

NOTE TO USERS

This reproduction is the best copy available.

UMI[®]

**The Effectiveness and Efficiency
Of Providing Home Care
Visits in Nursing Clinics
Versus the Traditional
Home Setting**

By

Susan VanDeVelde-Coke, RN, BSc, MA, MBA

A Thesis

Submitted to the School of Graduate Studies

In Partial Fulfillment of the Requirements

For the Degree

Doctor of Philosophy

McMaster University

© Copyright by Susan VanDeVelde-Coke, September 2004

The Effectiveness and Efficiency Of Providing Home Care Visits in Nursing Clinics

Versus the Traditional Home Setting

DOCTOR OF PHILOSOPHY (2004)
(Clinical Health Sciences – Nursing)

McMaster University
Hamilton, Ontario

TITLE: The Effectiveness and Efficiency of Providing Home Care
Visits in Nursing Clinics Versus the Traditional Home Setting

AUTHOR: Susan VanDeVelde-Coke, BSC (College of St. Teresa), MA
(University of Washington), MBA (McGill University)

SUPERVISOR: Dr. Gina Browne

NUMBER OF PAGES: xii, 219 (+ appendices)

ABSTRACT

Objectives:

- Develop and implement a new model of home care delivery for home care services that would better serve post acute clients;
- Evaluate this process by determining the effectiveness of the new model;
- Suggest how the model would complement and be assimilated with the acute and community health care sectors;
- Determine if the model is a more efficient way to use nursing resources;
- Determine the satisfaction and acceptability of the clients and nursing staff with the new model.

New Service:

- Three nursing clinics were built, equipped and staffed to operate in three geographically different areas of a large Canadian city. The clinics served post acute, ambulatory Community Care Access Centre (CCAC) clients requiring wound dressings, intravenous therapy and other complex nursing care.

Research Design:

- Randomized control trial with initial data collection immediately post randomization and six weeks post discharge from hospital.

Sample Size:

- 99 Clients (45 experimental and 54 control), average age 50.8 years, eligible for CCAC services and retained for a 6 week period post CCAC discharge.

Results:

- Study participants treated in a nursing clinic versus at home maintained their equivalent health status on eight health dimension and two summary mental and physical component scales of the SF-36. The average number of visits per clients in either venue was not significantly different. The average treatment time in the home was 46.4% longer ($p < .001$) than the clinic when travel and documentation time was included. This saving translates into a potential \$10 million savings and the release of 146 full time equivalent RN resources, based on 6 million home care visits annually in Ontario. In addition, the satisfaction results reveal the home group was significantly less satisfied and inconvenienced waiting to be treated in the home.

Implications:

- This study demonstrates that nursing clinics are an effective, acceptable and more efficient alternative for home visits for certain groups of clients.

TABLE OF CONTENTS

	<u>Page Number</u>
Abstract	iii
Table of Contents	v
List of Tables	ix
List of Figures	xi
List of Appendices	xii
Chapter 1 Contextual Framework for Home Care in Canada	1
1.1 Political Environment of Home Care	3
1.2 Home Care Costs and Utilization	6
1.3 Administrative Structure of Home Care Delivery	9
1.4 Human Resources in the Home Care Sector	13
Chapter 2 The “Four Sectors” of Health Care: Framework for an Alternate Home Care Delivery System	18
Chapter 3 Review of the Literature	31
3.1 Criteria for Cost Effective Analysis	34
3.2 Literature Search and Selection of Articles	36
3.3 Rating of Literature	38
3.4 Cost Effectiveness Analysis Studies Comparing Home Care as a Substitute for Acute Care Hospital in the Home versus Hospital Care	40
3.5 Hospital in the Home – Review Article	53

3.6	Cost Effectiveness Studies Comparing Home Care as a Substitute for Acute Care – Specific Disease Populations	57
3.7	Home Care as a Substitute for Acute Care – Review Articles	64
3.8	Cost Effectiveness Studies Comparing Home Care as a Substitute for Long Term Care Facilities	72
3.9	Cost Effectiveness Analysis Studies of Home Care Preventative Visits to Improve Independence of Client Functioning	80
3.10	Cost Effectiveness of Nursing Clinic versus Home Care	93
3.11	Summary of Cost Effectiveness Analysis as a Method in Home Care Studies	99
3.12	Influence of the Review of Literature on Study Proposal	103
Chapter 4	Conceptual Framework	104
4.1	Nurse Managed Clinics: North American Experience	104
4.2	Creation of Physical Prototype	111
4.3	Cost Effectiveness Analysis Methodology	112
4.4	Application of the four Sectors Framework to Introduce an Alternate Home Care Delivery System	115
Chapter 5	Methodology	118
5.1	Study Design	118
5.2	Study Setting	118

