Mount Saint Vincent University

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Patterns and predictors of home care utilization in Eastern Canada:

Analyzing changes over a 5-year period (1996 - 2001)

by

Glenda Hawkins

A thesis

submitted in partial fulfillment

of the requirements for the degree of

Master of Arts in Family Studies and Gerontology

October, 2005

Halifax, Nova Scotia

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Abstract

Patterns and predictors of home care utilization in Eastern Canada: Analyzing changes over a 5-year period (1996 - 2001)

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Research on home care is relevant and important to the health of Canadians. Home care provides services that allow individuals to remain within their own homes for as long as possible by maintaining their physical, mental, social, and emotional wellbeing, preventing the deterioration of health and the need for institutionalization and substituting acute care services provided within hospitals. Given the relative value and priority being placed on home care programs to meet cost-effective demands, it is important to understand home care usage.

The goal of this research project was to analyze trends in the utilization and composition of government-supported home care services in Eastern Canada in 1996 and in 2001 using a behavioral model developed by Andersen (1968). Secondary data from the 1996/97 National Population Health Survey and the 2000/01 Canadian Community Health Survey were analyzed to address four main research questions: (a) What are the socio-demographic and health characteristics of home care users in 1996 and in 2001, and has that profile changed over time; (b) Has the proportion of users for each type of service received (including nursing, other health care, personal care, homemaking, and respite) changed between 1996 and 2001; (c) Has the pattern of usage (e.g., the number of different types of services an individual received) changed between 1996 and 2001;

and (d) What are the predictors of home care utilization in 1996 and in 2001 and have they changed over time?

Results revealed that over time home care user characteristics associated with nursing service use (i.e., younger age, higher income, recently hospitalized) have become more dominant. These changes correspond to a substantial increase in the proportion of home care users receiving nursing services and a simultaneous decline in the proportion receiving homemaking services over the same time period. These findings which support Andersen's model, suggest that essential components to predict home care service usage in Eastern Canada should include need factors (needing assistance with activities of daily living and instrumental activities of daily living and hospitalization), which were the greatest predictors of home care use, followed by predisposing (age), and enabling factors (income).

These results can be explained by the current political context in which the need to provide cost-effective services has resulted in the prioritization of short-term acute care services, often at the expense of long-term chronic care services. As this trend continues, in combination with population aging and the limited availability of caregivers, the demand for home care services could be exponential. Decision makers within government must act to ensure that the care needs of all clients, acute or chronic, are met and that the initial foundation on which home care programs were built be maintained and strengthened.

Acknowledgements

First I would like to express my sincere appreciation to my thesis advisor, Dr. Janice Keefe, for her support, mentorship, and dedication to making my thesis experience great. Thank you for taking me under your wing and giving me the opportunity to engage in home and continuing care research. I would also like to thank my thesis committee members, Dr. Áine Humble and Kathy Greenwood for their guidance and insight during the writing of this thesis.

I would like to thank both the Healthy Balance Research Program and the Nova Scotia Health Research Foundation for their financial support of this research.

To all the strong women in my life (especially Mom, Gram, Ruth, and Marlie), I have learned so much from each of you. Thank you for always being there, supporting, guiding, challenging, inspiring, and most importantly, believing in me.

Finally, I would like to thank Bobby and my family for their support - thank you for being there every step of the way, always supporting, encouraging, and believing.

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Introduction

Problem Statement

Home care programs are now leading the way in health care reform as they offer a solution to containing costs in the health care system and addressing the future chronic care needs of an aging Canadian population. Home care is a vital component in the continuum of care and can reduce institutionalization and hospitalization (Coyte, 2000). Since the 1990s, almost all provincial home care policy has undergone active reform. Presumably, this reform is in response to demographic, social, and economic changes. The literature demonstrates that shifts in home care are continuing - a principal shift being an emphasis from providing preventative/maintenance services to acute care substitution services (Hollander, 2003).

Supporting this shift and emphasizing the importance of home care services were two commissioned reports released in 2002 from the Standing Senate Committee on Social Affairs, Science, and Technology and the Commission on the Future of Health Care in Canada. In response to these reports the federal government created a Health Reform Fund and agreed to provide first dollar coverage for short-term acute home care, including acute community mental health and end-of-life care (Government of Canada, 2003b). This coverage created a window of opportunity for home care policy development and given the growth potential of home care, now is the time to understand patterns of home care utilization in order to support future policy decisions.

This research project investigates trends in the utilization and composition of government-supported home care services in 1996 and in 2001. As well, it examines what

factors are associated with home care utilization, so that a model to project future home care utilization can be developed.

Literature Review

Home Care

Definition

Home care is defined by the Federal/Provincial/Territorial Working Group on Home Care as "an array of services which enable clients incapacitated in whole or in part to remain in their own homes, often with the effect of preventing, delaying, or substituting for long-term services provided in the home" (Government of Canada, 1990, p. 2). Home care is designed to provide three main functions: (a) maintenance and prevention, (b) acute care substitution, and (c) long-term care substitution (Government of Canada, 1990). Maintenance and prevention refers to the provision of services for people with health and/or functional limitations in the home setting, enabling them to maintain their ability to live independently. In many cases these services will prevent further decline in health and functional ability. Acute care substitution refers to the provision of services within the home that would otherwise be delivered within a hospital. Finally, long-term care substitution refers to the provision of services to people who would otherwise be in a long-term care institution (Government of Canada, 1990). *Evolution*

Over the last few decades provincial home care programs evolved and grew considerably. A range of factors contributed to this evolution, including government funding, deinstitutionalization, the need for more cost-effective forms of care due to budget constraints, advances in technology, and demographic shifts in the population (Ballinger, Zhang, & Hicks, 2003; Government of Canada, 2002a; Keefe, 2002). These factors will also shape the demand for home care services in the future.

Many of the provinces had post-hospital programs in place by 1977 (Shapiro, 1989). By providing home care services through post-hospital programs, provincial governments were able to hide home care expenses in hospital budgets, covered by the 1959 Hospital and Diagnostic Services Act. Shapiro believed the introduction of the Canada Assistance Plan (CAP) in 1966 and numerous federal and provincial commissioned reports led to the development of provincial home care programs across Canada (Canadian Institute for Health Information, 2000; Shapiro, 1989) (Refer to Appendix A for various acronyms used throughout this document). CAP, a welfare program, permitted the provincial and federal governments to share the cost (50/50) of comprehensive welfare services (Shapiro, 1989). Following CAP was a series of provincial Royal Commissions and Task Force Reports guiding health care system reform across the country, including the 1974 Report of the Federal/Provincial Home Care Working Group, which recommended a greater role for home care in the health care system (Canadian Institute for Health Information, 2000; Shapiro, 1989). Others believe the impetus for the development of home care programs in Canada began with the creation of the Established Programs Financing Act (EPF) in 1977 by the federal government (Alexander, 2002). The EPF was created by combining federal transfers for health care with transfers for post-secondary education along with the Extended Health Care Services program, which provided financial assistance for noninsured services (e.g., home care, long-term care) under the Canada Health Act (Alexander, 2002; Government of Canada, 2001). Since the 1980s, however, targeted funding from the federal government for long-term care services has declined. In 1996 a new block funding mechanism known as the Canada Health and Social Transfer (CHST) was implemented,

replacing EPF and CAP. The CHST collapsed funding for health care, social assistance, and post-secondary education, allowing the provincial governments to have greater control over how these funds were spent (Alexander, 2002; MacAdam, 2000). In 2004, the CHST was replaced with a Canada Health Transfer and a Canada Social Transfer. These separate transfers will help ensure predictable annual increases in health transfers and enhance the transparency and accountability of support from the federal government (Government of Canada, 2003b).

The development of provincial home care programs was also sparked by a shift in Canadian values. Characteristic of this shift was the desire to provide services through a more social model of care (which would enhance quality of life), instead of a medical model that dominated service delivery in institutions. Deinstitutionalization, whereby care is shifted from institutions (hospitals, long-term care facilities, etc.) to the home and community, marked the beginning of this shift. Between 1986/87 and 1994/95 the number of public hospitals in Canada declined by 14% and the number of hospital beds declined by 11% (Tully & Saint-Pierre, 1997). Of these hospital beds, short-term beds were reduced by 35% over this time period (Flood, 1999). According to the Canadian Institute for Health Information (CIHI) (2000), by 1997/98 there were 25% fewer hospital beds in Canada compared to 1984/85.

Deinstitutionalization was not only supported by the public's desire to provide more "social" services, but also by the government's need to find more cost-effective approaches to health care service delivery. Yet, only recently have researchers begun to examine the cost-effectiveness of providing home care services (Hollander, 2001; Hollander & Chappell, 2002). A study done by Hollander (2001) comparing the costs of home care versus residential care in British Columbia revealed that it cost the government 40% less to provide home care services to people with low-level care needs, 66% less for people with intermediate-level care needs, and 75% less for people with high-level care needs. However, the shift to provide more cost-effective services within the home has resulted in additional costs to home care programs and the clientele accessing these services. It appears that in order to provide more cost-effective services (i.e., primarily acute or nursing services), other services deemed less essential (i.e., preventative/ maintenance or home support services) were reduced or cut within jurisdictions. For example, in 1994/95 the British Columbia government implemented a policy to cut clients with low-level care needs from provincial home care programs (Hollander & Tessaro, 2001). Regions with no cuts were compared to regions with severe cuts and findings indicated no significant difference in short-term costs. However, two and three years after the cuts, regions with severe cuts had significantly higher health care costs, due to an increased use of health care beds, homemaker services, and admissions to residential care, and a higher proportion of people who had services cut died within this time period (Hollander & Tessaro, 2001). This study demonstrated the importance of all home care services to the health and well-being of clients and that although cuts to services deemed "non-essential" were cost-effective in the short-term, they cost the health care system more in the long-term.

The necessity to provide cost-effective services, by closing or amalgamating hospitals, reducing beds, shortening inpatient lengths of stay, and redirecting services toward day surgery and other ambulatory programs has resulted in home care becoming one of the fastest growing sectors in Canada (Coyte & McKeever, 2001). Without

advances in health care technology, the provision of more cost-effective services within the home would not be possible. New advances in treatments, medications, and technology make it increasingly possible for more complex and acute care services to be provided within the home instead of the hospital (Anderson & Parent, 1999; Keefe, 2002).

Fueling the drive to provide more cost-effective services is population aging. For years many researchers have alluded to the potential impact of population aging on the use of health care services and expenditures (Evans, McGrail, Morgan, Barer, & Hertzman, 2001). Population aging is due mainly to increased longevity of both men and women and lower birth rates (Cheal, 2000) and it will have a significant impact on the use of home care services in Canada, given that the majority of home care users are older. In 2002 the number of Canadians aged 60 and older was 17%, and by 2031, the proportion is projected to increase to approximately 28.5% (Statistics Canada, 2002, as cited in Government of Canada, 2002b). It is believed that the baby boomer generation will not only need more home care services, but also have a greater demand for services than the generations before. Failing to address the implications of population aging on the use of home care services may be detrimental. Foot and Stoffman (1998) capture the importance of demographics well stating, "Demographics explain about two-thirds of everything.... It is simply not possible to do any competent planning without a knowledge of demographics" (p. 9).

The evolution of home care is far from over, especially as it encompasses one of the main approaches to health care renewal. Federal and provincial governments are currently working together on strategies to strengthen and renew the health care system in

Canada. The goal of the health care renewal initiatives is to ensure that all Canadians have timely access to health care. Some of the strategies include improving access to care, reducing waiting times, increasing supply of health human resources, improving access to family and community care through primary heath care reform, developing and implementing a national pharmaceutical strategy, and providing coverage for additional home care services (Government of Canada, 2004).

Over the last two years, provincial home care programs received considerable national attention from both the Standing Senate Committee on Social Affairs, Science, and Technology and the Commission on the Future of Health Care in Canada. Recommendations from both reports included (a) a national home care program, (b) tax credit/deductions for home care consumers, (c) targeted funding for home care services, (d) support for family/friend caregivers, and (e) the provision of home mental health case management and intervention, post-acute services (including coverage for rehabilitation and medication) and palliative care services under the Canada Health Act for those individuals in their last six months of life (Government of Canada 2002b, 2002c). In response, the First Ministers created an Accord on Health Care Renewal and identified home care as one of their three priority areas. The First Ministers also agreed to provide first dollar coverage for a basket of services for short-term acute home care, including acute community mental health and end-of-life care (Government of Canada, 2003a, 2004). These priorities were supported by the federal government through a five year, \$16 billion Health Reform Fund.

Not only have these factors brought about provincial home care programs in each of the jurisdictions, but they have also played a part in the evolution of these programs over the last two decades. The next section will provide an overview of provincial home care programs in terms of their organization and governance, eligibility criteria, service provision, expenditures, user fees, and utilization.

Program Organization and Governance

Many provinces offered in-home services on a limited basis before launching into comprehensive home care programs (Alexander, 2002). Manitoba was the first to establish a provincial universal home care program in Canada in 1975 (Shapiro, 1989). Departments of Health and Departments of Social (or Community) Services, or combinations thereof, are responsible for the implementation and delivery of home care programs and services across most provinces and territories. Although changes to home care organization and governance were jurisdictional in nature, national trends, such as regionalization and single entry access, shaped home care policy throughout the country (Canadian Home Care Sector Study Corporation, 2003).

Eligibility

To be eligible for home care services throughout most jurisdictions, a person must have proof of residency, a valid health insurance card, an unmet need, an assessed need for service, a suitable home to provide care, client consent for treatment, and the cost of care (for the government) must not exceed the cost of long-term residential care. Additionally, in New Brunswick physician authorization is also required for all services through the Extra-Mural Program, with the exception of rehabilitation services (Canadian Home Care Association, 2003; Government of Canada, 1993; Health Canada, 1999b). Provincial home care policy states that all people regardless of age can access home care services, however, many other programs provide services primarily for children, so children represent a very small proportion of home care clientele.

Service Provision

Home care programs are jurisdictional in nature, and therefore service provision not only varies throughout the country but also within jurisdictions (Coyte & Young, 1999).

Services provided. Depending on the province or territory, home care programs provide a range of services including nursing, home support, personal care, assessment and case management, physiotherapy, occupational therapy, respiratory therapy, selfmanaged care, intravenous therapy, palliative care, oxygen and dialysis, speech therapy, and social work services (Government of Canada, 1993; Health Canada, 1999b). Home support and personal care services are designed to provide assistance with Activities of Daily Living (ADLs) (e.g., bathing, dressing, feeding, toileting, transferring) and Instrumental Activities of Daily Living (IADLs) (e.g., shopping, banking, cleaning, laundry). For the most part home care services are provided through regional delivery models, allowing regions to deliver the services that best meet their needs. However, the ability of clients to access these services and the amount of care they receive vary within and between jurisdictions. In addition, the type of services provided by home care programs has gradually shifted. Provision of both acute care substitution (i.e., nursing services) and palliative home care services have increased, whereas preventative/ maintenance (i.e., housework, meal preparation, etc.) services have decreased (Canadian Home Care Sector Study Corporation, 2003).

Service providers. Canadians can access home care services through government, family and friend caregivers, private agencies and organizations, and volunteers. Government-supported or publicly-funded home care services in Canada are delivered by public, private-for-profit, and not-for-profit organizations. Depending on the model of publicly-funded home care delivery in Canada, home care clients will receive services from public and/or private employees (Health Canada, 1999b; Parent & Anderson, 2000).

Complementing the delivery of home care services by publicly-funded home care programs are family and friend caregivers. According to CIHI, in 1996 approximately 2.1 million adult Canadians, mostly family members (and mostly women), provided support for one or more seniors with a long-term health problem (CIHI, 2000). Yet, one study showed that over the next 30 years the availability of family caregivers will decline (Keefe, Légaré, & Carrière, 2004). Factors such as out-migration of potential children caregivers, increased participation of women in the labor force, decreased fertility rates, and increased divorce rates will significantly impact the ability of family and friends to provide care (Anderson & Parent, 1999; Keefe et al., 2004). There is no doubt that the availability of family and friend caregivers is essential in meeting future demand for home care services.

