# Predictors of Geriatric Institutionalization: An Exploratory Comparison of Semi-supportive Housing and Professional Home Health Care

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## Abstract

This study examined two distinct types of elderly supportive care for their efficacy in meeting the overall needs of their clients and reducing the risk of institutionalization. Recipients of (a) professional home care and (b) residents of a semi-supportive housing unit were assessed utilizing the Resident Assessment Instrument for Home Care (RAI-HC), Version 2. The groups were assessed and compared for their baseline measurements on 23 indices of functional indicators including: cognitive and physiological functioning, current levels of Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL), psychological and social functioning, and rates of Institutional Risk. In addition, institutional admission and mortality rates were collected at one-year follow-up for the Semi-Supportive Housing group to identify predictor variables that preceded these two outcomes (institutionalization and mortality). Baseline measurement results revealed that that Semi-Supportive Housing group evidenced a lower risk of institutionalization despite being an older population and having more urinary and behavioral problems than did the Home Care group. The Semi-Supportive Housing group also reported less difficulty with managing their Activities of Daily Living (ADL's) in comparison to the Home Care group. Only one predictor variable (of 23) emerged as significant in relation to the actual outcome of institutionalization. As such, semi-supportive housing residents triggering the Health Promotion variable displayed a reduced risk of subsequent admittance to long-term nursing home care in comparison to those residents not triggering this variable.

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## Introduction

For many elderly individuals admittance to a long-term care facility is frequently a matter of necessity rather than choice. Numerous studies have reported that, given the choice, the majority of older adults would prefer to continue to live and age in their own home (Montgomery & Kosloski, 1994; Willis, Schaie, & Hayward, 1997). Unfortunately, the physiological, cognitive, and /or psychological declines that frequently accompany the human aging process make it difficult for some individuals to continue to live independently. Traditionally, residency in long-term nursing home care has been one of the primary answers for the older individual who is no longer able to meet all of his or her own needs. However, accumulating gerontological data suggest that residency in a long-term institution may not be an optimal option for some older individuals. Nursing home placement can sometimes lead to increased illness, poorer life quality, and a higher risk of mortality (Wolinsky, Stump, & Callahan, 1997). In addition to the possible psychosocial repercussions of full-time institutional care, this mode of health care delivery is one of the most costly (Clark, 1996).

Currently, health care spending in Canada accounts for the greatest single expenditure of the overall budget. Nationally, health care costs consume approximately 30% of the government's total budgetary pool (Canadian Institute of Actuaries Task Force On Health Care Financing, 1996). Statistically and financially, older individuals account for the greatest portion of health care utilization in North America (Caplan, Brown, Croker, & Doolan, 1998; Dussell & Roman, 1989; Garner & Mercer, 1982). Consequently, health care delivery to the elderly, including nursing home admissions has become a central focus for researchers and government agencies concerned with revitalizing an overtaxed health care system (Miller & Weissert, 2000; Smith & Eggleston, 1989).

Fundamental to the process of health care reform is the systematic assessment and evaluation of existing modes of health care delivery. A program's ability to prove its efficacy and success in meeting the goals that it has set for itself is emerging as an important health care requirement. Understanding the needs of the people it services and meeting those needs in the most responsible,

conscientious, and cost efficient way is primary to the continued existence of any health care program and its financial funding. Because of the challenges of responding to the growing demands that an aging population is placing on our health care system, accountability for programs that respond to the health care needs of the elderly is of critical importance. Limited health care dollars, coupled with an ever-increasing demand on the health care system, particularly from greater numbers of older individuals, has been a major impetus for exploring alternatives to traditional costly nursing home institutional care for the elderly throughout North American health care systems (Clark, 1996; Cohen-Cole & Stoudemire, 1987).

The research in this thesis examines two such alternatives to long-term nursing home care. Semi-supportive housing is a residential option that provides onsite access to needed health care and services meant to assist the older individual with the challenges of aging and age related illnesses while enabling that individual to live independently. While the goals are similar, the delivery of home care is within the community, often in response to a particular need and frequently on a time-limited basis. This section of the thesis includes a brief discussion of the three types of elderly care: semi-supportive housing, home care, and long-term nursing home care. It includes a review of research of predictors of nursing home admission and mortality. The section concludes with an assessment of institutional risk evident in recipients of home care, and semi-supportive housing residents.

1. Semi-Supportive Housing

Semi-supportive housing encompasses a broad array of housing options and living styles for the elderly. Assisted living, congregate living, enriched housing, foster care, residential assistance, retirement complexes, are but a few of the descriptors that have been used to categorize various living arrangements for the elderly that fall under the umbrella term of semi-supportive housing (Katz, Kane, & Mezey, 1993). Similarly, a single definitive descriptor of what structurally constitutes semi-supportive housing for the elderly is elusive. Residencies classified as semi-supportive housing have ranged from shared space in rooming type housing, to single apartment dwellings, to complex housing

arrangements that combine acute, long-term, and independent living under one roof (Mollica, 1998; Regnier, Hamilton, & Yatabe, 1995; Wilson, 1991).

Despite the fact that semi-supportive housing options across North America lack consistency in definition and structure, there is general agreement among researchers and policymakers that the primary purpose of this type of elderly care is to "normalize" the aging process by enabling the older individual to age with maximum independence and choice. Semi-supportive housing programs endorse a proactive approach to supporting, enhancing, and facilitating the choice of residential independence for the older adult. The underlining focus of this residential option is to provide a community-based (vs. institutional) response to the physical, psychosocial, and economic challenges of aging and age related illnesses.

To meet these challenges most, if not all, semi-supportive housing programs are a blend of shelter and services. The type of shelter (e.g., degree of privacy and space), as well as the level of assistance, service, and care that is available to the resident varies from program to program, and from individual to individual within a particular program. Within North America, services delivered by a semi-supportive housing program are eclectic and can include, but are not limited to the provision of meals and household assistance, coordination and provision of social options and/or transportation, and the monitoring and maintenance of a resident's daily health care and living needs (Katz, Kane, & Mezey, 1991). Collectively, the general mandate of most semi-supportive housing programs is to provide easily accessible services that are based on ongoing and accurate assessment, planning, implementation, and evaluation of the unique needs and requirements of each of it's residents (Kay & Monk, 1991; Pastalan, 1995).

Individuals who seek residency in semi-supportive housing are often motivated to do so because of growing functional or health related declines, concerns about physical and environmental safety, and/or the desire to have better access to social, recreational, and community amenities. The availability of particular resources and services, such as wheelchair/walker accessibility, physical

security systems, and prepared meals all have been cited as attracting features for some aging individuals to a particular program (Pastalan, 1995). Although semi-supportive housing programs are promoted as an alternative to nursing home care this type of housing has sometimes been viewed as a "stepping stone" or pre-institutional residency for the individual who falls between the stages of "young old" and "old-old" (Gutman & Blackie, 1985).

Because of the creative and diverse approaches that various programs have assumed in mixing independent living with assistance, determining the exact number of older individuals who are residing in semi-supportive housing is difficult. Statistics Canada (1999) does not specifically account for this category of housing in conducting its annual census. Residency identification for those individuals living in a Canadian semi-supportive housing program can fall under either private (home or apartment dwelling) or public (special care/formally organized) dwelling depending on the type, structure, and funding that characterizes a particular supportive care program.

Costs and funding for semi-supportive housing are likewise difficult to track and ascertain. Because of the haphazard development and implementation of the concept of semi-supportive housing, funding can come from public (federal, provincial, and/or municipal government) or private (for profit or, alternatively, non-profit – i.e. religious and/or charitable organizations) sources, or may be based solely on an individual's private financial resources (Golant, 1992). Frequently, funding for a supportive care program is a combination of one or more of the above pay structures. Within Canada various modes of government funding for elderly supportive care is available depending on the type of care provided and the income of the residents. Nationally, funding ranges from property tax credits or rebates, subsidized low-income housing and shelter allowances, to fully funded residencies that are associated with long-term care (Novak, 1993).

2. Home Care

Home care for the elderly encompasses a vast repertoire of health and personal assistance services that are meant to enable the older individual to continue to live independently in his or her own home.

Broadly, the term includes both formal care, delivered by a single or group of organizations, and informal care, most commonly unpaid aid given to the elderly individual by family, friends, and/or others within the community (e.g., volunteers, pastoral). Frequently, the two types of home care are complimentary; often an individual will be the recipient of both formal and informal home care assistance. The type, quantity, and duration of home care services received can vary from program to program and from individual to individual. Services can be treatment oriented, rehabilitative, and/or long-term support and maintenance in nature (Stuart, 1989). Care can be classified as either acute, from a single service delivered briefly for a very short period of time, or chronic, such as 24 hour personal care over an extended timeframe (Richardson, 1990; Zuckerman, Neveloff Dubler, & Collopy, 1990). For the sake of relevance, the author will focus and discuss more formal and organized forms of home care delivery systems for the elderly.

Formal (i.e., organized) home care services for the elderly are delivered by a diverse population of service providers, including but not limited to: physicians, nurses, physiotherapists, occupational therapists, homemakers, social services, speech therapists, respiratory therapists, and nutritional therapists (Coyte & Young, 1999; Sorochan, 1995). The Canadian Home Care Association (1997) describes home care for the elderly as "essential health and/or support services, delivered at one's place of residence to a person/client, who, without such services would require placement in a costlier nursing home or hospital setting".

Although specific home care programs and policies can vary from province to province, the Canadian Federal Government initiated the Extended Health Care Services Program in 1977 to support and promote home care programs primarily as an alternative to institutional care (Novak, 1993). Within the province of Ontario, home care is coordinated and administered by 43 Community Care Access Centers (CCACs) established by the Ministry of Health, Long Term Care Division in 1997. Access to home care is generally on an assessment of needs and referral (usually medical) basis. Within Ontario once need for care has been established CCAC assigns a case manager and arranges

and purchases the necessary service(s) that are required for that individual, essentially acting as a gatekeeper between the consumer and the various community health care providers (Carefoot, 1998).

Many researchers and policymakers have characterized home care for the elderly as a social/community versus a medical/institutional approach to caring for our older population (Novak, 1993; Smith & Eggleston, 1989). Most home care programs share three basic goals or mandates founded on a similar philosophy of respect, support, and enhancement for the autonomy and independence of the recipient of care. Essentially, the goals are: (a) to enable an individual to remain in his or her own home and avoid costly institutionalization, (b) to enable an individual to maintain his or her functional independence for as long as possible in his or her own residence, and (c) to encourage the individual's health and involvement of care by both the client and his or her support network (Carefoot, 1998; Hudson, Dennis, Nutter, & Galaway, 1994; Richardson, 1990).

Canadian home care services and programs have grown rapidly over the past 20 years (Canadian Council on Health Services Accreditation, 1997). Within this timeframe nationwide spending for home care services have increased by an average 20% for each year. In Ontario alone, home care expenditures have steadily increased from $104 million in 1984-85 to $454 million in 1992-93, growing more than fourfold in less than 10 years (Sorochan, 1995). Estimates of the total home health care costs for all of Canada in the year 2000 reached $3 billion (Coyte & Young, 1999).

Despite the growing emphasis and enthusiasm on increasing home care services to avoid more costly forms of health care, primarily institutionalization, the evidence is unclear as to whether home care truly is a more cost-effective alternative. Although some studies have indicated weak to moderate savings by substituting comprehensive home care for acute and long-term nursing home care (Blais, 1990; Coyte & Young, 1999) other researchers have questioned the cost saving advantages of such programs (Brazil, Bolton, Ulrichser, & Knott, 1998; Stuart, 1989). After examining an extensive number of Canadian home health care services, one study concluded that there was little evidence for

the cost saving claims of home health care, primarily because services were initiated as "add-ons" to existing health care systems (Kane and Kane, 1985).

Despite these discrepancies, many researchers suggest that home health care must be evaluated on a more sophisticated level and that there may be many other less tangible benefits other than cost savings to the program (Brazil et al., 1998; Coyte & Young, 1999; Kane and Kane, 1985; Stuart, 1989). Marshall (1987) claims that databases for home and nursing home care are woefully lacking and that there is a "desperate need" for better and more organized data collection systems in both sectors of health care (long-term and home care) before comprehensive and reliable analyses can be conducted.

While the majority of individuals (84%) over the age of 65 have received some type of informal help in caring for their homes and/or themselves, most of this help will come from friends or family members. On the other hand, one in ten Canadian seniors had received some type of assistance from a formal home care organization in the year 1997. The likelihood of becoming a consumer of Canadian home care substantially increases if one is female and over the age of 85 (38.5%). Incidentally, many individuals aged 65 and older (37%) also provide some type of personal or household support to others within their community (Statistics Canada, 1999).

While the majority of older individuals in the community live with relatively good health and functional independence, those who do receive home care services are typically older, have more chronic and/or multiple disabilities, and consequently, a greater number of functional limitations in comparison to non-recipients (Noelker & Bass, 1989; Zuckerman et al., 1990). Specifically, problems with Activities of Daily Living (ADLs), depressive symptomatology, and a lack of informal supports are the main predisposing factors associated with the need for home care (Kempen & Suurmeijer, 1991). On the other hand, evidence exists to suggest that community-dwelling elderly receiving home care support generally display less functional impairment and possess better cognitive ability than do

those individuals of the same age who reside in nursing homes (Loefgren, Bucht, Eriksson, & Lundstroem, 1993).

3. Nursing Home Care

While the vast majority of Canadians over the age of 65 reside in their own homes, 7% are residents of long-term nursing homes. Contrary to popular belief, this number has steadily *decreased* over the last three decades. Statistics Canada (1999) reported that in 1971, 1981, and 1991 the proportion of individuals who were over the age of 65 and living in long-term care dropped from 10.2% to 8.7% to 8.1%, respectively.

Despite these statistics, the number of nursing home beds steadily increased in the last 25 years. In the United States, the overall rate has tripled over this time. Similar trends are present in Canada (Conn, Hermann, et al., 1992). Demographic pressures explain most of this increase; North Americans are becoming older and living longer. In 1990 approximately 28 million Americans were 65 years or older. By the year 2020, this number will almost double to an estimated 51.4 million (Lammers & Liebig, 1990). The greatest growth is in the 85 and over age group. In the last 20 years, the number of Canadians belonging to the 85 and older age group has doubled. This group now represents one in ten (10%) of the total population that is over the age of 65. This figure is expected to grow fourfold by the year 2041 in Canada alone (Clark, 1996; Conn, Lee, Steingart, & Silberfeld, 1992; Petrisek & Fennell, 1998; Statistics Canada, 1999). The growth of this oldest age group will undoubtedly place the highest social and financial demands on our health care system.

While little more than one in twenty of all Canadians over the age of 65 live in a long-term care setting, one in three persons aged 85 years or older is a resident of a nursing home (Hogan, Fung, & Ebly, 1999; Statistics Canada, 1999). There is a consensus among researchers that as an individual's age increases, so too does the likelihood that that individual will require greater quantities of, and more costly methods of, health care intervention, particularly in the form of nursing homes (Conn, Hermann et al., 1992; Katz et al., 1991; Marshall, 1987; Novak, 1993). In contrast to individuals who are 65

years of age and older less than 1% of Canadians under the age of 65 years reside in full-time institutional care (Statistics Canada, 1999).