5.3	Study Population	120
5.4	Study Groups	121
5.5	Study Personnel	122
5.6	Study Procedures	124
5.7	Recruitment and Consent	128
5.8	Randomization	129
5.9	Data Collection	131
5.10	Outcome Measures	132
5.11	Statistical Analysis	142
5.12	Effectiveness & Efficiency Statistical Analysis	144
5.13	Justification of Sample Size	145
5.14	Efforts to Minimize Bias	145
5.15	Ethics Approval	145
5.16	Data Entry and Storage	146
5.17	Limitations	146
Chapter 6	Results	148
6.1	Study Environment	150
6.2	Quality Control Measures	150
6.3	Eligible Population	153
6.4	Representation of Subjects	155
6.5	Study Participants	157
6.6	Comparability of Groups	159

6.7	Primary Research Question #1	161
6.8	Secondary Research Question #1	167
6.9	Secondary Research Question #2	170
6.10	Secondary Research Question #3	173
6.11	Secondary Research Question #4	179
Chapter 7	Discussion	185
7.1	Effectiveness of the Nursing Clinic	186
7.2	Efficiency of the Nursing Clinic	188
7.3	Study Implications	189
7.4	Policy Implications	191
	Bibliography	201
	Appendices	220

LIST OF TABLES

Table 1	Study Screening Tool for Screening Methodology	39
Table 2	Review of Literature	41
Table 3	Hospital in the Home vs Acute Care Hospital Care Analysis of Studies	43
Table 4	Hospital in the Home: Analysis of Review Articles	54
Table 5	Home Care as Substitute for Acute Care: Analysis Of Studies	59
Table 6	Home Care as a Substitute for Acute Care: Analysis Of Review Articles	66
Table 7	Home Care as a Substitute for Long Term Care: Analysis Of Studies	74
Table 8	Home Care Preventative Visits: Analysis of CEA Studies	82
Table 9	Nursing Clinic vs Home Care: Analysis of CEA Studies	95
Table 10	Summary of Constructs	133
Table 11	Nursing Visit Rate Cost Breakdown	140
Table 12a	Comparison of Study completers to Those Lost to Followup: Demographics	156
Table 12b	Comparison of Study Completers to Those Lost to Follow-up: SF-36	158
Table 13	Comparison of Demographics	160

Table 14	SF-36 Score Comparison	162
Table 15	Comparison of Study Population (SF-36) to Canadian Population	163
Table 16	Improvement on SF-36 Between Two Groups Between Time 1 and Time 2	166
Table 17	Comparison of Treatment Time Between Two Groups	168
Table 18	Comparison of Total Treatment Time Between Two Groups	169
Table 19	Comparison of Health & Social Services Utilization Inventory Results	171
Table 20	Comparison of Client Service Evaluation Results	174
Table 21	Comparison of Advantages & Disadvantages Of Clinics vs Home Visits as Perceived by Nurses	180
Table 22	Total CCAC Actual; Visits/Clients Compared to Potential CCAC Clinic Visits/Clients & Subsequent RN Savings	193
Table 23	Sensitivity Analysis: Potential Savings	194

LIST OF FIGURES

Figure 1	Glouberman/Mintzberg Model: The Four Sectors of Health Care	20
Figure 2	Framework for Evaluating Possible Outcomes of Economic Evaluation of Health Programmes (Birch/Gafni)	114
Figure 3	Trial of Nursing Clinics vs Home Care Visits Study Schema	130
Figure 4	Study Flow Diagram	154
Figure 5	Glouberman Model: Integration of Nursing Clinics as a Bridge Between Acute and Community Care	198

LIST OF APPENDICES

- Appendix A** CCAC Case Manager Job Description
- Appendix B** Nursing Clinic Home Visit Study Referral Form
- Appendix C** Demographics Form
- Appendix D** SF-36
- Appendix E** Client Satisfaction Survey I
- Appendix F** Client Satisfaction Survey II
- Appendix G** Browne Health & Social Service Utilization Questionnaire
- Appendix H** Nursing Clinic/Home Visit Data Form
- Appendix I** Nursing Staff Questionnaire
- Appendix J** Ethics Approval McMaster/CCAC/University of Ottawa

CHAPTER 1

CONTEXTUAL FRAMEWORK FOR HOME CARE IN CANADA

The 1999 *Report on Home Care* defined home care as “an arrangement of services enabling Canadians, incapacitated in whole or in part, to live at home, often with the effect of preventing, delaying, or substituting long term care or acute care services” (Federal/Provincial/Territorial Group on Home Care, 1999).

