

SUBSTUDY 7

OVERVIEW OF HOME CARE CLIENTS

**A Report Prepared for the
Health Transition Fund, Health Canada**

March 2002



National Evaluation of the Cost-Effectiveness of Home Care



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**Prepared by
Marcus J Hollander, PhD**

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PREFACE

The National Evaluation of the Cost-Effectiveness of Home Care is an integrated program of research with 15 studies being conducted across Canada. There is an overall strategy for the program of research to make it as useful to administrators and decision makers as possible. The program of research is designed to determine whether or not home care is a cost-effective alternative to institutional care, that is, care in long term care facilities and acute care hospitals. However, the program of research is also designed to provide an educational function to inform decision makers and the public about home care, and to provide advice about issues related to implementing new and cost-effective home care initiatives. Thus, the overall strategy has the following components:

- Conduct studies to determine whether or not home care is a cost-effective alternative to institutional care, and if so, under what conditions it is cost-effective.
- Conduct studies to inform decision makers about the nature and scope of home care services across Canada. These studies provide a baseline of information about home care clients, costs, and utilization. This baseline is important because there is currently no national database on home care in Canada.
- Conduct studies to explore opportunities for potential savings in the hospital sector by substituting home care services. At present, there are relatively few areas noted in the literature where home care has been shown to be a cost-effective alternative to hospital care.
- Conduct studies to provide decision makers with information about some of the issues they may face if they try to implement new initiatives to enhance the cost-effectiveness of the health care system.

This study, Substudy 7, provides a descriptive overview of the characteristics of home care clients in two jurisdictions, British Columbia and Saskatchewan. It also provides some basic data on resource utilization for British Columbia.

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1. INTRODUCTION

The original intent of this study, Substudy 7, was to provide comparative data on home care clients from a number of jurisdictions. The intent was to provide a profile of clients, resource use and costs for selected jurisdictions as there is currently no national database on home care in Canada.

Contacts were made with four jurisdictions but the research team ran into a number of issues which resulted in the team obtaining less usable data than had originally been anticipated. Issues arose of long delays in obtaining data, data quality and the comparability of data across jurisdictions. Comparability of data in regard to resource utilization was particularly problematic due to issues of data quality, the way data are collected, incompatibility of care levels and different mixes of services. Thus, it was concluded that this report would provide some descriptive data on home care clients for Saskatchewan and British Columbia and to provide some resource utilization data for British Columbia.

It was felt that there was sufficient comparability in the demographic data on home care clients in the two jurisdictions to allow for valid comparisons. It was not possible to compare service utilization due to the nature of the data in the two jurisdictions. Thus, data on utilization are only presented for British Columbia.

2. METHODS

Data were obtained for the provinces of British Columbia and Saskatchewan for the fiscal years 1997/98 and 1998/99. Having the two years of data allowed each client admitted in the 1997/98 fiscal year to be followed for a one year period irrespective of when in fiscal 1997/98 they were admitted (e.g., April 1, 1997 or March 31, 1998).

The data for Saskatchewan were obtained from Saskatchewan Health. Data on home care clients in Saskatchewan are recorded on a monthly basis. The data extract indicated if a client was admitted in a given month and the services provided in that month. For each subsequent month there would be a summary of services received. A discharge would be recorded for the client in the month the client was discharged and the services provided would also be recorded. This format for the data meant that if one were to define short-term home care as being care for 90 days or less one would, in effect be combining data for clients who could have been in care for a full three months (i.e., be admitted on the first day of the first month and discharged on the last day of the third month) or just over one month (i.e., be admitted on the last day of the first month and discharged on the first day of the third month). Thus, it was felt that it would not be possible to have precise data on service utilization, particularly for clients in care for 90 days or less. Therefore, utilization data are not presented for Saskatchewan. However, the above does not apply to the characteristics of clients such as age and gender and, thus, descriptive data on clients in Saskatchewan are provided.

The data set for British Columbia was from the linked database housed at the University of British Columbia (see Substudy 1 for a full description of the database). The database is

constructed in such a way that the exact date of intake and discharge are noted. Thus, it is possible to precisely determine length of stay, e.g., clients who were in care for up to 90 days.

Data ranges were reviewed and other quality checks were conducted prior to data analysis.

3. AN OVERVIEW OF HOME CARE CLIENTS

A total of 12,623 clients comprised the database for Saskatchewan while 33,053 clients in the British Columbia database were used for analysis.