In comparison to some European Countries Canada has a higher rate and spends a greater percentage of its health care dollar on institutionalization, particularly for its older population. Research suggests that if Canadian nursing home admission rates were more analogous with European rates, an estimated $2 billion in health care savings could be recognized annually (Blais, 1990). Decreasing Canada's reliance on costly institutional care and substituting alternative forms of health care delivery could theoretically eliminate approximately 15% of government health care spending (Refuse, 1995). Many researchers postulate that North America's funding for elderly long-term care will be the greatest challenge facing the future financial status of health care in general (Garner & Mercer, 1982; Lammers & Liebig, 1990; Schuster, McGlynn, & Brook, 1998; Montague, Sidel, & Erhardt, 1997). In an environment of shrinking health care dollars, paradoxically coupled with the growth of it's largest consumer group, the push to develop more community-based health care for those older individuals who are no longer able to meet their own needs because of age related challenges has become paramount.

In addition to the high dollar cost that institutions place on our health care system this type of elderly care has frequently been criticized for it's inadequacy in meeting the older individual's overall well-being needs, such as autonomy and independence. Long-term nursing home care in North American cultures has traditionally assumed a "medical model" in its approach to health care delivery for the elderly. This approach is primarily driven by one of diagnosing and treating physical ailments and abnormalities. Over the last couple of decades, nursing homes have begun to recognize this deficiency and have moved to redefining elderly care from a traditional medical/reactive perspective of care to one that is based on a more holistic/preventive approach (Bortz, 1986; Mirosch, 1988).

The tendency of North American health care systems to medicalize and pathologize the aging process is shifting towards one of maintaining and enhancing the psychological and social, as well as

physical, well-being of the older individual as she or he ages (Hogan et al., 1999; Katz et al., 1991; Novak, 1993; Tomiak, Berthelot, Guimond, & Mustard, 2000). In addition to the high cost of institutionalization, the mandate to ensure comprehensive quality care that recognizes the autonomy of the older individual is a major impetus in exploring alternatives to nursing home care. In comparing nursing home with community-based care one study examined three types of residential settings: nursing home, foster family care and own home. Individuals in each of the three settings, who were the recipients of a number of supportive services and care such as meals, and medical and ADLs and Instrumental Activities of Daily Living (IADL's) assistance were assessed and compared over a three month period. Although all three groups had similar rates of morbidity (institutional risk was not assessed) the authors concluded that the two community dwelling groups displayed statistically greater improvements in self-care skills and mobility and expressed a greater sense of personal well-being than did the group of nursing home residents (Braun & Rose, 1987).

Although the majority of seniors residing in a nursing home setting report having a chronic health condition (95%) many (43%) rate their health as either "good, very good, or excellent" (Statistics Canada, 1999). These figures are comparable to their cohorts who live independently in the community. Within community-based populations, 81.9% of all Canadians over the age of 65 reported living with a chronic health challenge in 1996. Despite this statistic, the majority of community dwelling seniors (78%) perceived their overall health to be good to excellent (Statistics Canada). These statistics suggest that most seniors can and do adapt to living with a chronic illness, rather than allowing the illness to obstruct their experience of good overall health.

Research suggests that the large majority of seniors who reside in nursing homes do require a substantial amount of assistance and care (Conn, Herman et al., 1992). Statistics Canada (1999) reports that during 1995, 80% of nursing home residents were dependent in at least one activity of daily living (ADL) the most prominent being: bathing, dressing, eating, and mobility. Frequently, the needs of an

individual in a nursing home setting are functional rather than medical (Blais, 1990; Smith & Eggleston, 1989).

In addition to physical limitations, decreased cognitive and psychological functioning are reasons for many nursing home admissions (Hogan et al., 1999; Miller & Weissert, 2000; Tomiak et al., 2000). Although dementia frequently explains cognitive problems, depression or affective disorders also present as a major impediment to good overall well-being and daily functioning for many older adults. One study found that 56.4% of all nursing home residents in Ontario suffered from an affective disorder (Conn, Lee et al., 1992). Although it has been purported to be under-treated and under-diagnosed in the elderly, substantial evidence suggests that treatment for affective disorders in older individuals is as successful as that in younger-aged populations (Beekman et al., 1997: Conn, Hermann et al., 1992; Scogin & McElreath, 1994).

Predicting Risk of Nursing Home Admission

Because of the increasingly prevalent proactive philosophy and goal of substituting more community-based elder health care for more traditional methods of care, primarily nursing homes, there has been a substantial growth in research that has examined factors that are most likely to predict nursing home admission for the older individual. Developing a preventative profile of nursing home risk and ultimately, appropriately responding and treating these factors within the community before nursing home admission becomes a necessity is the driving force behind this area of research.

Within the relevant literature, a number of person-specific factors have been identified as risk factors for nursing home admission in community dwelling seniors. The most frequent are as follows:

- Higher age (Hogan et al., 1999; Miller & Weissert, 2000; Mustard, Finlayson, Derksen, & Berthelot, 1999; Tomiak et al., 2000;, Wang, Mitchell, Smith, Cumming, & Leeder, 2001)
- Poor cognitive and mental status (Hogan et al., 1999; Miller & Weissert, 2000; Tomiak et al., 2000)

- Impaired daily functioning, such as decreases in ADL and IADL performance (Hogan et al., 1999; Miller & Weissert, 2000; Mustard et al., 2000; Tomiak et al., 2000; Wang et al., 2001)
- Presence of certain medical illnesses and diseases (Hogan et al., 1999; Miller & Weissert, 2000; Tomiak et al., 2000; Wang et al., 2001)
- Male gender (when controlling for age) (Hogan et al., 1999; Mustard et al., 2000; Tomiak et al., 2000)
- Poor sensorimotor skills, such as declines in vision, hearing, and response time (Wang et al., 2001)
- Presence of behavioral problems such as aggressiveness and wandering,
- Euro American or white ethnicity,
- High medication use (Miller & Weissert, 2000)

In addition to the aforementioned individual factors, social or contextual factors frequently play a significant role in increasing the risk of institutionalization for many older individuals. In fact, some researchers have claimed that lack of, or inability of, family members or caregivers to provide support may play a more significant role in deciding to admit than does individual characteristics (Naleppa, 1996). The most often cited social institutional risk factors include:

- Lack of familial and social support (Freedman, Berkman, Rapp, & Ostfeld, 1994; Miller & Weissert, 2000)
- Absence of a spouse, particularly for males (Freedman et al., 1994; Mustard et al., 1999; Tomiak et al., 2000; Ulrike, 1990)
- Absence of a live-in roommate and/or caregiver (Miller & Weissert, 2000)
- Decreased levels of physical (Wolinsky, Stump, & Clark, 1995) and social activity (Miller & Weissert, 2000; Ulrike, 1990)
- High degree of isolation or loneliness (Russell, Cutrona, de la Mora, & Wallace, 1997)

Finally, there are a number of political factors that have a significant influence on an older individual's vulnerability to subsequent nursing home admission such as:

- Not owning one's home (Miller & Weissert, 2000; Wang et al., 2001)
- Having limited access to needed health care services (Tomiak et al., 2000)
- Decreased community levels of available nursing home beds (Miller & Weissert, 2000)
- Low socioeconomic status (Mustard et al., 1999)
- Low educational status particularly for women (Tomiak et al., 2000).

In addition to literature that predicts institutional risk for the elderly population in general, a number of studies examined specific populations, such as those with cognitive impairments (Cohen et al., 1993; Molloy, Bédard, Pedlar, & Lever, 1999; Scott, Edwards, Davis, Comman, & Macera, 1997; Stern et al., 1997), or those living in rural locations (Russell et al., 1997). Although the degree of association with nursing home risk varies, similar factors to those that have been cited in the preceding studies emerged when considering these specialized populations and susceptibility to nursing home placement. Some researchers have suggested that for these populations familial and social factors may play a larger role in preventing nursing home admission in comparison to general populations of older people. Contextual factors, in particular the presence of a live-in spouse (Molloy et al., 1999), caregiver characteristics (Cohen et al., 1993), and an older individual's access to social networks (Russell et al., 1997) have been linked to increased risk of nursing home admission in this population of older individuals.

An extensive search of the relevant literature reveals that although a limited number of studies explored the risk of nursing home admission in residentially independent populations receiving supportive or preventive health care services, I was unable to find any that have actually compared two different *types* of such care. Those studies that did examine nursing home admission risk factors in older populations receiving in-home formal supports found similar trends to those previously

mentioned. As such, increased age, physiological, cognitive (including presence of psychosis and anti-psychotic medication use) and functional impairment, as well as poorer general health were all linked to higher outcomes of nursing home admission in residents of:

- Continuing care retirement communities (Cohen, Tell, & Wallack, 1988)
- Public housing developments (with supportive services) (Black, Rabins, & German, 1999)
- Elder hostel complexes (providing intermediate care) (Lord, 1994)
- Recipients of home care services (Tsuji, Whalen, & Finucane, 1995)

In addition, contextual factors, particularly the absence of a co-residing roommate, spouse, or caregiver increased the risk of institutional outcome by 1.31 (Cohen et al., 1988) to two (Tsuji et al., 1995) times in comparison to those recipients of formal in-home assistance who reported having live-in social support. Finally, although social support variables were not examined in their study, Black et al. (1999) suggested that living alone, and consequently, having limited access to *informal* sources of support for IADL assistance, may have been a strong intervening factor for increasing the likelihood of nursing home admissions in their population of public housing residents.

Predicting Mortality in Older Populations

A number of the studies examined factors that are associated with a greater probability of mortality in older populations. With small variations in degree of risk, the predictors were similar to those previously cited. A 78-study meta-analysis (Miller & Weissert, 2000) that examined older populations for factors influencing future outcome measures (i.e., nursing home placement, hospitalization, functional impairment, and mortality) concluded that many variables that exhibited a significant association with nursing home admission also had a significant influence on predicting death. Overall, Miller & Weissert's (2000) meta-analysis found that age, male gender, declining ADL performance, poorer self-rated general health, decreased physical and social activity, disease, sensorimotor problems, and behavioural problems were all associated with a greater risk of mortality.

These findings are consistent with other research on predictors of mortality in older populations (Hogan et al., 1999; Lord, 1994; Ulrike, 1990; Wolinsky et al., 1995).

Similarly, studies that have examined specialized populations, such as older individuals with Alzheimer's disease, concluded that many factors play a dual role in both predicting nursing home admission and mortality outcomes (Hogan et al., 1999; Miller & Weissert's 2000; Stern et al., 1997). Again, some variations were present. For instance, one study found that although age of Alzheimer's onset and psychosis were independent predictors of mortality they did not show a significant association with future nursing home admissions (Stern et al., 1997).

The primary objective of identifying nursing home admission and mortality risk factors is to develop preventive models that will delay or eliminate the need for inappropriate institutionalization. Supporting an older individual's continued independence in the community is the proactive health care goal of using reliable assessment and intervention once potential risk factors are identified. More and more researchers are recognizing that aging is an interactive and dynamic process, occurring not only on an individual, biological basis but also within the context of a social and cultural environment (Kontos, 1998). While a number of individual risk factors, such as age, cognitive and functional status were consistently identified as predictors of nursing home placement, it is becoming increasingly clear that these variables do show variations in their predictive value.

Studies suggest that the predictive strength of these factors is often a function and interaction of various individual and contextual variables (Freedman et al., 1994; Mustard et al., 1999; Russell et al., 1997; Satish, Winograd, Chavez, & Bloch, 1996; Tomiak et al., 2000). Research in this area has moved towards more dynamic and inclusive assessments of the process of aging and subsequent outcomes. A number of studies have employed Andersen and Newman's (1973) conceptual framework for examining predictors of nursing home placement (Tomiak et al., 2000; Wang et al., 2001; Wolinsky et al., 1995). This model identifies three levels of client characteristics that can influence health outcomes:

- Predisposing characteristics (demographic, social and health belief variables)
- Enabling characteristics (factors influencing access to services such as family and community resources)
- Need characteristics (personal, functional, and health problems of the individual)

The philosophy behind this dynamic assessment approach is to maximize an individual's strengths (i.e. social networks, access to health care and services) while minimizing his or her deficits (i.e. declining health and functionality) in order to maintain choice of residential independence. Many researchers have used this interactive framework to examine the influence of various factors on the outcome of nursing home admissions in older populations (Freedman et al., 1994; Satish et al., 1996; Tomiak et al., 2000). Fundamental to such complex and multifactorial analyses of the older individual is the basic need for reliable and comprehensive assessment tools (Clark, 1996; Rudberg, Sager, & Zhang, 1996; Schuster et al., 1998; Tomiak et al.).

The Present Study

Although a substantial number of studies have examined institutional risk and mortality factors in community-dwelling older populations, there is an absence of research that compares the outcomes of specific *types* of supportive care services (community-based home care and semi-supportive housing). While both health care delivery systems purport to facilitate and maintain residential independence (i.e. avoid/delay nursing home admission) through the provision of needed services and care the two settings differ in structure, cost, and proximity of service accessibility. In addition to medical/physical needs, the overall well-being (psychosocial) status of the older person is an imperative consideration in any analysis of senior care delivery.

This research examined two such alternatives to long-term institutional care. The author of the thesis was part of a team approached by the administrators of a local semi-supportive housing program for seniors (P. R. Cook Apartments). They (administrators) requested a study that would examine the program's effectiveness in meeting its goals of promoting autonomy and independence while

maintaining a high quality of life for its residents. Thus, in collaboration with the program's administrative staff, the research team developed and implemented a research program.

The semi-supportive housing program that participated in the present study provides a number of services to its residents that include:

- Assistance with ADLs/IADLs
- Access to transportation
- Psychosocial life enrichment and health promotion programs
- Meals
- An emergency response program
- Daily personal checks
- Available swimming facilities
- Personal assistance from a service coordinator

Central to this particular semi-supportive care program is the ongoing assessment of the needs and capabilities of each of the programs' residents.

The present study compared two populations of older individuals receiving one of two distinct types of supportive care. The two groups of individuals who participated in the study were: 1. residents of a local semi-supportive housing unit and 2. individuals who resided in their own private home or apartment and were receiving formal community home care services. Utilizing a comprehensive assessment measure each group was assessed at baseline on their daily functioning, their physiological status, and their psycho/social functioning. Client Assessment Protocols (CAPS) representing the aforementioned indicators were assessed and calculated for each participant. Specifically, measures of Institutional Risk, ADL's, IADL's, Cognitive and Physiological status, as well as quality of life indicators (psychological and social functioning) represented the predictor variables. In addition, data on rates of institutionalization and mortality were collected approximately one year following baseline assessment for the Semi-Supportive Housing group. Administrative

problems within the agency responsible for the home care assessments prevented the collection of comparable data for the Home Care group. Based on the aforementioned, the hypotheses for this study were as follows:

1. Because of the structure of the program and the unique services it provides it was expected that the Semi-Supportive Housing group would display a higher level of psychosocial functioning in comparison to the Home Care group.

2. Because of the program's structure and the closer proximity and access to potential care needs, it was expected that the Semi-Supportive Housing group would trigger lower numbers of the Institutional Risk variable on the baseline measurement in comparison to the Home Care group.

## Method

### Participants

Participants for this study were derived from a local semi-supportive housing unit and from a database of local home care recipients. In all, 214 participants were classified into one of two groups: Semi-Supportive Housing group ($n$ = 73) or Home Care group ($n$ = 141). Both groups were comprised of only those individuals who were over the age of 55.

### Materials

Functional, Physiological, Psychological, and Cognitive Information. Baseline information for both groups of participants was collected by individual administration of the Resident Assessment Instrument Home Care Version 2.0 assessment tool RAI HC (Morris et al., 1999). Specifically, each participant in the present study was assessed for: current levels of ADL, IADL, physiological, psychological, and cognitive functioning; degree of potential Institutional risk, and a number of environmental and health use factors.

