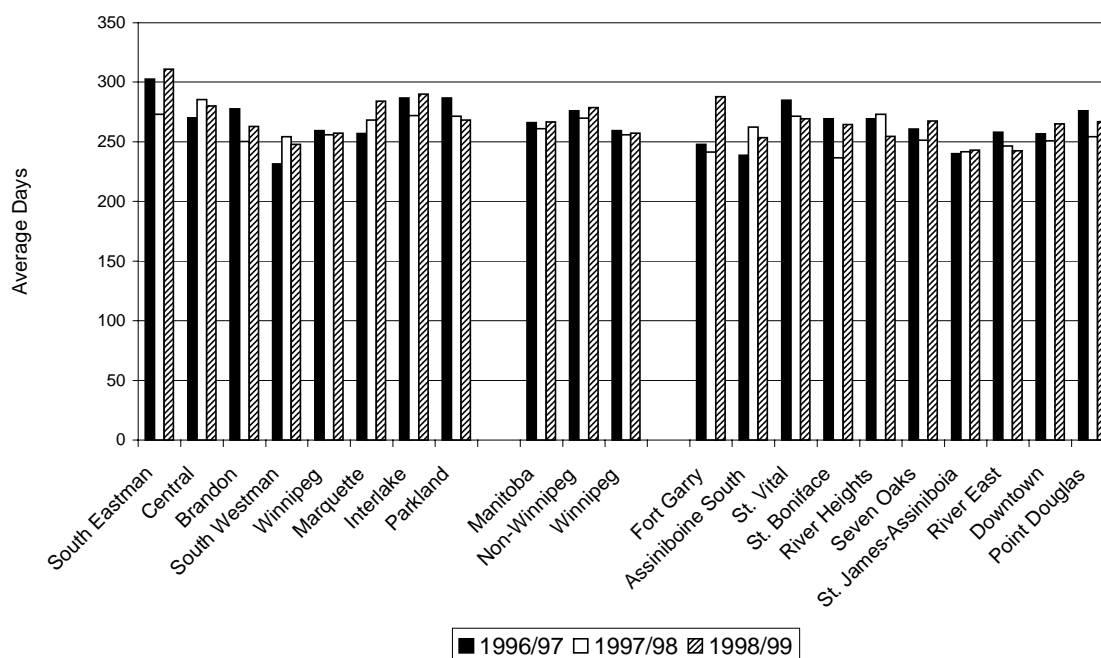


9.2 Home Care Use Before Personal Care Home Labelling and Admission

9.2.1 Admission

Figure 9.7 presents the regional changes in average number of days a home care client was registered for home care in the year prior to PCH admission. Overall, no change in the number of days averaged has occurred over time in Manitoba (266 days in 1996/97 and 266 days in 1998/99). Both Winnipeg and Non-Winnipeg have experienced stability in the average number of days open to home care before PCH admission.

Figure 9.7: Average Home Care Days in the Year before PCH Admission, Over Time by Region



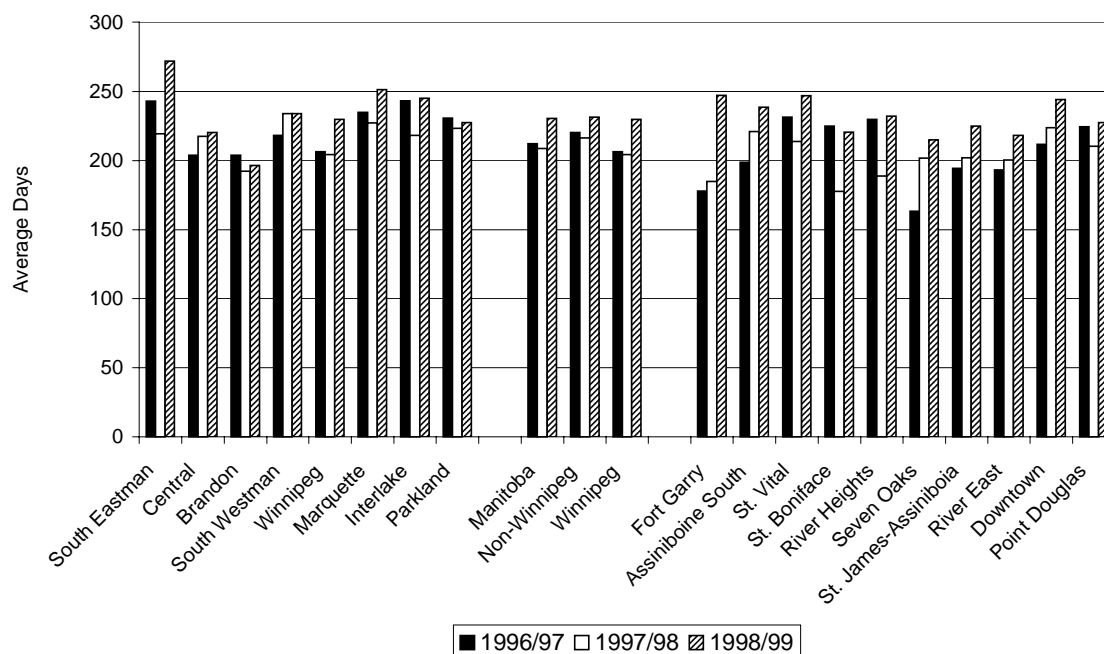
Stability in home care use before PCH admission is evident across the RHA and Winnipeg CA areas. While both slight increases and decreases in the average number of days was observed over the three-year period, only one area reported a significant trend. The CA of Fort Garry rose from an average of 248 days in 1996/97 to 288 days in 1998/99, a 16% increase. Although not significant, the RHA of Marquette reported the next largest change, increasing by nearly 11% over time (257 days to 284 days).

9.2.2 Home Care use before panelling for Personal Care Home

Very similar patterns at the area level are found over the period 1996/97-1998/99 in the average number of days clients are registered for home care in the year prior to being panelled for PCH placement (Figure 9.8) as was found for days on home care before PCH admission in the previous section. Overall, both Winnipeg and Non-Winnipeg have shown small but significant increase over time in the average number of days clients have been maintained in their homes on home care before the decision was made to panel them for home care admission (Winnipeg, 206 days in 1996/97 to 230 days by 1998/99, a 11.7% increase; Non-Winnipeg, 220 days to 231 days, a 5% increase in the same period). The

majority of the RHAs and Winnipeg CAs exhibited increases, most ranging from 1% to 16%. Other than Winnipeg, none of the increases in the RHAs were significant. Among the Winnipeg CAs, significant increases were found in Fort Garry (35%) and Seven Oaks (31%).

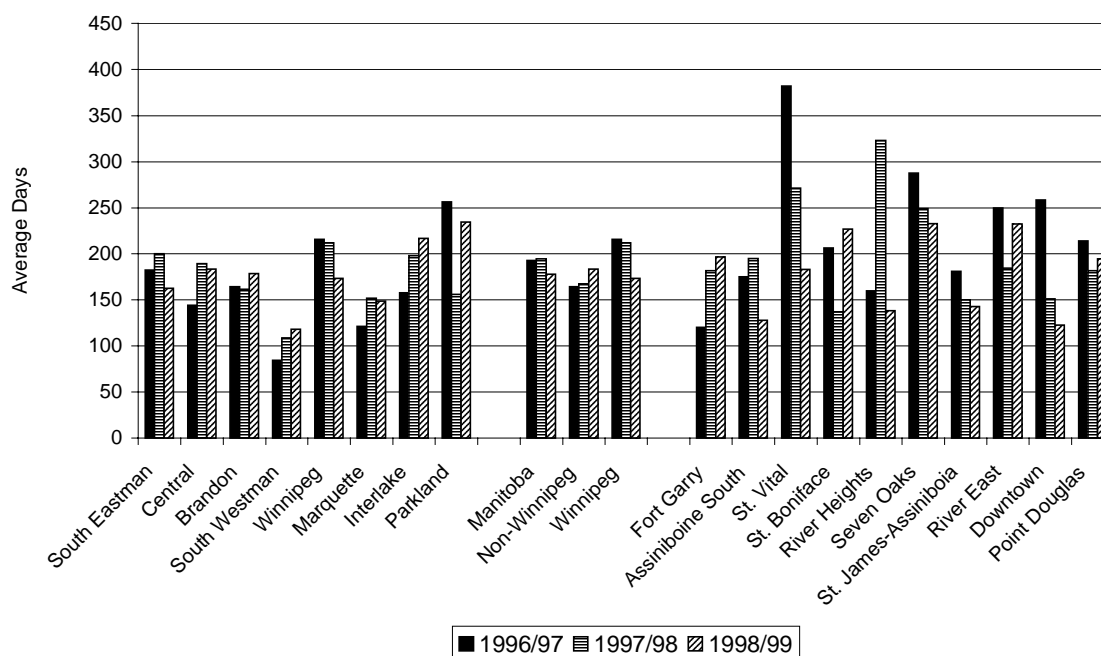
Figure 9.8: Average Home Care Days in the Year Prior to PCH Panelling, Over Time by Region



9.2.3 Home Care between panelling and placement

Review of the average number of days open to home care between panelling home care clients and their placement into a PCH also suggests variability over time among the regions (Figure 9.9). Manitoba has experienced a non-significant decline in the average home care days between panelling and placement since 1996/97, dropping from 193 days to 178 days by 1998/99 (an 8% decrease). This decline is largely the result of the decline in Winnipeg with its decrease in home care days between panelling and placement from 216 days on average to 173 days (a 20% decrease) during the period reviewed. Conversely, residents of the Non-Winnipeg areas experienced a small non-significant increase in days open to home care, increasing from 164 days in 1996/97 to 183 days in 1998/99 (12% increase).