Tables 1 and 2 provide a breakdown by gender and age for home care clients in British Columbia and Saskatchewan, calculated on the basis of care episodes, for a one year period. There was a small proportion of clients who had more than one episode. Thus, it was not feasible to present gender and age data by individual client as individuals could have been in two different categories, over two care episodes, that is, care episodes of 90 days or less and episodes of 91 days or more. Overall, there were approximately 1.3 females for each male across the two jurisdictions. Saskatchewan had a slightly higher percentage of females than British Columbia (58.7% compared to 54.3%). The relative proportions of females to males were higher for the longer term clients (91 to 365 days) than for short stay clients in each jurisdiction (58.1% compared to 52.2% in British Columbia and 62.0% compared to 56.3% in Saskatchewan).

Table 1: Home Care Clients by Location, Length of Stay, and Gender

Gender		British Columbia			Saskatchewan		
		90 days or less	91 days or more	Total	90 days or less	91 days or more	Total
Female	Number	10,936	7,024	17,960	4,146	3,259	7,405
	Percent	52.2	58.1	54.3	56.3	62.0	58.7
Male	Number	10,025	5,066	15,091	3,222	1,996	5,218
	Percent	47.8	41.9	45.7	43.7	38.0	41.3
Total	Number	20,961	12,090	33,051*	7,368	5,255	12,623

* Overall total was 33,053, however there were two people missing, bringing the overall total down to 33,051.

With regard to age, the highest proportion of clients in British Columbia and Saskatchewan were in the 75 to 84 years of age group at 27.9% and 32.0% respectively. Relatively few clients (17.1% in British Columbia and 15.8% in Saskatchewan) were under 45 years of age. In both jurisdictions, the concentration of clients in the 75 to 84 age group was higher in the long stay group and, overall, there were more elderly clients in the long stay group than in the short stay group. For example, in British Columbia, 52.6% of clients in the long stay group were 75 years of age or older compared to 30.5% in the short stay group. The comparable percentages for Saskatchewan were 60.9% and 37.6%, respectively.

Table 2: Home Care Clients by Location, Length of Stay, and Age Group

Age Group		British Columbia			Saskatchewan		
		90 days or less	91 days or more	Total	90 days or less	91 days or more	Total
0 to 19 years	Number	931	137	1,068	336	81	417
	Percent	4.4	1.1	3.2	4.6	1.5	3.3
20 to 44 years	Number	3,626	959	4,585	1,313	258	1,571
	Percent	17.3	7.9	13.9	17.8	4.9	12.5
45 to 64 years	Number	5,162	2,065	7,227	1,420	636	2,056
	Percent	24.6	17.1	21.9	19.3	12.1	16.3
65 to 74 years	Number	4,843	2,570	7,413	1,535	1,082	2,617
	Percent	23.1	21.3	22.4	20.8	20.6	20.7
75 to 84 years	Number	4,862	4,362	9,224	1,950	2,090	4,040
	Percent	23.2	36.1	27.9	26.5	39.8	32.0
85 years and older	Number	1,539	1,997	3,536	814	1,108	1,992
	Percent	7.3	16.5	10.7	11.1	21.1	15.2
Total	Number	20,963	12,090	33,053	7,368	5,255	12,623

Table 3 provides data on marital status for clients who indicated their marital status. The data for this variable were collected consistently in Saskatchewan but in British Columbia about one quarter of the clients did not indicate their marital status. Thus, the data for British Columbia are somewhat less reliable than the data for Saskatchewan.

With regard to clients in care for an estimated 90 days or less 60.8% were married in British Columbia compared to 52.0% in Saskatchewan. The proportions were fairly similar for those who were not married while there was a higher proportion of widowed clients in Saskatchewan. This pattern was the same for clients who were in care for an estimated 91-365 days and for all clients combined.

Table 3: Home Care Clients by Location, Length of Stay and Marital Status

		British Columbia			Saskatchewan		
		90 days or less	91 days or more	Total	90 days or less	91 days or more	Total
Married	Number	8,804	4,554	13,358	3,828	2,136	5,964
	Percent	60.8	47.1	55.3	52.0	40.7	47.3
Not Married	Number	3,433	2,097	5,530	1,818	976	2,794
	Percent	23.7	21.7	22.9	24.7	18.6	22.1
Widowed	Number	2,247	3,013	5,260	1,722	2,143	3,865
	Percent	15.5	31.2	21.8	23.4	40.8	30.60
Total	Number	14,484	9,664	24,148	7,368	5,255	12,623

4. SERVICE UTILIZATION DATA FOR BRITISH COLUMBIA

This chapter provides descriptive statistics on service utilization for home care clients in British Columbia. Data on home support combines the hours from homemakers, or home support workers, and Adult Day Care services, while professional service hours are a combination of nursing, physiotherapy and occupational therapy. Table 4 presents data on service utilization by

gender and length of stay. In terms of the length of stay both men and women who were in care for 90 days or less averaged some 27 days per care episode. In terms of clients who were in care for 91 to 365 days, the average length of stay was 259 days for men and 279 days for women.