The RAI HC is a clinician-administered comprehensive assessment tool, containing 223 items that are used to assess for a broad domain of physiological, psychological, cognitive, behavioral, and

environmental indicators in older populations receiving formal home care services (see Appendix A). The RAI HC (Morris et al., 1999) is composed of two elements:

(1) Minimum Data Set for Home Care (MDS HC) (Morris et al., 1999) – a 223-item checklist (see Appendix C) used for the assessment of multiple client domains including: cognition, communication, hearing, mood, ADL/ IADL & current health status, as well as social supports and service use. Additionally, selected subsets of MDS HC items allow for standardized identification of individuals who may be experiencing specific problems or risks for further decline in the above listed domains. These subsets are known as *triggers* (see Appendix B).

(2) Clinical Assessment Protocols (CAPS) - intended to provide professional guidelines for conducting further client assessments and care planning once client problems or risks have been identified or *triggered* through the initial MDS assessment (Morris, Nonemaker et al., 1997; Morris, Fries et al., 1997).

The RAI HC (Morris et al., 1999) utilized in the present study is the home care version of a group of Resident Assessment Instruments that collectively are intended to act as a standardized multidimensional assessment tool in specialized populations across various sectors of health care. Utilizing a similar format and a number of overlapping items to that incorporated into the RAI HC, RAIs are also available for the multidimensional assessment of (a) nursing home and (b) mental health chronic care populations. Approximately half (114 of 223) of the MDS HC items are derived from the RAI nursing home version 2.0 while the remainder were developed specifically to assess for possible problems that might be encountered by individuals residing within the community (Phillips et al., 1997).

Although individual times vary, each RAI HC assessment takes approximately 1 hour to complete and can involve: clinician-directed client questioning, client file review, and/or questioning of client's family and/or support network to complete. Once the assessment has been

completed the measure is scored and a summary of the client's triggered CAPS is generated for further client follow-up and potential treatment (see Appendix B). There are 31 potential CAPS that can be triggered, falling under six distinct categories: (1) Functional Performance, (2) Sensory Performance, (3) Mental Health, (4) Health Problems/Syndromes, (5) Service Oversight, and (6) Bowel/Bladder Performance.

For the present study two scores were computed for each CAP on the MDS-HC. The first indexed whether the CAP was triggered according to criteria in the MDS HC manual (see Appendix B). Second, for each CAP *triggered*, an index reflecting degree of severity (CAP Total/Severity) was computed. CAP severity scores were calculated by assigning a value of one for each negative item checked on the baseline assessment that fell under the inclusion criteria for each CAP Trigger. The total number of negative items was then summed to generate an overall severity score (CAP Total/Severity), with higher scores indicating a greater degree of severity or risk on that CAP. Hence, all statistical analyses performed in the present study were based on the computed (a) CAP Triggers and/or (b) CAP Total/Severity scores.

Reliability and validity testing of the MDS version 2 (Morris et al., 1999) has been conducted by a number of researchers. Reliability results are reported as good to excellent. Kappa interrater reliabilities ranged from .89 to .98 for ADL self-performance and values above .90 for the cognitive and communication items on the measure (Phillips et al., 1997). Overall, the revised MDS Version 2.0 gained in reliability ratings over the first version, exhibiting an average Kappa inter-rater reliability of .79 (Morris, Nonemaker et al., 1997). Because the CAPs are meant to operate as a flag for further client investigation and/or treatment intervention reliability testing, that assesses the consistency of the instrument, has not been conducted.

In validation studies the MDS cognitive performance scale showed strong agreement with the Mini-Mental State Examination (MMSE) (.96) with reported sensitivity of .94 and specificity of .94 (Hartmaier, et al., 1995). Finally, concurrent validity for the Functional, Dementia, Cognitive, and

Communicative Performance Scales was examined (Frederiksen, Tariot, & De Jonghe, 1996). The researchers found a high degree of correlation between the MDS items and the following analogous instruments:

- MDS Functional Performance Scale and The Physical Signs and Symptoms Scale (.89)
- MDS Dementia Performance Scale and The Brief Psychiatric Rating Scale (.85)
- MDS Cognitive Performance Scale and The MMSE (.77)
- MDS Communicative Performance Scale and The Psychogeriatric Dependency Rating Scale and the MMSE (.62 and .74, respectively).

Nursing Home and Mortality Outcome Information. Outcome data for the Semi-Supportive Housing group was collected at approximately one year following the initial baseline assessments. Semi-supportive residents were assessed for whether they were residing (1) in their same resident as at time of baseline measurement or (2) had been admitted to long-term nursing home care. In addition, rates of mortality for this group were examined and recorded. In conjunction with administrative staff, participant files for the Semi-Supportive Housing group were reviewed at approximately one year's time following baseline data collection and the relevant data was recorded. Originally this study had proposed to collect outcome data for both groups for comparison and analysis. Unfortunately, administrative and financial changes within the Home Care agency, occurring at time of follow-up prevented the collection of outcome data as planned, for the Home Care group. Thus, outcome data analyses were performed on the Semi-Supportive Housing group only.

## Procedure

The present study was initiated following interest on the part of administrative staff from the P. R. Cook Semi-Supportive Housing Program to develop a research study that would examine the effectiveness of their (P. R. Cook) program. In collaboration with the university (gerontology department) and the semi-supportive housing program the present research design was developed. A

research grant for the project was applied for and granted. Based on the research grant proposal the project was approved for implementation by the board of St. Joseph's Care Group.

Following the training procedures and requirements of the RAI manual, a Lakehead University student from the Social Work graduate program was hired and trained in conducting the RAI HC assessments with residents of the P. R. Cook Semi-Supportive Housing program. Each assessment took approximately one hour to complete. Data was collected on each individual through interview and/or file review. In order to maintain anonymity of the study's participants all identifying information on the assessment form was removed prior to scoring and recording.

Once assessments were completed and personal information removed, the assessments were photocopied and forwarded to the author for scoring and data recording. Once scored and recorded the completed summary CAPS (see Appendix C) were photocopied and filed and the originals returned to the P. R. Cook Housing program. Outcome data for rates of institutionalization and mortality within the Semi-Supportive Housing group were collected from client files approximately one year following the administration of the initial baseline assessments.

Baseline data for the Home Care group were extracted from a database that was established through a province-wide pilot study. The aforementioned pilot study was conducted throughout a number of sites within the province of Ontario, including Thunder Bay. The primary goal of the study was to test the feasibility of implementing the RAI assessment tool into various sectors of health care: nursing homes, mental health facilities, and home care organizations within the province. All individuals receiving home care during the duration of the pilot study (approximately one year) received initial and quarterly assessments by the local Community Care Access Centre (CCAC) agency, specially trained for the project. The author was a member of a local team of researchers responsible for scoring and recording the data. Data for the home care participants for the present study were extracted for analysis from this database once the pilot study was completed. Initial assessments were used for baseline data collection. Unfortunately, logistic and political circumstances

occurring within the Home Care agency at time of the planned follow-up prevented the collection of outcome data for the Home Care group.

Statistical Methods

The study compared two groups: a Semi-Supportive Housing group, and a Home Care group. The statistical analyses for between-group comparisons included two stages. The purpose of the first stage was to identify significant zero-order relationships after correction for number of comparisons. The first stage included independent groups t-tests on the CAP Total/Severity scores in order to investigate between-group differences of severity for Psychological, Cognitive, and ADL/IADL Functioning, and Institutional Risk CAPs. Based on a Bonferroni correction, stage-one significance was set at a p-value of $< .005$. Those CAP variables that met the criteria of a p-value $< .005$ were entered into a multivariate logistic regression in the second stage, controlling for age and gender. Chi-squares were also calculated in order to examine between-group differences in the number of participants who reported triggering the aforementioned CAP variables within each group.

To analyze relationships with outcome indexes in the Semi-Supportive Housing group, univariate and multivariate logistic regressions were performed. Separate univariate logistic regressions were first conducted for each CAP Trigger utilizing Semi-Supportive Housing baseline data with outcome of (a) institutionalization, (b) mortality, and (c) institutionalization or mortality combined. Finally, those predictor variables that met a significance criteria of a p-value of $< .05$ were entered into a multivariate analysis with each of the three outcome indexes, with age and gender included as covariates.

## Results

Sample Characteristics

In all, 214 participants, ages ranging from 56 to 100 (mean age = 81.01, SD = 7.93) were classified into either the Semi-Supportive Housing group ($n = 73$, mean age = 84.21, SD = 7.23) or into the Home Care group ($n = 141$, mean age = 79.36, SD = 7.78; $t(212) = 4.43$, $p < .001$). As Table 1

indicates, the majority of participants in both groups were female. While most of the demographic information was similar for both groups, the Semi-Supportive Housing group was significantly more likely to report living alone (99% vs. 56% respectively, $\chi^2(1) = 42.07$, $p < .001$) and less likely to be currently married (3% vs. 36% respectively, $\chi^2(1) = 32.160$, $p < .001$) in comparison to the Home Care group. In addition, the Semi-Supportive Housing group reported a higher level of educational attainment, with approximately 11 percent receiving a post-secondary degree or diploma in comparison to three percent receiving the same within the Home Care group ($\chi^2(1) = 17.73$, $p < .01$).

Analysis of Between-Group Differences

Independent group t-tests were computed on CAP Total/Severity variables related to physiological, psychological, and cognitive functioning, and Institutional Risk to examine the relationship between degree of severity of these variables with type of care received. A summary of the t-test results and descriptive statistics are presented in Table 2, with higher means indicating more potential risk or problems in that particular area of participant functioning. As shown in Table 2, the Home Care group reported a significantly greater degree of risk for potential problems in CAPs related to: Nutrition, Pain, Activities of Daily Living, and Institutional Risk. On the other hand, the Semi-Supportive Housing group displayed a significantly higher degree of risk in areas of: Urinary Incontinence and Behavior than did the Home Care group. Further between-group analyses, utilizing the chi-square goodness of fit with CAP Triggers confirmed the findings of t-test results with the severity indexes (CAP Total/Severity). Percentages for individual CAP variables that were triggered within each group are also presented in Table 2. Finally, there was no significant between-group difference in the number of CAPs triggered ($t(212) = -1.42$, $p = .157$). The Semi-Supportive group triggered an overall total of 672 CAP Triggers ($M = 9.21$, $SD = 2.95$) while the Home Care group triggered 1,389 CAP Triggers ($M = 9.85$, $SD = 3.25$).

The second stage of between-group analysis examined the predictive value of those CAP variables that attained significance ($p < .005$) in relation to the dependent variable of group

membership or type of care. Inclusion criteria for second stage analysis was adjusted to a p of < .005 following a Bonferroni correction to accommodate for the number of t-tests performed in first stage analysis. Because there was a significant difference in age between the Semi-Supportive group and the Home Care group age was entered as a covariate for the multivariate analysis. Additionally, because gender has consistently played a role in increasing the older individual's susceptibility to functional disabilities and institutionalization (Cohen et al., 1988; Hogan et al., 1999; Miller & Weissert, 2000; Tomiak et al., 2000) gender was also included as a control variable. In all, five CAP variables (ADL's, Institutional Risk, Nutrition, Urinary Problems, Pain, and Behavior) met the criteria of a p-value of less than .005 (from stage 1 analysis) and were entered into a multivariate logistic regression analysis with age and gender.

Table 3 displays the results of the multivariate logistic regression analysis that examined the odds ratios of being in the Semi-Supportive Housing group versus the Home Care group as a function of a participant's score (0-not triggered/1-triggered) in each of the CAP areas of functioning. As can be seen in the table, those participants that belonged to the Semi-Supportive Housing group reported significantly less risk of ADL difficulties even after controlling for age and gender (OR = 0.04, p = .001). More importantly, the Semi-Supportive Housing group continued to display a significantly reduced risk of future institutionalization in comparison to the Home Care group following multivariate regression analysis (OR = 0.03, p = .001). This finding continued to be robust despite the fact that Semi-Supportive Housing participants were significantly older, displayed a higher risk of problems with urinary incontinence, and possessed a higher likelihood of behavioral problems in comparison to the Home Care participants. Finally, when all variables were considered, including age and gender, problems with pain and nutrition failed to distinguish type of care received (group membership).

Institutionalization and Mortality Outcomes.

Outcome data for rates of institutionalization and mortality was collected for 72 (of 73) of the participants from the Semi-Supportive Housing group at approximately one year following the initial baseline assessment. In order to examine the predictive strength of the MDS CAP Triggers with each of the outcome variables, a two-stage regression analysis model was constructed. Univariate logistic regressions were performed to examine the relationship between each participant's functioning in each of the CAP Triggers with each of the three outcome variables. As previously discussed, the three dependent variables were: 1. institutionalization; 2. mortality; and 3. institutionalization/mortality combined.

The second stage of analyses used multivariate analysis and performed with significant univaritate predictors, as well as age and gender.

Institutionalization Outcome. One year after the baseline assessment a total of 8 ($N = 72$) participants (11%) within the Semi-Supportive Housing program had become permanent residents of long-term care. The mean age (85.98) for those individuals that were admitted was not significantly different ($t(70) = 0.66$, $p = .514$) from those that still resided in semi-supportive care (mean age = 84.26) at the time of follow-up. Ages of those who were admitted ranged from 75 to 97 years. Seven of the participants admitted were female and one was male.

As can be seen in Table 4 only one CAP Trigger variable: Health Promotion was significantly associated with the outcome of long-term institutionalization (OR = 0.09, $p = .006$). Thus, following first-stage univariate regression analysis those participants who had triggered the Health Promotion CAP displayed 9 times *less* risk of being admitted to long-term care than those participants not triggering the Health Promotion variable. For the second-stage of analysis Health Promotion, as well as Age and Gender variables were entered into a multivariate regression analysis. Following multivariate analysis Health Promotion continued to be the lone variable that distinguished those participant's who entered long-term institutional care from those who remained in supportive care

residency (OR = 0.07, p = .004), again operating as a protective factor from future long term care admittance (see Table 4). The other variables, including age and gender failed to achieve significance in predicting which participant was admitted to long-term care at one-year follow-up.

Mortality Outcome. Follow-up outcome data collected approximately one year after the initial baseline assessment indicated a total of 9 (N = 72) participants (13%) within the Semi-Supportive Housing group had died in the preceding year. Five were female and four were male. The ages for those participants that were deceased ranged from 76 to 100 years of age with a mean age of 87.74 compared to a mean age of 83.98 for those participants who were still living. The difference in age between the two groups did not reach significance (t(70) = -1.53, p = .132).

As shown in Table 5 none of the CAP variables had a significant effect in predicting the outcome variable of mortality in the first stage of univariate analysis. Thus, second stage multivariate analysis was not performed for the mortality outcome.

Combined Outcome (Institutionalization and Mortality). To further explore a possible relationship between the MDS CAP Trigger variables with the outcome data both outcomes were combined (institutionalization and mortality) and the same two-stage regression analysis was performed. In total 17 (24%) of the participants were either admitted to long term care or were deceased one year proceeding the initial baseline assessment. Of these, five were male and 12 were female (29% & 71%, respectively). Mean age overall for the participants categorized under the combined outcome variable was 86.91 compared to a mean age of 83.69 for the remaining participants in the Semi-Supportive Housing group.

Following univariate analysis two variables (Communication Disorders, Odds Ratio = 3.60, p = .033; and Health Promotion, Odds Ratio = 0.31, p = .048) were found to have a significant effect in relation to the combined outcome variable. Thus, preceding stage-one analysis those participants who triggered the Communication Disorder CAP were 2.6 times more at risk of being institutionalized or dying than those who did not trigger this particular CAP. Conversely, those participants triggering the

Health Promotion CAP were 69 percent *less* at risk of having the same outcome (institutionalization or death) at one-year follow-up in comparison to those participants not triggering that CAP variable (Health Promotion).