To date there has been little research examining the use of private home care services. Because national surveys have not incorporated questions regarding private home care use, and private home care agencies are not obligated to report utilization rates or clientele characteristics, data on private home care service delivery are minimal.

Expenditures

Over the past two decades expenditures on home and community care grew from \$205 million to \$2.7 billion, an increase of over 1000% (Government of Canada, 2002b). Between 1980/81 and 2000/01, the average annual growth rate for home care expenditures by provincial and territorial governments was 14% compared to 6.2% for hospitals and 7.1% for all provincial/territorial health expenditures (Government of Canada, 2002b). Looking ahead it is projected that home care expenditures could grow by 80% between 1999 and 2026, accounting for 10% of health care funding, which ranged from 2% to 6% in 1999, depending on the province (Coyte, 2000; Health Canada, 1999b).

User Fees

The full cost for nursing home care services is covered in all jurisdictions, whereas the cost of personal care and home support services differ between jurisdictions. In some provinces, clients pay no fees for home support or personal care services (Manitoba), whereas in most other jurisdictions clients are subject to fees or co-payments based on income testing and/or asset testing (e.g., Nova Scotia, Prince Edward Island) (Health Canada, 1999b).

Utilization

Interest in home care utilization has grown, but as Coyte (2000) notes, there is still a shortage of home care utilization data at the national level. National data is lacking because the provinces have yet to collect high quality, comparable home care information across Canada (CIHI, 2001a). Based on the literature there is also a lack of provincial and regional data on home care utilization, with the exception of Ontario and Manitoba.

Until a few years ago, there were no provincial computer systems or programs in place to track home care clients, therefore any utilization data (e.g., number of clients, client demographics) had to be manually counted and tracked. However, many Canadian jurisdictions have recently implemented or are currently in the process of implementing comprehensive computerized information systems for home care and other health care services (CIHI, 2001a). Recently, CIHI brought forth an initiative promoting the use of computerized assessment tools measuring similar indicators needed for effective planning, management, monitoring, comparing, and evaluation of home care services in Canada (CIHI, 2001a, 2001b).

Over the years, researchers have studied many types of home care utilization. These include (a) use/nonuse of home care services (Crowell, Rockwood, Stolee, Buehler, James, Kozma, & Gray, 1996; Hall & Coyte, 2001; Mauser & Miller, 1994; Shapiro, 1986; Wilkins & Beaudet, 2000; Wilkins & Park, 1998), (b) use of home care versus other types of health care services (e.g., nursing home, private home care, informal care) (Aykan, 2003; Borrayo, Salmon, Polivka, & Dunlop, 2002; Carrière, Martel, Légaré, & Morin, 2001; Lee, Kovner, Mezey, & Ko, 2001; Penning, 1995; Stoddart, Whitley, Harvey, & Sharp, 2002), and (c) use of different types of home care services (e.g., nursing, personal care, home support) (Forbes & Janzen, 2004; Forbes, Stewart, Morgan, Anderson, Parent, & Janzen, 2003; Hawranik, 1998; Hawranik & Strain, 2001). These comprise a large portion of the literature and will be reviewed in a later section. Although outside the parameters of this research, home care utilization has also been examined in terms of the number or volume of home care services. Within the literature, the type of home care studied varies. For example, some researchers examined (a) publicly-funded home care services, where the cost is entirely or partially covered by government; (b) private home care services, where the cost is not covered by government and services are delivered by private agencies, and/or family and friend caregivers; (c) both public and private home care services; and (d) formal/professional home care services, whereby services are delivered by para-professional and professionally trained individuals regardless of whether they are delivered by publicly-funded or private organizations. Utilization of home care, in terms of the volume, type of services, and clientele, will differ depending on who is providing the home care services. Thus, this serves as a limitation within existing literature because it prevents comparability and the ability to generalize among many studies. The next subsections on home care utilization will explore service use patterns and characteristics of home care clientele.

Service use patterns. According to CIHI (2000) about 12% of Canadian seniors reported receiving services from publicly-funded provincial home care programs in 1999, and in general the most commonly reported service was assistance with housework, followed by nursing care, and personal care. In Nova Scotia and Newfoundland, 24% and 11% of seniors received formal home care services in 1991, respectively (Crowell et al., 1996).

Home care services are sometimes categorized into short-term and long-term care services throughout the literature. Short-term or post-acute care services refer to services provided to individuals for 90 days or less and are typically provided to those just released from hospital. Long-term or chronic care services are usually provided for a

longer period of time (90+ days) and the primary recipients are typically seniors and/or persons with a disability (Government of Canada, 2002c). In British Columbia and Saskatchewan a greater proportion of people used short-term rather than long-term publicly-funded home care services (Hollander, 2002). Among Ontario recipients of short-term home care, nursing services constituted the majority of services (63%), followed by personal support (21%) and other therapies (16%). This differed in the longterm program, in which the majority of services provided were personal support (59%) followed by nursing care (36%) (Laporte, Croxford, & Coyte, 2002, as cited in Government of Canada, 2002c).

Service use patterns have changed over time. For example, Forbes et al. (2003) found that nationally, housework services decreased from 49% to 42% between 1994/95 and 1998/99, while nursing services increased from 39% to 46% between 1994/95 and 1996/97 and then decreased again to 42% by 1998/99.

Home care clientele. Given broad eligibility criteria, home care clients range in age, acuity, length of time in the health care system, and type of chronic illness or disability (Keefe, 2002). In general, research has indicated that regardless of whether services were publicly or privately provided, most home care clients were female, unmarried/separated/divorced, aged 75 and older, and had a lower income (Crowell et al., 1996; Canadian Home Care Sector Study Corporation, 2003; Hall & Coyte, 2001; Hollander, 2002; Mauser & Miller, 1994; Shapiro, 1986; Wilkins & Park, 1998). One exception was Saskatchewan, where married persons received the majority of services (47.3%), followed by widowed (30.6%) and non-married persons (22.1%) (Hollander, 2002). Furthermore, studies revealed that home care users had more cognitive

impairment, and ADL/IADL limitations when compared to nonusers (Crowell et al., 1996; Shapiro, 1986; Wilkins & Beaudet, 2000).

Summary

The combination of many factors including government funding, demographic shifts, advances in technology, shifts in Canadian values, and the need to provide more cost-effective services led to the expansion of home care programs and services within Canada. These factors have also shaped the organization, service comprehensiveness, and utilization of home care programs. With renewed focus from both federal and provincial governments, home care will continue to expand over the next few decades.

Utilization Framework

Andersen's Behavioral Model

The conceptual framework guiding this study is Andersen's (1968) behavioral model. Andersen developed this model to investigate the use of health care services (mainly hospital, physician, drug, and dental care) by families in the United States. The model recognized that the use of health care services was the consequence of complex and interrelated characteristics, mainly three population characteristics, which are *predisposing*, *enabling*, and *need* factors, as outlined in Figure 1.

Population Characteristics			<u>Health Behavior</u>
Predisposing	ENABLING	NEED	USE OF HEALTH
FACTORS	FACTORS	FACTORS	CARE SERVICES
-		→	
Demographics	Personal/Family	Illness	
Social Structure	Community	Response	
Health Beliefs			

Figure 1. Andersen's (1968) Behavioral Model.

This model shows the events leading to health care service utilization, beginning with the predisposition of families to use services, their ability to secure services, and their need for services. Predisposing factors are usually present before the use of services and can be sub-divided into demographics (age, sex, family size, marital status), social structure (education, race, ethnicity, occupation), and health beliefs. Health beliefs refer to the beliefs a person has about health care services, providers, and treatment. For

example, a person who believes that treatment will be effective will seek a physician sooner than those who think the treatment will be ineffective (Andersen, 1968).

Families that are predisposed to health care service use must have some way of accessing the necessary services; this is where enabling factors play a role in predicting service utilization. Enabling factors refer to factors that affect the availability and accessibility of resources/services, as well as the attributes of the community in which individuals live that facilitate or hinder the use of services. Enabling factors can be categorized by personal resources (income, health insurance, access to a regular source of care) and community resources (urban/rural residence, region of country, price of health services, ratios of health personnel and facilities to population, waiting times) (Andersen, 1968, 1995).

Finally, when predisposing and enabling factors are present, the family must have a need for health care in order to access health care services. Unlike predisposing and enabling factors, need factors have a direct effect on the use of health care services. Need factors can be sub-divided into illness (perceived health status, disability days, symptoms) and response (physician visits) (Andersen, 1968).

Andersen's model is based on several assumptions. First, each factor (predisposing, enabling, and need) will make an independent contribution to the model, but the contribution will vary. According to Andersen, need should contribute the greatest in explaining health service use because it is directly related, and predisposing and enabling should follow as they are indirectly related to health service use. Second, the contribution of each factor will vary depending on what type of health service is being examined. For example, in Canada enabling factors will have a greater impact on use of

dental services than hospital services because dental services are not insured under the Canada Health Act.

A major goal of Andersen's behavioral model is to provide a measure of equitable distribution. Equitable distribution is based on the premise that access and use of health care services should be determined by predisposing factors, such as age and sex, and by need factors, rather than by health beliefs, social structure, or income. Andersen examines distribution through access. Access to health care services can be measured in four ways: (a) potential access, as measured by the presence of enabling resources; (b) realized access, as measured by the actual use of health services; (c) equitable access, as measured by access that occurs as a result of demographic and need factors; and (d) inequitable access, as measured by access that is based primarily on social structure, health beliefs, and enabling factors (Andersen, 1995). Another important concept is that of mutability. Mutability refers to the ability of some variables to be influenced by changes in policy. Variables low in mutability are demographic variables (e.g., age, sex) and social structure (e.g., ethnicity). Health beliefs and enabling characteristics have medium to high mutability because changes can be made to policy that will affect both of these characteristics, thus having an impact on health behaviours. For example, when the Canada Health Act was implemented it dramatically changed the Canadian public's ability to access health care services. Mutable variables can be used as interventions and as ways to understand and increase or decrease health care use.

Since the late 1960s, Andersen's model has been adapted several times to reflect changes to the health care system. Over the years these adaptations have included (a) a shift in the unit of analysis from the family to the individual level; (b) the addition of

another component measuring the influence of health care policy, resources, and organization; (c) the expansion of health service use to include more specific measures of health service type, site purpose, and unit of analysis; and (d) the addition of outcome measures of customer satisfaction (convenience, availability, financing, provider characteristics, quality), perceived health status, and evaluated health status (Andersen, 1995; Andersen & Newman, 1973).

Examining Home Care Utilization using Andersen's Behavioral Model

Rational. Although Andersen's behavioral model was established to explain the use of health care services, this model, or variations thereof, also are used to describe home care utilization in Canada (Hall & Coyte, 2001; Hawranik, 1998; Henton, Hays, Walker, & Atwood, 2002; Newhouse, 1995; Penning, 1995). However, the use of home care services is different than the use of other health care services in several ways. First, home care services are more social than medical in nature and can be provided by family and friends. Second, the goal of home care services is not to cure people, but to provide assistance to those with acute or chronic care needs (Carrière et al., 2001). Meeting the needs of home care clients also requires a complete assessment of the person's situation, not just their health (Flood, 1999). Third, home care is also different from other types of health care services, in that the person must meet eligibility criteria before they can access home care services. Last, home care is distinct as it is considered a "top-up" to other services provided in the community or by family and friend caregivers in the home (Flood, 1999). Nevertheless, Andersen's model does fit with the use of home care services and was used to examine home care use in this study. For as much as home care is distinct from other health care services, an individual must have some combination of

predisposing, enabling, and need characteristics to not only be eligible, but also to receive home care services.

Adaptations. Home care researchers have criticized Andersen's behavioral model for not paying adequate attention to social networks, social interactions, and culture, all of which can have major effects on whether or not individuals receive home care services and the amount and type of home care services they receive (Pescosolido, 1992). Family and friends provide a significant amount of care for older Canadians with long-term health problems and disabilities. Because of this, caregiving can place considerable burden on caregivers, which can affect their ability to provide care in the future. Consequently, some researchers have modified Andersen's model to examine characteristics more related to the use of home care services, such as measures of social support (Hawranik, 1998) and need for assistance with ADLs and IADLs (Lee et al., 2001; Penning, 1995; Shapiro, 1986; Wilkins & Beaudet, 2000; Wilkins & Park, 1998). This last adaptation is critical considering that the majority of home care clientele are older and therefore more likely to have functional limitations.

A more comprehensive model of home care utilization is presented in Figure 2. In this model, adaptations previously presented by other researchers are included. By expanding primary determinants of health behaviour to include the health care system, external environment, and caregiver characteristics, the model will be better able to account for variance in home care use, as politics and finances can greatly influence home care policy development. Measuring use of individual home care services (i.e., nursing versus home support), which some researchers have already begun (Forbes et al., 2003) will enable a greater understanding of how home care users differ depending on the type of service they receive. Health outcomes measuring customer satisfaction are very important, especially in the near future as the baby boomers, who are expected to have higher expectations, begin accessing home care services. Traditionally the focus of home care programs was to maintain and prevent the deterioration of health, not to cure, but as services shift to acute care substitution, the focus will expand to improving health.



Figure 2. A Model for Home Care Utilization.

Note. The components of the model examined in this study are indicated by dashed circles.

Predictors of Home Care Service Use

One component of the home care literature is dedicated to discovering the predictors of home care utilization. A predictor is a characteristic that is used to assert a prediction on the basis of data or theory. As outlined in Andersen's behavioral model, health care utilization predictors are typically divided into three categories: predisposing, enabling, and need. All three population characteristics (predisposing, enabling, need) specified by Andersen's model, whether alone or in combination with each other, have been found to be statistically significant in explaining variations in home care use. For the most part predisposing and need factors significantly predicted home care use, with need factors accounting for the greatest variance (Hall & Coyte, 2001; Henton et al., 2002; Lee et al., 2001). The results for the ability of enabling characteristics to predict home care use were inconsistent, however, some researchers found individual enabling characteristics to predict home care utilization (Newhouse, 1995; Wilkins & Beaudet, 2000), others have not (Hall & Coyte, 2001; Henton et al., 2002; Penning, 1995). Predictors of home care use will be outlined in the next three sections.

Predisposing factors. Predisposing predictors of home care use include age, sex, marital status, education, ethnicity, and race. Age was found to be a significant predictor of home care use (Crowell et al., 1996; Hall & Coyte, 2001; Shapiro, 1986; Wilkins & Park, 1998). As people age, the prevalence of disability, disease, and/or functional limitations increase, thereby increasing the potential need for support. Among older age cohorts, the probability of receiving home care services increases. For instance, in one study being between the ages of 75 to 84 doubled the odds, whereas being aged 85 and older quadrupled the odds of receiving home care services (Shapiro, 1986). The type of home care service (nursing, personal care, etc.) a person receives also appears to be influenced by age. For instance, in British Columbia and Saskatchewan, the majority of post-acute care services were received by people under the age of 65, whereas the majority of people aged 65 and older received long-term publicly-funded home care services (Hollander, 2002).

The majority of home care users are female (Crowell et al., 1996; Hall & Coyte, 2001; Mauser & Miller, 1994; Shapiro, 1986). There are three possible explanations for this: (a) women have a longer life expectancy, and as a result are more likely to be living alone with less caregiver support; (b) women have fewer disability free years; and (c) men tend to marry younger women, therefore, when in need of assistance, their wife will be around to provide home care assistance (e.g., homemaking, personal care) (Aykan, 2003; Balinsky & Rehman, 1984, as cited in Marek, 1996). Nevertheless findings have been inconsistent with regards to the predictive relationship between sex and home care use. Some researchers reported that being a woman predicted home care use (Mauser & Miller, 1994; Shapiro, 1986), whereas others have not (Crowell et al., 1996; Hall & Coyte, 2001; Wilkins & Beaudet, 2000; Wilkins & Park, 1998).