Women who were in care for 90 days or less received somewhat more home support than men (6.0 hours compared to 4.8 hours for men). Both groups received about the same amount of professional home care (8.1 hours for men and 7.8 hours for women). It should be noted that both men and women in the 90 days of care or less group received more professional home care services than home support services. Overall, home support hours were about two thirds of professional hours.

Table 4: Average Services Utilization by Gender and Length of Stay Over a One Year Period

Gender	Days in Care Episode			Home Support Hours			Professional Service Hours		
	90 days or less in care (Days)	91 days or more in care (Days)	All clients (Days)	90 days or less in care (Hours)	91 days or more in care (Hours)	All clients (Hours)	90 days or less in care (Hours)	91 days or more in care (Hours)	All clients (Hours)
Male	26.7	259.2	104.7	4.8	136.5	49.0	8.1	18.1	11.4
Female	27.1	278.7	125.5	6.0	165.2	68.3	7.8	16.1	11.0
Total	26.9	270.5	116.0	5.4	153.2	59.5	7.9	16.9	11.2

With regard to clients who were in care for 91-365 days, women received somewhat less professional care than men (16.1 hours compared to 18.1 hours) even though they were in care, on average, for a longer period of time. On a standardized basis (hours per day in care), men received fewer home support hours than women (an average of 0.53 hours per day in care compared to 0.59 hours). It is important to note that longer term clients use considerably more home support services than professional services. The overall ratio of home support hours to professional service hours was 9.07 to one, that is home support hours exceeded professional hours by a ratio of nine to one. Thus, the relative proportions of short and long term clients in a given system of care will have a significant impact on the volume and type of resources required. Furthermore, given the shift, in some jurisdictions, to a greater focus on the short term, hospital-replacement form of home care, there may be continued pressure on human resources issues and budget issues as lower cost home support services come to be replaced with higher cost professional services.

With regard to age, the overall trend for clients receiving care for 90 days or less and for 91 to 365 days is that the length of stay tends to increase as clients become older (see Table 5). This pattern is somewhat stronger for clients in the 90 days of care or less category. The number of home support hours provided, for both groups of clients, also tends to increase with age. The pattern is, however, different for the use of professional services. Clients 74 years of age or younger in the 90 days of care or less group, tended to use about eight to eight and one-half hours of professional care. The rate of usage of professional services for those 75-84 and 85 years of age or older tended to decrease with age even though their length of stay increased. There was a similar pattern for clients who were in care for 91 to 365 days with those 74 years of age and under averaging some 19-21 hours of professional care while utilization decreased in

relation to age for those in the 75-84 and 85+ years of age groups even though the length of stay continued to increase with age.

Table 5: Average Service Utilization by Age and Length of Stay Over a One Year Period

Age	Days in Care Episode			Home Support Hours			Professional Service Hours		
	90 days or less in care (Days)	91 days or more in care (Days)	All clients (Days)	90 days or less in care (Hours)	91 days or more in care (Hours)	All clients (Hours)	90 days or less in care (Hours)	91 days or more in care (Hours)	All clients (Hours)
0-19	19.7	244.2	48.5	0.5	25.5	3.7	8.1	19.3	9.6
20-45	21.6	254.5	70.3	0.7	91.9	19.8	8.5	20.7	11.0
46-64	25.5	248.1	89.1	2.5	104.2	31.6	8.7	21.3	12.3
65-74	28.3	263.2	109.7	5.2	141.1	52.3	8.2	19.6	12.2
75-84	30.9	280.4	148.9	10.1	176.4	88.7	6.9	14.4	10.5
85+	31.6	291.2	178.2	15.2	206.9	123.5	5.8	12.5	9.6
Total	26.9	270.5	116.0	5.4	153.2	59.5	7.9	16.9	11.2

Table 6 presents data on utilization by marital status. Widowed clients tended to stay in care longer than married or not married clients for both short term and longer term home care clients. As noted earlier, there were a number of clients for whom marital status was not recorded. Data on these clients is presented in the “Unknown” category. For clients in care for 90 days or less, those in the Unknown category had a length of stay that was similar to the other three categories but their length of stay was shorter than that for the other three categories among clients who were in care for 91-365 days. Widowed clients, overall, tended to use more home support hours, but slightly fewer professional hours, than other clients.