Figure 9.9: Average Home Care Days between PCH Panelling and PCH Admission, Over Time by Region



As the Winnipeg numbers indicate, most Community Areas experienced decreases over time in home care days averaged between PCH panel and admission to PCH. St. Vital and Downtown's decreases, 52% and 53% respectively, were significant. Fort Garry experienced a 64% increase over time but this did not reach significance, most likely due to the smaller number of clients in that Winnipeg Community Area. Most Non-Winnipeg RHAs experienced increases in home care use between panelling and placement. Increases ranged from 9% among Brandon residents to 40% among South Westman residents, but none of these trends reached statistical significance.

9.3 Hospital Discharge and Home Care Use

Home care use after discharge was measured in the same manner described in Chapter 6 in this report, Home Care Following Hospitalization. We focused on the first hospitalization episode or surgical outpatient procedure that Manitobans had in fiscal years 1996/97 to 1998/99. Figure 9.10 presents the per cent of hospitalizations where home care was received after discharge (within 30 days of discharge). This figure does not differentiate between

residents who were receiving home care before the hospital episode and then continued on home care after discharge, from residents who began receiving home care services only after hospitalization.

Figure 9.10: Per cent of Hospitalized Residents who Registered for Home Care within 30 Days of Discharge from First Hospital Episode in a Year, 1996/97 to 1998/99

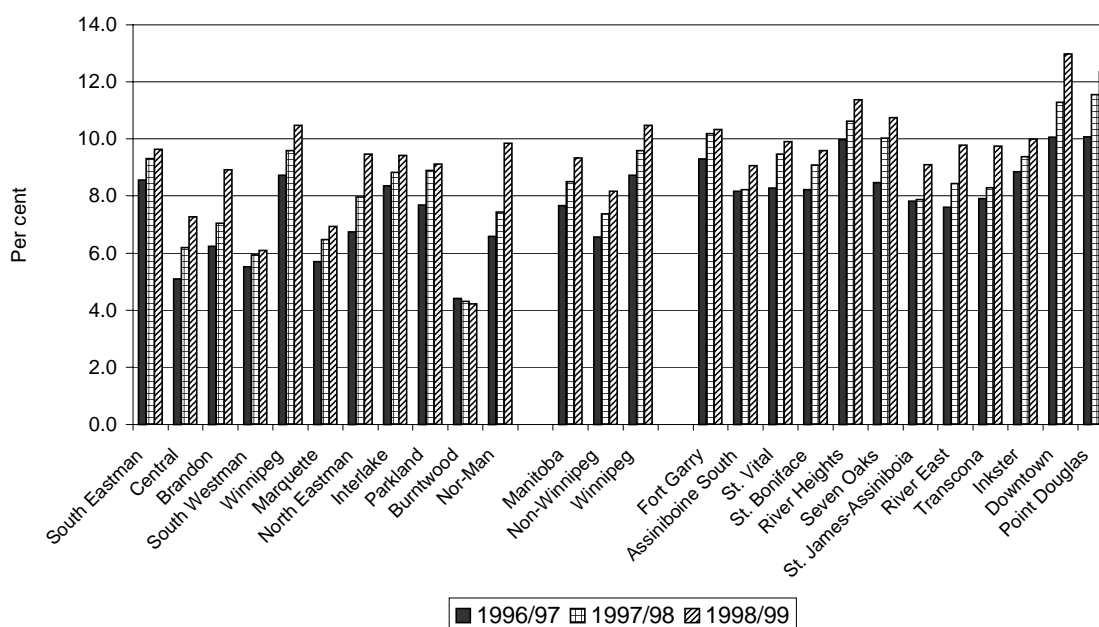


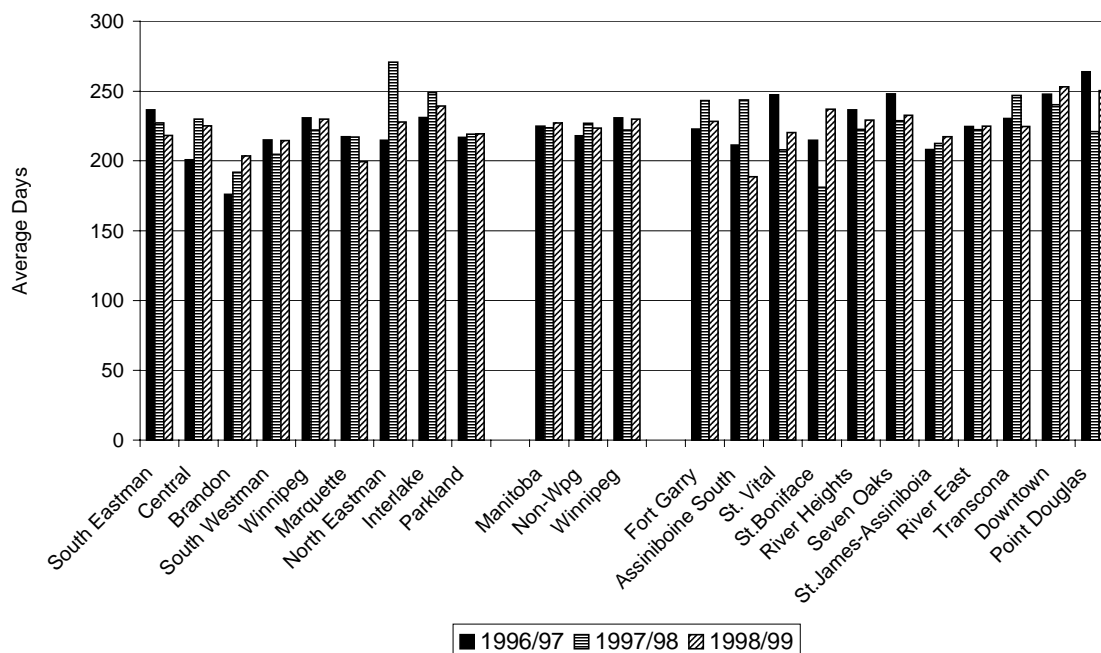
Figure 9.10 indicates that the proportion of those hospitalized who were discharged to home care has increased over time (from 7.7 % in 1996/97 to 9.4% in 1998/99)²⁷. Similar significant upward trends of the same magnitude were reported for Winnipeg and Non-Winnipeg residents. Among the RHAs, all recorded significant increases over time with the exception of South Eastman, South Westman and Burntwood. Burntwood was the only RHA to report a slight decrease in the per cent of hospitalized residents discharged to home care, but its downward trend was not significant. All Winnipeg CAs recorded increases in percentages over time but significant trends were only found in half (St. Vital, Seven Oaks, St. James-Assiniboia, River East, Downtown, and Point Douglas).

²⁷ Individuals who were hospitalized are reported in the tables and graphs according to their place of residence, not where hospitalization occurred.

9.4 Home Care Use Before Death

Review of the average number of days open to home care in the year before death shows stability in the rates over time (Figure 9.11). Winnipeg residents maintained an average around 230 days and Non-Winnipeg residents maintained an average of around 223 days over the 3-year period before their death. The RHAs and Winnipeg CAs experienced relatively minimal changes; none recorded significant changes. The majority of the regions showed fluctuations of less than 40 days from one year to the next. The RHA of North Eastman and the Winnipeg CAs of St. Boniface and Assiniboine South show the most fluctuation, with the average number of days in home care in the year before death ranging from 215 to 271 days in North Eastman, 181 to 237 days in St. Boniface and 184 to 244 in Assiniboine South.

Figure 9.11: Average Home Care Days in the Year before Death, Over Time by Region



9.5 Summary

- Trends in home care use across the province were going up slowly in most areas and across most types of use over this period.
- The upward trend in rates of access (the proportion of Manitobans using home care) and in rates of new admissions to home care over time was small but significant.
- The upward trend in the rate of days open to home care per 100 residents was particularly notable. The increased rate of days open to home care was probably due, in part, to the accumulation of clients from the small but steady increase in access to home care, over time.
- Overall, the average number of days a home care client was registered for home care in the year prior to PCH admission was stable over time. However, trends varied within the RHAs and the Winnipeg CAs, upward in some and downward in others. On the other hand, the overall trend in the number of days clients were registered for home care services between panelling and PCH placement was downward, largely due to the decline in Winnipeg.
- Manitoba experienced a significant increase over time in the proportion of patients who became (or continued as) home care clients after being hospitalized, increasing from 7.7% to 9.4%. This upward trend was similarly experienced in both Winnipeg and Non-Winnipeg residents.
- The average number of days open to home care before death was stable over time, with relatively minor fluctuations among the RHAs and Winnipeg CAs.