Marital status does not always predict home care use (Carrière et al., 2001; Shapiro, 1986). In Saskatchewan married clients received the majority of services (Hollander, 2002). This is contrary to what one would expect when taking into consideration some of the arguments pointed out in the previous section. Conversely, in one Canadian study, individuals who were widowed, divorced, or separated were approximately four to five times more like to receive services than those who were single, married, or common-law (Canadian Home Care Sector Study Corporation, 2003).

Similarly, not being married increased the likelihood of home care use in Nova Scotia and in Washington (Crowell et al., 1996; Mauser & Miller, 1994).

Cohabitation or living arrangement may be a better predictor of home care utilization than marital status because it encompasses social support. A person who lives with someone else, regardless if they are married, is likely to receive some support/assistance in times of need. As well, marital status can be misleading. For instance, someone may report being married but he or she may not live with their spouse. Canadian studies revealed that living arrangement is a significant predictor of home care use (Hall & Coyte, 2001; Shapiro, 1986; Wilkins & Beaudet, 2000; Wilkins & Park, 1998). For example, in 1996/97 individuals who lived alone were 1.6 times more likely to receive formal home care services than those who lived with others (Wilkins & Park, 1998).

The relationship between education and home care use helps reflect a person's life style. For example, people with a higher education are likely to have higher incomes, increasing the probability of purchasing private home care services, and are hypothesized to be more effective producers of health (Carrière et al., 2001). Nevertheless, although models predicting home care utilization include education, it is rarely a significant predictor (Aykan, 2003; Hall & Coyte, 2001; Shapiro, 1986). One exception was a Canadian study, which found that having less than nine years of education decreased the probability of receiving formal home care services by 40%, while increasing the probability of receiving informal support by approximately 30% (Carrière et al., 2001).

Finally, race and ethnicity are considered a predisposing factor of home care use because like education, they act as a measure of people's tastes and preferences. Cultural values, beliefs, and language issues can influence a person's use of home care services. Typically researchers compare home care use between Caucasians and visible minorities (Blacks, Hispanics, etc.). Although results have been consistently not significant within Canada (Hall & Coyte, 2001; Shapiro, 1986), they were inconsistently significant within the United States, with findings indicating that being non-white was a predictor of use (Mauser & Miller, 1993; Newhouse, 1995), and not a predictor of use (Aykan, 2003). Universal funding of health care in Canada compared to the United States may account for some of the differences between these two nations.

Enabling factors. A person's ability to secure services is important in relation to home care use. The ability to secure services is based on two criteria: access to services and the ability to pay for those services. People living in urban areas were more likely to use formal services than those in rural areas, even though rural elderly tended to have lower education levels, lower incomes, less adequate housing, and poorer health (Newhouse, 1995; Shapiro, 1986). This is because the delivery of health care services has become more centralized. Residential setting was not a factor of home care use in Ontario (Hall & Coyte, 2001) or Canada (Forbes & Janzen, 2004).

Having a regular medical doctor is also an important measure of access, as it is one of the mechanisms through which people access home care services. Additional mechanisms of access include referrals from family and friends, or self-referrals. In New Brunswick, to be eligible for services through the Extra Mural Program, individuals must have a referral from a family physician (Canadian Home Care Association, 2003). Hall & Coyte (2001) found that having a regular doctor was not a significant predictor of home care use in Ontario.
The ability to pay for home care services can play an important role in determining whether or not people use public or private home care services, especially when considering that most provinces charge user fees for home support and personal care services. It is not surprising, then, that income has typically been a significant predictor of home care utilization and that people with lower incomes were more likely to use public home care services (Newhouse, 1995; Shapiro, 1986; Wilkins & Beaudet, 2000; Wilkins & Park, 1998). Wilkins and Beaudet (2000) found that low-income households were twice as likely to receive publicly-funded home care as those households with higher incomes. It is hypothesized that those with higher incomes are more likely to purchase private home care services, although to date, very little research has been conducted on private home care utilization to substantiate this hypothesis.

Measures of social support are incorporated in recognition of the amount of care provided by family and friends that often supplements and complements services provided by publicly-funded home care programs. Social support measures have encompassed caregiver need (e.g., health problems, strain, stress, burden), living arrangement, gender, relationship to care receiver, and type of care received (e.g., instrumental or emotional support). In 1986, individuals who had daily contact or lived with relatives were approximately 50% more likely to use home care than those without daily contact or those living alone (Shapiro, 1986). The affects of social support on the use of formal services varies. Those who receive support with IADLs from family members and friends were less likely to use home care services, whereas those who received increased emotional support were more likely to receive home care services (Penning, 1995; Wilkins & Beaudet, 2000).

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Need factors. The final category of predictors in Andersen's behavioral model is need. Various approaches are used to measure need characteristics, such as perceived health status, functional status (ADL/IADL limitations), disability, cognitive status, medical diagnosis, and use of other health care services.

It is hypothesized that individuals who perceive their health status to be poor will be more likely to need home care services. This hypothesis is generally supported (Aykan, 2003; Hall & Coyte, 2001; Penning, 1995; Shapiro, 1986; Wilkins & Beaudet, 2000; Wilkins & Park, 1998), with the exception of Crowell et al. (1996).

Functional status can be defined as a person's ability to independently perform ADLs and IADLs. Functional status is often measured by the total amount of limitations in performing ADLs and/or IADLs and is consistently predicative of home care utilization (Crowell et al., 1996; Hall & Coyte, 2001; Shapiro, 1986; Wilkins & Beaudet, 2000; Wilkins & Park, 1998). In 1986, Manitobans who needed help with one or more IADLs increased their odds of home care use by approximately 1.5 times (Shapiro, 1986). Similarly, Canadians with ADL or IADL dependencies increased the likelihood of receiving home care services by 10.8 times in 1996/97 and 7 times in 1998/99 (Wilkins & Beaudet, 2000; Wilkins & Park, 1998).

Disability is measured through the presence and/or number of chronic care conditions. Disability is a useful measure of need when considering that most long-term care clients have some degree of disability or type of chronic illness. Disability differs from functional ability because it does not infer a need for assistance with ADLs or IADLs. Certain disabilities may not interfere with an individual's ability to perform ADLs or IADLs (e.g., hearing or speech impairments) and individuals with a long-term

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disability may have made modifications to their home environment precluding the need for assistance with ADLs or IADLs (Hall & Coyte, 2001). Among researchers studying disability and home care use, none found it to be a predictor (Hall & Coyte, 2001; Shapiro, 1986; Wilkins & Beaudet, 2000).

Given the rise in dementia and its debilitating affects on the ability to perform ADLs and IADLs, cognitive status has the potential to influence home care use. Nevertheless, research results showed no predictive relationship between cognitive status and home care use (Crowell et al., 1996; Shapiro, 1986). Medical diagnosis, as a measure of need has also been used by researchers; however, regression analysis indicated that medical diagnosis was not predicative of home care utilization in Ontario (Hall & Coyte, 2001).

Use of other health care services can affect home care usage. For example, one study found that 12% to 16% of people who were hospitalized or used a long-term care facility bed received home care within the year compared to 1.5% of people who had not been in institutions (Canadian Home Care Sector Study Corporation, 2003). Conceptually, use of other health care services could be thought of as an outcome variable, rather than a need variable, because using other health care services is a result of predisposing, enabling, and need characteristics. Yet it may be argued that hospitalization is an indirect measure of health status. Variables measuring hospitalization were included as need variables in various studies predicting home care use (Crowell et al., 1996; Wilkins & Beaudet, 2000; Wilkins & Park, 1998). One explanation for the inclusion of this variable as a need variable is that people are being discharged sooner from hospitals and as a result people are being provided home care to help with the transition from hospital to home. As a result, including variables measuring hospitalization in models may help to predict post-acute home care services. In 1996/97 Canadians who stayed in a hospital for more than eight nights were 3.9 times more likely to receive home care services (Wilkins & Park, 1998). Earlier studies indicate that hospitalization was not predictive of home care use (Crowell et al., 1996).

Predictors of Use for Different Types of Home Care Services

Predisposing factors. Significant determinants of housework assistance for Canadians in each NPHS survey (1994/95, 1996/97, 1998/99) were older age, being female, and living alone (Forbes et al., 2003). In contrast, the determinants of nursing home care services were younger age, being male (only for 1996/97), and living with others (with the exception of 1998/99) (Forbes et al., 2003). In Manitoba, the caregiver's age predicted homemaking services, whereas living arrangement of the care recipient predicted homemaking, nursing, personal care, and meal delivery services (Hawranik, 1998). In addition, caregivers' internal locus of control was significantly related to personal care and meal delivery services (Hawranik, 1998).

Enabling factors. Between 1994/95 and 1998/99, Canadians with a lower income were more likely to receive housework assistance, conversely those with a higher income were more likely to receive nursing services (with the exception of 1998/99) (Forbes et al., 2003). There also appears to be differences in the type of services used depending on residential setting. For example, in 1999 approximately the same proportion (40%) of Canadians received nursing services in both rural and urban areas; however, the proportion receiving housework services was higher in rural areas (51%) than in urban areas (39.6%) (Forbes & Janzen, 2004). When considering the role of Manitoba

caregivers in providing care, home care clients whose caregivers were employed were more likely to receive personal care services (Hawranik, 1998). In the same study, the source of assistance and number of hours of assistance/supervision by the caregiver was significant in predicting homemaking services (Hawranik, 1998).

Need factors. Nationally, the restriction of activity, need for housework, presence of a chronic condition, and hospitalization were all determinants of receiving housework assistance. The determinants of nursing services were opposite of those for housework assistance (Forbes et al., 2003). In Manitoba, functional status was significant in predicting the use of all types of home care services (Hawranik, 1998). Measures of caregiver needs were also associated with the use of homemaking, nursing, and personal care services (Forbes et al., 2003; Forbes & Janzen, 2004; Hawranik, 1998; Hawranik & Strain, 2001).

Summary

Home care use has been the subject of research several times over the last two decades. Until recently this research mainly focused on home care use at the provincial level, with the majority of research using Manitoba data. The only other home care use research outside Manitoba has been in Ontario, and a comparison between Nova Scotia and Newfoundland. The studies in Manitoba, Nova Scotia, and Newfoundland examined formal (public and private) home care services, whereas research in Ontario focused on publicly-funded services. Given recommendations for a national home care program, researchers at Statistics Canada and elsewhere have examined the use of publicly-funded home care services at a national level (Forbes et al., 2003, 2004; Wilkins & Beaudet, 2000; Wilkins & Park, 1998). Given the longitudinal nature of the NPHS data set, researchers like Forbes et al. (2003) are able to investigate individual home care service use nationally over time. Each of these research papers have examined home care use in the context of Andersen's behavioral model, and have incorporated predisposing, enabling, and need factors into their models. Although research using national data has been recent (1998-2001), research within Eastern Canada is dated. The last study conducted in Eastern Canada was a comparison of home care utilization in Nova Scotia and Newfoundland and Labrador in 1990 (Crowell et al., 1996). Given significant changes to home care policy over the last decade, and the importance of providing research to support future policy decisions in home care, there is now a need to examine changes in home care utilization in Eastern Canada in recent years.

Research Questions

To gain a deeper understanding of home care use in Eastern Canada, this study uses Andersen's behavioral model to provide a structure for organizing predictor variables, and facilitating analyses and comparisons to other studies. Predisposing, enabling, and need characteristics were explored to determine their effect on the composition and utilization of government-supported home care services in Eastern Canada in 1996 and in 2001. The following four questions guided this research:

- (1) What are the socio-demographic and health characteristics of home care users and nonusers in 1996 and in 2001, and has that profile changed over time?
- Has the proportion of users for each type of service received (including nursing, other health care, personal care, homemaking, and respite) changed between 1996 and 2001?

- (3) Has the pattern of usage (e.g., the number of different types of services an individual received) changed between 1996 and 2001?
- (4) What are the predictors of home care utilization in 1996 and in 2001 and have they changed over time?

Method

This research design incorporates secondary data analyses and cross-sectional descriptive analyses measuring trends in home care utilization in Eastern Canada in 1996 and in 2001. Quantitative analyses using secondary data sources from the 1996/97 National Population Health Survey (NPHS) public use microdata "general" file and the 2000/01 Canadian Community Health Survey (CCHS) cycle 1.1 were employed. These data sets were chosen because they were the only surveys at the time that asked questions about the use of publicly-funded home care services and they allowed changes in home care use in Eastern Canada to be measured at two points in time (1996/97 and 2000/01). Data from these surveys were accessed through the Data Liberation Agreement between Mount Saint Vincent University and Statistics Canada.

Sample

The NPHS is a survey administered throughout Canada every two years (beginning in 1994) and composed of two components, a survey of households and a survey of health care institutions. The NPHS also has a longitudinal and cross-sectional component. Originally, the NPHS included individuals of all ages who lived in Canada. In 2000/01, however, the CCHS took over the cross-sectional component of the NPHS and the Northern population sample. This research will incorporate respondents from the 1996/97 cross-sectional NPHS public use microdata "general" file. This sample consists of respondents of all ages, living in one of the ten Canadian provinces and is comprised of 210,377 cases. Data were originally collected using the sampling frame from the Labour Force Survey to obtain the initial sample and random digit dialing was used to complete the sample (National Population Health Survey, 1997).

The CCHS is a cross-sectional survey designed to provide information on health determinants, heath status, and health system utilization at both the individual and community health region level. The first cycle (cycle 1.1) of the CCHS was conducted in 2000/01 and is comprised of two parts. The first part is a general population health survey administered to a large sample of persons aged 12 and older living in private occupied dwellings in all the Canadian provinces and territories. The second part is an optional survey designed to provide provincial level results on specific focused health topics and administered to those provinces and/or regions that purchased the optional component. This research incorporates respondents from the 2000/01 CCHS cycle 1.1 general survey sample, which is comprised of 130,880 cases. The 2000/01 CCHS used a combination of area, random digit dialing, and list frames to collect the sample (Canadian Community Health Survey, 2001). Excluded from the sampling frames of both the NPHS and CCHS are institutional residents, full-time members of the Canadian Armed Forces, and individuals living on Indian Reserves and Crown Lands.

To answer the research questions, a sub-sample of individuals who live in New Brunswick, Nova Scotia, Prince Edward Island, and Quebec was extracted from both the 1996/97 NPHS and the 2000/01 CCHS.¹ Herein the sample will be referred to as Eastern ¹ The 1996/97 NPHS questioned individuals from all provinces about home care utilization. However, given the optional nature of the home care component in the 2000/01 CCHS, only those individuals from New Brunswick, Nova Scotia, Prince Edward Island, Quebec, Yukon, Northwest Territories, and 7 out of the 35 health regions in Ontario were surveyed about home care utilization. For comparison purposes, only the provinces that were fully surveyed about home care utilization are included in this study. Canada, even though respondents from Newfoundland and Labrador were excluded. The population was further sub-sampled to include only individuals aged 45 and over. Incorporating all age groups would dramatically increase the number of respondents who answered "no" to receiving home care, thus skewing data analyses significantly. The sample size of Eastern Canadians aged 45 and over was 4,852 (weighted N = 3,109,608) in 1996/97 and 17,185 (weighted N = 3,423,254) in 2000/01. Flow diagrams of the sub-sampling techniques for both the 1996/97 NPHS and the 2000/01 CCHS using non-weighted and weighted data are depicted in Figures 3, 4, 5, and 6. The data were weighted based on weights derived by Statistics Canada, so that the sample represents the population of individuals aged 45 and over living in private households in Eastern Canada.