Following initial univariate analysis the Communications and Health Promotion variables were entered into a second-stage multivariate logistic regression analysis, again with covariates of age and gender in order to examine the relationship between these variables and the combined outcome of institutionalization and mortality (see Table 6). Health Promotion emerged as the only variable that distinguished those participant's who fell under the combined category (institutionalization and/or mortality) from those who remained in supportive care residency (OR = 0.26, p = .040), again operating as a protective factor.

Health Promotion. Because the Health Promotion CAP showed a significant association with the Institutionalization and Combined outcome further analysis with this variable was conducted. Following the same two-stage logistic regression model that was applied to all outcome analyses the two sub-triggers for health promotion were entered into univariate and multivariate regression analyses. Results from the analysis revealed that it was the Stamina sub-trigger of the Health Promotion CAP that significantly predicted follow-up institutional admission (See Table 7). No relationship was discovered when the Smoking sub-trigger was examined. As such, those residents who triggered the Stamina Sub-trigger of the Health Promotion CAP were 4 times *less* likely to be admitted to long-term care at time of one-year follow-up, after controlling for age and gender.

Finally, in order to provide more clarity into the association between Health Promotion and the outcome of Institutionalization each of the five items included in the criteria for the CAP trigger were subjected to the same two-stage regression strategy. As can be seen in Table 8 only one item, the ability to make daily decisions (B2A), significantly predicted the outcome of Institutionalization. Thus, according to the present results, those individuals who reported more problems in making daily decisions were seven times more likely to be institutionalized at the one-year follow-up date than those

residents who were not experiencing difficulties with daily decision making. However, the association between decision-making ability and institutionalization failed to prevail when age and gender were entered as covariates.

## Discussion

The purpose of the present study was to investigate and compare two distinct types of elderly supportive care. Two groups of individuals over the age of 55 who were either: semi-supportive housing residents or recipients of community home care were comprehensively assessed for their levels of: ADL/IADL status, physiological, psychological, cognitive, and behavioral functioning as well as their degree of Institutional Risk. The relationship between the aforementioned factors and rates of: 1. Institutionalization and 2. Mortality for both groups one year following baseline assessments was of additional interest. However, due to unforeseen circumstances within the home care agency, follow-up predictive analyses were performed with the Semi-Supportive Housing group only.

### Between-Group Differences

The predominant finding of interest emerging from the between-group analysis was that the residents of the semi-supportive housing program appeared to evidence a lower level of institutional risk, as measured by the MDS instrument, in comparison to those individuals who were receiving home care services. This finding continued to be robust despite the fact that supportive housing residents were significantly older, had more urinary incontinence, and displayed a higher degree of behavioral challenges. Although supporting the second hypothesis, this study anticipated that both groups of individuals would show equivalent age ranges. The fact that the semi-supportive residents were older and still exhibited a lower incidence of institutional risk is of particular significance, especially when examined in the context of the relevant literature. Previous studies have consistently shown that age, incontinence, and behavioral disturbances are frequently associated with a higher risk

of future institutionalization or long-term nursing home placement (Hogan et al., 1999; Miller & Weissert, 2000; Mustard et al., 1999; Tomiak et al., 2000).

In addition to reduced institutional risk utilizing the MDS the present results also suggest that residents of the semi-supportive housing program participating in the current study evidenced fewer problems in managing their ADL challenges, on average, than did those individuals who were receiving home-care. Again, this conclusion runs contrary to past findings, ADL difficulties typically increase with age and are frequently a precursor to future long-term care admittance (Hogan et al., 1999; Mustard et al., 1999; Wang et al., 2001).

Other than the aforementioned variables (institutional risk, ADL impairments, behavioral & urinary problems) no differences emerged in any of the other areas of CAP functioning between the two groups when the effect of multiple variables, including age and gender was examined. No support emerged for the first hypothesis that predicted that the semi-supportive residents would evidence better psychological functioning because of the unique psychosocial supports that the program offered. However, it is noteworthy that the semi-supportive residents evidenced no detrimental effects in their psychological functioning, despite being older in age and having more urinary and behavioral problems to cope with than did the younger-aged home care group. Behavioral problems, in particular, often go hand in hand with poorer psychological functioning (Conn, Lee et al., 1992).

The present findings do support the hypothesis that supportive care residents in the present study would show a reduced risk of institutionalization, as measured by the MDS instrument, in comparison to the home care group. As hypothesized, one possible explanation may be the unique services that this particular supportive care program offers to its residents. As discussed earlier, the program provides various health and life enrichment programs, access to transportation and meals, as well as quick, onsite response to potential emergencies. More importantly, the program conducts routine, ongoing assessment of each resident's current level of functioning and personal need requirements, including ADL and IADL activity. These supports and services may explain why this

group of supportive housing residents displayed lower institutional risk and fewer problems in managing their daily activities despite the fact that they were significantly older and had more urinary and behavioral problems than did the home-care group.

On the other hand, although those individuals who lived independently in non-supportive housing were the recipients of home care, aid with ADLs may not have been the primary reason for receiving this type of health care service. Home care services are often provided for a time limited duration and, frequently, in response to a specific health care problem or concern (Richardson, 1990; Zuckerman et al., 1990). Indeed, a large majority of the individuals who received home care in the present study were not tracked beyond the initial assessment by the CCAC agency, as was anticipated by the author, because of limited need and access to home-care services. Despite the fact that they were currently receiving home care services at time of baseline assessment, the data from the present study suggests that this population of older individuals still faced a significant risk of future institutionalization and difficulties with ADLs in comparison to an older-aged semi-supportive population.

The present result suggest that the semi-supportive housing program in the current study appears to operate as a protective factor for its clients, delaying and even potentially eliminating the risk of subsequent admission to long-term care. Similar to the critical role that social and live in support has frequently been shown to play in decreasing the risk of institutionalization (Molloy et al., 1999; Freedman et al., 1994; Naleppa, 1996) and even death (Ulrike, 1990) this program may do the same by contributing to the older individuals autonomy and residential independence through essential supports and services that tend to enhance one's ability to cope with the personal declines that are often attributed to increasing age. In addition to aid with physiological and environmental difficulties the program also provides psychosocial life enrichment programs. This attention to emotional well-being may play as significant a role in reducing future institutional risk as physical supports have been shown to do.

Relevant research supports this proposition. In one study it was found that a high degree of loneliness, often a byproduct of living alone, increased the odds of being admitted to long-term care by 42% in a population of rural residents (Russell et al., 1997). Similar conclusions have emerged in other studies (Miller & Weissert, 2000). It has been well established in the psychological community that reliable and accessible emotional support enhances one's ability to cope and, ultimately, perform across all age groups (Sarason, Sarason, & Shearin, 1986). Thus, the supports and services offered by the present semi-supportive housing program might be of particular benefit to those older individuals who are living alone and lack live-in physical and emotional support, such as those provided by a spouse or caregiver. Indeed, despite the fact that 99 percent of the semi-supportive residents participating in the present study reported living alone (versus 56 percent of the home care recipients) they (semi-supportive residents) showed no detrimental psychological consequences when compared to the home care group. Examined in the context of research that has found adverse effects for those older individuals living alone, combined with the older age of the semi-supportive residents and their increased behavioral and urinary difficulties, the present findings are that much more impressive.

Institutionalization and Mortality Outcomes

Institutionalization Outcome. Although 11 percent of the semi-supportive residents were subsequently admitted to long-term care at one-year follow-up only one CAP Trigger bore any relationship to this outcome, both before and after controlling for age. As such, it appears that those semi-supportive residents who met the inclusion criteria for the Health Promotion CAP Trigger on the RAI HC assessment were subsequently granted a degree of protection against future institutionalization in comparison to those residents who did not trigger this CAP.

Why this occurred is not entirely clear. A closer examination of the Health Promotion CAP Trigger reveals that it is composed of two parts or sub-triggers. The first part or "stamina" sub-trigger assesses an individual's stamina levels by examining: a) the frequency in which the individual is out of

the home (Item H6A), b) the degree of physical activity that is participated in (Item H6B), and c) one's ability to climb stairs (Item H5).

The second part of the Health Promotion CAP, the "smoking" sub-trigger, assesses whether an individual smokes or uses chewing tobacco (K7C). In order to trigger the Health Promotion CAP the individual must trigger either sub-trigger, reduced levels of stamina or the presence of smoking behavior, in combination with the presence of independence (vs. difficulties) in the ability to make decisions (B2A). Upon further analysis of this CAP variable it was revealed that it was the stamina sub-trigger that was significantly associated with the outcome of increased institutional risk, rather than the smoking sub-trigger. In relation to research that has found decreased stamina to typically *increase* institutional risk these results are, at first glance, somewhat puzzling (Hogan et al., 1999; Lord, 1994; Wang et al., 2001; Wolinsky et al., 1995). However, it may be the inclusion item, the ability to make independent decisions (B2A) that gives rise to the more optimistic name and nature of the trigger "Health Promotion". Contrary to the other CAPs that generally reflect potential risks or problems this CAP presents as an opportunity and potential to choose to change existing lifestyle choices that may be impeding one's overall well-being. Although it is unknown whether change was actually instigated, this may explain why this variable (out of 27) emerged as a negative predictor of future long-term care admission for this group of semi-supportive residents.

In order to test this supposition each of the items that comprised the Health Promotion CAP trigger were separately examined with the outcome of institutionalization. Only one item (out of five) emerged as a significant predictor of subsequent long-term care admission following stage one regression analysis. As such, those residents who had difficulties with making competent daily decisions (a score of 1 or more on Item B2A) were found to be seven times more at risk of being admitted to long-term care at one-year follow-up. Although this item (Item B2A) is also included in the Cognition CAP trigger no association was discovered between the Cognition CAP itself and subsequent long-term care admission. In addition, univariate analysis for the individual MDS HC

items that comprise the Cognition CAP revealed no significant association between any of the Cognition criteria items with subsequent institutionalization other than Item B2A (ability to make independent decisions). Thus, while the results may suggest an interactive effect between the items that comprise the Health Promotion Stamina sub-trigger with the outcome of long-term care admittance the evidence strongly suggests that the ability to independently make daily decisions offers a strong degree of protection against future institutionalization within a semi-supportive care environment, especially when an individual also evidences signs of reduced stamina. Unfortunately, when age and gender were considered, Item B2A failed to sustain its significance as a significant predictor of long-term care admission.

Another possible explanation for these results may be related to the unique supports and services that are provided by the semi-supportive program. The program offers not only physical and practical assistance but also prides itself on the psychosocial emphasis it places on the well-being of each of its residents. Assistance and supports are delivered with a personal concern and awareness of each individual resident's current level of overall functioning. It may well be that those individuals who found themselves more restricted in their daily movements and therefore less likely to be out of their home may have been the beneficiaries of both increased physical and emotional support from the staff within the semi-supportive housing unit. This additional attention and support in combination with the independence to make clear and competent daily decisions may have provided these residents with an added degree of protection from the ill effects of decreased stamina and consequently, even reduced their risk of future institutionalized care, as measured by the MDS instrument.

Finally, the small number of residents who actually triggered the Health Promotion CAP variable and who were subsequently admitted to long-term care must be acknowledged. Although there were 52 (out of 72) residents who triggered this CAP variable overall, only two of the eight who were subsequently admitted met the criteria for this CAP at baseline measurement. Thus, it may be that the present finding is only an artifact of the study's design and the low numbers of individuals who

were actually admitted at follow-up, rather than a true effect. Additionally, although resulting in the highest odds ratio (OR = 9.00) it is interesting to note that the Institutional Risk CAP did not reach significance in predicting the actual outcome of long-term care admission. In total, only two residents overall (of 73) triggered this item at baseline, one of which was subsequently admitted. Again, the studies failure to find a significant effect (for institutional risk) may be due to the low numbers of individuals who actually triggered the Institutional Risk CAP (2/73) as well as the reduced levels of outcome data that was subsequently available for the final analysis. These circumstances may have reduced the power of the analysis to detect a true significant effect. On the other hand, the inclusion criteria for the Institutional Risk CAP may need to be reexamined and adapted in order to bolster its predictive validity for future assessments in this type of environment (semi-supportive care).

Mortality Outcome. One year following the baseline assessments there were nine semi-supportive residents in all who were deceased. No RAI HC CAP Trigger emerged as a significant predictor of the outcome of death. Again, low participant numbers, limited data and, consequently, insufficient power may be responsible for this outcome. On the other hand, although a number of CAP Trigger domains (i.e. ADL impairment, behavioral problems, decreased social functioning) have been linked to increased risk of death in previous studies (Hogan et al., 1999; Miller & Weissert, 2000; Ulrike, 1990; Wolinsky et al., 1995) it must be noted that the RAI HC was not designed to assess for this potential outcome.

Combined Outcome of Institutionalization and Mortality. In all 17 (24%) of the semi-supportive residents were categorized as either in long-term care or as deceased at one-year follow-up. When CAP variables were individually examined with the combined outcome (institutionalization and/or mortality) two CAP variables emerged as significantly predicting the combined outcome. Individuals who had triggered the Communications Disorder displayed a three and a half times higher risk of meeting the outcome of either institutionalization or death, while those who had triggered the Health Promotion CAP showed 69 percent *lower* risk of meeting the same fate. When both variables

were considered, in addition to age and gender, Health Promotion again emerged as the only significant predictor of the combined outcome.

Although, similar to the institutional outcome analysis in that it was the *stamina* sub-trigger of the Health Promotion CAP that was responsible for these results, further univariate regression analysis revealed that none of the individual Health Promotion Items in themselves were significantly associated with the combined outcome of institutionalization and death including Item B2A, the ability to make independent daily decisions. Thus, it would seem that it is the interaction of the Health Promotion items themselves and the resulting triggering of this CAP that provides protection to the residents against subsequent institutionalization and/or death. Why reduced stamina in combination with the ability to make independent daily decisions would be a protective factor against future institutionalization and/or death is not entirely clear. Perhaps, as previously discussed, the increased physical and emotional supports provided by the program's staff sheltered these residents from the aversive consequences of reduced stamina and more importantly, when coupled with the presence of competent decision making ability, provided them (residents triggering this CAP) with additional protection against the future risk of long-term care admission and/or death.

On the other hand, the Communication Disorder CAP significantly *increased* the risk of institutionalization and/or mortality outcomes following univariate analysis. This CAP variable is comprised of three items: 1. hearing difficulties; 2. problems making self understood; 3. problem understanding others, any of which can trigger the Communication Disorder CAP. As in the aforementioned analysis with the Health Promotion Items none of the Communication Disorder Items in themselves were found to significantly predict the combined outcome of either death and/or institutionalization, following univariate regression analysis with each of the three items. Again, an interactive effect among the items may be responsible for the increased risk for future institutionalization and/or death for those residents triggering this item.

One possible explanation for this finding may lie in the nature of the CAP trigger itself. Individuals who triggered any of the three items on the Communication Disorder CAP are most likely to be experiencing difficulties interacting with others. Thus, it is very possible that these communicative impairments might give rise to increased social isolation and subsequent loneliness. It may be this resulting isolation and/or loneliness arising from one's difficulty to communicate with others that is responsible for the outcome of increased risk for future institutionalization and/or death for those residents triggering this CAP. This proposition is supported by research that has examined the effects of isolation and loneliness as predictors of institutionalization and death in older populations. One study concluded that those older individuals who participated in some form of social interaction at least once over a two-week period were much *less* likely (by almost 50%) to be institutionalized or dead at 2-year follow-up compared to those who reported an absence of such social interaction (Ulrike, 1990). Similarly, Russell et al. (1997) concluded that individuals reporting the highest loneliness scores were 42 percent more likely to be institutionalized over a four-year period than those individuals scoring in the lowest loneliness range, even when controlling for age, gender, and functional and neurological impairment.