APPENDIX A: COMPLETENESS AND RELIABILITY OF DATA

One of the primary purposes of this project is to determine the extent to which pertinent information on the use of home care services in Manitoba can be obtained from Manitoba Support Services Payroll (MSSP) files. In undertaking this review, MCHPE researchers have reviewed portions of the MSSP data from 1995/96 to 1998/99 (the most current year of data). MCHPE has also reviewed components of the client and employee databases and the time sheet database, but no scheduling data have been reviewed as part of this project. In addition, MCHPE has reviewed the self-managed care and the family-managed care information. Data from the Victorian Order of Nurses have been reviewed; however, data from other agencies that deliver home care (including Community Therapy Services and South Central Therapy Services) have not been reviewed for this project.

Completeness of data:

A number of agencies in addition to the Manitoba Home Care Program deliver home care services. These agencies are reviewed below. We also identify the extent to which clients of each agency are likely to be included in this report. In general, almost all agencies delivering home care are required to register their clients with the MSSP client registry. Hence we should be providing a reasonably complete picture of the delivery of home care across the province. The degree to which the counts we obtain on the number of clients correspond to the counts prepared elsewhere, is reviewed in a subsequent section.

In Winnipeg, most nursing services and a small portion of home support services at the time of this review, were contracted to an outside agency—the Victorian Order of Nurses (VON). The VON provided long-term nursing and home-help services, and co-ordinated and delivered short-term home care services for durations of up to 60 days. VON regularly transferred a file to the MSSP system to register these clients. Thus clients of VON should have been registered with the MSSP client database and hence available for the analyses in this report. The extent to which they were is examined in more detail below.

The primarily provider of therapy services in the province is Community Therapy Services, with South Central Therapy Services providing therapy in one RHA and a few RHAs

providing therapy through other sources (contracted with private therapists or agencies). Individuals receiving the home care therapy services should also be registered in the MSSP client data and hence included in this report.

Back-up services in Winnipeg are contracted with a private company, Central Health. However, clients who receive services from Central Health will be registered with the Home Care Program and thus included in our analyses. Self-managed care and family-managed care programs allow the client to take responsibility for directly managing their own non-professional health services. The clients of these programs are registered in the MSSP client data. In addition, for a portion of the time period under review, the government experimented with privatized home care, provided by Olsten Health Services; clients who received services from Olsten were still registered in the MSSP client data.

Rural District Health Centres are designated by the province to deliver home care services in six regions in Manitoba:

- Lac du Bonnet (North Eastman)
- Leaf Rapids (Burntwood)
- Deloraine and Melita (South Westman)
- Churchill
- Hamiota (Marquette)
- Seven Regions Health Centre, Gladstone (Central)

Although the Rural District Health Centres were not required to register clients with the MSSP system in the past, more recently, they have been registering their clients with the MSSP system. The extent to which these reporting patterns may or may not create a problem for the reliability of our analyses is examined in more detail in the following section.

Although the MSSP system does not include the purchased attendant services provided for the group shared care arrangements, such as the FOKUS projects and 1010 Sinclair, clients of these shared care arrangements are included in the MSSP client registry. Block care is the combined scheduling of direct services where a number of Home Care clients are situated in close physical proximity, for example in senior housing complexes. Services provided via

block care are captured only under temporary client numbers in the MSSP system; however, the clients are in the MSSP client registry system. The Home Care offices in four of the Winnipeg hospitals also co-ordinate cases. Unless these clients were receiving services from Home Care staff paid through the MSSP system, they were not entered in the MSSP client registry until mid-1998.

Identifying Clients:

Given the number of agencies other than the Manitoba Home Care Program that provide home care services, it was imperative to determine whether the MSSP data can be used to accurately assess the use of home care in the province: in general and for cross-RHA comparisons. Manitoba Health tabulates the number of persons registered with the Home Care Program at month-end. These figures are compiled from reports of numbers of Continuing Care clients sent monthly to Manitoba Health from each RHA. Our working group suggested that the RHAs are knowledgeable about the various special arrangements with different delivery agencies that exist in each area so that we could use these figures as our standard. We attempted to replicate these figures using the anonymized MSSP data we had received from Manitoba Health to conduct these analyses. To see how closely our analyses using data from the computerized home care registry data approximated what Manitoba Health reported after compiling data from various sources, we report the per cent difference between our numbers and Manitoba Health numbers.

Table A1 shows the Manitoba Health Continuing Care numbers by RHA and month for 1998/99, the numbers from our computerized home care registry files on which this report is based, and the per cent difference. It was found that, across Manitoba, the home care registry underestimated the number of clients by 10%. This varied by RHA—the number of clients in Winnipeg and Interlake were underestimated the most—by 14% and 11% respectively. In 1998/99 the client information captured for Central, Marquette, North Eastman, Parkland and Burntwood is very good—the average monthly difference for these regions ranges from -0.9% to +2.27% of the Manitoba Health Continuing Care numbers. In 1998/99 the client information was adequately captured for South Eastman, Brandon, South Westman and

Nor-Man—the average monthly difference for these regions ranges from –6.0% to –6.95%. Churchill appears to be a particular problem—there is a higher than 60% discrepancy

Table A1: Number of Persons Registered with Home Care at Month's End by RHA - Comparison for 1998/99

Continuing Care Case Counts
MSSP Client Master data
% difference

Region	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Average
South Eastman	811	806	814	801	806	767	790	800	801	786	797	806	799
	763	751	747	746	755	732	743	746	749	735	751	777	750
	-5.92	-6.82	-8.23	-6.87	-6.33	-4.56	-5.95	-6.75	-6.49	-6.49	-5.77	-3.60	-6.17
Central	1,157	1,150	1,273	1,233	1,236	1,243	1,258	1,257	1,249	1,253	1,264	1,272	1,237
	1,233	1,234	1,235	1,252	1,268	1,258	1,275	1,269	1,267	1,265	1,284	1,302	1,262
	6.57	7.30	-2.99	1.54	2.59	1.21	1.35	0.95	1.44	0.96	1.58	2.36	2.00
Brandon	621	641	651	665	678	619	593	605	601	580	594	569	618
	551	565	577	600	618	595	570	573	579	561	565	545	575
	-11.27	-11.86	-11.37	-9.77	-8.85	-3.88	-3.88	-5.29	-3.66	-3.28	-4.88	-4.22	-6.98F
South Westman	664	657	605	617	624	615	630	634	638	600	611	633	627
	563	569	574	585	595	591	600	603	607	581	593	609	589
	-15.21	-13.39	-5.12	-5.19	-4.65	-3.90	-4.76	-4.89	-4.86	-3.17	-2.95	-3.79	-5.99
Winnipeg	12,092	12,249	12,352	12,302	12,455	12,665	12,787	12,812	12,776	12,903	12,972	13,176	12,628
	10,436	10,503	10,660	10,683	10,674	10,824	10,930	10,955	11,015	11,005	11,128	11,274	10,841
	-13.70	-14.25	-13.70	-13.16	-14.30	-14.54	-14.52	-14.49	-13.78	-14.71	-14.22	-14.44	-14.15
Marquette	592	604	626	624	621	664	658	685	676	673	668	676	647
	637	647	665	663	668	659	658	677	668	661	661	665	661
	7.60	7.12	6.23	6.25	7.57	-0.75	0.00	-1.17	-1.18	-1.78	-1.05	-1.63	2.27

Region	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Average
North Eastman	582	573	580	575	556	576	560	570	587	585	588	574	576
	563	565	579	582	562	577	569	564	572	565	558	569	569
	-3.26	-1.40	-0.17	1.22	1.08	0.17	1.61	-1.05	-2.56	-3.42	-5.10	-0.87	-1.15
Interlake	1,569	1,596	1,562	1,593	1,601	1,571	1,567	1,598	1,581	1,573	1,583	1,524	1577
	1,367	1,382	1,371	1,392	1,412	1,409	1,407	1,418	1,415	1,400	1,416	1,364	1,396
	-12.87	-13.41	-12.23	-12.62	-11.81	-10.31	-10.21	-11.26	-10.50	-11.00	-10.55	-10.50	-11.44
Parkland	1,107	1,129	1,134	1,137	1,159	1,162	1,172	1,173	1,168	1,178	1,183	1,176	1,157
	1,095	1,115	1,119	1,127	1,155	1,152	1,160	1,157	1,162	1,174	1,176	1,166	1,147
	-1.08	-1.24	-1.32	-0.88	-0.35	-0.86	-1.02	-1.36	-0.51	-0.34	-0.59	-0.85	-0.87
Burntwood	111	120	117	120	129	141	129	121	124	121	132	143	126
	108	117	117	125	132	131	129	133	128	124	133	139	126
	-2.70	-2.50	0.00	4.17	2.33	-7.09	0.00	9.92	3.23	2.48	0.76	-2.80	0.65
Nor-Man	302	306	313	320	321	337	317	310	326	345	346	373	326
	274	283	290	301	304	317	302	296	305	324	322	323	303
	-9.27	-7.52	-7.35	-5.94	-5.30	-5.93	-4.73	-4.52	-6.44	-6.09	-6.94	-13.40	-6.95
Churchill	6	7	6	6	6	6	9	11	12	9	9	9	8
	10	11	11	11	11	12	14	16	16	15	15	13	13
	66.67	57.14	83.33	83.33	83.33	100.00	55.56	45.45	33.33	66.67	66.67	44.44	65.5
Manitoba	19,614	19,838	20,033	19,993	20,192	20,366	20,470	20,576	20,539	20,606	20,747	20,931	20,325
	17,600	17,742	17,945	18,067	18,154	18,257	18,357	18,407	18,483	18,410	18,602	18,746	18,231
	-10.27	-10.57	-10.42	-9.63	-10.09	-10.36	-10.32	-10.54	-10.01	-10.66	-10.34	-10.44	-10.30

(although the actual numbers are very small—13 clients in the MSSP client data versus the 8 reported). For this reason we have decided to group Churchill with Burntwood in the analyses in the main sections of this report.