Table 6: Average Service Utilization by Marital Status and Length of Stay Over a One Year Period

Marital Status	Days in care episode			Home Support hours			Professional Services Hours		
	90 days or less in care (Days)	91 days or more in care (Days)	All clients (Days)	90 days or less in care (Hours)	91 days or more in care (Hours)	All clients (Hours)	90 days or less in care (Hours)	91 days or more in care (Hours)	All clients (Hours)
Married	26.6	263.0	107.2	5.9	158.8	58.0	8.0	17.5	11.2
Not Married	24.4	283.8	122.8	4.2	142.3	56.6	8.1	16.6	11.3
Widowed	31.2	295.1	182.3	17.0	208.6	126.7	7.2	13.8	11.0
Unknown (Missing data)	27.1	242.8	85.9	1.4	83.3	23.7	7.9	20.1	11.3
Total	26.9	270.5	116.0	5.4	153.2	59.5	7.9	16.9	11.2

5. HOME CARE CLIENTS DISCHARGED FROM HOSPITAL

There is a current trend, in at least some parts of Canada, to place a greater priority on the short-term, hospital replacement form of home care as a means of easing pressures on hospital beds. Thus, we conducted a separate analysis of clients who were discharged from hospital and who started on home care within 14 days after the date of discharge from the hospital. These clients were a sub-set of the clients who were in care for 90 days or less or 91-365 days. There were 13,790 such clients in the database, 10,366 of whom were in care for 90 days or less and 3,424 who had care episodes of 91-365 days. Table 7 presents data on gender, age and marital status, similar to the data presented in Tables 1-3. In terms of gender, age and marital status, the people discharged from hospital were fairly similar to the overall home care population.

Table 7: Home Care Clients Discharged From Hospital By Length Of Stay In Home Care, Gender, Age And Marital Status

		Length of Stay		
		90 days or less	91 days or more	Total
Gender				
Males	Number	5,088	1,561	6,649
	Percent	49.1	45.6	48.2
Females	Number	5,278	1,863	7,141
	Percent	50.9	54.4	51.8
Age				
0-19	Number	426	39	465
	Percent	4.1	1.1	3.4
20-45	Number	1,863	270	2,133
	Percent	18.0	7.9	15.5
46-64	Number	2,894	745	3,639
	Percent	27.9	21.8	26.4
65-74	Number	2,637	822	3,459
	Percent	25.4	24.0	25.1
75-84	Number	2,066	1,144	3,210
	Percent	19.9	33.4	23.3
85+	Number	480	404	884
	Percent	4.6	11.8	6.4
Marital Status (excluding missing data)				
Married	Number	4,795	1,469	6,264
	Percent	65.3	55.0	62.5
Not Married	Number	1,643	525	2,168
	Percent	22.4	19.6	21.6
Widowed	Number	908	678	1,586
	Percent	12.4	25.4	15.8
Total	Number	10,366	3,424	13,790

Table 8 presents service utilization data for people discharged from hospital and admitted to home care within 14 days after discharge. These data are similar to the data presented in Tables 4-6. Overall, clients discharged from hospital had slightly shorter stays than the average home care client. They used less home support hours but more professional hours, as would be expected. For example, overall, home care clients in care for 90 days or less used an average of

7.9 hours of professional care compared to 8.3 hours for those discharged for hospital. There was also a difference for clients who were in care for 91-365 days with the average home care client using 16.9 hours of professional services compared to 22.3 hours for those discharged from the hospital. It is interesting to note that while the pattern of service utilization was mixed for all home care clients, based on marital status, for people who were discharged from hospital and stayed in care for 91-365 days, married clients used considerably less resources than clients who were not married or were widowed (116 hours compared to 143 and 196 hours respectively).