Many researchers have found a consistent relationship between living alone and a higher incidence of nursing home admissions and/or death (Black et al., 1999; Cohen et al., 1988; Miller & Weissert, 2000; Rudberg, 1996; Ulrike, 1990). Typically, it has been surmised that it is primarily the absence of instrumental or *physical* support (particularly with functional challenges) that are often responsible for this aversive outcome. As physical assistance and supports are readily available and provided by the semi-supportive program on a case-by-case basis it is doubtful that lack of physical support was responsible for the finding of increased institutional and/or mortality risk for those residents who were experiencing communication problems. Perhaps, difficulties with communicating and interacting with the staff and other residents led to a lack of *emotional* support for those residents who triggered this CAP. It may be that this reduced level of emotional support has equally devastating

effects on the older individual and can thus lead to increased risk for future institutionalization and/or death. The current results in the present study suggest that this may be the case. While the ADL and IADL CAP triggers failed to predict the combined outcomes of institutionalization and/or death in univariate regression analysis the Communications Disorder did, suggesting that difficulties interacting or communicating with others can significantly impact one's ability to maintain a healthy and independent lifestyle even in a semi-supportive care environment when the supports are available. Unfortunately, the Communication Disorders CAP variable, failed to maintain its significant effect on the combined outcome when examined in conjunction with other variables (Health Promotion, Age and Gender) in multivariate analysis.

Implications of Present Study

Data from the present study supports the proposition that autonomy and choice for the older individual need not necessarily be compromised as a result of increasing age and age related illnesses. Results from this study suggest that individuals who were residents of the participating semi-supportive program were able to successfully cope with their age-related challenges and, ultimately, prolong and even avoid the risk of imminent long-term nursing home care in comparison to a younger-aged home care population. This finding is especially interesting when examined in the context of current research and statistics. Numerous studies have consistently identified older age (Miller & Weissert, 2000; Mustard et al., 1999; Wang et al., 2001), urinary incontinence (Hogan et al., 1999; Tomiak et al., 2000) behavioral problems (Conn, Lee et al., 1992; Haupt & Kurz, 1993) and living alone (Black et al., 1999; Cohen et al., 1988; Miller & Weissert, 2000; Rudberg, 1996; Ulrike, 1990) as possessing a powerful association with subsequent nursing home admittance. Statistics Canada reports that throughout the year of 1996 one in three Canadians over the age of 85 resided in some form of long-term nursing home care (Statistics Canada, 1999).

The mean age at baseline for the semi-supportive residents in this study was reported as 84.21. Thus, despite the fact that at one-year follow-up this figure had risen to over 85 years of age, and

almost all (99%) of this population lived alone, only 11% had become permanent residents of long-term nursing home care. Additionally, this group of individuals reported a higher incidence of urinary incontinence and behavioral problems (both of which typically increase with age and raise the risk of institutionalization) at baseline measurement in comparison to the younger-aged home care group (mean age = 79.36). Combined, these facts give important credence to the proposition that the physical and emotional supports and services provided by this semi-supportive housing program act as an important coping tool for the older individual, enhancing his or her ability to maintain an independent lifestyle.

An additional contribution of this study and studies like it is related to our present political and societal health care concerns, goals, and mandates. Although limited in numbers, studies that evaluate and compare alternative modes of health care delivery are becoming increasingly essential. In the current political and social climate of decreased governmental funding in all service areas, especially health-care, terminology such as accountability and efficiency are emerging with greater frequency. Need for financial constraints due to shrinking health care spending will, no doubt, increase the demand that programs efficiently meet their goals, provide the services they are mandated for, and ultimately, show proof of their effectiveness. The requirement of a health care program or institution, particularly one that claims to promote the independence of the older individual, to substantiate its claims and existence is rapidly growing. By evaluating and assessing various programs and services for the elderly this study and future studies like it have the opportunity to make a significant contribution towards determining how our limited health care dollars are distributed in order to achieve maximum effect. Currently, there is a noticeable lack of accessible and organized data that evaluates the outcomes of various health care institutions and providers in the geronotological field (Brazil et al., 1998; Marshall, 1987).

Limitations of the Present Study

Although the current findings support the hypothesis that semi-supportive housing can provide a degree of shelter from the risks of institutionalization, particularly when the older individual maintains the competency to make independent daily decisions, the findings need to be tempered by the fact that this conclusion is preliminary and is primarily based on a one-time baseline comparison and a smaller than expected sample of individuals who provided the outcome data. The inability of this study to collect follow-up data for the second group of participants (home care group) casts a degree of uncertainty on the final results and assertions. Obviously, the ability to statistically analyze and compare both groups in relation to the actual outcomes of institutionalization and/or death would have, undoubtedly, provided a great deal of clarity and verification into the differences that emerged between the two groups. Following the analysis of the baseline assessments 17.0 percent of the home care group displayed a risk for future institutionalization in comparison to only 2.7 percent of the semi-supportive residents. It would have been very interesting to determine if the actual institutional outcomes for the home care group validated the predictions of this MDS CAP Trigger.

While the data from the present study lends credibility to the claim that the semi-supportive program can potentially reduce the need for long-term nursing home care, it must be noted that the MDS HC tool is geared essentially towards the assessment and health care management of the home care client and the criteria used to predict future institutional risks may be confounded by extraneous factors such as the specialized supports and services offered by the present semi-supportive housing program.

Future Studies

Obviously, there is a very real need for greater numbers of studies that are designed to evaluate and statistically validate a program's ability to meet its goals and mandates. Equally important, is research that is designed to allow for subsequent and reliable comparisons of various *types* of health care delivery systems, especially in the area of gerontology. Utilizing comprehensive and standardized

assessment tools, like the RAI HC, is an important first step in ensuring consistency and clarity in future interpretations and comparisons across various sectors of health care. In light of the growing number of health-care supports and services, both publicly and privately, that are increasingly being developed and offered to and for the older individual it is essential that reliable and valid data be collected in order to ensure that the best service and support choices can be made for each individual.

As previously discussed the inability of this study to collect and analyze outcome data for the home care group clearly casts a degree of uncertainty on the final results. As such, future researchers conducting similar studies utilizing a comparable design may wish to expand the present study by examining the relationship between each of the 320 individual items that comprise the MDS HC with the one-year outcome of institutionalization and mortality. Further, because of the magnitude and broad scope of data available from the RAI HC measure, potential mediating factors, such as loneliness and educational background, could be controlled for in this type of exploratory analyses. In addition to providing a more thorough identification of specific and interacting factors that might pose as a risk for future institutionalization, this type of analysis might also highlight important changes that need to take place within the present measure, in particular the CAP summaries, in order to validate it's use within a semi-supportive housing population. Similarly, extending the present research design to assess and compare other populations, such as seniors residing in complex care facilities, one of the most costly forms of institutionalized care, would not only have increased the sample size but would have potentially provided some valuable data regarding this type of care and its association with the overall well being of the older individual.

Numerous studies have asserted that having access to reliable social supports decreases the risk of future institutionalization for older individuals (Black et al., 1999; Johnson, Schwiebert, & Rosenmann, 1994; Miller & Weisssert, 2000; Russell et al., 1997). Frequently, researchers have concluded that it is the functional or physical aspects (i.e. assistance with ADLs) of support that has this effect. Other studies have suggested that it is the relationship (Cohen et al., 1988; Freedman et al.,

1994; Russell et al., 1997) and/or the gender (Molloy et al., 1999; Tsuji et al., 1995) of the person providing the support (to the older person) that influences one's susceptibility to institutional risk. This study proposes that support is a complex and multifaceted coping tool for the older individual. It may be that the emotional components of support plays just as critical a role in facilitating the older individual's ability to cope as do the various physical aspects of support. Consequently, it would be interesting if future studies could separate, measure, and analyze these two distinct dimensions of support in order to shed more light on the impact that each has on reducing the risk of institutionalization for the older person. As the majority (99%) of semi-supportive housing residents in this study lived alone it would be enlightening to assess the perceived emotional and physical supports that the clients received within the program and assess the relationship that each has on the outcome of actual institutionalization.

Conclusion

The predominant finding that emerged from the present study was that residents who resided independently in a semi-supportive care program appeared to evidence a significantly reduced institutionalization risk, following baseline measurement with MDS instrument, than did a comparable group of individuals who were receiving in-home supports through a formal community home care service. This finding continued to be robust despite that fact that the semi-supportive residents were an older group overall than the home care group and evidenced more problems with urinary incontinence and behavioral disturbances, both of which are frequently associated with long-term nursing home admissions.

Comprised of biological, psychological, and socio-cultural influences and interactions, human aging is a dynamic and multi-factorial process. Although there are a number of physiological (older age, impaired ADLs, increased disease), cognitive (declines in cognition, dementias) and psycho-social (loneliness, absence of live in support) factors that are known to contribute to a higher risk of institutionalization and even death, all of these influences must be examined in context. Research has

revealed that contextual factors, such as a reliable physical and emotional support (both formal and informal), access to needed daily and health care services, and community involvement can lend a positive balance to the offsetting difficulties and challenges that aging can often present.

This paper has proposed that the reduced institutional risk, as measured by the MDS instrument evident in this group of semi-supportive residents can be primarily attributed to the unique physical and emotional supports and services that are offered on-site by the semi-supportive housing program. Upon further investigation with one-year long-term care admission rates it was discovered that one's ability to maintain independence in daily decision making abilities was a key factor in protecting against actual future institutionalization risk. This factor emerged as more significant in decreasing future long-term nursing home care admissions than did difficulties with IADLs and ADLs, cognitive, behavioural and physical impairments, and age and gender. Thus it would seem that older individuals who are the recipients of the supports and services of a semi-supportive care program and still have the ability to make competent decisions are at a great advantage in delaying and even avoiding potential long-term care institutionalization and are much more likely to maintain their choice of residential independence.

The ability to maintain a sense of control and ownership over one's own personal space can provide a sense of stability, continuity, and dignity for the older individual. Residential independence is increasingly being acknowledged as an important personal resource that can strengthen the older person's ability and will to cope and can greatly enhance one's overall quality of life (Kontos, 1998). However, for many individuals, the challenge of maintaining residential autonomy and choice becomes increasingly difficult without additional supports. Having ready access to reliable supports and services, such as those provided by the participating semi-supportive program, can greatly assist the older individual who chooses to live independently.

In addition to acknowledging the developing need of many older individuals for functional or *physical* supports their basic need for *emotional* support must not be overlooked. Like many other

social species, humans have a basic affinity for some degree of social interaction and connection, particularly in old age. Many older individuals must cope daily with increasing loss. Loss or decrease in functional ability, loss or decreases in mobility, loss or decrease in social activities, and even loss and decrease in important friendships and family members are not uncommon experiences for many older people. In our current culture the virtues of autonomy and independence are highly valued, frequently exulted, and sometimes even revered. In our enthusiastic promotion of independence and choice we must exercise a degree of caution, balance, and respect for the basic human drive for emotional and social support. Clearly, emotional support plays an important role in enabling all individuals to cope and encourages one's ability to perform. For the older individual who is faced with the increasing physical *and* psychosocial declines of aging the critical provision of emotional, as well as physical, support can make a significant impact in facilitating his or her personal ability to cope. The unique supports and services that characterize semi-supportive housing programs like the present one have the potential to play an important role in assisting and encouraging the continued independence and overall well-being of the older person. Accessible and reliable living options that address all aspects of the aging individual, such as the semi-supportive program described in the present study, need to be further explored and encouraged.

## References

Andersen, R., & Newman, J. (1973). Societal and individual determinants of medical care utilization in the United States. Milbank Memorial Fund Quarterly, 51, 96-124.

Beekman, A. T., Penninx, B. W., Deeg, D. J., Ormel, J., Braam, A., & van Tilburg, W. (1997). Depression and physical health in later life: Results from the longitudinal aging study Amsterdam. Journal of Affective Disorders, 46, 219-231.

Black, B., Rabins, P., & German, P. (1999). Predictors of nursing home placement among elderly public housing residents. The Gerontologist, 39, 559-568.

Blais, C. (Ed.). (1990). Aging into the twenty-first century. North York: Captus University Pubs.

Bortz, W. M. (1986). The institutionalization of geriatrics. Journal of the American Geriatrics Society, 34, 899-901.

Braun, K., & Rose, C. (1987). Geriatric patient outcomes and costs in three settings: Nursing home, foster family, and own home. Journal of the American Geriatrics Society, 35, 387-397.

Brazil, K., Bolton, C., Ulrichser, D., & Knott, C. (1998). Substituting home care for hospitalization: The role of a quick response service for the elderly. Journal of Community Health, 23, 29-43.

Canadian Institute of Actuaries Task Force On Healthcare Financing. (1996, February). Healthcare financing: Task force report. Ottawa: Canadian Institute of Actuaries.

Canadian Council on Health Services Accreditation. (1997, November). Accreditation for home care organizations: History of the project. Ottawa: Author.

Canadian Home Care Association. (1997, May). Home care for all Canadians: A key election issue. Ottawa: Author.

Caplan, G., Brown, A., Croker, W., & Doolan, J. (1998). Risk of admission within 4 weeks of discharge of elderly patients from the emergency department – The DEED study. Age and Aging, 27, 697-702.

Carefoot, R. L. (1998). Home care quality management: Where are we now? Where do we go from here? Canadian Journal of Nursing Administrators, 11, 78-92.

Clark, R. F. (1996). Home and Community-Based Care: The U.S. Example. Canadian Journal on Aging, 15, 91-102.

Cohen, C., Gold, D., Shulman, K., Wortley, J., McDonald, G., & Wargon, M. (1993). Factors determining the decision to institutionalize dementing individuals: A prospective study. The Gerontologist, 33, 714-720.

Cohen, M., Tell, E., & Wallack, S. (1988). The risk factors of nursing home entry among residents of six continuing care retirement communities. Journal of Gerontology, 43, S15-S21.

Cohen-Cole, S., & Stoudemire, A. (1987). Major depression and physical illness: Special considerations in diagnosis and biologic treatment. Psychiatric Clinics of North America, 10, 1-17.

Conn, D. K., Hermann, N., Kaye, A., Rewilak, D., Robinson, A., & Schogt, B. (Eds.). (1992). Practical psychiatry in the nursing home: A handbook for staff. Seattle: Hogrefe & Huber Pub.

Conn, D. K., Lee, V., Steingart, A., & Silberfeld, M. (1992). Psychiatric services: A survey of nursing homes and homes for the aged in Ontario. The Canadian Journal of Psychiatry, 37, 525-530.

Coyte, P. C., & Young, W. (1999). Regional variations in the use of home care services in Ontario 1993/95. CMAJ-Canadian Medical Association Journal, 161, 376-380.

Dusell, C. L., & Roman, M. (1989). Sarah doesn't work here anymore: The elder-care dilemma. Generations, 13, 30-32.

Frederiksen, K., Tariot, P., & De Jonghe, E. (1996). Minimum data set plus (MDS+) scores compared with scores from five rating scales. Journal of the American Geriatrics Society, 44, 305-309.

Freedman, V., Berkman, L., Rapp, S., & Ostfeld, A. (1994). Family networks: predictors of nursing home entry. American Journal of Public Health, 84, 843-845.

Garner, J. D., & Mercer S. O. (1982). Meeting the needs of the elderly: home health care or institutionalization? Health and Social Work, 7, 183-191.

Golant, S, M. (1992). Housing America's elderly: Many possibilities few choices. Newbury Park: Sage Pub. Inc.

Gutman, G. M., & Blackie, N. K. (Eds.). (1985). Innovations in housing and living arrangements for seniors. Burnaby: Gerontology Research Centre, Simon Fraser Univ.