This analysis was repeated for each fiscal year 1995/96 to 1997/98 (Tables A2 and A3), to determine how well the client information was being captured over time and to determine the confidence with which we could detect patterns over time (1995/96 to 1998/99). The average difference for Manitoba was -7.5% in 1995/96 and increased to -10.3% in 1998/99. The per cent over- or undercounted varied in each region over time. These comparisons are complicated by the change to RHA regions at the beginning of 1997/98—the only numbers reported by Manitoba Health prior to this change are for regions with their pre RHA boundaries. Using the pre RHA boundaries in 1995/96 and 1996/97, the differences were less than 10% for Central, Westman, Parkland, Thompson and Nor-Man. For Eastman, Winnipeg and Interlake the differences were less than 13% for 1995/96 and 1996/97. Using the RHA boundaries in 1997/98 and 1998/99, the differences were less than 10% for South Eastman, Central, South Westman, Marquette, North Eastman, Parkland, Burntwood and Nor-Man. For Brandon, Winnipeg and Interlake the differences were less than 15% for 1997/98 and 1998/99. With the small numbers, Churchill data are unreliable over the whole period.

Some of these differences may result from different practices across the regions in reporting continuing care cases and in how information is entered into the MSSP database for these clients. Particularly, regions may differ in how they report and record clients who are just receiving assessment services (that is, they are being assessed for Personal Care Home entry) but did not actually receive in-home direct services. Other differences may arise from delays in closing cases in the MSSP data that are no longer active (due to Personal Care Home placement or death of the client), and in the accuracy with which cases are opened and closed in the MSSP client data for cases handled by outside agencies. As part of our analyses we “cleaned up” the MSSP data files by “closing” a case at the date an individual entered a Personal Care Home or died.

Table A2: Reliability Over Time 1995/96 to 1996/97

	Pre-RHA	
Pre-RHA	Average % difference in 1995/96	Average % difference in 1996/97
Eastman	-12.34	0.97
Central	-6.84	-7.09
Westman	-2.65	-3.75
Winnipeg	-8.17	-11.78
Interlake	-9.20	-11.21
Parkland	-1.43	-2.58
Thompson	-4.47	-4.70
Nor-Man	-9.00	-6.39
Manitoba	-7.54	-9.35

Table A3: Reliability Over Time 1997/98 to 1998/99

	RHA	
RHA	Average % difference in 1997/98	Average % difference in 1998/99
South Eastman	-7.45	-6.15
Central	1.96	2.07
Brandon	-11.42	-6.85
South Westman	-3.23	-5.99
Winnipeg	-12.21	-14.15
Marquette	7.54	2.27
North Eastman	-9.57	-1.15
Interlake	-11.73	-11.44
Parkland	-1.11	-0.87
Burntwood	5.12	0.65
Nor-Man	-4.66	-6.95
Churchill	7.67	65.6
Manitoba	-9.28	-10.30

Except for Interlake and Winnipeg (where the differences are in the 11-14% range) the discrepancies were 10% or less for the most recent fiscal year. Thus, we decided that the data are of reasonable accuracy to support a descriptive study of how home care services are accessed across the province.

Capture of VON Clients in MSSP data:

In a separate assessment of data reliability, we compared the registration of clients in the client registry maintained by the VON with the registration of clients in the MSSP data set, focussing on the level of agreement in the data recorded independently in these two sources. As there were not routine comparisons made across these data sets, to undertake this comparison a data set was provided to Manitoba Health by VON and then to MCHPE after all names and addresses were removed. Our comparisons focussed on 1998/99 fiscal year data, although similar results were found for earlier years.

Ten per cent of the clients recorded in the VON data whom we expected to find registered in the MSSP system were not so registered. This level of missing data would be consistent with the figures reported in the reliability section of the deliverable identifying the underreporting of Winnipeg clients in the MSSP data system. Note this cannot be due to individuals receiving private home care services from VON because only data for VON Winnipeg (which supplies nursing services for Winnipeg residents under contract with Manitoba Health) were transferred to MCHPE. The data for VON Manitoba, which offers private services, were not transferred to MCHPE. Our working group speculated that the majority of these cases were short-term home care clients originating from hospital, but, due to reporting systems, were not registered in the MSSP data. Further analysis supported this—60% of the missing cases originated from hospital, and were in general a younger population with shorter days open than the VON clients who were captured in the MSSP system. Due to the VON files being received late in the course of this project, these home care clients are not included in the analyses presented in this report. This amounts to just over 800 VON clients who were not registered in the MSSP data in 1998/99— this would be an addition of less than 3% to the over 30,000 clients on whom this report is based. Because most of these clients reside in Winnipeg, this would be an addition of about 4% to the number of clients used in

these analyses for Winnipeg in 1998/99. The data for the earlier years used in this report will also have a similar discrepancy.

Twenty per cent of the individuals who were identified in the MSSP data as receiving services from VON only were not recorded in the VON data set. This lack of correspondence may have occurred for several reasons including inaccurate coding or the inability of Manitoba Health to link across the two files. This discrepancy only affects the validity of the data used in our analyses if the 20% identified in the MSSP data as receiving services from VON were really not receiving home care services. This seems relatively unlikely.

Finally, for those individuals found in both the VON and the MSSP data set, we found very good agreement on the data recorded in both places: over 80% of the records agreed exactly on the dates at which service began and ended, and any discrepancies which occurred tended to be small.

Identifying Services Received:

MCHPE also planned to report on the number of hours of direct home care services provided per 100 residents and per client. Although the great majority of home care services provided are recorded in the MSSP systems, a number of issues became apparent which limited the validity of undertaking such analyses. As discussed above, a number of outside agencies deliver home care services and for these agencies we do not have services data. For example, the Victorian Order of Nurses Home Help and Nursing Programs provided 10% of the total hours of service in Winnipeg in 1998/99. The VON Nursing Program itself accounted for 68% of the total hours of nursing services in Winnipeg in 1998/99. Secondly, some of the Rural District Health Centres (DHC) do not send service information to the MSSP system. The third issue that limits the accuracy of the MSSP data for identifying services delivered, is the use of temporary client numbers (used for example when a worker is serving a whole group of clients in senior citizens housing complex—that is, block care). Services recorded under temporary file numbers can not be attributed to an individual. Thus, many of the characteristics needed to support the analyses undertaken here (such as age, gender, region

of residence, or whether the individual was hospitalized, entered Personal Care Home or died) could not be linked to these services. Given these limitations in the completeness and generalizability of the MSSP service data, it was determined that it was not possible to provide analyses on the hours of direct services delivered.

APPENDIX B: HEALTH OF ELDERLY PERSONS IN MANITOBA

Since elderly individuals are the predominant users of home care in Manitoba (those aged 65 years and over represented 80% of home care clients in 1998/99) we attempted to determine whether there were systematic differences in the healthiness of Manitoba's non-institutionalized elderly adults by region and across Winnipeg sub-regions. Conclusions drawn from the data regarding the North must be interpreted cautiously since these regions have few elderly residents (there were 1,360 individuals aged 75+ years in 1998/99 which represented 1.9% of the total population of the Northern RHAs; see Table B1).

Measures examined included mortality, rate of hospitalization, admission to Personal Care Homes and a number of measures of self-reported health status from the 1996 National Population Health Survey. We were particularly interested in whether the health of elderly persons varied systematically across the areas, suggesting that some areas might have a higher need for home care services and others potentially less. In other studies we have used the area's premature mortality rate to rank-order areas, since this measure has generally been found to reflect the healthiness of area residents and their need for health care services.