In reality, home care is a combination of many different types of nursing, allied health and support services loosely organized, provided by public and privately funded organizations in a largely uncoordinated system.

The increased dependence on private funding and caregivers’ support for home care, combined with the insufficient links with the acute care sector, has resulted in a disjointed myriad of home care services throughout this country (Hollander, 2002). However, despite the increasing recognition nationally and provincially for improved, coordinated and integrated home care services, investment in a national home care system has not come to fruition.

In addition to the lack of investment, the insufficient definition of home care services recognized under the Canada Health Act and the need for improved coordination between acute and home care, human resources, specifically nurses, are at a premium. Numerous studies have signaled the lack of nursing resources facing the Canadian health care

system over the next ten years (Ryten, 1997; Nursing Task Force, 1999; RNAO, 2000; Canadian Nursing Advisory Committee, 2001; Canadian Nursing Advisory Committee, 2002; CIHI, 2003). With the need for home care growing as the elderly population increases, it is imperative that diminishing nursing resources be used in the most cost effective and efficient way as possible.

The purpose of this study is to determine, using a randomized control trial, the effectiveness and efficiency of a new method of providing home care services. Nursing clinics offer an alternate form of home care delivery for a population of clients normally cared for in the home. The underlying premise of this study is that certain groups of clients being discharged from acute care to home could be treated by nurses in a more efficient manner, in an alternative setting, with the same or better effectiveness.

The study is structured using a theoretical framework which places home care services in the context of the total health care system. In addition, the study uses cost effectiveness analysis as the basis for measuring the effectiveness and efficiency of the provision of services in the nursing clinic and home settings. Although home care represents only 4% - 5% of the health care budget, it is clear any mode of health care delivery in the present economic environment must be cost effective to be adopted by provincial governments.

In order to test and study a new way to deliver home care services, it is important to understand the environment of the home care sector. The next section describes the contextual framework of community home care, specifically, the political environment,

utilization and costs, the administrative structure, and the human resources of the current home care system.

Political Environment of Home Care

Caring for people in their own homes was viewed by Florence Nightingale as one of nursing's most important tasks (Nightingale, 1874). In the late 1800s, until World War I, the concept of "district nursing" in communities grew tremendously throughout England, Canada and the United States (Rathbone, 1890, Brainard, 1922).

In Canada, the increased capital growth of hospitals, as well as the 1966 passage of Medical Care Insurance Act drew people into hospitals, distinguishing "acute" care from "home care". (Taylor, 1987, Buhler – Wilkerson, 2001). Home care was further distinguished from acute care by its designation as an "extended" service under the 1984 Canada Health Act.

Home care services fall under the category of an "extended service in the Canada Health Act as well as nursing home, intermediate care, adult residential care and ambulatory health care services (Canada Health Act, 1984). Minimum eligibility requirements for home care clients, common throughout Canada, state the client:

- a) must be a resident of the province;
- b) have demonstrated need for home care based on an assessment by a case manager;
- c) live in a suitable and safe home; and

d) consent to receive the services (MacAdam, 2000).

Despite these common requirements, the lack of national home care standards and common provincial definitions result in different eligibility requirements, types of available service, residency requirements and the definition of “demonstrated need” for home care (Dumont-Lemasson, 1999). Eight provinces have Acts or policies related to public home care, and ten out of thirteen jurisdictions delegate home care to a regional authority (Conference Board of Canada, 2004). Provinces and the federal government are struggling to determine what would represent a “medicare basket of home care services” (National Forum on Health, 1997; Jerome-Forget, 1998).

A national home care program is proposed to remedy the lack of provincial home care standards, which has resulted in a debate as to whether Canada can afford to include home care as an insured service, complying with the five principles of the Canada Health Act. The Canada Health Act uses a medical model of care and defines medically necessary services as “those services necessary for maintaining health, preventing disease or diagnosing or treating an injury, illness or disability” (Canada Health Act, 1984).

Home care requires a continuum of services that are more broadly based than just medical. In order to satisfy the principle of comprehensiveness, the Act may need to be expanded to cover social services, i.e. home support, respite care, case management, that have historically been covered privately or by a user fee concept (Canadian Nurses Association, 2000). However, the principle of accessibility implies that there are no user fees. Unfortunately, the total cost of home care can only be grossly estimated because of

the extensive privatization of home care services as well as the contribution by caregivers. Therefore, if the Canada Health Act were to include home care as an insured service, major considerations would have to be given to include social services as well as medical services for home care.