Hartmaier, S., Sloane, P., Guess, H., Koch, G., Mitchell, M., & Phillips, C. (1995). Validation of the minimum data set cognitive performance scale: Agreement with the mini-mental state examination. Journal of Gerontology, 50, M128-M133.

Haupt, M. & Kurz, A. (1993). Predictors of nursing home placement in patients with Alzheimer's disease. International Journal of Geriatric Psychiatry, 8, 741-746.

Hogan, D., Fung, T., & Ebly, E. (1999). Health, function and survival of a cohort of very old Candians: Results from the second wave of the Canadian study of health and aging. Canadian Journal of Public Health, 90, 338-342.

Hudson, J., Dennis, D., Nutter, R. W., & Galaway, B. (1994). Foster family care for elders. Adult Residential Care Journal, 8, 65-75.

Johnson, R., Schwiebert, V., & Rosenmann, P. (1994). Factors influencing nursing home placement decisions: The older adult's perspective. Clinical Nursing Research, 3, 269-281.

Kane, R. L., & Kane, R. A. (1985). A will and a way: What the United States can learn from Canada about caring for the elderly. New York: Columbia Univ. Press.

Katz, P., Kane, R., & Mezey, M. (Eds.). (1991). Advances in long-term care. (Vol. 1). New York: Springer Pub. Co.

Katz, P., Kane, R., & Mezey, M. (Eds.). (1993). Advances in long-term care. (Vol. 2). New York: Springer Pub. Co.

Kay, L. W., & Monk, A. (Eds.). (1991). Congregate housing for the elderly: Theoretical, policy, and programmatic perspectives. New York: Hawthorn Press, Inc.

Kempen, G., & Suurmeijer, T. (1991). Professional home care for the elderly: An application of the Andersen-Newman model in the Netherlands. Social Science and Medicine, 33, 1081-1089.

Kontos, P. C. (1998). Resisting institutionalization: Constructing old age and negotiating home. Journal of Aging Studies, 12, 167-184.

Lammers, W., & Liebig, P. (1990). State health policies, federalism, and the elderly. Publuis: The Journal of Federalism, 20, 131-148.

Loefgren, A. C., Bucht, G., Eriksson, S., & Lundstroem, T. (1993). Physical health and cognitive ability among married long-term-care patients and among their spouses: A comparison between home care and nursing home care. International Psychogeriatrics, 5, 157-168.

Lord, S. (1994). Predictors of nursing home placement and mortality of residents in intermediate care. Age and Aging, 23, 499-504.

Marshall, V. W. (1987). Aging in Canada: Social perspectives. (2nd ed.). Markham: Fitzhenry & Whiteside.

Miller, E., & Weissert, W. (2000). Predicting elderly people's risk for nursing home placement, hospitalization, functional impairment, and mortality: A synthesis. Medical Care Research and Review, 57, 259-297.

Mirosch, D. (1988). A new vision for long term care - Meeting the need. Edmonton: Legislative Assembly.

Mollica, R. A. (1998). Managed care and assisted living: Trends and future prospects. Journal of Health and Human Service Administration, 20, 264-280.

Molloy, D., Bédard, M., Pedlar, D., & Lever, J. (1999). Institutionalization in cognitively-impaired older individuals: A longitudinal study. Clinical Gerontologist, 20, 3-22.

Montaque, T., Sidel, J., & Erhardt, B. (1997). Patient health management: A promising paradigm in Canadian health care. American Journal of Managing Care, 3, 1175-1182.

Montgomery, R. J., & Kosloski, K. (1994). A longitudinal analysis of nursing home placement for dependent elders cared for by spouses versus adult children. Journal of Gerontology, 49, S62-S74.

Morris, J., Bernabei, R., Ikegami, N., Gilgen, R., Frijters, D., Hirdes, J., Fries, B., Steel, K., Carpenter, I., DuPasquier, J., & Henrard, J. (1999). RAI-Home Care (RAI-HC) Assessment Manual for Version 2.0. Washighton DC: interRAI Corporation.

Morris, J.N., Fries, B.E., Steel, K., Ikegami, N., Bernabei, R., Carpenter, G.I., Gilgen, R., Hirdes, J.P, & Topinkova, E. (1997). Comprehensive clinical assessment in community setting: Applicability of the MDS-HC. Journal of the American Geriatrics Society, 45, 1017-1024.

Morris, J., Nonemaker, S., Murphy, K., Hawes, C., Fries, B., Mor, V., & Phillips, C. (1997). A commitment to change: Revision of HCFA's RAI. Journal of the American Geriatrics Society, 45, 1011-1016.

Mustard, C., Finlayson, M., Derksen, S., & Berthelot, J. (1999). What determines the need for nursing home admission in a universally insured population? Journal of Health Services Research & Policy, 4, 197-203.

Naleppa, M. J. (1996). Families and the institutionalized elderly: A review. Journal of Gerontological Social Work, 27, 87-111.

Noelker, L., & Bass, D. (1989). Home care for elderly persons: Linkages between formal and informal caregivers. Journal of Gerontology, 44, 563-570.

Novak, M. (1993). Aging and society: A Canadian perspective. (2nd ed.). Scarborough: Nelson Canada.

Pastalan, L. A. (Ed.). (1995). Housing decisions for the elderly: To move or not to move. New York: Haworth Press, Inc.

Petrisek, A., & Fennell, M. (1998, January). Long term care diversification and vertical integration strategic activity within acute care hospitals in the United States. Paper presented at the American Sociological Association, San Francisco, CA.

Phillips, C.D., Morris, J.N, Hawes, C., Fries, B.E., Mor, V., Nennstiel, M., & Iannacchione, V. (1997). Association of the Resident Assessment Instrument (RAI) with changes in function, cognition, and psychosocial status. Journal of the American Geriatrics Society 45, 986-993.

Refuse, J. (1995). University researchers propose major reforms to end health care costs. CMAJ-Canadian Medical Association Journal, 152, 410-412.

Regnier, V., Hamilton, J., & Yatabe, S. (1995). Assisted living for the aged and frail: Innovations in design, management, and financing. New York: Columbia Univ. Press.

Richardson, B. G. (1990). Overview of provincial home care programs in Canada. Health Management Forum, 3, 3-19.

Rudberg, M., Sager, M., & Zhang, J. (1996). Risk factors for nursing home use after hospitalization for medical illness. Journal of Gerontology: Medical Sciences, 51A, M189-M194.

Russell, D., Cutrona, C., de la Mora, A., & Wallace, R. (1997). Loneliness and nursing home admission among rural older adults. Psychology and Aging, 12, 574-589.

Sarason, I. G., Sarason, B. R., & Shearin, E. N. (1986). Social support as an individual difference variable: Its stability, origins and relational aspects. Journal of Personality and Social Psychology, 50, 845-855.

Satish, S., Winograd, C., Chavez, C, & Bloch, D. (1996). Geriatric targeting criteria as predictors of survival and health care utilization. Journal of the American Geriatrics Society, 44, 914-921.

Schuster, M., McGlynn, E., & Brook, R. (1998). How good is the quality of health care in the United States? Milbank Quarterly, 76, 517-563.

Scogin, F., & McElreath, L. (1994). Efficacy of Psychosocial treatments for geriatric depression: A quantitative review. Journal of Consulting Psychology, 62, 69-74.

Scott, W., Edwards, K., Davis, D., Cornman, C., & Macera, C. (1997). Risk of institutionalization among community long-term care clients with Dementia. The Gerontologist, 37, 46-51.

Smith, V. K., & Eggleston, R. (1989). Long-term care: the medical versus the social model. Public Welfare, 47, 26-29.

Sorochan, M. W. (1995). International models: Home care in Canada. Caring, 14, 12-19.

Statistics Canada. (1999). A portrait of seniors in Canada. (3rd ed.). Ottawa: Ministry of Industry.

Stern, Y., Tang, M., Albert, M., Brandt, J., Jacobs, D., Bell, K., Marder, K., Sano, M., Devanand, D., Albert, S., Bylsma, F., & Tsai, W. (1997). Predicting time to nursing home care and death in individuals with Alzheimer disease. Journal of the American Medical Association, 277, 806-812.

Stuart, N. (1989). Operational and international reviews of Canadian home care programs. Health Management Forum, 2, 4-11.

Tomiak, M., Berthelot., J., Guimond, E., & Mustard, C. (2000). Factors associated with nursing-home entry for elders in Manitoba, Canada. Journal of Gerontology: Medical Sciences, 55, M279-M287.

Tsuji, I., Whalen, S., & Finucane, T. (1995). Predictors of nursing home placement in community-based long-term care. Journal of the American Geriatrics Society, 43, 761-766.

Ulrike, S. (1990). The effect of social networks on institutionalization and mortality of elderly people. (Doctoral dissertation, John Hopkins University, 1990). Dissertation Abstracts International, 51, Z5055.

Wang, J., Mitchell, P., Smith, W., Cumming, R., & Leeder, S. (2001). Incidence of nursing home placement in a defined community. Medical Journal of Australia, 174, 271-275.

Willis, S. L., Schaie, K. W., & Hayward, M. (Eds.). (1997). Societal mechanisms for maintaining competence in old age. New York: Springer Pub. Co.

Wilson, J. (1991). Housing options for older Canadians: Choosing a safe, comfortable, and affordable lifestyle. North Vancouver: Int. Self-Counsel Press Ltd.

Wolinsky, F. D., Stump, T. E., & Callahan, C. M. (1997). Does being placed in a nursing home make you sicker and more likely to die? In S. L. Willis, K. W. Schaie, M. Hayward (Eds). Societal mechanisms for maintaining competence in old age. (pp. 94-130). New York: Springer Pub. Co.

Wolinsky, F., Stump, T., & Clark, D. (1995). Antecedents and consequences of physical activity and exercise among older adults. The Gerontologist, 35, 451-462.

Zuckerman, C., Neveloff Dubler, N., & Collopy, B. (Eds.). (1990). Home health care options: A guide for older persons and concerned families. New York: Plenum Press.

Table 1

Sample Breakdown by Demographic Variables Between Groups

| | Supportive Care[a] | | Home Care[b] | |
|---|---|---|---|---|
| Demographics | n | % | n | % |
| Gender | | | | |
| Male | 15 | 21 | 41 | 29 |
| Female | 58 | 79 | 98 | 70 |
| Total | 73 | 100 | 139[c] | 99 |
| Educational Level | | | | |
| Grade 8 or Less | 28 | 38 | 39 | 27 |
| Grades 9 to 11 | 13 | 18 | 32 | 23 |
| High School Diploma | 7 | 10 | 35 | 25 |
| Technical/Trade School | 13 | 18 | 19 | 14 |
| Post-secondary Incomplete | 3 | 4 | 10 | 7 |
| Post-secondary – Diploma/Degree | 8 | 11 | 5 | 3 |
| Total | 72[d] | 99 | 140[d] | 99 |
| Marital Status | | | | |
| Never Married | 9 | 12 | 6 | 4 |
| Married | 5 | 3 | 51 | 36 |
| Widowed | 56 | 77 | 72 | 51 |
| Seperated/Divorced | 6 | 8 | 12 | 9 |
| Total | 73 | 100 | 141 | 100 |
| Living Arrangements | | | | |
| Lives Alone | 72 | 99 | 79 | 56 |
| Lives with Spouse | 1 | 1 | 44 | 31 |
| Lives with Child/Other | | | 18 | 13 |
| Total | 73 | 100 | 141 | 100 |

Note. [a]Total n – 73. [b]n –141. [c]Item not answered by 2 participants. [d]Item not answered by 1 participant.

Table 2

## Mean, Standard Deviations, and t-test Results for CAP Total/Severity with Proportion of CAPs Triggered and Chi square Results for CAP Triggers for Supportive Care and Home Care Group

| | t-test Results for CAP Totals/Severity | | | | Chi-square Results for CAP Triggers | | | |
|---|---|---|---|---|---|---|---|---|
| | Supportive Care[a] | Home Care[b] | | | Supportive Care[a] | Home Care[b] | | |
| Variable | M (SD) | M (SD) | t-test | p-value | % | % | $X^2$ | p-value |
| Communication Disorders | 0.53 (.67) | 0.60 (.80) | -0.56 | .575 | 46.6 | 44.0 | 0.13 | .717 |
| Visual Function | 0.71 (.89) | 0.54 (.78) | 1.47 | .143 | 47.9 | 38.3 | 1.84 | .175 |
| Cardio-Respiratory | 0.74 (.90) | 0.70 (.89) | 0.29 | .771 | 49.3 | 45.4 | 0.30 | .585 |
| Nutrition | 0.19 (.49) | 0.48 (.75) | -2.99 | .003** | 16.4 | 36.2 | 9.02 | .003** |
| Oral Health | 0.48 (.75) | 0.29 (.64) | 1.93 | .055 | 35.6 | 21.3 | 5.12 | .024 |
| Bowel Management | 0.16 (.41) | 0.20 (.51) | -0.50 | .620 | 15.1 | 15.6 | 0.01 | .918 |
| Urinary Incontinence | 0.64 (.79) | 0.33 (.67) | 3.09 | .002** | 45.2 | 21.3 | 13.59 | .000** |
| Pain | 0.51 (.50) | 0.77 (.42) | -3.97 | .000** | 50.7 | 76.6 | 14.78 | .000** |
| Pressure Ulcers | 0.11 (.31) | 0.12 (.37) | -0.22 | .828 | 11.0 | 10.6 | 0.00 | .943 |
| Skin and Foot Conditions | 0.56 (.65) | 0.39 (.63) | 1.87 | .062 | 47.9 | 31.2 | 5.79 | .016 |
| Preventive Health Care | 2.58 (1.27) | 2.81 (1.07) | -1.42 | .158 | 86.3 | 95.0 | 5.02 | .025 |
| Activities of Daily Living ADL | 0.25 (.64) | 1.89 (1.13) | -11.43 | .000** | 13.7 | 79.4 | 84.80 | .000** |
| Instrumental ADL's | 2.86 (2.85) | 3.45 (2.90) | -1.42 | .156 | 53.4 | 61.7 | 1.36 | .243 |
| Health Promotion | 1.93 (1.10) | 1.78 (1.03) | 1.00 | .320 | 72.6 | 77.3 | 0.58 | .447 |
| Brittle Supports | 0.53 (1.31) | 0.63 (1.32) | -0.51 | .611 | 54.8 | 37.6 | 0.55 | .459 |
| Depression and Anxiety | 1.62 (1.87) | 1.16 (1.68) | 1.83 | .069 | 15.1 | 19.1 | 5.80 | .016 |
| Medication Management | 1.11 (1.38) | 1.09 (1.39) | 0.12 | .902 | 43.8 | 42.6 | 0.03 | .857 |
| Psychotropic Drugs | 0.90 (1.66) | 0.62 (1.42) | 1.29 | .199 | 26.0 | 19.9 | 1.07 | .301 |
| Cognition | 0.45 (.75) | 0.63 (1.07) | -1.28 | .203 | 31.5 | 32.6 | 0.03 | .868 |
| Behavior | 0.49 (.85) | 0.21 (.57) | 2.86 | .005** | 32.9 | 14.9 | 9.37 | .002** |
| Social Functioning | 0.55 (.58) | 0.43 (.65) | 1.28 | .202 | 50.7 | 34.8 | 5.08 | .024 |
| Falls | 0.63 (.77) | 0.57 (.71) | 0.60 | .553 | 46.6 | 44.0 | 0.13 | .717 |
| Institutional Risk | 0.11 (.66) | 0.71 (1.58) | -3.11 | .002** | 2.7 | 17.0 | 9.19 | .002** |

Note. *Significance levels were set at $p < .005$ for stage 1 analysis. Means for CAP Total/Severity represent potential risks or problems (based on negative items checked per individual within each CAP trigger), with higher means indicating greater risk.