This includes respondents from New Brunswick, Nova Scotia, Prince Edward Island, and Quebec. Ontario was excluded because only 7 of the 35 health regions responded to the home care questions in the 2000/01 CCHS, preventing their responses from being generalized to the whole population of Ontario.



Figure 3. Research Design for the 1996/97 National Population Health Survey.



Figure 4. Research Design for the 2000/01 Canadian Community Health Survey.



Figure 5. Research Design for the 1996/97 National Population Health Survey using Weighted Data.



Figure 6. Research Design for the 2000/01 Canadian Community Health Survey using Weighted Data.

Measures

The primary dependent variable in this study was use of home care. In both surveys home care was defined as "health care or homemaker services received at home, with the cost being entirely or partially covered by government. Examples are: nursing care; help with bathing or housework; respite care; and meal delivery." (Canadian Community Health Survey, 2001, p. 18; National Population Health Survey, 1997, pp. 13 - 14). Both the 1996/97 NPHS and the 2000/01 CCHS ask identical questions with regard to home care: (a) "Have/has you/fname received any home care services in the past 12 months?" and (b) "What types of services have/has you/he/she received? (nursing care [changing dressings, VON], other health care [physiotherapist, nutritional counseling], personal care [bathing, foot care], housework [laundry, cleaning], meal preparation or delivery, shopping, respite care [i.e., caregiver relief program], and other)" (Canadian Community Health Survey, 2001, p. 18; National Population Health Survey, 1997, p. 13 - 14). Each type of home care service is coded as its own variable. For analysis purposes, home care services were categorized based on the groupings derived by the Canadian Home Care Human Resources Study (Canadian Home Care Sector Study Corporation, 2003). The original eight home care service variables were recoded into five variables: nursing care, other health care, personal care, respite, and homemaking (including housework, meal preparation/delivery, shopping, other). To capture the number of different types of home care services an individual received, a count variable was calculated measuring the number of individual home care services (maximum of 5).

Findings from the home care utilization literature and Andersen's behavioral model guided the selection of independent variables. Figure 7 outlines the variables encompassing predisposing, enabling, and need factors used in the analysis. Following this, Table 1 outlines how each of the independent variables were coded. A detailed breakdown of how each variable was originally measured and operationalized and subsequently collapsed and recoded (when applicable) to facilitate comparison between the 1996/97 NPHS and the 2000/01 CCHS is included in Appendix B, Table B2.



Figure 7. Flow Diagram of Variables for Analysis.

Independent Variables	Coded
Sex	0 = male 1 = female
Age	1 = 45 - 64 2 = 65 - 74 3 = 75+
Marital status	 1 = married/common-law/living with a partner 2 = single 3 = widowed/separated/divorced
Living arrangement	1 = living alone 2 = living with others
Education	 1 = no school/less than secondary school graduation 2 = secondary school graduation/high school completion 3 = some post-secondary, degree, or diploma
Race	1 = white 2 = visible minority
Household income	1 = 1ess than \$30,000 2 = \$30,000 - \$49,999 3 = \$50,000 or more
Regular medical doctor	1 = yes 2 = no
Need ADL assistance	1 = yes 2 = no
Need IADL assistance	1 = yes 2 = no
Hospitalization	1 = yes 2 = no
Presence of chronic condition	0 = no 1 = yes

Recoding of Independent Variables for Analysis

Data Analyses

Statistical analyses were performed on the data using the Statistical Package for the Social Sciences (SPSS). All analyses were conducted on weighted data. Weights were calculated to produce population estimates representative of Eastern Canadians. Prior to conducting the analyses, the data sets were assessed for univariate and multivariate outliers, missing data, and the assumptions associated with each technique employed in the analyses. There were several univariate outliers in both the NPHS and CCHS, indicated by very uneven splits (90:10 or more) in dichotomous variables. These included race, having a regular doctor, needing help with ADLs, and hospitalization. However, these variables, with the exception of race, were included in most of the analyses and monitored for any effects within individual analysis.

Missing value analysis indicated that income was the only variable with a significant amount of missing data; over 8% in each data set. Chi-square analysis of income (missing/not missing) on several socio-demographic variables revealed that income was not missing at random in either data set. The 1996 population does not fully represent individuals aged 75 and over, $\chi^2 = 10.49$ (2, n = 4851), p = .005. There was a weak association between missing income and two other characteristics, gender and living arrangement in 1996. Given the larger sample size of the CCHS data set, chi-square results revealed a strong relationship between missing income and numerous variables. In 2001 individuals who were aged 75 and over, women, not married, or those with a high school graduation were more likely to not report household income. Within individual analysis (i.e., chi-squares, regressions), cases with missing income values were excluded based on listwise deletion. As a result, analyses where income is included can

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not be generalized to the entire population of Eastern Canadians aged 45 and over in either 1996 or 2001.

For univariate, bivariate, and multivariate analysis, adjusted weights were calculated, which divides the weight of each respondent by the average weight of the sample so that the new average weight equals one. This calculation helps adjust for the biased estimates caused by the sampling design of both the NPHS and CCHS (Canadian Community Health Survey, 2001; National Population Health Survey, 1997).

Bivariate analysis using Pearson's chi-square Goodness of Fit tests (χ^2) were used to assess the relationship among users and nonusers of home care by predisposing, enabling, and need factors in 1996 and in 2001 (research question 1). Significance was based on the criterion, p < .05. The sample size for both the NPHS and CCHS are quite large, therefore in addition to the Pearson chi-square statistic, Phi or Crammer's V coefficients were calculated to measure the strength of association between nominal variables while controlling for sensitivity to large sample sizes. Phi was reported for 2 by 2 tables and Crammer's V was reported for non 2 by 2 tables. For crosstabs between nominal and ordinal variables, where the nominal variable is dichotomous, only Pearson chi-square coefficients were reported (Agresti, 1990). Only one chi-square did not meet all assumptions. The comparison between home care use and need for assistance with ADLs had one expected frequency less than 5 (it was 4.9). Because the assumption was almost met, the results of this analysis were reported.

Frequency calculations were conducted to determine the proportion of home care users and the proportion of users for each type of home care service received in 1996 and in 2001 (research question 2). In addition, proportion tests of significance were calculated to investigate if there were differences over time for home care use and the proportion of users for each type of home care service. Frequency and mean calculations and a twosample t-test were conducted to determine if the pattern of home care usage changed between 1996 and 2001 (research question 3).

To compare results of this study to previous studies using Andersen's behavioral model, two hierarchical binomial logistic regression models were created to identify the predictors of home care utilization in 1996 and in 2001 (research question 4). Binomial logistic regression is a statistical technique that allows one to predict a discrete outcome (such as receives home care or not) from a set of predictor variables that can be discrete, continuous, dichotomous, or a mix (Tabachnick & Fidell, 2000). Both the results of the chi-square analyses and theory determined which independent variables were incorporated into the regression models. The hierarchical component of the regression analysis determined which factors (predisposing, enabling, or need – entered as blocks) accounted for the most variance in explaining home care utilization. Analysis also included the interpretation of odds ratios. For this analysis, the odds ratio refers to the increase (or decrease) in the likelihood of using home care services as a result of changes in a predictor variable. These models were visually (but not statistically) compared to determine how the predictors changed between 1996 and 2001. Calculations showed that there was multicollinearity between two sets of variables in each data set (marital status and living arrangement; need for assistance with ADLs and IADLs). Based on these findings and the literature, marital status was excluded from the regression analyses. In addition, due to issues with cell to case ratio, having a regular medical doctor was excluded from the 1996 regression model.

Methodological Limitations

There are several limitations within the scope of this research project. First, because the sample population size was too small to conduct analyses at the provincial or regional level, the study sample remained at the sub-national level. There were also several challenges associated with using secondary data. First, researchers have no control over how and what questions are asked and these questions may not be identical across surveys, thereby limiting comparisons. For example, problems with compatibility between the two survey questionnaires precluded the use of certain independent variables identified in the literature within the analysis, such as rural/urban residency, cognitive status, perceived health status, ethnicity, and social support. Second, survey data may be dated (not as current as desired), one reason for this is that converting raw data into public-use microdata files is time consuming, which delays the release of more current data. For example, at the time of this study the only data sets with questions on government-supported home care were the 1996/97 NPHS and 2000/01 CCHS cycle 1.1; and they were limited with only two questions on home care services.²

Another potential data limitation is the skewness between those who received home care services and those who did not (more than 90% of respondents). For most analyses this would prevent the dependent variable from meeting normal distribution assumptions, however logistic regression can handle this violation. Furthermore by collapsing variables (e.g., age, income) and using listwise deletion, valuable information

 2 Data from the CCHS survey cycle 2.1 administered in 2003, which asks a range of questions about home care use, allowing a more comprehensive analysis of home care utilization, was not released in time for inclusion in this study.

is sometimes lost. However, the advantages of collapsing variables for comparison purposes outweighs the potential disadvantages. Unfortunately, a considerable amount of cases were lost from certain analyses due to missing responses on household income.

Ethical Considerations

The data for this research was collected from public use "microdata" files for the 1996/97 NPHS and the 2000/01 CCHS. To protect the confidentiality of the respondents, any identifying information was previously removed from the data sets. In most cases, responses to questions that could lead to the identification of the respondent were either grouped or not available in the public use file. Ethics approval of this thesis was obtained from Mount Saint Vincent University's Ethics Research Board.

Results

Comparison of Home Care Users and Nonusers

The results of chi-square calculations comparing users and nonusers of home care services in Eastern Canada in 1996 and in 2001 according to predisposing, enabling, and need factors are outlined in Tables 2, 3, and 4 respectively. In terms of predisposing factors, age, marital status, living arrangement, and education were all moderately or strongly associated with home care use in both 1996 and 2001 (see Table 2). In both 1996 and 2001 home care users were more likely than nonusers to be older, widowed, separated or divorced, living alone, and less educated. Although home care users were more likely to live alone than nonusers, the majority of users and nonusers lived with others. Despite the strong chi-square significance level of the relationship between home care use and sex, the measure of association indicates that this relationship was weak for both years.

Comparison of Home Care Users and Nonusers by Predisposing Factors in 1996 and in 2001

	1	996		2	2001	
Predisposing	Users	Nonusers		Users	Nonusers	
Factors	(<i>n</i> = 167)	(n = 4,434)		(<i>n</i> = 783)	(<i>n</i> = 17,067)	
	%	%	χ^2	%	%	χ^2
Sex						
Women	66.4	52.5	13.23***	63.6	52.4	36.32***
Men	33.6	47.5	05 ^{ac}	36.4	47.6	05 ^{ac}
Age						
45 - 64	12.4	68.2	337***	24.9	69.4	1144***
65 - 74	33.8	20.6		23.2	19.4	
75+	53.8	11.1		51.9	11.1	
Marital status						
Married/comlaw	47.8	69.8	40.88***	39.7	69.6	323.7***
Single	9.9	7.0	.09 ^{bd}	11.1	8.0	.14 ^{bd}
Widow, sep., div.	42.3	23.2		49.2	22.3	
Living arrangement						
Living alone	38.6	19.4	39.29***	42.6	20.5	208.5***
Living with others	61.4	80.6	09 ^{ad}	57.4	79.5	11 ^{ad}
Education Less than			***	(-)		***
high school	61.6	43.0	24.87	67.9	40.4	222.5
High school grad.	10.4	13.5		8.3	14.8	
Some post- secondary, degree, diploma	28.0	43.4		23.8	44.8	

^aPhi coefficient. ^bCrammer's V coefficient. ^cWeak relationship. ^dModerate relationship.

*****p* < .001.

Both enabling factors, household income and having a regular doctor, had a relationship with home care use. As shown in Table 3, in both 1996 and 2001, the household income of Eastern Canadian home care users aged 45 and over was lower than nonusers. Home care users also were more likely than nonusers to have a regular medical doctor, however, this association was weak (Table 3).

Table 3

Comparison of Home Care Users and Nonusers by Enabling Factors in 1996 and in 2001

	1	996		2	2001	
Enabling	Users	Nonusers		Users	Nonusers	
Factors	(<i>n</i> = 167)	(<i>n</i> = 4,434)		(<i>n</i> = 783)	(<i>n</i> = 17,067)	
	%	%	χ ²	%	%	χ ²
Income ^a						
< \$30,000	77.9	44.7	73.9***	70.3	36.5	333.56***
\$30,000 - \$49,999	18.0	29.9		18.5	25.5	
≥ \$50,000	4.1	25.5		11.2	38.1	
Regular doctor						
Yes	99.4	87.0	24.0***	95.3	85.1	61.21***
No	.6	13.0	07 ^{bc}	4.7	14.9	06 ^{bc}

^a8.2% of cases missing in 1996; 9.3% of cases missing in 2001. ^bPhi coefficient. ^cWeak relationship.

****p* < .001.

Chi-square results show a definite relationship between all need variables and receiving home care services in both 1996 and 2001 (Table 4). The health profile of home

care users differed considerably from nonusers. Eastern Canadians aged 45 and over receiving home care services in either 1996 or 2001 were more likely to need assistance with both ADLs and IADLs, been hospitalized within the year, and have a chronic condition.

Table 4

	1	996		2	001	
Need	Users	Nonusers	χ^2	Users	Nonusers	χ^2
Factors	(<i>n</i> = 167)	(<i>n</i> = 4,434)		(<i>n</i> = 783)	(<i>n</i> = 17,067)	
	%	%	·······	%	%	
Need ADL assistance						
Yes	33.7	1.6	639.7***	36.6	2.9	1976.5***
No	66.3	98.4	36 ^{ac}	63.4	97.1	34 ^{ac}
Need IADL assistance						
Yes	81.3	16.0	475.2***	82.0	21.5	1439***
No	18.7	84.0	31 ^{ac}	18.0	78.5	29 ^{ac}
Hospitalization						
Yes	35.5	9.3	128.1***	48.5	9.2	1142.4***
No	64.5	90.7	16 ^{ab}	51.5	90.8	26 ^{ab}
Chronic cond.						
Yes	95.6	64.6	70***	93.8	72.8	163.1***
No	4.4	35.4	12 ^{ab}	6.2	27.2	10 ^{ab}

Comparison of Home Care Users and Nonusers by Need Factors in 1996 and in 2001

^aPhi coefficient. ^bModerate relationship. ^cStrong relationship. ***p < .001.

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Comparison of Home Care Users Over Time

In addition to determining the socio-demographic and health characteristics that distinguish home care users from nonusers, calculations were conducted to determine how the profile of home care users and nonusers changed over time. Data comparing home care users in 1996 and in 2001 on various predisposing, enabling, and need factors are presented in Tables 5, 6, and 7 respectively. Among the predisposing factors, only the age and marital status of home care users changed over time. The majority of home care users in both 1996 and 2001 were older than nonusers (see Table 2). However, among the younger age cohorts of home care users, there appears to be some change over time. In 2001 the proportion of home care users between the ages of 45 and 64 was twice as high as the proportion in that age group in 1996 (Table 5). In addition, the proportion of home care users who were married or living common-law decreased, while the proportion of those widowed, separated, or divorced increased over this time period (Table 5). Measures of association indicated that this relationship was weak.

Predisposing Factors	1996	2001	
	(<i>n</i> = 509)	(<i>n</i> = 676)	
	%	%	χ^2
Sex			
Women	66.4	63.6	1.00
Men	33.6	36.4	.03 ^{ac}
Age			
45 - 64	12.4	24.9	35.1***
65 - 74	33.8	23.2	
75+	53.8	51.9	
Marital status			
Married/common-law	47.8	39.7	7.69*
Single	10.0	11.1	.08 ^{bc}
Widowed, sep., divorced	42.2	49.2	
Living arrangement			
Living alone	38.5	42.6	2.05
Living with others	61.5	57.4	04 ^{ac}
Education			
Less than high school	61.6	67.9	5.20
High school grad.	10.4	8.3	
Some post-secondary, degree, diploma	28.0	23.8	

Comparison of Home Care Users Over Time by Predisposing Factors

^aPhi coefficient. ^bCrammer's V coefficient. ^cWeak relationship.

$$p^* < .05. p^{***} < .001.$$

As presented in Table 6, enabling factors including household income and having a regular doctor, were associated with year of home care use. A lower proportion of home care users in 2001 reported having a regular doctor than home care users in 1996.