Health across Different Areas of the Province

Mortality in elderly Manitobans:

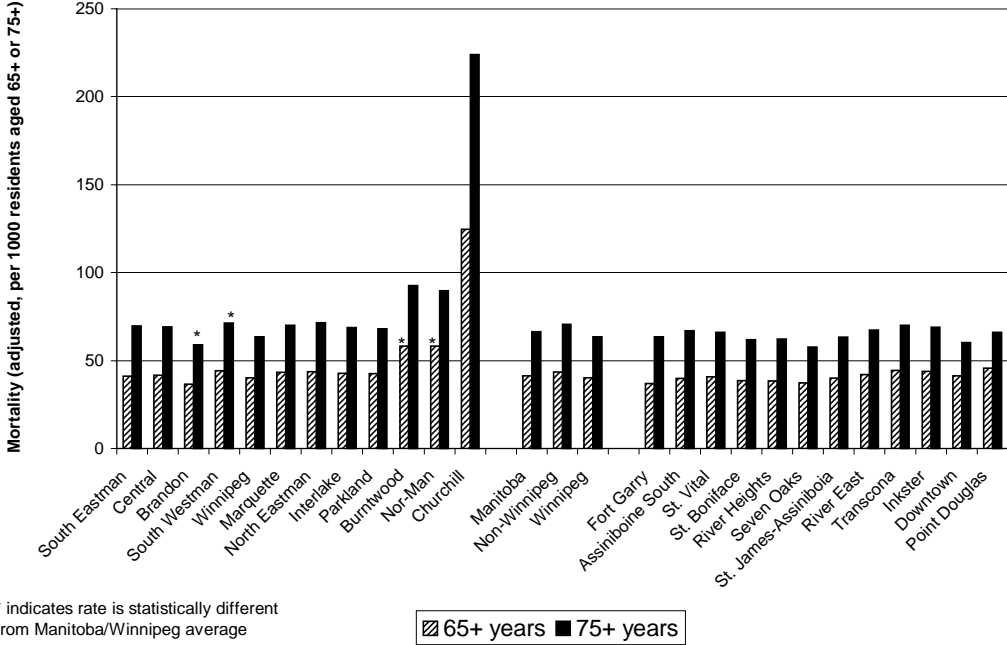
Figure B1 presents mortality rates for Manitobans aged 65+ and 75+ years by RHA and CA. The areas are ordered by increasing premature mortality rate (deaths among those aged 0–74 years). That is, those regions on the left of each set have the healthiest residents aged 0-74 years (these include the RHAs of South Eastman, Central, Brandon and South Westman as well as the Winnipeg areas of Fort Garry, Assiniboine South and St. Vital) and those areas on the right (such as the RHAs of Burntwood, Nor-Man and Churchill, as well as the Winnipeg areas of Inkster, Downtown and Point Douglas) have the least healthy residents in the 0-74 year age group.

Table B1: Elderly Manitobans in 1998/99

	No. residents aged 65+ years	M:F	Population proportion¹	No. residents aged 75+ years	M:F	Population proportion¹
South Eastman	5,813	0.86	11.02%	2,652	0.72	5.03%
Central	13,277	0.79	13.69%	6,650	0.70	6.86%
Brandon	6,304	0.74	13.55%	2,962	0.63	6.36%
South Westman	6,960	0.81	19.99%	3,673	0.71	10.55%
Winnipeg	86,246	0.68	13.93%	40,378	0.57	6.52%
Marquette	7,469	0.80	19.75%	3,937	0.65	10.41%
North Eastman	4,680	1.01	12.05%	1,955	0.83	5.04%
Interlake	10,220	0.92	13.72%	4,451	0.77	5.98%
Parkland	8,289	0.84	19.06%	4,267	0.73	9.81%
Burntwood	1,416	1.06	3.15%	491	0.91	1.09%
Nor-Man	1,960	0.85	7.70%	852	0.65	3.35%
Churchill	48	0.78	4.54%	17	0.42	1.61%
Rural	60,132	0.85	19.04%	28,945	0.72	9.17%
Manitoba	152,682	0.75	13.39%	72,285	0.63	6.34%
Winnipeg	86,246	0.68	13.93%	40,378	0.57	6.52%
Fort Garry	6,703	0.75	10.96%	2,829	0.63	4.62%
Assiniboine South	4,307	0.77	11.92%	1,946	0.61	5.38%
St Vital	7,427	0.67	12.27%	3,426	0.55	5.66%
St Boniface	6,301	0.70	13.71%	2,841	0.56	6.18%
River Heights	9,961	0.58	17.58%	5,405	0.49	9.54%
Seven Oaks	7,872	0.72	13.82%	3,587	0.67	6.30%
St. James-Assiniboia	10,076	0.70	16.84%	4,607	0.58	7.70%
River East	12,781	0.67	14.10%	5,779	0.57	6.37%
Transcona	3,222	0.79	9.57%	1,213	0.63	3.60%
Inkster	2,821	0.73	9.09%	1,190	0.66	3.83%
Downtown	9,096	0.64	12.80%	4,705	0.48	6.62%
Point Douglas	5,679	0.68	14.21%	2,850	0.63	7.13%

¹ Excluding Personal Care Home residents

Figure B1: Mortality in Manitoba's Elderly
(data from 1994-98, standardized to 1996, excluding PCH data, in PMR order)



* indicates rate is statistically different from Manitoba/Winnipeg average

▨ 65+ years ■ 75+ years

In calculating mortality rates for elderly Manitobans, four years of data, standardized to 1996, were used to minimize the effect of fluctuations in year to year rates. Postal codes where the majority of residents (>90%) were in a Personal Care Home were excluded, since we wished to focus on elderly individuals who were potentially able to receive home care and not those who were currently Personal Care Home residents. Also, since Personal Care Homes, particularly those in Winnipeg, tend to be concentrated in certain geographic areas, including PCH residents would alter mortality rates since PCH populations are vulnerable and tend to have higher mortality rates than non-institutionalized elderly populations.

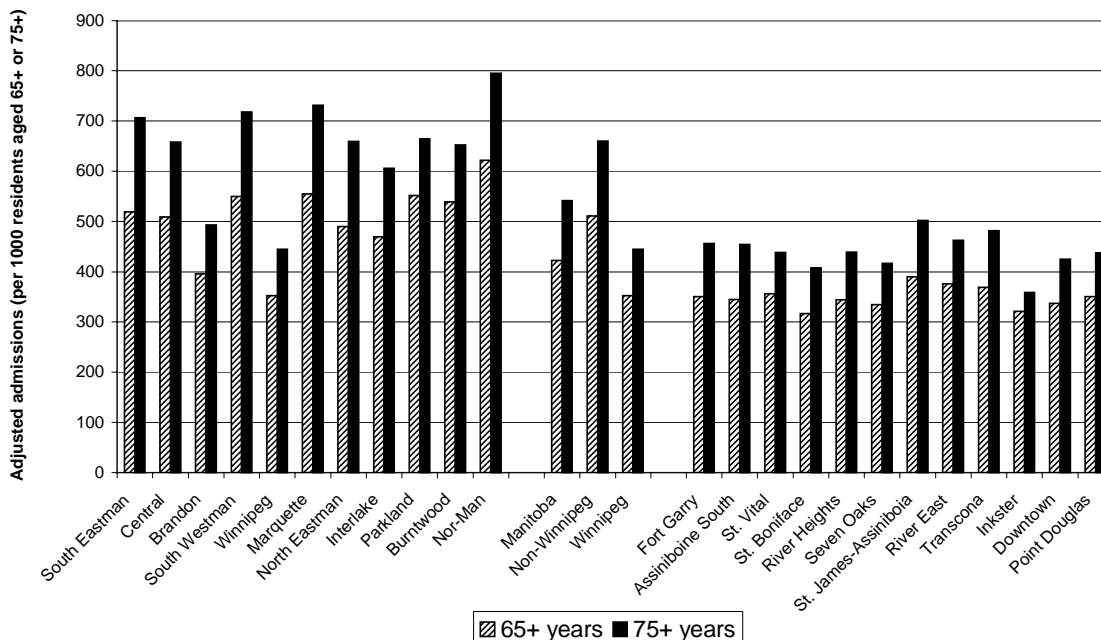
Elderly residents of Manitoba's North, which also has a high premature mortality rate, had significantly higher mortality rates than the Manitoba average (see Figure B1). In Nor-Man and Churchill the elevated total mortality reflected elevated rates for both sexes. In Burntwood, though the combined mortality was high, this was driven by elevated mortality rates in women, but not in men. Mortality rates lower than the Manitoba average were seen for the 65+ group in Brandon (due to a significantly lower mortality rate among women) and for the 75+ group in both Brandon and Winnipeg, again driven by lower mortality rates

among elderly female residents. Among the Winnipeg Community Areas, none had mortality rates that were significantly lower than the Winnipeg average. Point Douglas had a significantly higher rate for the 65+ group, due to higher mortality rates among male residents. With the exception of the North, regional patterns of mortality among Manitoba's non-institutionalized elderly persons did not closely parallel those among the younger population as reflected by the premature mortality rate and the ordering of the areas.

Hospitalization rates of elderly Manitobans:

Age adjusted hospital admission rates for elderly residents of Manitoba (excluding PCH residents) in 1998/99 were also examined (Figure B2). These were lowest in Winnipeg and Brandon: 444 admissions per 1000 Winnipeg residents aged 75+ years and 493/1000 Brandon residents aged 75+ years, compared to the Manitoba average of 541/1000. Nor-Man, whose elderly persons had one of the highest mortality rates, also had the highest hospitalization rates for their elderly residents. Similar patterns, but lower hospitalization rates, were seen for Manitobans aged 65+ years. Within Winnipeg, hospitalization rates appeared to be similar across Winnipeg CAs, although Inkster, one of the least healthy Community Areas, consistently had one of the lower admission rates.