Table 8: Average Service Utilization by Length of Stay and Gender, Age and Marital Status Over a One Year Period

	Days in Care Episode			Home Support Hours			Professional Service Hours		
	90 days or less in care (Days)	91 days or more in care (Days)	All clients (Days)	90 days or less in care (Hours)	91 days or more in care (Hours)	All clients (Hours)	90 days or less in care (Hours)	91 days or more in care (Hours)	All clients (Hours)
Gender									
Male	25.8	234.6	74.8	2.1	101.7	25.5	8.4	24.3	12.1
Female	25.5	250.6	84.2	2.9	138.5	38.2	8.3	21.2	11.6
Age									
0-19	21.3	193.4	35.8	0.1	0.0	0.1	8.7	29.2	10.5
20-45	22.1	217.1	46.8	0.6	66.0	8.9	9.2	27.8	11.5
46-64	24.4	220.8	64.6	1.0	88.8	19.0	8.8	25.8	12.3
65-74	27.1	231.1	75.6	2.3	94.8	24.3	8.2	25.5	12.3
75-84	28.5	261.8	111.6	4.9	158.0	59.5	7.3	18.9	11.4
85+	31.4	279.4	144.7	11.4	183.3	90.0	6.8	16.9	11.4
Marital Status									
Married	25.3	236.8	74.9	2.6	116.0	29.2	8.3	23.7	11.9
Not Married	24.3	253.5	79.8	1.7	142.7	35.9	8.7	23.2	12.2
Widowed	29.4	276.7	135.1	9.3	196.2	89.2	8.0	18.7	12.6
Unknown (Missing data)	25.9	218.6	64.3	0.7	51.1	10.7	8.2	23.4	11.2
Total	25.7	243.3	79.7	2.5	121.7	32.1	8.3	22.6	11.9

6. HOME CARE SERVICE UTILIZATION FOR CLIENTS DISCHARGED FROM HOSPITAL BY MAJOR DIAGNOSTIC CLASSES

This chapter presents data on length of stay and service utilization for clients discharged from hospital who started home care within 14 days after discharge by major medical diagnosis. The five most common diagnoses, in descending order, were: Neoplasma, Diseases of the Circulatory Systems, Injury and Poisonings, Diseases of the Digestive System, and Musculoskeletal System and Connective Tissue. Overall, these five diagnoses accounted for 68.6 percent of all cases. Table 9 presents data on the number of cases by medical diagnosis and length of stay.

Table 9: Home Care Clients Discharged from Hospital by Length of Stay in Home Care and the Top Five Major Diagnostic Classes

Type of Diagnostic Class		Length of Stay		
		90 days or less	91 days or more	Total
Neoplasms	Number	2,037	689	2,726
	Percent	19.7	20.1	19.8
Diseases of the Circulatory System	Number	1,726	714	2,440
	Percent	16.7	20.9	17.7
Injury and Poisoning	Number	1,399	343	1,742
	Percent	13.5	10.0	12.6
Disease of the Digestive System	Number	1,155	228	1,383
	Percent	11.1	6.7	10.0
Musculoskeletal System and Connective Tissue	Number	1,001	168	1,169
	Percent	9.7	4.9	8.5
All 18 Major Diagnostic Classes	Number	10,366	3,424	13,790
	Percent	100.0	100.0	100.0

Table 10 provides data on the length of stay and resource utilization by medical diagnosis and length of stay. For clients in home care for 90 days or less the average length of stay was longest for persons with a diagnosis of Injury and Poisoning at 29.3 days and shortest for persons with Diseases of the Digestive System at 22.9 days. For persons in care for 91-365 days, the length of stay was greatest for those with Diseases of the Circulatory System at 244.6 days and shortest for persons with Neoplasms at 217.1 days. As noted above, persons discharged from hospital used fewer home support hours and more professional hours than home care clients overall.

Table 10: Service Utilization by Types of Medical Diagnosis for Clients Discharged from Hospital Over a One Year Period

	Days in Care Episode			Home Support Hours			Professional Service Hours		
	90 days or less in care (Days)	91 days or more in care (Days)	All clients (Days)	90 days or less in care (Hours)	91 days or more in care (Hours)	All clients (Hours)	90 days or less in care (Hours)	91 days or more in care (Hours)	All clients (Hours)
Neoplasms	25.7	217.1	74.0	3.3	70.1	20.2	9.6	31.0	15.0
Diseases of the Circulatory System	27.8	244.6	91.2	1.9	124.6	37.8	7.2	18.4	10.4
Injury and Poisoning	29.3	233.1	69.4	1.5	100.4	21.0	8.7	21.6	11.3
Diseases of the Digestive System	22.9	247.9	60.0	1.8	108.3	19.4	10.0	31.5	13.6
Musculoskeletal System and Connective Tissue	24.5	238.6	55.2	1.4	87.7	13.8	5.5	10.2	6.2
All 18 Major Diagnostic classes	25.7	243.3	79.7	2.5	121.7	32.1	8.3	22.6	11.9