Table 6

Enabling Factors	1996 (<i>n</i> = 509)	2001 (<i>n</i> = 676)	
	(<i>n</i> 509)	(// 070) 0/	v ²
→ 2	/0	/0	~
Income"			
< \$30,000	77.8	70.3	18.10***
\$30,000 - \$49,999	17.9	18.5	
\geq \$50,000	4.1	11.2	
Regular doctor			
Yes	99.6	95.3	19.63***
No	.4	4.7	.13 ^{bc}

Comparison	of Home	Care	Users	Over	Time	by	Enal	bling	Factors
,						~			

^a8.8% of cases missing in this analysis. ^bPhi coefficient. ^cModerate relationship. ***p < .001.

For the most part, the core need characteristics associated with home care users, which include needing assistance with ADLs and IADLs and having a chronic condition, did not change over time. Hospitalization was the only need factor that changed over time. In 2001 almost half of home care users had been hospitalized, an increase from 35.5% in 1996 (Table 7).

Need Factors	1996	2001	
	(<i>n</i> = 509)	(<i>n</i> = 676)	
	%	%	χ ²
Need ADL assistance			
Yes	36.7	36.6	1.01
No	63.3	63.4	03 ^{ab}
Need IADL assistance			
Yes	81.2	82.0	.10
No	18.8	18.0	01 ^{ab}
Hospitalization			
Yes	35.6	48.4	20.42***
No	64.4	51.6	.13 ^{ac}
Chronic condition			
Yes	95.6	93.8	1.82
No	4.4	6.2	.04 ^{ab}

Comparison of Home Care Users Over Time by Need Factors

^aPhi coefficient. ^bWeak relationship. ^cModerate relationship. ***p < .001.

Comparison of Nonusers Over Time

Nonusers of home care services were compared over time (in 1996 and in 2001) to determine if their predisposing, enabling, and need characteristics changed. The results are shown in Tables 8, 9, and 10 respectively. According to chi-square results, education level, household income, having a regular doctor, need for assistance with ADLs and IADLs, and presence of a chronic condition changed between 1996 and 2001 (as indicated by a p-value .01 or less). In 2001, nonusers tended to be more educated and

have higher incomes. Nonusers were also more likely to need assistance with ADLs and IADLs, and were more likely to have a chronic condition in 2001 (Table 10). Of interest is the proportion of Eastern Canadians aged 45 and over who reported not receiving home care but needing assistance with IADLs, this population increased considerably, by 5.5% between 1996 and 2001. The proportion with a chronic condition also increased considerably, over 8% within the same time period (Table 10). However, measures of association indicate that there was only a weak association between having a regular doctor, and needing assistance with ADLs and IADLs and nonusers over time, despite significant chi-square findings.

Predisposing Factors	1996	2001	antala
	(<i>n</i> = 9,958)	(<i>n</i> = 10,891)	
	%	%	χ^2
Sex			
Women	52.5	52.4	.04
Men	47.5	47.6	$.00^{ac}$
Age			
45 - 64	68.2	69.4	4.82
65 - 74	20.6	19.4	
75+	11.1	11.1	
Marital status			
Married/common-law	69.8	69.6	9.09*
Single	7.0	8.0	.02 ^{bc}
Widowed, sep., divorced	23.2	22.3	
Living arrangement			
Living alone	19.4	20.5	4.31*
Living with others	80.6	79.5	01 ^{ac}
Education			
Less than high school	43.0	40.4	16.38***
High school grad.	13.5	14.8	
Some post-secondary, degree, diploma	43.4	44.8	

Comparison of Nonusers Over Time by Predisposing Factors

^aPhi coefficient. ^bCrammer's V coefficient. ^cWeak relationship.

 $p^* < .05. p^{***} < .001.$

Enabling Factors	1996	2001	
	(n = 9,958)	(<i>n</i> = 10,891)	
	%	%	χ ²
Income ^a			
< \$30,000	44.7	36.5	349.29***
\$30,000 - \$49,999	29.9	25.5	
≥ \$50,000	25.5	38.1	
Regular doctor			
Yes	87.0	85.1	15.58***
No	13.0	14.9	.03 ^{bc}

Comparison of Nonusers Over Time by Enabling Factors

^a8.7% of cases missing in this analysis. ^bPhi coefficient. ^cWeak relationship. ***p < .001.

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Need Factors	1996	2001	
	(<i>n</i> = 9,958)	(<i>n</i> = 10,891)	
	%	%	χ ²
Need ADL assistance			
Yes	1.6	2.9	34.59***
No	98.4	97.1	04 ^{ab}
Need IADL assistance			
Yes	16.0	21.5	104.02***
No	84.0	78.5	07 ^{ab}
Hospitalization			
Yes	9.3	9.2	1.87
No	90.7	90.8	.01 ^{ab}
Chronic condition			
Yes	64.6	72.8	162.57***
No	35.4	27.2	09 ^{ab}

Comparison of Nonusers Over Time by Need Factors

^aPhi coefficient. ^bWeak relationship.

 $^{***}p < .001.$

Use of Individual Home Care Services

The usage of home care services changed between 1996 and 2001 (Z = 2.5, p < .05). In 1996, around 113,000 (3.6%) Eastern Canadians aged 45 and over were accessing government-supported home care services in the 12 months prior to the survey. By 2001, the number of Eastern Canadians accessing home care services increased to approximately 150,000 (4.4%).

ver 1 ime			
	1996	2001	
Services	(<i>n</i> = 189)	(<i>n</i> = 996)	
	%	%	Z^{a}
Nursing	39.6	53.7	3.55***
Other health care	10.8	11.4	.23
Personal care	24.3	25.6	.38

3.7

42.4

.07

3.47***

Group Differences for Use of Individual Home Care Services among Home Care Users Over Time

^aZ statistic measures the difference between two sample proportions.

3.8

56.1

*****p* < .001.

Respite

Homemaking

The proportion of Eastern Canadians aged 45 and over receiving different types of home care services (i.e., nursing, other health care, personal care, respite, homemaking) was reasonably small. In 1996, 2% received homemaking, 1.4% received nursing, 0.9% received personal care, 0.4% received other health care, and only 0.1% received respite services. In 2001, 2.4% received nursing, 1.7% received homemaking, 1.1% received personal care, 0.5% received other health care, and only 0.2% received respite services. The proportion of home care users receiving different types of home care services changed between 1996 and 2001 for some services (Table 11). Between 1996 and 2001 the proportion of home care users receiving nursing services increased by 14% to 53.7%. Unlike nursing, the proportion of home care users receiving homemaking services decreased from 56.1% to 42.4%, a total decrease of 13.7% between 1996 and 2001 (Table 11). The proportion of home care users receiving personal care, other health care,
and respite services did not change over time (approximately 25%, 11%, and 4%, respectively).

While the proportion of home care users receiving some individual home care services decreased or stayed the same between 1996 and 2001, the actual number of home care users receiving these services probably increased over this time period. Furthermore, it is important to note that these findings only refer to the proportion of people who actually received home care services. This population does not include those that needed these services but did not receive them.

Pattern of Usage

The pattern of usage, in particular, the number of different types of services home care users received were the same in 1996 and in 2001. Results show that the mean number of different types of home care services did not change between 1996 (M = 1.347, SD = .701) and 2001 (M = 1.368, SD = .722), t(166) = .34, *ns*. Over 70% of home care clientele received just one type of home care service in both 1996 and 2001. An examination of the relationship between nursing and homemaking services revealed that in 1996, 25% of clients who received nursing services also received homemaking services. In 2001 this proportion decreased to 14.1%.

Other patterns of usage that would provide more insight into changes in the use of home care include measuring changes in the amount (e.g., number of hours and visits) of each type of home care service a user received. For example, it would be interesting to know if, accompanying the decline in the proportion of home care users receiving homemaking services, there was a decrease in the amount of homemaking services provided to users over this time period. This information, however, was not available in the data sets.

Predictors of Home Care Use

This section describes the predictors of home care utilization (use or nonuse), based on predisposing, enabling, and need factors. The results of two hierarchical binomial logistic regressions are outlined in Tables 12 and 13. Due to issues with multicollinearity, marital status was excluded from both regression analyses. In addition, having a regular doctor was excluded from the 1996 regression model because of case to cell ratio violations (only one home care user did not have a regular doctor). Initial expectations about the ordering of predisposing, enabling, and need factors were supported: need factors accounted for the most variance, followed by predisposing and enabling factors. Furthermore, each of the factors when entered as separate blocks in the hierarchical regression added a significant contribution to the models (Tables 12 and 13).

As shown in the final model (Step 3 in Tables 12 and 13), the significant predictors of home care utilization when controlling for all other predictors in 1996, were needing assistance with ADLs and IADLs, hospitalization, presence of a chronic condition, age, and income. In the 2001 regression model, needing assistance with ADLs and IADLs, hospitalization, age, living arrangement, income, and having a regular doctor were all significant predictors of home care utilization. Regression results show that the 1996 regression model accounted for 40.9% of the variance in home care use, whereas similar predictors accounted for 38.5% of the variance in 2001.

Table 12

Hierarchical Binomial Logistic Regression Analysis Predicting Home Care Utilization in 1996

Predictors			Step 1				Step 2		Step 3				
	В	SE	Odds ratio	Wald Stat.	В	SE	Odds ratio	Wald Stat.	В	SE	Odds ratio	Wald Stat.	
Need													
Need ADL assistance													
Yes ^a	1.72	.22	5.56	59.4 ^{***}	1.79	.24	5.99	56.1***	1.77	.24	5.90	54.3***	
Need IADL assistance													
Yes ^a	2.44	.23	11.51	117.4***	1.91	.23	6.72	67.3***	1.92	.23	6.80	67.8***	
Hospitalization													
Yes ^a	.65	.20	1.91	10.4**	.71	.21	2.03	11.7**	.79	.21	2.19	14.2***	
Chronic condition													
Yes ^a	1.47	.40	4.34	13.7***	1.32	.41	3.74	10.6**	1.27	.41	3.57	9.7**	
Predisposing													
Sex													
Women ^b					.10	.20	1.10	.2	.08	.20	1.08	.1	

Predictors	Step 1						Step 2		Step 3			
	В	SE	Odds ratio	Wald Stat.	В	SE	Odds ratio	Wald Stat.	В	SE	Odds ratio	Wald Stat.
Age												
75+					1.98	.27	7.26	52.7***	1.96	.28	7.10	50.9***
65 - 74 [°]					1.69	.28	5.42	37.1***	1.60	.28	4.94	33.0***
Living arrangement												
Living alone ^d					.44	.20	1.55	4.93 *	.34	.21	1.45	2.6
Education												
Less than high school					15	.21	.86	.50	28	.22	.76	1.6
High school graduation ^e					05	.34	.95	.03	14	.34	.87	.2
Enabling												
Income												
<\$30,000									1.39	.44	4.02	9.9**
\$30,000 - \$49,999 ^f									1.44	.47	4.23	9.5**

Note. The Nagelkerke R Square = .335 for Step 1, .398 for Step 2 (p < .001), and .409 for Step 3 (p < .001). *Note.* Data source is the 1996/97 National Population Health Survey. Weighted n = 4,455.

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^aThe reference group is "no". ^bThe reference group is men. ^cThe reference group is ages 45 - 64. ^dThe reference group is living with others. ^eThe reference group is some post-secondary, degree, or diploma. ^fThe reference group is \$50,000 or more. *p < .05. **p < .01. ***p < .001.

Table 13

Hierarchical Binomial Logistic Regression Analysis Predicting Home Care Utilization in 2001

Predictors			Step 1		Step 2					Step 3				
	В	SE	Odds ratio	Wald Stat.	В	SE	Odds ratio	Wald Stat.	В	SE	Odds ratio	Wald Stat.		
Need												·		
Need ADL assistance														
Yes ^a	1.48	.11	4.39	190.6***	1.63	.12	5.09	189.0***	1.63	.12	5.12	191.5***		
Need IADL assistance														
Yes ^a	2.01	.11	7.47	311.0***	1.47	.12	4.33	151.6***	1.42	.12	4.12	141.9***		
Hospitalization														
Yes ^a	1.44	.09	4.21	243.3***	1.51	.10	4.54	246.8***	1.51	.10	4.55	247.0***		
Chronic condition														
Yes ^a	.49	.17	1.63	8.2**	.40	.17	1.49	5.3*	.31	.18	1.36	3.1		
Predisposing														
Sex														
Women ^b					.20	.10	1.22	4.1 [*]	.18	.10	1.20	3.3		

Predictors			Step 1			Step 2		Step 3				
	В	SE	Odds ratio	Wald Stat.	В	SE	Odds ratio	Wald Stat.	В	SE	Odds ratio	Wald Stat.
Age												
75+					1.38	.12	3.97	143.5***	1.32	.12	3.74	132.4***
65 - 74 ^c					.80	.12	2.23	42.0	.70	.13	2.02	31.9***
Living arrangement												
Living alone ^d					.74	.10	2.09	55.4***	.55	.11	1.74	27.7***
Education												
Less than secondary					.32	.12	1.38	9.1**	.16	.11	1.17	2.0
High school graduation ^e					.14	.17	1.15	.6	.08	.17	1.09	.3
Enabling												
Income												
< \$30,000									.84	.16	2.31	28.5***
\$30,000 - \$49,999 ^f									.57	.17	1.76	11.3**
Regular doctor												
Yes ^a									.50	.20	1.64	6.2 [*]

Note. The Nagelkerke R Square = .319 for Step 1, .377 for Step 2 (p < .001), and .385 for Step 3 (p < .001).

Patterns and Predictors

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Note. Data source is the 2000/01 Canadian Community Health Survey. Weighted n = 15,323.

^aThe reference group is "no". ^bThe reference group is men. ^cThe reference group is ages 45 - 64. ^dThe reference group is living with others. ^eThe reference group is some post-secondary, degree, or diploma. ^fThe reference group is \$50,000 or more. ^{*}p < .05. ^{**}p < .01. ^{***}p < .001.

When controlling for all other factors, the odds of receiving home care in Eastern Canada for those aged 45 and over were greater for those who needed assistance with ADLs and IADLs and were older, as indicated by significant Wald statistics and high odd ratios (Table 12 and 13). The odds of using home care increased among older cohorts. As well, the importance of some predictors of home care services changed over time. In 1996, individuals who were hospitalized were 2 times as likely to access home care services as individuals who were not hospitalized. This odds ratio doubled in 2001 to 4.5. In 1996 Eastern Canadians who had a chronic condition were 3 times as likely to use home care services as those without a chronic condition. Conversely, in 2001 having a chronic condition did not increase an individual's odds of receiving home care services. Results showed that household income was a significant predictor of home care use in both 1996 and 2001. However, the findings differ over time. In 1996, individuals with a low or mid-range income were more than four times as likely to receive home care services as individuals with higher incomes. In 2001, the impact of income on home care use was associated with lower odds ratios. Having a regular medical doctor was a significant predictor of home care use in 2001. Those with a regular doctor were 60% more likely to use home care services.

Discussion

The analysis of the composition and utilization of home care services in Eastern Canada reveals significant changes over time that need to be considered given the current home care environment in which policy development and expansion is inevitable. Using the 1996/97 NPHS and the 2000/01 CCHS, results indicate that the characteristics of home care users and the predictors of use for government-supported home care services in Eastern Canada have changed over time. The following sections will address how changes in home care utilization in Eastern Canada compare with findings throughout the rest of Canada and what implications these changes will have on home care policy, home care clients, and their caregivers.