[a]$n = 73$. [b]$n = 141$.

**$p > .01$.

Table 3

Multivariate Logistic Regression: Odds of being in Semi-Supportive Housing Group versus Home Care Group Utilizing Baseline CAP Trigger Scores, controlling for Age and Gender

| Variable | Odds Ratio | Confidence Interval (95%) | p value |
|---|---|---|---|
| Activities of Daily Living | 0.04 | 0.01, 0.12 | .000** |
| Institutional Risk | 0.03 | 0.00, .025 | .001** |
| Nutrition | 0.49 | 0.16, 1.47 | .201 |
| Urinary Problems | 16.24 | 4.80, 55.01 | .000** |
| Pain | 0.59 | 0.22, 1.57 | .289 |
| Behavior | 9.18 | 2.58, 32.72 | .001** |
| Age | 1.12 | 1.05, 1.20 | .000** |
| Gender | 1.25 | 0.41, 3.83 | .702 |

**$p > .01$.

Table 4

Univariate and Multivariate Logistic Regressions, controlling for Age and Gender, with Long Term Care Admission as Dependent Variable with Baseline CAP Trigger Scores

| Variable | In LTC (n = 8) | | Not in LTC (n = 64) | | Odds Ratio | Confidence Interval 95% | p value | *MV Odds Ratio | Confidence Interval 95% | p value |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 0 | 1 | | | | | | |
| Communication Disorders | 3 | 5 | 35 | 29 | 2.01 | 0.44, 9.14 | .366 | — | — | — |
| Visual Function | 5 | 3 | 32 | 32 | 0.60 | 0.13, 2.72 | .508 | — | — | — |
| Cardio-Respiratory | 5 | 3 | 31 | 33 | 0.56 | 0.12, 2.56 | .458 | — | — | — |
| Dehydration | 8 | 0 | 56 | 8 | 0.00 | 0.00, 6.81E+26 | .837 | — | — | — |
| Nutrition | 8 | 0 | 53 | 11 | 0.00 | 0.00, 2.49E+22 | .808 | — | — | — |
| Oral Health | 6 | 2 | 40 | 24 | 0.56 | 0.10, 2.98 | .493 | — | — | — |
| Bowel Management | 8 | 0 | 53 | 11 | 0.00 | 0.00, 2.49E+22 | .808 | — | — | — |
| Urinary Incontinence | 5 | 3 | 35 | 29 | 0.72 | 0.16, 3.29 | .676 | — | — | — |
| Pain | 5 | 3 | 31 | 33 | 0.56 | 0.12, 256 | .458 | — | — | — |
| Pressure Ulcers | 8 | 0 | 56 | 8 | 0.00 | 0.00, 6.81E+26 | .837 | — | — | — |
| Skin and Foot Conditions | 2 | 6 | 35 | 29 | 3.62 | 0.68, 19.29 | .132 | — | — | — |
| Adherence | 7 | 1 | 58 | 6 | 1.38 | 0.14, 13.20 | .779 | — | — | — |
| Preventive Health Care | 2 | 6 | 8 | 56 | 0.43 | 0.07, 2.50 | .346 | — | — | — |
| Activities of Daily Living (ADL) | 6 | 2 | 56 | 8 | 2.33 | 0.40, 13.61 | .346 | — | — | — |
| Instrumental ADL's | 4 | 4 | 30 | 34 | 0.88 | 0.20, 3.84 | .867 | — | — | — |
| Health Promotion | 6 | 2 | 16 | 50 | 0.09 | 0.02, 0.51 | .006** | 0.07 | 0.01, 0.42 | .004** |
| Brittle Supports | 7 | 1 | 54 | 10 | 0.77 | 0.85, 6.97 | .817 | — | — | — |
| Depression and Anxiety | 4 | 4 | 29 | 35 | 0.83 | 0.19, 3.61 | .802 | — | — | — |
| Medication Management | 4 | 4 | 36 | 28 | 1.29 | 0.30, 5.60 | .738 | — | — | — |
| Psychotropic Drugs | 8 | 0 | 46 | 18 | 0.00 | 0.00, 1.93E+29 | .827 | — | — | — |
| Cognition | 4 | 4 | 45 | 19 | 2.37 | 0.54, 10.47 | .255 | — | — | — |
| Behavior | 7 | 1 | 41 | 23 | 0.26 | 0.03, 2.20 | .214 | — | — | — |
| Social Functioning | 6 | 2 | 29 | 35 | 0.28 | 0.05, 1.47 | .132 | — | — | |
| Falls | 3 | 5 | 35 | 29 | 2.01 | 0.44, .9.14 | .366 | — | — | — |
| Institutional Risk | 7 | 1 | 63 | 1 | 9.00 | 0.51, 160.28 | .135 | — | — | — |
| Gender | — | — | — | — | 1.96 | 0.22, 17.29 | .545 | 3.83 | 0.35, 41.76 | .271 |
| Age | — | — | — | — | 1.04 | 0.93, 1.16 | .509 | 1.06 | 0.94, 1.21 | .339 |

Note. Total N = 72. *MV = Multivariate Regression.

**p < .01.

Table 5

Univariate Logistic Regressions with Mortality as Dependent Variable with Baseline CAP Trigger Scores

| Variable | Deceased (n = 9) | | Not Deceased (n = 63) | | Odds Ratio | Confidence Interval 95% | p value |
|---|---|---|---|---|---|---|---|
| | 0 | 1 | 0 | 1 | | | |
| Communication Disorders | 2 | 7 | 36 | 27 | 4.67 | 0.90, 24.27 | .067 |
| Visual Function | 5 | 4 | 32 | 31 | 0.83 | 0.20, 3.36 | .789 |
| Cardio-Respiratory | 4 | 5 | 32 | 31 | 1.29 | 0.32, 5.26 | .722 |
| Dehydration | 8 | 1 | 56 | 7 | 1.00 | 0.11, 9.23 | 1.000 |
| Nutrition | 8 | 1 | 53 | 10 | 0.66 | 0.07, 5.90 | .712 |
| Oral Health | 7 | 2 | 39 | 24 | 0.46 | 0.09, 2.42 | .363 |
| Bowel Management | 8 | 1 | 53 | 10 | 0.66 | 0.07, 5.90 | .712 |
| Urinary Incontinence | 7 | 2 | 33 | 30 | 0.31 | 0.06, 1.63 | .169 |
| Pain | 6 | 3 | 30 | 33 | 0.46 | 0.10, 1.98 | .294 |
| Pressure Ulcers | 8 | 1 | 56 | 7 | 1.00 | 0.11, 9.23 | 1.000 |
| Skin and Foot Conditions | 6 | 3 | 31 | 32 | 0.48 | 0.11, 2.11 | .334 |
| Adherence | 9 | 0 | 56 | 7 | 0.00 | 0.00, 7012E+28 | .845 |
| Preventive Health Care | 1 | 8 | 9 | 54 | 1.33 | 0.15, 11.98 | .797 |
| Activities of Daily Living (ADL) | 9 | 0 | 53 | 10 | 0.00 | 0.00, 3.92E+23 | .814 |
| Instrumental ADL's | 3 | 6 | 31 | 32 | 1.94 | 0.45, 8.44 | .378 |
| Health Promotion | 2 | 7 | 18 | 45 | 1.40 | 0.27, 7.39 | .692 |
| Brittle Supports | 7 | 2 | 54 | 9 | 1.71 | 0.31, 9.60 | .540 |
| Depression and Anxiety | 4 | 5 | 29 | 34 | 1.07 | 0.26, 4.35 | .929 |
| Medication Management | 5 | 4 | 35 | 28 | 1.00 | 0.25, 4.08 | 1.000 |
| Psychotropic Drugs | 7 | 2 | 47 | 16 | 0.84 | 0.16, 4.46 | .837 |
| Cognition | 7 | 2 | 42 | 21 | 0.57 | 0.11, 3.00 | .508 |
| Behavior | 6 | 3 | 42 | 21 | 1.00 | 0.23, 4.40 | 1.000 |
| Social Functioning | 4 | 5 | 31 | 32 | 1.21 | 0.30, 4.93 | .789 |
| Falls | 7 | 2 | 31 | 32 | 0.28 | 0.05, 1.44 | .127 |
| Institutional Risk | 9 | 0 | 61 | 2 | 0.01 | 0.00, 5.87E+19 | .838 |
| Gender | | | | | 0.26 | 0.06, 1.15 | .076 |
| Age | | | | | 1.10 | 0.97, 1.24 | .133 |

Note. Total N = 72.

Table 6

Univariate and Multivariate Logistic Regressions, controlling for Age and Gender, with Combined Outcomes (LTC admission & Mortality) as Dependent Variable with Baseline CAP Trigger Scores

| Variable | Deceased or In LTC (n = 17) | | Not Deceased or in LTC (n = 56) | | Odds Ratio | Confidence Interval 95% | p value | *MV Odds Ratio | Confidence Interval 95% | p value |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 0 | 1 | | | | | | |
| Communication Disorders | 5 | 12 | 33 | 22 | 3.60 | 1.11, 11.65 | .033* | 3.24 | 0.89, 11.77 | .075 |
| Visual Function | 10 | 7 | 27 | 28 | 0.68 | 0.22, 2.03 | .484 | — | — | — |
| Cardio-Respiratory | 9 | 8 | 27 | 28 | 0.86 | 0.29, 2.55 | .782 | — | — | — |
| Dehydration | 16 | 1 | 48 | 7 | 0.43 | 0.05, 3.76 | .445 | — | — | — |
| Nutrition | 16 | 1 | 45 | 10 | 0.29 | 0.03, 2.38 | .244 | — | — | — |
| Oral Health | 13 | 4 | 33 | 22 | 0.46 | 0.13, 1.60 | .223 | — | — | — |
| Bowel Management | 16 | 1 | 45 | 10 | 0.28 | 0.03, 2.38 | .244 | — | — | — |
| Urinary Incontinence | 12 | 5 | 28 | 27 | 0.43 | 0.13, 1.39 | .160 | — | — | — |
| Pain | 11 | 4 | 25 | 30 | 0.45 | 0.15, 1.40 | .171 | — | — | — |
| Pressure Ulcers | 16 | 1 | 48 | 7 | 0.43 | 0.05, 3.76 | .445 | — | — | — |
| Skin and Foot Conditions | 8 | 9 | 29 | 26 | 1.26 | 0.42, 3.73 | .683 | — | — | — |
| Adherence | 16 | 1 | 49 | 6 | 0.51 | 0.06, 4.57 | .548 | — | — | — |
| Preventive Health Care | 3 | 14 | 7 | 48 | 0.68 | 0.16, 2.98 | .610 | — | — | — |
| Activities of Daily Living (ADL) | 15 | 2 | 47 | 8 | 0.78 | 0.15, 4.10 | .772 | — | — | — |
| Instrumental ADL's | 7 | 10 | 27 | 28 | 1.38 | 0.46, 4.14 | .569 | — | — | — |
| Health Promotion | 8 | 9 | 12 | 43 | 0.31 | 0.10, 0.99 | .048* | 0.26 | 0.07, 0.94 | .040 |
| Brittle Supports | 14 | 3 | 47 | 8 | 1.26 | 0.29, 5.39 | .756 | — | — | — |
| Depression and Anxiety | 8 | 9 | 25 | 30 | 0.94 | 0.32, 2.79 | .908 | — | — | — |
| Medication Management | 9 | 8 | 31 | 24 | 1.15 | 0.39, 3.42 | .804 | — | — | — |
| Psychotropic Drugs | 15 | 2 | 39 | 16 | 0.33 | 0.07, 1.59 | .165 | — | — | — |
| Cognition | 11 | 6 | 38 | 17 | 1.22 | 0.39, 3.84 | .735 | — | — | — |
| Behavior | 13 | 4 | 35 | 20 | 0.54 | 0.16, 1.88 | .331 | — | — | — |
| Social Functioning | 10 | 7 | 25 | 30 | 0.58 | 0.19, 1.76 | .338 | — | — | — |
| Falls | 10 | 7 | 28 | 27 | 0.73 | 0.24, 2.18 | .569 | — | — | — |
| Institutional Risk | 16 | 1 | 54 | 1 | 3.38 | 0.20, 57.04 | .399 | — | — | — |
| Gender | | | | | 0.53 | 0.15, 1.86 | .324 | .674 | 0.17, 2.75 | .582 |
| Age | | | | | 1.08 | 0.99, 1.18 | .101 | 1.06 | 0.97, 1.17 | .223 |

Note. Total N = 72. *MV = Multivariate Regression.

*$p < .05$.

Table 7

Univariate and Multivariate Logistic Regressions with Long Term Care Admission as Dependent Variable with Health Promotion Sub-triggers

| Variable | In LTC (n = 8) by CAP Sub-trigger | | Not in LTC (n = 64) by CAP Sub-trigger | | Odds Ratio | Confidence Interval 95% | p value | *MV Odds Ratio | Confidence Interval 95% | p value |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 0 | 1 | | | | | | |
| Subtrigger A (Stamina) | 6 | 2 | 14 | 50 | 0.09 | 0.02, 0.51 | .006** | 0.07 | 0.01, 0.42 | .004** |
| Subtrigger B (Smoking) | 8 | 0 | 55 | 9 | 0.00 | .0.00, 1.29E+25 | .827 | | | |
| Gender | — | — | — | — | 1.96 | 0.22, 17.29 | .545 | 3.83 | 0.35, 41.76 | .271 |
| Age | — | — | — | — | 1.04 | 0.93, 1.16 | .509 | 1.06 | 0.94, 1.21 | .339 |

Note. Total N = 72. *MV = Multivariate Regression.

**p < .01.

Table 8

Univariate and Multivariate Logistic Regressions with Long Term Care Admission as Dependent Variable with Individual Health Promotion Items

| Variable | In LTC (n = 8) by Item Score | | Not in LTC (n = 64) by Item Score | | Odds Ratio | Confidence Interval 95% | p value | [b]MV Odds Ratio | Confidence Interval 95% | p value |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | [a]Triggered | 0 | Triggered | | | | | | |
| Decision making ability (B2A) | 4 | 4 | 50 | 14 | 7.00 | 1.45, 33.68 | .015* | 3.61 | 0.79, 16.52 | .098 |
| Smoking (K7C) | 8 | 0 | 54 | 10 | 0.00 | 0.00, 4.49E+23 | .817 | — | — | — |
| Frequency out of the house (H6A) | 0 | 8 | 19 | 45 | 1.00 | 0.22, 4.56 | 1.00 | — | — | — |
| Hours of physical activity (H6B) | 3 | 5 | 14 | 50 | 0.47 | 0.10, 2.20 | .335 | — | — | — |
| Stair climbing ability (H5) | 4 | 4 | 22 | 42 | 0.52 | 0.12, 2.30 | .391 | — | — | — |
| Gender | — | — | — | — | 1.96 | 0.22, 17.29 | .545 | 2.03 | 0.22, 18.75 | .534 |
| Age | — | — | — | — | 1.04 | 0.93, 1.16 | .509 | 1.04 | 0.92, 1.17 | .557 |

Note. Total N = 72. [a]Triggered indicates increasing problems in that area of functioning, following RAI HC criteria. [b]MV = Multivariate Regression.