During the past few years, six different provincial and national reports have made recommendations about the delivery of health care at the provincial and national levels, all of which indirectly or directly included the need for publicly funded home care and a more integrated system (The Fyke Report, 2001; The Mazankowski Report, 2001; The Clair Report, 2000; The Sivret-Newbould Report, 2002; The Romanow Commission, 2002; The Kirby Report, 2002).

The Kirby Commission proposed a post acute home care (PAHC) service for up to three months post discharge and the Romanow Commission proposed home care services for post acute patients (The Kirby Commission, Chapter 8, 9, 2002; The Romanow Commission Recommendations, 34, 35, 2002).

Immediately following the Kirby and Romanow reports, the 2003 First Ministers' Accord on Health Care Renewal committed \$12 billion over 5 years to three priorities: primary healthcare, home care and catastrophic drug coverage, emphasizing the need to improve home and community services to allow people to recover in their homes (First Ministers' Accord, 2003).

As noted, both the Kirby and Romanow reports call for improved funding for post acute patients. It is estimated that 27% of home care clients are short term, post acute clients who require the majority of the professional services (Forbes, 2003). There is an ongoing shift towards servicing an increased number of short term clients, probably as a result of changing patterns of care provision in the acute care sector. Increased attention on post acute care funding for post acute patients may allow for exploration and experimentation into different care delivery methods, specifically nursing clinics, the focus of this study.

Home Care Costs and Utilization

Home care accounts for a small portion of the health care budget. In 2002, Canada spent only 4% to 5% of the \$112 billion total health care budget on home care. Of the total health care costs, approximately \$33 billion comes from private sources such as insurance plans or out-of-pocket expenses (CIHI, 2003).

Despite the small amount spent on home care, it is one of the fastest growing sectors of health care spending, rising from \$205 million in 1980-81 to \$2.5 billion in 2000-01 (Health Canada, 2001). A recent study suggests demand for home care services is growing due to reliance on home care as an alternative to hospital care, less availability of informal care, more emphasis on self-managed care and the evolving mix of services available through home care (Coyte, 2000). Another interesting trend is the decreasing number of Canadians living in nursing homes and long term care facilities. In 2001, only 2% of those between 65 and 74 and 14% of those 75 and older lived in health care

institutions. Twenty years ago, the census counted 3% and 17%, respectively (Statistics Canada, 2001). In addition, hospitalization rates have fallen including hospitalization of seniors from 31 per 100,000 to 27 per 100,000 between 1995-96 and 2000-01 (CIHI, 2003). One of the main reasons for decreased hospitalization is day surgery procedures, which have increased by 20% since 1995-96 (CIHI, 2003). These trends help explain why more older people are remaining in their homes, rather than long term care facilities, as well as spending less time in the hospital.

Investment in home care varies from province to province, as do the supply of services. The range of total provincial health care spending allocated to home care services ranges from 5% and over in Ontario, Manitoba, Nova Scotia and New Brunswick, to less than 3% in Quebec, Alberta, Prince Edward Island and the Territories (range is 1.2% to 6.6%) (Dumont-Lemasson, 1999; Canadian Home Care Association, 2003). Per capita, public spending varies from \$47.85 to \$193.76 (Canadian Home Care Association, 2003).

Whereas nursing care is a standard home care service in all provinces, occupational or speech therapy service and coverage varies in each province. The amount and type of home care support services vary greatly and almost all services have limits or caps (CIHI, 2000).

Access and use of home care in Ontario is quite variable depending upon where one lives. In Ontario, during the fiscal years 1993, 1994 and 1995, a 3.5-fold and 7-fold regional variation in use was revealed (Coyte, 1999). Reasons for this variation may be related to hospital bed availability or difference in eligibility requirements for home care.

However, despite the variations in access and utilization, the trend is for more home care services. Over the next 20 years, the population over 80 will increase from 1 million to 1.6 million (MacAdam, 2000). Improved technology for home care services such as telehealth, intravenous therapies and dialysis will continue to expand, allowing more clients to stay at home (Smith, 2001).

There is a perception that home care is mostly for clients with chronic conditions. Although there is a paucity of studies, there is evidence that the percentage of short term, post acute clients range from 27-50% of the total visits (Forbes, 2003, Alcock, 1998).