Profile of Home Care Users and Nonusers

A comparison of users and nonusers of home care revealed that home care users were more likely than nonusers to be female, older, not married, living alone, less educated, and have lower household incomes. In relation to their health, home care users were also more likely to have a regular doctor, need assistance with ADLs and IADLs, be hospitalized, and have a chronic condition. These characteristics were similar to those reported at the provincial and national levels (Canadian Home Care Sector Study Corporation, 2003; CIHI, 2000; Coyte, 2000; Crowell et al., 1996; Hall & Coyte, 2001; Roos, Stranc, Peterson, Mitchell, Bogdanovic, & Shapiro, 2001; Wilkins & Beaudet, 2000). Generally, Eastern Canadians who were older, lacked informal supports, and were in poorer health were more likely to be users of home care. Moreover, home care users not only differed from nonusers, but also, over time the characteristics defining home care users differed. In 2001, home care users were more likely to have been younger, hospitalized, and had a higher household income than home care users in 1996. These are all characteristics typically associated with home care clients who receive nursing services (Forbes et al., 2003).

Changes in Service Use

Over time the proportion of Eastern Canadians receiving home care services increased. Although this was a fairly modest increase (from 3.6% to 4.4%), this trend has been observed provincially and nationally over the last decade (Andersen & Parent, 1999; Canadian Home Care Sector Study Corporation, 2003; Government of Canada, 2002a; Health Canada, 1999b), with the exception of Forbes et al. (2003) who found that there was no significant change in the proportion of Canadian home care users aged 18 and over between 1994 and 1997, which ranged from 2.3% to 2.7%. A comparison of findings to previous research is difficult given differences in sample composition. Nevertheless, in general, the proportion of users increases as the sample size encompasses smaller and older age cohorts. For example, according to CIHI (2000), in 1999, 12% of seniors received publicly-funded home care services. A range of factors contributed to the increased use of home care services during this time period, including increased government funding, deinstitutionalization, the need to explore more costeffective forms of care due to budget constraints, advances in technology, and demographic shifts in the population (Ballinger et al., 2003; Government of Canada, 2002a; Keefe, 2002).

These factors also contributed to another trend in home care utilization: an increase in acute care substitution services and a decline in preventative/maintenance services. Throughout the findings, this trend was evident. Foremost, there was a

significant increase in the proportion receiving nursing services and a simultaneous decline in the proportion receiving homemaking services between 1996 and 2001. Furthermore, this trend is also reflected in the changing characteristics of home care users, as they take on characteristics typically associated with those receiving nursing services over time. Researchers have noted this trend across Canada, and its implications are the subject of debate (Andersen & Parent, 1999; British Columbia Health Coalition, 2003; Canadian Home Care Sector Study Corporation, 2003; Hollander, 2003; Hollander & Tessaro, 2001; MacAdam, 2000). Conversely, although housework assistance declined, nursing services remained stable between 1994 and 1999 (Forbes et al., 2003). Although this trend has potentially significant cost savings for hospital budgets (as more people are discharged early or not admitted to hospital in favor of home care), the potential implications for the health care system and the health and well-being of clients and their caregivers are vast and numerous.

An increase in acute care substitution or nursing services creates several issues. First, there will be a need for human resources trained in providing nursing services to accommodate the increased provision of these complex care services. It is well documented that the availability of human resources to deliver these services is a concern in the Canadian health care system (Canadian Home Care Sector Study Corporation, 2003; Health Care Human Resource Sector Council, 2003; Government of Canada, 2002b, 2002c) and the factors contributing to this perceived shortage include education and training, funding, changing nature of the work, wages, and benefits (Canadian Home Care Sector Study Corporation, 2003). Second, there are also issues stemming from using the home as the place to deliver care. The home environment (physically, mentally) is not always the best place to provide care, for a number of reasons, including increased reliance and possible burden on informal caregivers who may be unable to take on these new responsibilities, homes are not designed for long-term care, and families may have limited resources to deal with complex care at home (Coyte & McKeever, 2001).

Third, acute care is more expensive to provide as the wages for professional staff are significantly higher and the cost of medical supplies is sometimes included. Furthermore, home care programs were initially designed with a focus on the older population with chronic care needs and will now have to further evolve to meet the requirements of a younger population with acute care needs. For example, home care programs will need to become more flexible, offering services 24 hours-a-day, 7 days-aweek, and/or direct allowance or self-managed care options. It is encouraging to note that some provinces have taken steps towards becoming more flexible. For example, publiclyfunded home care programs in Quebec and New Brunswick offer direct allowance/selfmanaged care options to some degree, and in New Brunswick, services through the Extra-Mural program are provided 24 hours-a-day, 7 days-a-week. Furthermore, the Nova Scotia Department of Health has recently undergone major reorganization in an attempt to provide home care services under a "customer service" approach. In an effort to develop a strategic plan that incorporates the needs of Nova Scotians, the Department of Health is currently in the process of holding province-wide consultations to get the public's opinions on a variety of continuing care services and issues. Finally, there is the potential that less expensive and/or lower priority services (e.g., homemaking services) may be cut or decreased, as they have in the past (British Columbia Health Coalition,

2003), in order to deliver more expensive and higher priority services (e.g., nursing services).

The decline in homemaking services is not a reflection of a declining need for these services, as evidenced by the increased need for assistance with ADLs and IADLs among nonusers in this study. Rather, it may be a reflection of home care managers trying to work within budget constraints by giving priority to clients with short-term acute care needs over those with long-term chronic care needs. Because the need for homemaking services still exists, the question arises as to what individuals who need homemaking and would have normally received them in the past, are doing. Alternative options include purchasing services privately, seeking assistance from informal networks, and the worst case scenario, going without assistance. Among the reasons why Canadians with disabilities in 2001 did not receive assistance, even though they needed it, was because services were too expensive, informal help was not available, services were not covered by insurance, and they did not know where to obtain assistance (CIHI, 2004). Another potential hindrance to accessing services through the publicly-funded system would be the process involved (eligibility and financial assessment) in accessing home care services.

It is understood within home care policy and practice that informal caregivers, when available, will contribute to meeting the home care client's care needs. In fact, regardless of home care use by care receivers, studies have shown that informal caregivers have traditionally provided up to 70% - 90% of care (Hèbert et al., 2001; Shapiro, 1986). Nonetheless, the reliance on informal caregivers to provide home care services, especially to this extent in the future is questionable, as several factors are

expected to limit the availability of informal caregivers in the future, including lower fertility rates, increased labour force participation by women, increased divorce rates, geographic mobility, sandwich generation responsibilities, and out-migration from rural communities (Canadian Home Care Sector Study Corporation, 2003; Coyte & McKeever, 2001; Government of Canada, 2002c; Keefe et al., 2004). Projections of formal home care usage that take into consideration factors affecting the availability of informal caregivers have already demonstrated that the use of formal home care services will increase between 2001 and 2031 because of a decline in the availability of informal supports (Keefe et al., 2004). Even if informal caregivers are available, their ability to provide long-term support in the absence of any direct or indirect support from home care programs, provincial, and/or federal governments will be problematic. Informal caregivers are increasingly left to deal with direct and indirect costs (e.g., physical, mental, emotional, financial) associated with providing care. A recent Canadian study examining these direct and indirect costs of caregiving revealed that more than one-third of caregivers aged 45 and over incurred extra expenses, one in ten reported health problems, between 30% and 40% changed their social activities, and many reported that their employment was affected (e.g., reduced hours, lower income) (Cranswick, 2003). Additional burdens placed on caregivers, as they strive to provide services that replace those provided by formal home care programs in the past (e.g., preventative/maintenance services) and take on more complex care, will only exacerbate these costs. Although studies have usually focused on the costs of caregiving at the individual level, the cumulative effects of these individual costs on the larger systems (e.g., health care, labour force market, etc.), which may be of more interest to decision makers in terms of the bottom-line, are without a doubt substantial; thus more research is needed in this area.

Finally, individuals who have no informal network and/or can not afford to purchase services privately will probably go without these services. This may lead to an accelerated decline in their health and well-being, resulting in acute home care services being accessed sooner than if preventative/maintenance services were provided initially. The impact of reducing or eliminating preventive/maintenance services has been examined, and results are inconsistent. Although some have found no or little negative effect (Health Services Utilization and Research Commission, 2000), others have found significant short and long-term negative effects on the client's health and well-being and the health care system in general (Hollander & Tessaro, 2001).

There was no change in the proportion of home care users receiving personal care (approximately 25%), respite (approximately 4%) or other health care services (11%) over time. Given the nature of personal care services (bathing, etc.) they are deemed essential, and not likely to be on the receiving end of cuts or reductions. Respite services, which are provided for the benefit of caregivers, make up the lowest proportion. This reflects the inequity of care within the home: although informal caregivers are expected to contribute to meeting care needs, they themselves are not considered clients and therefore, for the most part, receive little support in return.

It appears that the pattern of usage, in particular, the number of different types of home care services users received did not change over time. On average, over 70% of home care users received only one type of service. This number was slightly lower than what Crowell et al. (1996) observed in Nova Scotia and Newfoundland, where home care users received on average 2.1 and 1.4 services each respectively. Possible explanations for this finding are that individual services like shopping, housework, meal preparation/delivery were grouped to represent homemaking services in this study, therefore limiting the potential number of different services. In addition, the range of services provided within each province varies. These discrepancies will affect the interpretation of the number of different types of home care services received. For example, more services would come under other health care and other (part of homemaking) in Quebec, New Brunswick, and Prince Edward Island because they have more service options than Nova Scotia. This measure of usage (number of different services) is a start, but serves limited value. Further research needs to explore patterns of usage in terms of the extent of service provision, whether or not these services are meeting the needs of individuals, whether or not the amount (hours, number of visits) of service provision has changed over time, especially for homemaking services, and what impact this is having on the clients and their caregivers.

Predictors of Home Care Service Use

The results of this study support the original assumptions outlined in Andersen's behavioral model. Each of the factors (predisposing, enabling, and need) make an independent contribution to the use of home care services. The factors also vary in their contribution, with need factors accounting for more variance in use, as they are directly related to use. These findings are consistent with other models predicting home care use where need factors accounted for the greatest variance (Aykan, 2003; Hall & Coyte, 2001; Henton et al., 2002; Lee et al., 2001).

According to the results, a model predicting home care utilization should include variables measuring need for assistance with ADLs and IADLs, hospitalization, age, and income. These predictors have not changed much over time, with the exception of living arrangement, and presence of a chronic condition. In general, these predictors were similar to those identified in other home care utilization studies (Hall & Coyte, 2001; Shapiro, 1986; Wilkins & Beaudet, 2000; Wilkins & Park, 1998).

The predictors accounted for 40.9% and 38.5% of variance in home care utilization in Eastern Canada in 1996 and in 2001, respectively. Over half of the variance in the models is unaccounted for. Key variables that may increase the variance include past use of home care services (Eve, 1987; Hall & Coyte, 2001), prior knowledge of services (Newhouse, 1995), rural/urban residency (Forbes & Janzen, 2004; Newhouse, 1995), and social support (Hawranik, 1998; Wilkins & Beaudet, 2000). In addition, variance may have been lower as a result of having a dichotomous outcome, in this case, home care use or nonuse (Andersen, 1968).

When Andersen initially created the model, his intention was not only to measure use of health care services, but also to create a model that would determine if these services were equitably distributed. According to Andersen's equitable distribution and access assumptions, in an equitable model, characteristics such as age, sex, and need should largely determine the use of health services, whereas characteristics like social class, race, and income should have less influence. To some degree the research findings support these assumptions. Need and predisposing factors play a larger role in determining home care usage than enabling factors (as indicated by higher odds ratios). However, unlike the use of hospital services in Canada, there are fees associated with

some publicly-funded home care services (e.g., homemaking services) and individuals have the option to purchase services privately. So it is not surprising that in models predicting publicly-funded home care use in Canada, income is a significant predictor.

When these predictors of home care utilization are examined within the future context, the growth potential for home care is great. As the trend towards acute care substitution becomes increasingly recognized as cost-effective and reinforced by federal bodies (e.g., the Standing Senate Committee on Social Affairs, Science, and Technology and the Commission on the Future of Health Care in Canada), without adequate additional funds to offset the provision of these services, other home care services are at increasing risk of being reduced or eliminated. Counterbalancing this trend towards shortterm services will be the demand for chronic services as a result of population aging. Home care use is the greatest among older cohorts. Accompanying population aging will be an increase in chronic illness rates. Given that Atlantic Canada is already characterized by having a poorer health profile and higher rates of smoking, obesity, and physical inactivity than national rates, all of which are associated with chronic diseases and conditions, the need for home care services could rise substantially (Hayward & Colman, 2003).

Policy Implications

Decision makers need to understand what impact various policies are having on home care utilization in terms of who are using home care services and what services are being used versus what services are needed. This research serves as a first step in assisting decision makers in Eastern Canada to understand more about the people using their services and what impact changes in home care policy implementation have had on the profile of users and the predictors of home care use over time.

This research can also be used by decision makers to develop more equitable resource allocation models and to project home care usage in Eastern Canada in the future. Resource allocation models differ among provinces, but are typically based on previous use, and/or population-based models which include age and sex characteristics. These models should be enhanced to include other predictors of use, mainly need factors, as identified by this research. Currently most provinces attempt to ensure equitable distribution of resources according to region; however steps need to be taken to ensure that there is equitable distribution between acute and chronic home care services within provinces and/or regions. Implementing targeted funding for acute home care services and preventative/maintenance services is key to supporting home care programs, and this recommendation has been brought forth by other researchers (Forbes et al., 2003; Hall & Coyte, 2001). By providing individual funding envelopes for acute and preventative/ maintenance home care services, based on population and need-based models, the underallocation of funds for preventative/maintenance services will be prevented and the provision of preventative/maintenance services will be sustainable.

The research findings in this study are not driven by changes to home care policy – as the definition and eligibility for home care services has not changed between 1996 and 2001 within individual provinces in Eastern Canada. Rather, changes in the utilization and composition of home care services in Eastern Canada are a reflection of changes to the way policies are being implemented. Decision makers within provincial Departments of Health are putting greater priority on meeting the needs of acute care

clients. Therefore, these findings should not be interrupted as support of the need for acute care services, as the proportion receiving these services has increased considerably between 1996 and 2001, but rather that this increase is a reflection of priorities being placed on the delivery of these services by managers. For the most part, these priorities are being driven by budget constraints. The need for preventative/maintenance services is still present, as evidenced by the increased proportion of persons reporting needing assistance with ADLs and IADLS and having a chronic condition but not receiving home care services. Ideally, if access to home care was equitable, people who are eligible for home care services will receive these services, regardless of whether they have acute or preventative/maintenance care needs. In the case of home care, policies should be guiding operations, and not current practices defining policy. Evaluation mechanisms should be built into the policy process at regular intervals to ensure that policies are implemented in a way that is consistent with the goals and objectives of the program.

This shift in how home care policies are being implemented, raises some interesting ethical dilemmas. For the most part, the provision of services within the home was initially premised on providing services under a social model of care, as opposed to the medical model which dominated service delivery within institutions at the time. The introduction of home care services insured clients, mainly seniors with chronic care needs, received a holistic approach to care, with an emphasis on caring not curing. Now with the increasing provision of acute and complex care in the home, it appears that the medical model with the goal of curing people is beginning to dominate the delivery of home care services. Home care decision makers are beginning to face ethical dilemmas that decision makers within the larger health care system have always faced - prioritizing

or rationing services. By placing priority on the delivery of acute home care services, decision makers are favoring a select group of users, mostly persons under the age of 65. This practice raises equity issues across age groups by prioritizing the needs of younger patients who require short term acute care over the needs of mostly vulnerable seniors who require long term chronic care – a form of ageism. Both government and society have a responsibility to ensure that the needs of individuals, regardless of age, sex, or ethnicity are able to access home care services and that the rationing of resources within home care is done so in an ethical and equitable manner.