*$p < .05$.

quency with which client complains or shows evidence of pain
o pain (score b-e as 0) 2. Daily - one period
ess than daily 3. Daily - multiple periods (e.g., morning and evening)

nsity of pain
o pain 2. Moderate 4. Times when pain is horrible
ild 3. Severe or excruciating

n client's point of view, pain intensity disrupts usual activities
o 1. Yes

racter of pain
o pain 1. Localized - single site 2. Multiple sites

m client's point of view, medications adequately control pain
es or no pain 1. Medications do not adequately control pain 2. Pain present, medication not taken

er of times fell in LAST 90 DAYS (or since last assessment if an 90 days) If none, code "0"; if more than 9, code "9"

*for danger of falling)*
lo 1. Yes

steady gait

nt limits going outdoors due to fear of falling (e.g., stopped g bus, goes out only with others)

*for drinking or smoking)*
lo 1. Yes

he LAST 90 DAYS (or since last assessment if less than 90 days), nt felt the need or was told by others to cut down on drinking, or ers were concerned with client's drinking

the LAST 90 DAYS (or since last assessment if less than 90 days), nt had to have a drink first thing in the morning to steady nerves ., an "eye opener") or has been in trouble because of drinking

noked or chewed tobacco daily

ck all that apply)
t feels he/she has poor health (when asked) a.
conditions or diseases that make cognition, ADL, mood, or vior patterns unstable (fluctuations, precarious, or deteriorating) b.
eriencing a flare-up of a recurrent or chronic problem c.
tments changed in LAST 30 DAYS (or since last assessment if than 30 days) because of a new acute episode or condition d.
gnosis of less than six months to live—e.g., physician has told t or client's family that client has end-stage disease e.
VE OF ABOVE f.

eck all that apply)
rful of a family member or caregiver a.
sually poor hygiene b.
xplained injuries, broken bones, or burns c.
jected, abused, or mistreated d.
sically restrained (e.g., limbs restrained, used bed rails, strained to chair when sitting) e.
NE OF ABOVE f.

## RITION/HYDRATION STATUS

*ide for weight items)*
). No 1. Yes

Unintended weight loss of 5% or more in the LAST 30 DAYS (or 10% or more in the LAST 180 DAYS)

Severe malnutrition (cachexia)

Morbid obesity

*ide for consumption)*
0. No 1. Yes

In at least 2 of the last 3 days, ate one or fewer meals a day

In last 3 days, noticeable decrease in the amount of food client usually eats or fluids usually consumes

Insufficient fluid—did not consume all/almost all fluids during last 3 days

. Enteral tube feeding

*NORMAL*—Safe and efficient swallowing of all diet consistencies
*REQUIRES DIET MODIFICATION TO SWALLOW SOLID FOODS* (mechanical diet or able to ingest specific foods only)
*REQUIRES MODIFICATION TO SWALLOW SOLID FOODS AND LIQUIDS* (puree, thickened liquids)
. *COMBINED ORAL AND TUBE FEEDING*
. *NO ORAL INTAKE (NPO)*

## NTAL STATUS (ORAL HEALTH)

Check all that apply)

Problem chewing (e.g., poor mastication, immobile jaw, surgical resection, decreased sensation/motor control, pain while eating) a.

Mouth is "dry" when eating a meal b.

c.

## SECTION N. SKIN CONDITION

| | | | |
|---|---|---|---|
| 1. | SKIN PROBLEMS | Any troubling skin conditions or changes in skin condition (e.g., burns, bruises, rashes, itchiness, body lice, scabies) 0. No 1. Yes | |
| 2. | ULCERS (Pressure/ Stasis) | Presence of an ulcer anywhere on the body. Ulcers include any area of persistent skin redness (Stage 1); partial loss of skin layers (Stage 2); deep craters in the skin (Stage 3); breaks in skin exposing muscle or bone (Stage 4). [Code 0 if no ulcer, otherwise record the highest ulcer stage (Stage 1-4).] | |
| | | a. Pressure ulcer—any lesion caused by pressure, shear forces, resulting in damage of underlying tissues | |
| | | b. Stasis ulcer—open lesion caused by poor circulation in the lower extremities | |
| 3. | OTHER SKIN PROBLEMS REQUIRING TREATMENT | (Check all that apply) | |
| | | Burns (second or third degree) a. | Surgical wound d. |
| | | Open lesions other than ulcers, rashes, cuts (e.g., cancer) b. | Corns, calluses, structural problems, infections, fungi a. |
| | | Skin tears or cuts c. | NONE OF ABOVE f. |
| 4. | HISTORY OF RESOLVED PRESSURE ULCERS | Client previously had (at any time) or has an ulcer anywhere on the body 0. No 1. Yes | |
| 5. | WOUND/ ULCER CARE | (Check for formal care in LAST 7 DAYS) | |
| | | Antibiotics, systemic or topical | a. |
| | | Dressings | b. |
| | | Surgical wound care | c. |
| | | Other wound/ulcer care (e.g., pressure relieving device, nutrition, turning, debridement) | d. |
| | | NONE OF ABOVE | e. |

## SECTION O. ENVIRONMENTAL ASSESSMENT

| | | | |
|---|---|---|---|
| 1. | HOME ENVIRONMENT (Check any of following that make home environment hazardous or uninhabitable (If none apply, check NONE OF ABOVE; If temporarily in institution, base assessment on home visit)] | Lighting in evening (including inadequate or no lighting in living room, sleeping room, kitchen, toilet, corridors) | a. |
| | | Flooring and carpeting (e.g., holes in floor, electric wires where client walks, scatter rugs) | b. |
| | | Bathroom and toiletroom (e.g., non-operating toilet, leaking pipes, no rails though needed, slippery bathtub, outside toilet) | c. |
| | | Kitchen (e.g., dangerous stove, inoperative refrigerator, infestation by rats or bugs) | d. |
| | | Heating and cooling (e.g., too hot in summer, too cold in winter, wood stove in a home with an asthmatic) | e. |
| | | Personal safety (e.g., fear of violence, safety problem in going to mailbox or visiting neighbors, heavy traffic in street) | f. |
| | | Access to home (e.g., difficulty entering/leaving home) | g. |
| | | Access to rooms in house (e.g., unable to climb stairs) | h. |
| | | NONE OF ABOVE | i. |
| 2. | LIVING ARRANGEMENT | a. As compared to 90 DAYS AGO (or since last assessment), client now lives with other persons—e.g., moved in with another person, other moved in with client 0. No 1. Yes | |
| | | b. Client or primary caregiver feels that client would be better off in another living environment 0. No 1. Client only 2. Caregiver only 3. Client and caregiver | |

## SECTION P. SERVICE UTILIZATION (IN LAST 7 DAYS)

| | | | (A) # of Days | (B) Hours | (C) Mins |
|---|---|---|---|---|---|
| 1. | FORMAL CARE (Minutes rounded to even 10 minutes) | Extent of care or care management in LAST 7 DAYS (or since last assessment if less than 7 days) involving | | | |
| | | a. Home health aides | | | |
| | | b. Visiting nurses | | | |
| | | c. Homemaking services | | | |
| | | d. Meals | | | |
| | | e. Volunteer services | | | |
| | | f. Physical therapy | | | |
| | | g. Occupational therapy | | | |
| | | h. Speech therapy | | | |
| | | i. Day care or day hospital | | | |
| | | j. Social worker in home | | | |

APPENDIX B

# CAP Triggers

**CCAC:** Thunder Bay CCAC
**Client ID #:**
**Assessed:**

Note: **Triggers are marked with an 'X' only if the CAP has been triggered.** For non-triggered CAPs, trigger items may be present but not in the combination required to trigger the CAP.

## CAPs RELATED TO FUNCTIONAL POTENTIAL

### ADL/Rehabilitation Potential

ADL deficits are present
Good ability to understand others
Decline in functional status
Unstable, flare up, or new acute condition
Client, caregiver, or assessor believe functional improvement is possible

### IADLs: Improvement Possible

Client understands or usually understands others
Client, caregiver, or assessor believe functional improvement is possible
Not independent in meal preparation but involvement is possible
Not independent in managing finances but involvement is possible
Not independent in managing medications but improvement is possible

### IADLs: Formal Care Increase

Some/great difficulty in meal preparation
Some/great difficulty in managing medication
Some/great difficulty in shopping
Some/great difficulty in transportation

### Health Promotion: Stamina

Some independence in decision-making
Out of house infrequently
Less than 2 hours of physical activity in last 7 days
Not able to climb stairs on own

### Health Promotion: Smoking

Some independence in decision-making
Smoked or chewed tobacco daily

### Institutional Risk

Prior nursing home placement
Goes out one or fewer days a week
Incontinent of urine at least occasionally
Neurological diagnosis
Functional decline in past 90 days
One or more early-loss ADL deficits (dressing, personal hygiene, bathing)
Sudden or new onset/change in mental functioning
Meal preparation and shopping both did not occur in the prior 7-day period

## CAPs RELATED TO SENSORY PERFORMANCE

### Communication Disorders

Hearing difficulty
Problem making self understood
Problem understanding others

### Visual Function

Vision impairment
Any visual limitation/difficulty
Worsening of vision

**CAP Triggers contd.**
**Client ID #**
**Assessed:** _____

## CAPs RELATED TO MENTAL HEALTH

### Alcohol Abuse and Hazardous Drinking

Felt need to cut down on drinking or others concerned with client's drinking
Client has to have drink in the morning or has been in trouble because of drinking

### Cognition

Short-term memory appears to be a problem
Minimally/moderately/severely impaired in daily decision-making
Sudden or new onset or change in mental function
Problematic agitation or disorientation in last 90 days

### Behaviour

Wandering
Verbally abusive
Physically abusive
Socially inappropriate/disruptive
Resists care

### Depression and Anxiety

A feeling of sadness or depression
Persistent anger with self or others
Expression of unrealistic fears
Repetitive health complaints
Repetitive anxious complaints or concerns
Sad, pained, worried facial expression
Recurrent crying, tearfulness

### Elder Abuse

Fearful of a family member or caregiver
Unexplained injuries, broken bones, burns
Neglected, abused, or mistreated
Physically restrained

### Social Function

Distressed because of decline in social/religious/occupational/other activities
Feels lonely

## CAPs RELATED TO HEALTH PROBLEMS/SYNDROMES

### Cardio-Respiratory

Chest pains
Shortness of breath
Irregular pulse

### Dehydration

Fever on at least 2 of last 3 days
Decrease in food eaten
Insufficient fluid

### Falls

Fall(s) in the last 90 days
Sudden change of mental functioning
Being treated for dementia
Being treated for Parkinsonism
Unsteady gait and does not limit going out

**CAP Triggers contd.**
**Client ID #:**
**Assessed:**

## CAPs RELATED TO HEALTH PROBLEMS/SYNDROMES CONTD.

**Nutrition**

- Unintended weight loss
- Decrease in food eaten
- Insufficient fluid
- Cancer
- Severe malnutrition

**Oral Health**

- Problem in chewing (e.g., pain while eating)
- Problem in swallowing
- Mouth is 'dry' when eating a meal
- Problem brushing teeth or dentures

**Pain**

- Complains or shows evidence of pain

**Pressure Ulcers**

- Bed mobility problem
- Fecal incontinence
- Pressure ulcer present
- History of a previous pressure ulcer

**Skin and Foot Conditions**

- Any troubling skin conditions or changes
- Corns/calluses, structural problems, infections, fungi on feet
- Open lesions

## CAPs RELATED TO SERVICE OVERSIGHT

**Adherence**

- Not compliant with one or more treatments or therapies
- Compliant less than 80% of the time with medications prescribed by physician

**Brittle Supports**

- Some level of IADL dependence AND
  - absence of identified primary caregiver who provides care on a regular basis
  - alone all of time during the day
  - no IADL care from primary caregiver
  - no ADL care from primary caregiver

**Medication Management**

- Taking 1 or more medications and client has not discussed all current meds with doctor
- Client takes 5 or more medications AND
  - renal failure
  - extrapyramidal syndromes
  - diarrhea
  - dry mouth
  - constipation
  - dizziness
  - rashes, itching, bruising

**Palliative Care**

- End stage disease, with six or fewer months to live
- Hospice care

**Preventive Health Care Measures: Immunization and Screening**

- Failure to have blood pressure measurement
- Failure to receive influenza vaccine
- Failure to have breast examination (if female)
- No test for blood in stool or screening endoscopy in last 2 years

**CAP Triggers contd.**
**Client ID #:**
**Assessed:**

**CAPs RELATED TO SERVICE OVERSIGHT CONTD.**

**Psychotropic Drugs**

Client is taking a psychotropic drug AND
- indicators of delirium
- indicators of cognitive or communication decline
- active and continual problems with mood and behaviour
- worsening behavioural symptoms
- trouble walking
- incontinence
- Parkinsonism
- delusions, hallucinations
- falling in the past 90 days
- unsteady gait

**Reduction of Formal Services**

No indication that further improvement is possible AND
- an improvement in status - receives fewer supports
- one or more treatment goals met in past 90 days

**Environmental Assessment**

- Problems with lighting
- Problems with flooring and carpeting
- Problems with bathroom environment
- Problems with kitchen environment
- Problems with heating and cooling
- Personal safety concerns

**CAPs RELATED TO CONTINENCE**

**Bowel Management**

- Bowel incontinence
- Diarrhea
- Constipation (no bowel movement in 3 days)

**Urinary Incontinence and Indwelling Catheter**

- Occasional, frequent, or frank urinary incontinence
- Use of pads
- Use of indwelling catheter

## Functional Status

**Cognitive Performance Scale**
Range: 0 (intact) to 6 (very severe impairment)

**Depression Rating Scale**
Range: 0 to 14
Score of 3 or higher indicates mild/moderate depression

**Activities of Daily Living - Short Form**
Range: 0 (independent) to 16 (total dependence)

**Activities of Daily Living Hierarchy**
Range: 0 (independent) to 6 (total dependence)

**IADL Summary Scale**
Range: 0 to 21
Higher scores indicate greater difficulty with IADLs

# CLIENT ASSESSMENT PROTOCOL (CAP) SUMMARY

**CCAC:** Thunder Bay CCAC **Date of Assessment:**

**Client ID #:**

| CAPs Related to Functional Performance | Triggered | Care plan: (check one if CAP triggered) Developed | Deferred | Not developed |
|---|---|---|---|---|
| ADL/Rehabilitation Potential | | | | |
| IADLs: Improvement Possible | | | | |
| IADLs: Formal Care Increase | | | | |
| Health Promotion: Stamina | | | | |
| Health Promotion: Smoking | | | | |
| Institutional Risk | | | | |
| **CAPs Related to Sensory Performance** | | | | |
| Communication Disorders | | | | |
| Visual Function | | | | |
| **CAPs Related to Mental Health** | | | | |
| Alcohol Abuse and Hazardous Drinking | | | | |
| Cognition | | | | |
| Behaviour | | | | |
| Depression and Anxiety | | | | |
| Elder Abuse | | | | |
| Social Function | | | | |
| **CAPs Related to Health Problems/Syndromes** | | | | |
| Cardio-Respiratory | | | | |
| Dehydration | | | | |
| Falls | | | | |
| Nutrition | | | | |
| Oral Health | | | | |
| Pain | | | | |
| Pressure Ulcers | | | | |
| Skin and Foot Conditions | | | | |
| **CAPs Related to Service Oversight** | | | | |
| Adherence | | | | |
| Brittle Supports | | | | |
| Medication Management | | | | |
| Palliative Care | | | | |
| Preventive Health Care Measures | | | | |
| Psychotropic Drugs | | | | |
| Reduction of Formal Services | | | | |
| Environmental Assessment | | | | |
| **CAPs Related to Continence** | | | | |
| Bowel Management | | | | |
| Urinary Incontinence and Indwelling Catheter | | | | |

**Number of CAPs triggered** (out of 32) **13** - CAP n/a due to missing data