Figure B2: Hospital Admission Rates in Manitoba's Elderly (excluding PCH data, in PMR order), 1998/99



Personal Care Home admission:

Another aspect of the health of elderly Manitobans reviewed was the rate of Personal Care Home (PCH) admissions by residents of each area of the province. Since Personal Care Homes operate at high occupancy levels, the number of residents admitted is largely driven by the number of beds available. PCH admission rates are therefore not a particularly reliable indicator of the health of elderly residents in an area. In this case, however, a low supply of PCH beds might arguably suggest a greater need for home care services.

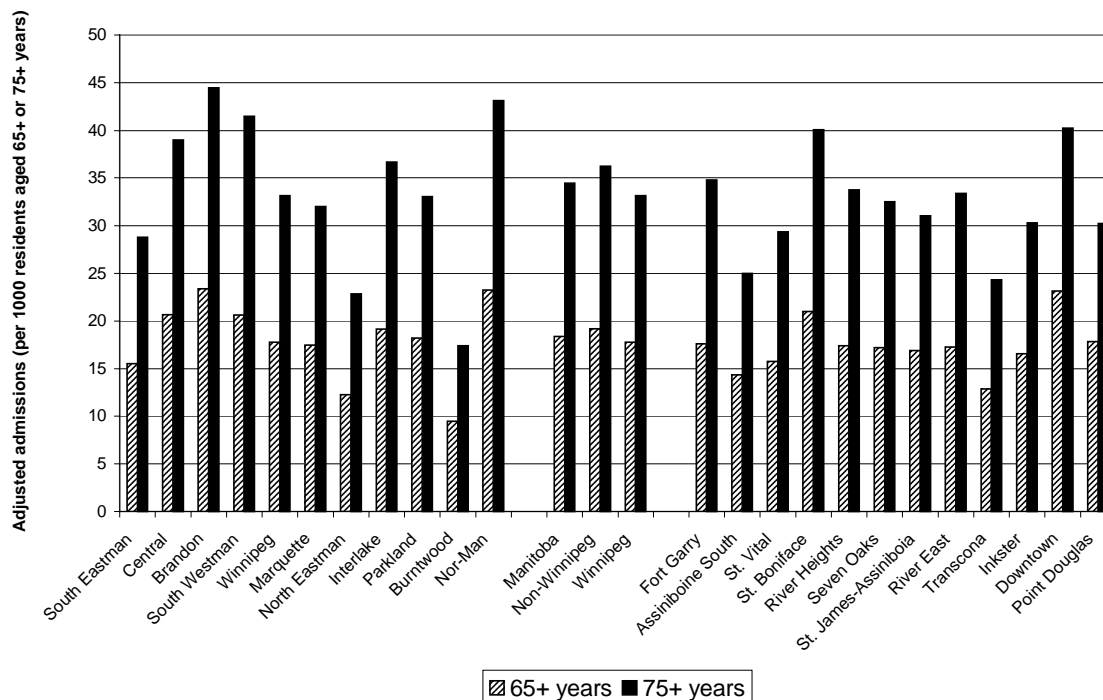
Conclusions must be drawn cautiously from admission data regarding the North since these regions have few elderly residents (486 aged 75+ years in 1995/96) and we do not have data for admissions to PCHs under federal jurisdiction. This is particularly a problem for assessing use by Burntwood residents. The admission rates we report here are only admissions to provincial PCHs.

Entry to Personal Care Homes in fiscal 1997/98 is examined in Figure B3. Both Burntwood/Churchill and North Eastman had low admission rates (per 1000 residents aged 65+/75+ years: 9.4/17.4 and 12.3/22.8 respectively)²⁸. A previous study, that used 1995/96 data²⁹, noted that these RHAs had significantly fewer of their residents aged 75+ years living in PCHs than the Manitoba average, and both had the fewest provincial PCH beds per 1000 RHA residents aged 75+ years. Nor-Man and Brandon had the highest rates of PCH admission in 1997/98, both for individuals aged 65+ and for those 75 years and older. From the 1995/96 data, it is evident that these two RHAs also had the highest numbers of provincial PCH beds per 1000 RHA residents aged 75+ years.

²⁸ Both Burntwood/Churchill and North Eastman have federal Personal Care Homes in their regions, for which admission rates are not reported.

²⁹ Comparative indicators of population health and health care use for Manitoba's Regional Health Authorities: A POPULIS project. June 1999. Black, C., Roos, NP, Fransoo, R., Martens, P.

Figure B3: Adjusted Admission Rate to PCH, 1997/98



Self-reports of health status:

The National Population Health Survey (NPHS), conducted every two years by Statistics Canada, collects information from a representative sample of Canadians about their health status. Tables B2 & B3 present responses to five questions around functional status and self perceived health by RHA:

- Respondent's general health
- Restriction of activity
- Need for help in a series of tasks
- Derived mobility trouble
- Activities prevented due to pain/discomfort

Where responses were based on fewer than 50 cases these regions were not included in the tables. Too few people were interviewed in Winnipeg to present data by Winnipeg sub-areas. All observations were weighted to adjust for the sampling scheme.³⁰

³⁰ Since we have not done statistical testing on the NPHS data we cannot report on the significance of differences in the responses reported.

The areas are ordered by premature mortality rate with the healthiest areas (for the under 75 population) on top. Elderly individuals in Northern RHAs seemed to report a somewhat higher burden of disability than their counterparts in the South. However, a paucity of elderly persons in the North, combined with the sampling design, may have resulted in somewhat unreliable data for RHAs with few elderly individuals. Overall, there did not seem to be any RHA(s) where older Manitobans consistently reported being in better or poorer health, having more disability or general frailty.

Summary: We compared the healthiness of Manitoba's elderly persons by region and across sub-areas of Winnipeg using mortality, rate of hospitalizations, admission to Personal Care Homes and a number of measures of self reported health status from the 1996 National Population Health Survey. We concluded that patterns of general health in elderly persons are different from those seen in younger populations. Though Manitoba's North and Winnipeg's Point Douglas area, areas that have high premature mortality rates, also had high mortality among their elderly residents, a strong relationship between PMR and mortality in older adults was not seen in other regions. Those areas did not appear to have higher rates of hospital or PCH admission than, for example, elderly residents of the rural South, or of Fort Garry, Assiniboine South or St. Vital, areas which have low premature mortality rates. Even when characteristics were examined that are thought to be more directly associated with an increased probability of need for home care, such as an elderly individuals' ability to function independently, we did not find functional levels to be lower in Northern Manitoba and higher in the South.

Table B2: NPHS Responses for Selected Variables, for a Sample of Manitobans Aged 65+ Years¹

	Experience some restriction of activity (%)	Need help in a series of tasks¹(%)	Fair general health (%)	Poor general health (%)	Can't Walk² (%)	Some activity prevented due to pain and discomfort² (%)	Most activities prevented due to pain and discomfort² (%)
Manitoba	35.42	32.24	18.31	6.97	5.70	4.34	6.29
South Eastman	29.51	31.61	21.25	6.83	4.84	3.59	2.73
Central	31.78	32.88	19.66	4.47	5.52	6.20	5.74
Brandon	36.41	35.22	15.88	4.74	2.66	6.12	3.02
South Westman	33.75	34.31	14.33	4.14	2.18	4.24	3.88
Winnipeg	37.42	32.35	18.06	7.83	6.39	3.57	7.41
Marquette	31.00	31.48	16.99	4.18	3.81	6.14	3.86
North Eastman	36.75	31.36	18.35	9.51	7.17	6.40	6.51
Interlake	28.79	28.23	16.45	6.93	7.25	3.70	6.52
Parkland	35.94	31.59	24.28	7.47	4.07	7.13	4.63
Nor-Man	31.16	34.95	23.38	5.31	2.76	1.34	3.18

¹ RHAs where the NPHS response was based on fewer than 50 cases are not reported: Burntwood and Churchill

² Derived variables

Table B3: NPHS Responses for Selected Variables for a Sample of Manitobans Aged 75+ Years¹

	Experience some restriction of activity (%)	Need help in a series of tasks¹ (%)	Fair general health (%)	Poor general health (%)	Can't walk² (%)	Some activity prevented due to pain and discomfort² (%)	Most Activities prevented due to pain and discomfort² (%)
Manitoba	41.91	46.02	23.51	7.98	9.10	6.38	8.37
South Eastman	33.27	47.40	28.63	8.36	6.32	3.61	3.04
Central	40.28	51.84	20.64	7.16	10.44	12.13	5.74
Brandon	43.73	47.68	22.54	5.45	5.27	6.69	4.14
South Westman	34.51	39.42	17.00	5.63	3.90	4.12	5.61
Winnipeg	44.90	45.99	24.62	7.74	9.59	6.16	9.49
Marquette	35.37	43.75	18.52	6.24	7.80	6.85	6.51
North Eastman	45.01	47.04	23.98	14.35	10.30	9.19	9.44
Interlake	34.59	46.53	19.21	12.21	16.62	3.31	15.46
Parkland	38.68	42.81	27.46	10.48	6.35	6.47	5.29