As decision makers look to the future, being able to project home care usage will aide them in understanding the amount of human resources (formal and informal) that will be needed in order to meet the demand. The potential looming shortages in the formal home care sector has promoted research examining human resources issues and strategies over the last decade (e.g., Canadian Home Care Sector Study Corporation, 2003; Health Canada, 1999a; Health Care Human Resource Sector Council, 2003). It is now time to move forward by making decisions and implementing strategies based on this research. Just as important as ensuring an adequate formal network to meet future demand, is ensuring the availability and sustainability of the informal network. Often, the complete care needs of an individual are only met when both networks are providing care. The important role of family and friend caregivers is finally making national attention. The Canadian government has recognized the importance of caregivers by designating a Minister of State for Families and Caregivers and implementing the Compassionate Care Benefit under the Employment Insurance program, providing eligible caregivers with some support for providing end-of-life care. Optimistically, this is but a stepping stone towards much wider and encompassing support initiatives for caregivers.

Canadian deliberations on how best to support caregivers would be enhanced by examining initiatives undertaken in other countries. Several countries have implemented a range of direct (e.g., stipends, respite) and indirect (e.g., tax credits, insurance) support policies and labour policies to compensate caregivers. For example, in 1995 Germany implemented a mandatory long-term care insurance system which enables users of home care to receive public services or choose cash payments so that the user can purchase caregiving services privately from family members or agencies. These informal caregivers are eligible for pension insurance, tax benefits, and additional services, including respite services, and training and education (Geraedts, Heller, & Harrington, 2000). In Australia, the Home and Community Care Program is the responsibility of the federal and state governments. Australian initiatives to support caregivers include caregiver allowances and payment, and an invalid relative tax incentive (Keefe, Fancey, & White, 2005). Decision makers in Canada should explore these international approaches to compensating caregivers, evaluating the strengths and limitations of each countries approach and their applicability to supporting caregivers in Canada. It is important that flexibility and choice (e.g. services, direct or indirect financial compensation) be key elements of any support initiatives for caregivers

In addition, government should consider what the underlying values are that drive the policies they create and the policies they examine in other countries. For example, the provision of care has traditionally and arguably for the most part still the responsibility of women. Policies supporting caregivers must ensure that women are not further exploited

and do not continue to assume the costs (e.g., health related, labour related, financial, social, etc.) associated with providing care disproportionately to their male counterparts. As women's participation in the labour force increases, support initiatives will have to ensure that women have the option of accessing direct services, and/or if they choose to continue working that initiatives exist so that they are not disadvantaged (e.g., lose status, lower pension, etc.). In this case, initiatives may take the form of pension credits or elder care leave similar to child care leave in Canada. Finally, without addressing human resources issues now for both formal and informal networks, the sustainability of home care programs in the future will be jeopardized.

The reality is that provincial governments will always be working within constrained budgets – therefore in order to grow, something usually has to give. In this case, that something is homemaking services. More studies are needed to document the short-term and long-term implications of these home care policy changes on the health care system, potential home care clients, and their caregivers. This is especially important given the pressures from recent commissioned reports and First Minister agreements promoting not only increased post-acute care services, but additional provision of shortterm end-of-life and mental health care services within the home.

Study Limitations

The provision, organization, utilization, and composition of governmentsupported home care services are jurisdictional in nature. It is important to acknowledge that within the context of this study and its findings, the majority of the data (over 80%) from Eastern Canada was based on respondents from Quebec in both the 1996 and 2001 sample. Therefore, this study may be biased in that the effects of provincial policy changes in the Quebec home care program over this time period may override what is happening in the other provinces. Consequently, links between changes in provincial home care policy (e.g., eligibility, service comprehensiveness, etc.) and home care utilization are not measurable, nor are links with contextual variables such as changes in technology, assistive living, or assisted living options. It is also important to acknowledge that this analysis was confined to those who received home care services, and excluded those who may have needed services but did not receive them.

Further Research

Further research is needed in the area of home care utilization to assist decision makers throughout Canada in directing policy and practice provincially and nationally. Given the jurisdictional nature of home care services, there is a need for provincial level analysis. Vast improvements and initiatives have been undertaken by the provinces over the last few years, in terms of implementing standardized, computerized assessment tools to track clients, which will allow for more comprehensive and quality analyses at the regional, provincial, and national level.

To enhance this study and provide evidentiary support for the importance of homemaking and respite services, more research is needed on the outcomes of these types of preventative/maintenance home care services on the clients, their caregivers, and the health care system as a whole, especially if governments intend to continue down the road of acute care substitution. This evidence will be needed to support targeted resource allocation, so that lower priority services will continue to be provided, and not rationed to the point that they are eliminated from home care programs. Another under-explored area of research is the use of private home care services in Canada. In light of passive privatization, the forecasted increased in the use of formal services (whether public or private) and the potential unavailability of informal caregivers, the demand for private home care services will increase in the future. As these services are not currently regulated in Canada, and therefore not forced to maintain any standards around quality of care, it is essential that more research be done to ensure that standards of care within the private domain are equitable to those within the public domain.

Conclusion

The state of the current health care system is one of reform. Nationally commissioned reports have acted as catalysts bringing many inequities and issues within the health care system to the forefront. In response, both federal and provincial governments have committed to renewing the health care system, especially in the areas of primary health care, home care, catastrophic drug coverage, timely access, and information technology. However, this is not the first time the idea of reforming home care has been brought forth. Earlier commissioned reports (e.g., Hall Royal Commission, 1964 and the National Forum on Health, 1997) recommended the implementation of a national home care program. Although no plans are in place to implement such a program, the provinces and territories are making a concentrated effort to at least develop and implement standardized information systems that will allow for effective planning and national comparisons.

Over the last few decades, home care programs have gone through considerable growth and changes as a result of many factors including demographic shifts, advances in technology, deinstitutionalization, and increased funding from government. However, it seems the overarching motivating factor for home care reform has and will probably continue to be the value government places on home care as a cost-effective means of service delivery.

Before home care programs continue down this road of reform, more research is needed on the impact of changes to home care service delivery and eligibility on home care utilization. In order to support future policy decisions, this research sought to explore how the utilization and composition of government-supported home care services in Eastern Canada changed over time using Andersen's behavioral model of health service utilization. Analysis suggests the utilization of home care services and the profile of home care users in Eastern Canada have changed over time, reaffirming similar trends noted nationally and provincially, that being, a rise in acute care substitution accompanied by a decline in preventative/maintenance services. A greater proportion of home care users are now receiving nursing services and home care users are beginning to display characteristics associated with the use of nursing services.

Given the potential implications of these changes, decision makers within government must step back and reevaluate the direction home care programs are following, and ask themselves (a) who should be receiving home care services, (b) what services should they provide to meet the current and future care needs of clients, (c) how can they work with and support other health care sectors, community organizations, and caregivers to ensure needs are met, and (d) how compatible the answers to these questions are with the current direction of home care. More research on the outcomes of changes in home care policy on the health care system, clients, and their caregivers is needed to inform decisions. In Eastern Canada, decision makers are already beginning to question the philosophy in which they approach care and service delivery within the home (e.g., Nova Scotia Department of Health).

Home care programs are in transition, as they strive to meet current needs, expand service comprehensiveness to incorporate First Minister agreements, and anticipate future demands. In order to cope, strategies to support formal and informal human resources will have to be implemented, so that the integrity and the quality of home care programs can be preserved in Eastern Canada in the long term.

References

Agresti, A. (1990). Categorical data analysis. New York: John Wiley & Sons.

- Alexander, T. (2002). The history and financing of the long-term care systems. In E. Sawyer & M. Stephenson (Eds.), *Continuing the care: The issues and challenges* for long-term care (pp. 1-43). Ottawa, ON: CHA Press.
- Andersen, R. M. (1968). A behavioral model of families use of health services. (Research Series No. 25). Chicago: University of Chicago: Centre for Health Administration Studies.
- Andersen, R. M. (1995). Revisiting the behavioral model and access to medical care: Does it matter? *Journal of Health and Social Behavior*, *36*(1), 1-10.
- Andersen, R., & Newman, J. (1973). Societal and individual determinants of medical care utilization in the United States. *Milbank Memorial Fund Quarterly. Health and Society*, 51, 95-124.
- Anderson, M., & Parent, K. (1999). Putting a face on home care. CARP's report on home care in Canada, 1999. Kingston, ON: Canadian Association for the Fifty-Plus.
- Aykan, H. (2003). Effect of childlessness on nursing home and home health care use. Journal of Aging and Social Policy, 15(1), 33-53.
- Balinsky, W., & Rehman, S. (1984). Home health care: A comparative analysis of hospital-based and community-based agency patients. *Home Health Services Quarterly*, 5(1), 45-60.
- Ballinger, G., Zhang, J., & Hicks, V. (2003). *Monitoring the feasibility of reporting home care estimates in national health expenditures*. Retrieved May 2004, from the Canadian Institute for Health Information Web site: http://secure.cihi.ca/cihiweb /en/downloads/NHEXFeasibilityHC.pdf
- Borrayo, E. A., Salmon, J., Polivka, L., & Dunlop, B. D. (2002). Utilization across the continuum of long-term care services. *Gerontologist*, 42(5), 603-612.
- British Columbia Health Coalition. (2003, September). B.C. Liberals break election promise: Confidential government plans for long-term care closures radical by Canadian standards. Executive Summary. BC Health Coalition. Retrieved March 21, 2004, from http://www.creativeresistance.ca
- Canadian Community Health Survey. (2001). *Codebook.* Retrieved August 2004, from the University of Western Ontario Web site: http://janus.ssc.uwo.ca/docfiles/cchs_2000_2001_cycle1_1/QUESTE.pdf

- Canadian Home Care Association. (2003). Portraits of Home Care: A Picture of Progress and Innovation. Ottawa, ON: Canadian Home Care Association.
- Canadian Home Care Sector Study Corporation. (2003). Canadian home care human resources study. Synthesis Report. Retrieved February 2004, from the Canadian Association for Community Care Web site: http://www.cacc-acssc.com/english/ newsroom/links.cfm
- Canadian Institute for Health Information. (2000). *Health care in Canada 2000: A first annual report*. Retrieved May 2004, from the Canadian Institute for Health Information Web site: http://secure.cihi.ca/cihiweb/disp Page.jsp?cw_page= AR_43_E
- Canadian Institute for Health Information. (2001a). *Home care, national indicators and reports development project*. Retrieved June 3, 2004, from the Canadian Institute for Health Information Web site: http://www.cihi.com/cihiweb/dispPage.jsp?cw_page=indicators_homecare_e
- Canadian Institute for Health Information. (2001b). Development of national indicators and reports for home care. Final project report. Retrieved January 2003, from the Canadian Institute for Health Information Web site: http://secure.cihi.ca/cihiweb/ en/downloads/indicators_homecare_e_finalpapr2001.pdf
- Canadian Institute for Health Information. (2004). *Health care in Canada*. Retrieved May 25, 2005, from the Canadian Institute for Health Information Web site: http://secure.cihi.ca/cihiweb/dispPage.jsp? cw_page=AR_43_E
- Carrière, Y., Martel, L., Légaré, J., & Morin, L. (2001, October). Socio-demographic factors associated with the use of formal and informal support networks at older ages in Canada. Paper presented at the Longer Life and Healthy Aging Seminar, Committee on Longevity and Health of the International Union for the Scientific Study of Population, Beijing, China.
- Cheal, D. (2000). Aging and demographic change. *Canadian Public Policy, XXVI*(2), S109-S122.
- Coyte, P. C. (2000). *Home care in Canada: Passing the buck*. Retrieved April 2003, from the University of Toronto, Home and Community Care Evaluation and Research Centre Web site: http://www.utoronto.ca/hpme/drh/pdf/Coyte2.pdf
- Coyte, P. C., & McKeever, P. (2001). Submission to the Standing Committee on Social Affairs, Science and Technology. Retrieved May 2004, from the University of Toronto, Home and Community Care Evaluation and Research Centre Web site: http://www.hcerc.utoronto.ca/PDF/Report2.pdf

- Coyte, P. C., & Young, W. (1999). Regional variations in the use of home care services in Ontario, 1993/95. *Canadian Medical Association Journal*, 161(4), 376-380.
- Cranswick, K. (2003). *General Social Survey Cycle 16: Caring for an aging society*. (Cat. No. 89-582-XIE). Ottawa: Statistics Canada.
- Crowell, S. J., Rockwood, K., Stolee, P., Buehler, S. K., James, B. M., Kozma, A. & Gray, J. (1996). Use of home care services among the elderly in Eastern Canada. *Canadian Journal on Aging*, 15(3), 413-426.
- Evans R., McGrail, K. M., Morgan, S. G., Barer, M. L., & Hertzman, C. (2001). Apocalypse now: Population aging and the future of health care systems. *Canadian Journal on Aging*, 20(1), 160-191.
- Eve, S. B. (1987). A longitudinal study of use of health care services among older women. *Journal of Gerontology*, 43(2), M31-39.
- Flood, C. (1999). Unpacking the shift to home care. Retrieved May 2004, from Dalhousie University, Atlantic Centre of Excellence for Women's Health Web site: http://www.acewh.dal.ca/eng/reports/Flood%20Finalreport.pdf
- Foot, D., & Stoffman, D. (1998). Boom, bust & echo 2000: Profiting from the demographic shift in the new millennium. Toronto: Macfarlane Walter & Ross.
- Forbes, D. A., & Janzen, B. L. (2004). Comparison of rural and urban users and nonusers of home care in Canada. *Canadian Journal of Rural Medicine*, 9(4), 227-235.
- Forbes, D. A., Stewart, N., Morgan, D., Anderson, M., Parent, K., & Janzen, B. L. (2003). Individual determinants of home-care nursing and housework assistance. *Canadian Journal of Nursing Research*, 35(4), 14-36.
- Geraedts, M., Heller, G.V., & Harrington, C.A. (2000). Germany's long-term-care insurance: Putting a social insurance model into practice. *The Milbank Quarterly*, 78(3), 375-401.
- Government of Canada. (1990). *Report on home care*. (Cat. No. H39-186/1990E). Federal/Provincial/Territorial Working Group on Home Care. Ottawa: Health and Welfare Canada.
- Government of Canada. (1993). Description of long-term care services in provinces and territories. Federal/Provincial/Territorial Working Group on Home Care. Ottawa: Health Canada.

- Government of Canada. (2001). *The health of Canadians The federal role. Interim report. Volume 1.* Retrieved February 2004, from the Government of Canada, Standing Senate Committee on Social Affairs, Science, and Technology Web site: http://www.parl.gc.ca/common/Committee_SenRep.asp?Language=E&parl=37& Ses=2&comm_id=47
- Government of Canada. (2002a). Strengthening home and community care across Canada: A collaborative strategy. A paper prepared for the First Ministers Meeting, July 31 - August 2, 2002. Federal/Provincial/Territorial Committee on Home Care. Ottawa: Ontario.
- Government of Canada. (2002b). *Building on values: The future of health care in Canada. Final report.* Retrieved February 2004, from the Health Canada, Commission on the Future of Health Care in Canada Web site: http://www.hc-sc.gc.ca/english/care/romanow/hcc0086.html
- Government of Canada. (2002c). *The health of Canadians The federal role. Volume six* – *Recommendations for reform. Final report.* Retrieved February 2004, from Government of Canada, Standing Senate Committee on Social Affairs, Science, and Technology Web site: http://www.parl.gc.ca/common/Committee_SenRep. asp?Language=E&parl=37&Ses=2&comm_id=47
- Government of Canada. (2003a). *Health Care Accord*. Retrieved March 3, 2003, from the Health Canada Web site: http://www.hc-sc.gc.ca/english/hca2003/accord.html
- Government of Canada. (2003b). Federal transfers to provinces and territories. Retrieved September 29, 2004, from Finance Canada Web site: http://www.fin.gc. ca/FEDPROV/FTPTe.htm
- Government of Canada. (2004). *Health care renewal. A 10-year plan to strengthen health care*. Retrieved October 3, 2004, from the Health Canada Web site: http://www.hc -sc.ca/english/hca2003/fmm/index.html
- Hall, R., & Coyte, P. (2001). Determinants of home care utilization: Who uses home care in Ontario. *Canadian Journal on Aging*, 20(2), 175-192.
- Hawranik, P. (1998). The role of cognitive status in the use of inhome services: Implications for nursing assessment. *Canadian Journal of Nursing Research*, 30(2), 45-65.
- Hawranik, P., & Strain, L. (2001). Cognitive impairment, disruptive behaviors, and home care utilization. *Western Journal of Nursing Research*, 23(2), 148-162.