¹ RHAs where the NPHS response was based on less than 50 cases are not reported: Burntwood, Nor-Man, and Churchill

² Derived variables

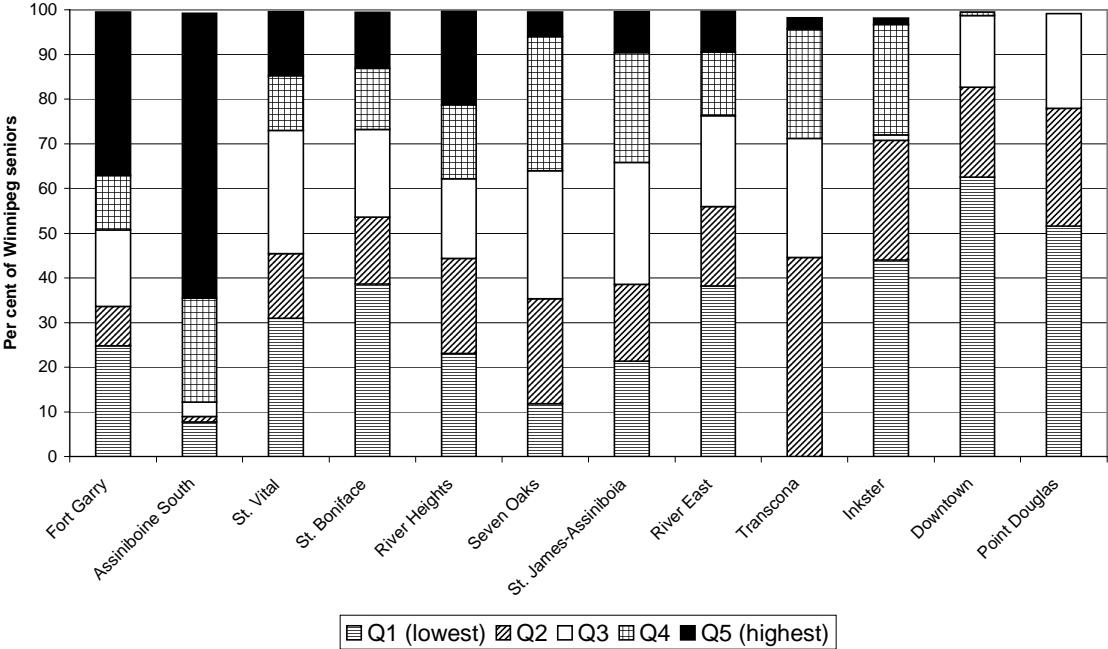
Health of Elderly Persons According to Average Household Income by Neighbourhood of Residence

We also examined several indicators of the health of elderly persons according to the relative income level of their neighbourhood of residence³¹. Figure B4 indicates for the Winnipeg Community Areas the proportion of their elderly residents living in the lowest income neighbourhoods (Q1), the middle income neighbourhoods (Q3), etc. Again, we were interested in whether the health of older individuals varied systematically according to neighbourhood income characteristics. In this context, we investigated whether average household income might be used as a proxy for need for health care, with residents of neighbourhoods with a low average household income requiring more services than those with higher incomes. If this was so, then it would make sense to review access and use of home care services according to whether services tended to be delivered/ accessed by elderly persons in a way which seemed responsive to these rough indicators of need. PCH residents were also excluded from all these analyses.

³¹ Residents of urban Manitoba (Winnipeg and Brandon) and rural Manitoba (all other areas) were separately divided into five socioeconomic groups. We used data from the 1996 Canadian Census public use database describing the mean household income characteristics of the neighbourhoods in which Manitoba residents lived. Census data were aggregated at the geographic unit of the enumeration area; an enumeration area has an average population of 700 people.

Based on mean household income, the Manitoba urban enumeration areas were ranked from highest to lowest mean household income and then grouped into five population quintiles with each containing approximately 20% of Winnipeg and Brandon's population. As this was based on total population, the proportion of elderly individuals in each of these areas varied markedly depending on regional demographics. For example, in 1997, in low income urban neighbourhoods there were 47,841 residents aged 75+ years (or 30% of all individuals aged 75+ years residing in an urban area) in Q1 and 43,001 (27%) in Q2, while in the higher income neighbourhoods (Q4 and Q5) there were 21,019 residents aged 75+ (13%) and 16,426 (10%) respectively. Each home care client was linked to an enumeration area by residential postal code and a quintile neighbourhood income rank was assigned for each resident.

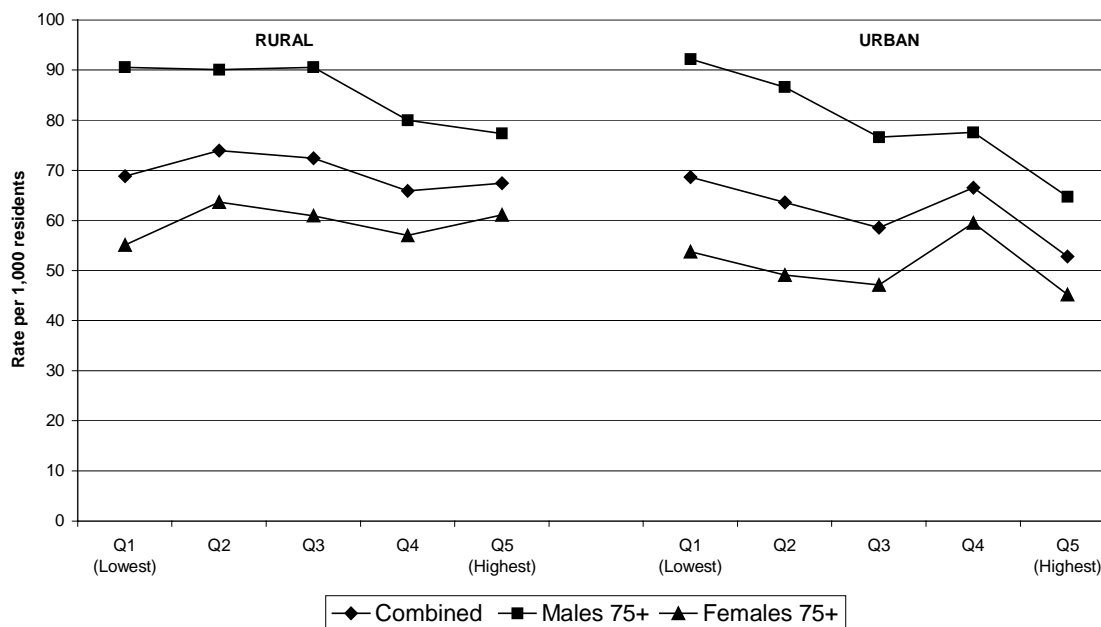
Figure B4: Winnipeg Seniors Aged 75+ Years by Average Neighbourhood Income (excluding PCH residents), 1998



(a) Mortality in Elderly Persons across Neighbourhoods with differing Income Characteristics

Overall, in urban areas there is some indication that mortality rates among elderly persons tend to vary systematically with the relative income level of the neighbourhood (Figure B5). Mortality rates for males aged 75 years and older are considerably higher in the lowest income urban neighbourhoods (92.1 per 1000) compared with male mortality rates in the high income urban neighbourhoods (64.7). The pattern for urban women in the age group is similar except for the high mortality rates in quintile 4 neighbourhoods. Although in rural areas, male mortality rates also vary systematically with neighbourhood income levels, with higher mortality rates in areas with low incomes, the same pattern does not hold for mortality among women.

**Figure B5: Mortality Rates for Individuals Aged 75+ Years
(excluding PCH residents) by Average Neighbourhood Income
(data from 1994-98 standardized to 1996)**



(b) Hospital Use Patterns of Elderly Residents by Neighbourhood Income

Characteristics

As is seen in Figures B6 and B7, the rate of hospital use also varied systematically by the income characteristics of the neighbourhood in which elderly persons lived. In rural areas, elderly residents of higher income areas tended to have both lower rates of hospital admission (Figure B6), and fewer days in hospital during 1998/99 (Figure B7). In urban areas there was a slightly lower hospital admission rate among elderly residents of higher income neighbourhoods and a strong relationship between income characteristics of the neighbourhood and the relative number of days spent in hospital. The poorer the neighbourhood, the more days elderly residents spent in hospital.