- Hayward, K., & Colman, R. (2003). *The tides of change: Addressing inequity and chronic disease in Atlantic Canada. A Discussion Paper*. Prepared for Population and Public Health Branch, Atlantic Regional Office, Health Canada. Retrieved May 2005, from the GPI Atlantic Web site: http://www.gpiatlantic.org/publications/health.shtml
- Health Canada. (1999a). *Human resource issues in home care in Canada. A policy perspective.* (Cat. No. H21-148/1999E). Retrieved February 2005, from the Health Canada Web site: http://www.hc-sc.gc.ca/homecare/english/pub.html
- Health Canada. (1999b). Provincial and territorial home care programs. A synthesis for Canada. Ottawa: Health Canada. Retrieved May 2003, from the Health Canada Web site: http://www.hc-sc.gc.ca/homecare/english/syn_2.html
- Health Care Human Resource Sector Council. (2003). A study of health human resources in Nova Scotia. Halifax, NS: Health Care Human Resource Sector Council.
- Health Services Utilization and Research Commission. (2000). *The impact of preventative home care and seniors housing on health outcomes*. Summary Report, No. 14. Saskatoon.
- Hèbert, R., Dubuc, N., Buteau, M., Desrosiers, J., Bravo, G., Trottier, L., St-Hillaire, C., & Roy, C. (2001). Resources and costs associated with disabilities of elderly people living at home and in institutions. *Canadian Journal of Aging*, 20(1), 1-21.
- Henton, F. E., Hays, B. J., Walker, S. N., & Atwood, J. R. (2002). Determinants of medicare home healthcare service use among medicare recipients. *Nursing Research*, 51(6), 355-362.
- Hollander, M. (2001). Final report of the study on the comparative cost analysis of home care and residential care services Substudy 1. Victoria, BC: Hollander
 Analytical Services Ltd. and the National Cost Evaluation of the Cost-Effectiveness of Home Care. Report prepared for Health Transition Fund, Health Canada. Retrieved February 2004, from the Hollander Analytical Services Ltd. Web site: http://www.hollanderanalytical.com/group/current-projects.html
- Hollander, M. (2002). Sub-study 7: Overview of home care clients. National evaluation of the cost-effectiveness of home care. Retrieved December 2003, from the Hollander Analytical Services Ltd. Web site: http://www.hollanderanalytical.com /group/current-projects.html
- Hollander, M. (2003). Unfinished business: The case for chronic home care services, a policy paper. Retrieved June 2003, from the Hollander Analytical Services Ltd. Web site: http://www.hollanderanalytical.com/group/current-projects.html

- Hollander, M., & Chappell, N. (2002). *The final report of the national evaluation of the cost-effectiveness of home care*. British Columbia: Centre on Aging, University of Victoria and Hollander Analytical Services. Retrieved December 2003, from the Hollander Analytical Services Ltd. Web site: http://www.hollanderanalytical.com /group/current-projects.html
- Hollander, M., & Tessaro, A. (2001). Evaluation of the Maintenance and Preventative Model of Home Care. Home care/Pharmaceuticals Division, Policy and Communication Branch, Health Canada. Retrieved February 2004, from the Hollander Analytical Services Ltd. Web site: http://www.hollanderanalytical.com /group/current-projects.html
- Keefe, J. (2002). Home and community care. In E. Sawyer and M. Stephenson (Eds.), *Continuing the care: The issues and challenges for long-term care* (pp. 109-141). Ottawa, ON: CHA Press.
- Keefe, J., Fancey, P., & White, S. (2005, March). Consultation on financial compensation initiatives for family caregivers of dependent adults. Halifax, NS: Mount Saint Vincent University.
- Keefe, J., Légaré, J., & Carrière, Y. (2004). Projecting the future availability of informal support and assessing its impact on home care services, Part I: Demographic projections. Halifax, NS: Mount Saint Vincent University.
- Laporte, A., Croxford, R., & Coyte, P. C. (2002, May). *Access to home care services: The role of socio-economic status.* Paper presented at the Canadian Health Economics Research Association Conference, Halifax, Nova Scotia.
- Lee, T., Kovner, C. T., Mezey, M. D., & Ko, I. S. (2001). Factors influencing long-term home care utilization by the older population: Implications for targeting. *Public Health Nursing*, 18(6), 443-449.
- MacAdam, M. (2000). Home care: It's time for a Canadian model. *HealthcarePapers*, *1*(4), 9-36. Retrieved May 2004, from http://www.longwoods.com/hp/fall00/ index.html
- Marek, K. D. (1996). Nursing diagnoses and home care nursing utilization. *Public Health Nurs*ing, *13*(3), 195-200.
- Mauser, E., & Miller, N. (1994). A profile of home health users in 1992. *Health Care Finance Review*, 16(1), 17-33.
- National Population Health Survey. (1997). *Codebook*. Retrieved August 2004, from the University of Western Ontario Web site: http://janus.ssc.uwo.ca/Docfiles /nphs_wave2_engdoc.pdf

- Newhouse, J. K. (1995). Rural and urban patterns: An exploration of how older adults use in-home care. New York: Garland Publishing.
- Parent, K., & Anderson, M. (2000). Developing a home care system by design. *HealthcarePapers*, 1(4), 46-52.
- Penning, M. J. (1995). Health, social support, and the utilization of health services among older adults. *Journal of Gerontology, Social Sciences, 50*(5), S330-S339.
- Pescosolido, B. (1992). Beyond rational choice: The social dynamics of how people seek help. *American Journal of Sociology*, 97, 1096-1138.
- Roos, N.P., Stranc, L., Peterson, S., Mitchell, L., Bogdanovic, B., & Shapiro, E. (2001). *A look at home care in Manitoba*. Manitoba Centre for Health Policy and Evaluation. University of Manitoba.
- Shapiro, E. (1986). Patterns and predictors of home care use by the elderly when need is the sole basis for admission. *Home Health Care Services Quarterly*, 7(1), 29-44.
- Shapiro, E. (1989). *A cross-Canada tour of home care*. Paper presented at Nova Scotia Conference on Home Care. Halifax, NS.
- Statistics Canada. (2000). Population projections for Canada, provinces and territories 2000-2026. Ottawa, Statistics Canada.
- Stoddart, H., Whitley, E., Harvey, I., & Sharp, D. (2002). What determines the use of home care services by elderly people? *Health and Social Care in the Community*, 10(5), 348-360.
- Tabachnick, B. G., & Fidell, L. S. (2000). *Using multivariate statistics* (4th ed.). MA: Allyn and Bacon.
- Tully, P., & Saint-Pierre, E. (1997). Downsizing Canada's hospitals, 1986/87 to 1994/95. Health Reports, 8(4), 33-39.
- Wilkins, K., & Beaudet, M. P. (2000). Changes in social support in relation to seniors' use of home care. *Health Reports*, 11(4), 39-47.
- Wilkins, K., & Park, E. (1998). Home care in Canada. Health Reports, 10(1), 29-37.

Appendices

Appendix A. Acronyms

ADLs	- Activities of Daily Living
CAP	– Canada Assistance Plan
CCHS	- Canadian Community Health Survey
CHST	- Canada Health and Social Transfer
CIHI	- Canadian Institute for Health Information
EPF	– Established Program Financing Act
IADLs	– Instrumental Activities of Daily Living
NPHS	– National Population Health Survey
SPSS	- Statistical Package for the Social Sciences
Appendix B. Variable Codes

Table B1

Variables	NPHS	CCHS
Provinces	prc6_cur	geoagprv
Sex	dhc6_sex	dhha_sex
Age	dhc6gage	dhhagage
Marital status	dhc6gmar	dhhagms
Living arrangement	dhc6gecf	dhhaglvg
Education	edc6g7	eduadr04
Race	sdc6grac	sdcagrac
Household income	inc6dhh	incaghh
IADL assistance		
Preparing meals	rac6_6a	raca_6a
Shopping for groceries	rac6_6b	raca_6b
Housework	rac6_6c	raca_6c
Heavy household chores	rac6_6d	raca_6d
Moving about in the house	rac6_6f	raca_6f
ADL assistance	rac6_6e	raca_6e
Hospitalization	hcc6_1	hcua_01
Regular medical doctor	twc6_5	twda_5
Chronic conditions	ccc6dany	cccaf1
Receive home care	hcc6_9	hmca_09
Receive nursing	hcc6_10a	hmca_10a
Receive other health care	hcc6_10b	hmca_10b
Receive personal care	hcc6_10c	hmca_10c
Receive respite	hcc6_10g	hmca_10g
Receive homemaking		
Receive shopping	hcc6_10f	hmca_10f
Receive housework	hcc6_10d	hmca_10d
Receive meal preparation	hcc6_10e	hmca_10e
Receive other	hcc6_10h	hmca_10h
Weight	wt56	wtsam

Listing of Variable Codes Used in Analysis

Comparison and Recoding of Independent Variables for Analysis between the 1996/97 NPHS and the 2000/01 CCHS

Independent Variables	Measure (Survey Questions) ^a	Variable Type	Code ^b (new code)	New Variable Type	Recoded
Predisposing Fa	ctors		I	i anne en énte a	
Sex			1 = male (0) 2 = female (1)	Recoded both NPHS and CCHS	0 = male 1 = female
Age		Grouped	NPHS $12 = 45 - 49 (1)$ $13 = 50 - 54 (1)$ $14 = 55 - 59 (1)$ $15 = 60 - 64 (1)$ $16 = 65 - 69 (2)$ $17 = 70 - 74 (2)$ $18 = 75 - 79 (3)$ $19 = 80 + (3)$ CCHS $8 = 45 - 49 (1)$ $9 = 50 - 54 (1)$ $10 = 55 - 59 (1)$ $11 = 60 - 64 (1)$ $12 = 65 - 69 (2)$ $13 = 70 - 74 (2)$ $14 = 75 - 79 (3)$ $15 = 80 + (3)$	Collapsed & recoded both NPHS and CCHS	1 = 45 - 64 2 = 65 - 74 3 = 75 +

Table B2	(continu	ed)
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Independent Variables	Measure (Survey Questions)	Variable Type	Code	New Variable Type	Recoded
Marital status		Grouped	NPHS1 = married/common-law/living with a partner2 = single3 = widowed/separated/divorcedCCHS1 = married (1)2 = common-law (1)3 = widowed/separated/divorced (3)4 = single (2)	Collapsed & recoded CCHS	1 = married/ common-law/ living with a partner 2 = single 3 = widowed/ separated /divorced
Living arrangement	CCHS Living arrangement of selected respondent NPHS Household type	Derived Grouped	NPHS1 = couple and child < 25 (2)	Collapsed & recoded both NPHS and CCHS	1 = living alone 2 = living with others

Table B2 (continued)
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Independent Variables	Measure (Survey Questions)	Variable Type	Code	New Variable Type	Recoded
Education	What is the highest level of education that you/he/she have/has attained?	Derived	NPHS1 = no school/less than secondary schoolgraduation (1)2 = secondary school graduation (2)3 = other post-secondary education (3)4 = diploma/certificate (3)5 = some university (3)6 = bachelor (3)7 = master/phd/medicine (3)CCHS1 = less than secondary school graduation (1)2 = secondary school graduation (2)3 = other post-secondary education (3)4 = post-secondary degree or diploma (3)	Collapsed & recoded NPHS and CCHS	1 = no school/less than secondary school graduation 2 = secondary school graduation/high school completion 3 = some post- secondary, degree, or diploma
Race	CCHS-People living in Canada come from many different cultural and racial backgrounds. Are you/he/she: NPHS-How would you best describe your/fname race or color?	Derived	1 = white 2 = other (visible minority)		

Table D2 (Commucu)	Tał	ble B2	(continu	ed)
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Independent Variables	Measure (Survey Questions)	Variable Type	Code	New Variable Type	Recoded
Enabling Facto	rs	L	I		
Income	CCHS: Can you estimate in which of the following groups your household income falls? NPHS: What is your best estimate of the total income, before taxes and deductions, of all household members from all sources in the past 12 months? Was the total household income:	Derived Grouped	NPHS $1 = no income (1)$ $2 = less than $5,000 (1)$ $3 = $5,000 - $9,999 (1)$ $4 = $10,000 - $14,999 (1)$ $5 = $15,000 - $19,999 (1)$ $6 = $20,000 - $29,999 (1)$ $7 = $30,000 - $39,999 (2)$ $8 = $40,000 - $49,999 (2)$ $9 = $50,000 - $59,999 (3)$ $10 = $60,000 - $79,999 (3)$ $11 = $80,000 \text{ or more } (3)$ CCHS $1 = no income (1)$ $2 = less than $15,000 (1)$ $3 = $15,000 - $29,999 (2)$ $5 = $50,000 - $79,999 (3)$ $6 = $80,000 \text{ or more } (3)$	Collapsed & recoded NPHS and CCHS	1 = less than \$30,000 2 = \$30,000 - \$49,999 3 = \$50,000 or more
Regular medical doctor	Do/does you/fname have a regular medical doctor?		1 = Yes 2 = No		

Table B2 (co	ontinued)

Independent		Variable		New Variable	
Variables	Measure (Survey Questions)	Туре	Code	Туре	Recoded
Need Factors					• · · · · · · · ·
Need IADL assistance	Because of any condition or health problem, do/does, you/fname need the help of another person in preparing meals shopping for groceries or other necessities doing normal everyday housework doing heavy household chores such as washing walls or yard work		1 = yes 2 = no	Grouped and derived ^e	1 = yes 2 = no
Need ADI	moving about the house Because of any condition or health		1 = vec		
assistance	problem, do/does, you/fname need the help of another person in personal care such as washing, dressing or eating		2 = no		
Hospitalization	In the past 12 months, have/has you/fname been a patient overnight in a hospital, nursing home or convalescent home		$ \begin{array}{l} 1 = yes \\ 2 = no \end{array} $		
Presence of chronic condition	Has a chronic condition ("long-term conditions" that have lasted or are expected to last 6 months or more and that have been diagnosed by a health professional). ^d	Derived Grouped	$ \begin{array}{l} 0 = No \\ 1 = Yes \end{array} $		

^aFor questions asked differently between surveys, the original will be provided for each survey. ^bFor variables coded or measured differently between surveys, the original coding will be provided for each survey. The newly recoded number will be indicated in brackets. ^cEach of the responses were coded as individual variables. Variables were combined to compute a variable that measured whether or not the respondent needed help with IADLs. ^dChronic health conditions include: allergies, asthma, fibromyalgia, arthritis, back problems, high blood pressure, migraine headaches, chronic bronchitis, emphysema, sinusitis, diabetes, epilepsy, heart disease, cancer, stomach or intestinal ulcers, suffers from effect of stroke, urinary incontinence, bowel disorder, Alzheimer's disease or dementia, cataracts, glaucoma, Parkinson's disease, thyroid condition, multiple sclerosis, chronic fatigue syndrome, and multiple chemical sensitivities.