Figure B6: Hospital Discharges (inpatient and outpatient) per Capita for Individuals Aged 75+ Years (excluding PCH residents) by Average Neighbourhood Income, 1998/99

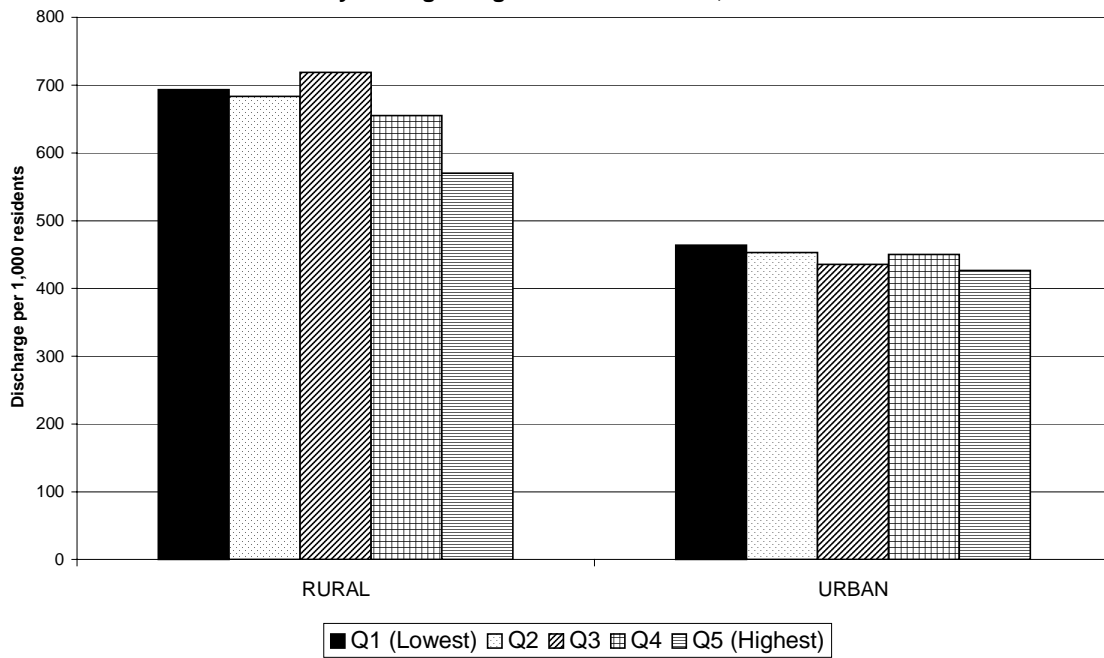
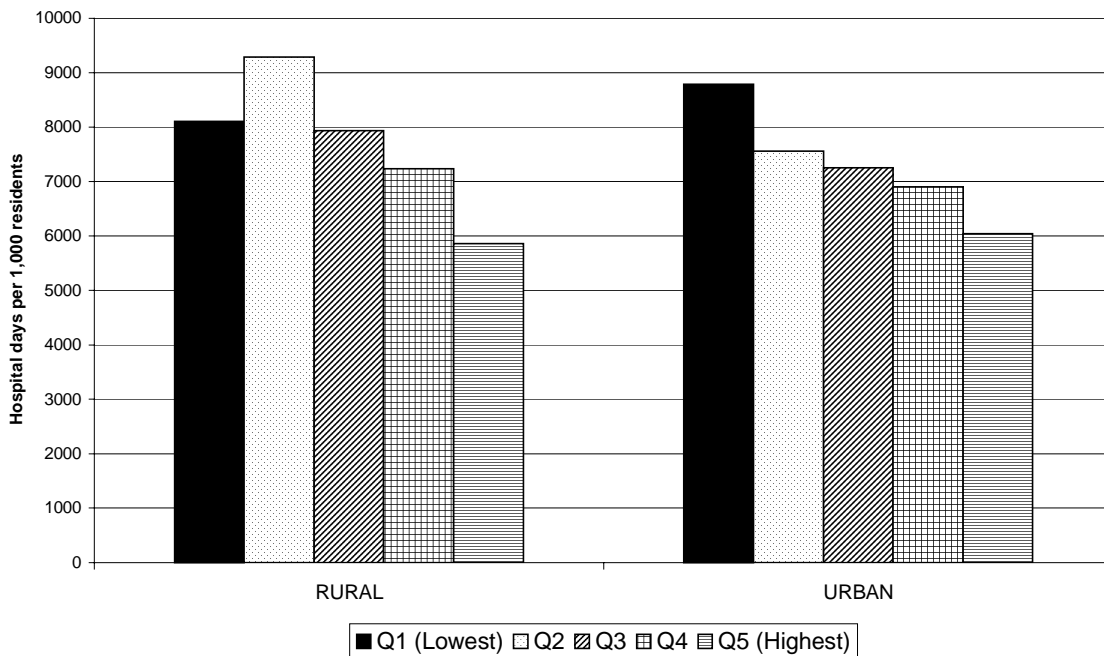


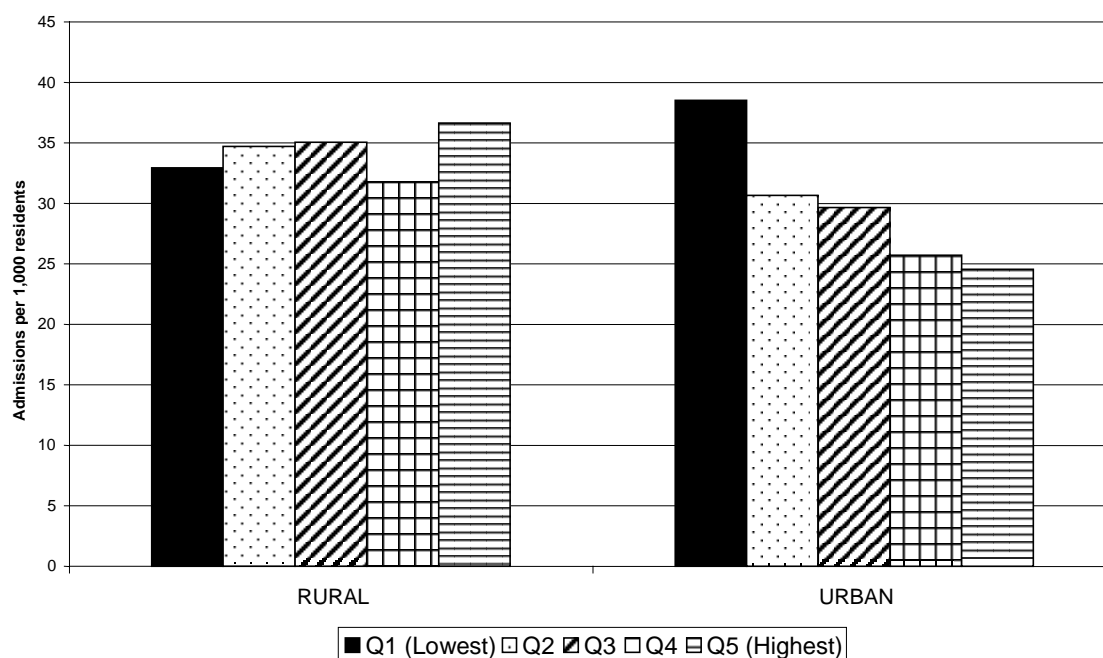
Figure B7: Hospital Days per Capita for Individuals Aged 75+ Years (excluding PCH residents) by Average Neighbourhood Income, 1998/99



(c) Personal Care Home Admission Patterns of Elderly Residents by Neighbourhood Income Characteristics

In urban areas there is a tendency for residents of lower income areas to have higher rates of admission to Personal Care Homes (Figure B8). In rural areas, this relationship is not observed, with similar admission rates irrespective of average neighbourhood income.

Figure B8: PCH Admissions per Capita for Individuals Aged 75+ Years by Neighbourhood Income, 1997/98



Summary

Given the observed patterns of mortality amongst the elderly residents of urban areas as well as patterns of hospital use and PCH admission, it appears reasonable to expect that elderly individuals living in low income urban neighbourhoods are less healthy and are more likely to have a higher need for home care services than elderly individuals living in higher income urban neighbourhoods. The patterns are less clear for those elderly persons who live in neighbourhoods of differing income characteristics in rural Manitoba. In this report we will therefore only use access to home care across residents who live in urban neighbourhoods with differing income characteristics as an indicator of whether the Program is reasonably responsive to need at the population level.

REFERENCES

- Black C, Roos NP, Fransoo R, Martens P. *Comparative Indicators of Population Health and Health Care Use for Manitoba's Regional Health Authorities: A POPULIS project*. Manitoba Centre for Health Policy and Evaluation. Winnipeg. 1999.
- Carstairs V, Morris R. *Deprivation and Health in Scotland, Aberdeen, Scotland*: Aberdeen University Press, 1991
- Eyles J, Birch S, Chambers S, Hurley J, Hutchinson B. A needs-based methodology for allocating health care resources in Ontario, Canada: Development and an application. *Soc Sci Med* 1991;33(4):489-500.
- Eyles J, Birch S. A population needs-based approach to health care resource allocation and planning in Ontario: A link between policy goals and practice. *Can J Public Health* 1993;84(2):112-117.
- Health Canada. "Public Home Care Expenditures in Canada 1975-76 to 1997-98. Fact Sheets. Policy and Consultative Branch. Minister of Public Works and Government Services, Canada. Cat. No. H39-432/1998. 1998.
- Roos NP, Black C, Roos LL, Frohlich N, DeCoster C, Mustard CA, Brownell M, Shanahan M, Fergusson P, Toll F, Carriere KC, Burchill C, Fransoo R, MacWilliam L, Bogdanovic B, Friesen D. Managing health services: How the population health information system (POPULIS) works for policymakers. *Med Care* 1999;37(6 suppl):JS27-41.

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