Also, a number of studies have noted that even though there is a high prevalence of certain chronic diseases, the disease does not imply an increase in the likelihood of receiving home care (Wilkins, 1998; HSURC, 1998). For example, Wilkins discovered that arthritis/rheumatism is prevalent in 46% of home care clients but only 8% of the clients received home care. However, there are certain demographics, diagnoses and social conditions that are consistent with receiving home care. People with cancer or the effects of stroke had twice the odds of receiving home care, as did those without these conditions (Wilkins, 1998). Demographics consistent of those receiving home care are being female, over 75 years of age, living alone, requiring assistance with instrumental activities of daily living (IADL) and being in the lower or lowest income group (Wilkins, 2000; Stone, L., 2000; Hollander, 2002; Hall, 2001). National utilization data show that 37% of home care clients are older than 85, and women are the highest users (CIHI,

2000). The strongest predictor of home health care resource consumption, based on research data, is functional status, alteration in mobility and IV therapy (Chappell, 1994, McCusker, Y., 2001, Lee, 2000).

Administrative Structure of Home Care Delivery

There are two basic models of home care delivery in Canada, the provider model and the self-managed care model (MacAdam, 2000). The provider model, which is the most common, has four variations:

- 1) Public provider in which all services are provided by provincial employees (e.g. Saskatchewan);
- 2) Public professional and private home support in which public employees provide professional care while home support care is contracted to private agencies, e.g. Alberta;
- 3) Mixed public-private model in which case management services are provided by public employees or private employees, e.g., Nova Scotia;
- 4) Contractual model in which all services including case management are funded by public sources but may be delivered by a mix of for-profit and not-for-profit agencies, e.g. Ontario (Dumant-Lemasson, 1999).

The self-management care model allows eligible clients, primarily disabled, to arrange, supervise and evaluate staff whom they hire to care for them. This model is being used in Quebec, British Columbia, Alberta, Ontario, Manitoba, New Brunswick, Newfoundland,

The Northwest Territories and the United States (Doty, 1996; MacAdam, 2000; Hanchett, 2001).

The contractual model of service provision using managed competition became the method of home care provision in Ontario in 1996. Forty-three, now forty-two Community Care Access Centres (CCACs) were established, each being governed by a community volunteer Board of Directors. The role of each CCAC was to:

- Determine client eligibility for professional and homemaker services;
- Determine eligibility for long term care facilities, coordinate service planning and case management for each client. Historically, long term facilities managed their own waiting lists and selection processes; and
- Provide information on, and referral to, all other long term care and volunteer based community services (Wittmer, 2000).

The policy and implementation of managed competition in Ontario has been criticized but empirical studies have been few. Concerns have been raised that clients receive fewer and shorter visits, that responsibility for care has been delegated to unregulated providers and to family, and that visiting nurses receive lower wages and benefits in an unstable working environment with an increasing client caseload (Leduc, 1999; RNAO, 1999; Ontario Community Support Association, 2000; Ontario Home Health Care Providers Association, 2001; OHHCPA/OCSA, 2002). The Community Nursing Services Study examined the effect of the managed competition on home care services (Doran, 2002). Phase 1 of the study concluded that in six years (1994-2000): a) the price differential

between the for-profit and the not-for-profit agencies contracting with the CCACs had all but disappeared; b) there is considerable variation in the Request for Proposal (RFP) methods used to contract nursing services; c) there is a shortage of professional community nursing staff compromised by a wage gap with the hospital wages and d) CCACs do not link contract management practices to RFP standards (Doran, 2002).

At the end of 2000, the MoHLTC commissioned a study to review how well the CCACs were meeting their mandate. The findings indicated that the acuity level and demand for home care services were increasing, client satisfaction was good, and that there were excellent examples of local, regional and provincial partnership initiatives. However, mechanisms of accountability for financial and clinical operations were not in place, variations in CCAC policies were common, the human resources shortage was affecting services resulting in waiting lists for various services, the contract management and RFP process was extremely variable and finally, achieving the MoHLTC's goals through 43 independent Boards of Directors operating at arms length was a "strategic challenge" (PriceWaterhouseCoopers, 2000).

The review resulted in the passage of Bill 130, which mandated that all 43 Boards and Executive Directors of the CCACs be appointed directly by the Ontario Ministry of Health and Long Term Care (Bill 130, 2001). In addition, the RFP document and process, as well as quality management standards, would be standardized in 2004/05 and case management, placement coordination and business administration practices would be improved (Ontario Ministry of Health & Long Term Care, 2002).

In addition, quality management standards and indicators are mandated for all CCACs for implementation by 2004. Case management standards and job descriptions have been adopted, although the case managers' functions differ, depending upon the services offered, the geography (rural versus urban), and other community services in the individual CCAC (Ontario Case Managers Association, 2000). Internal CCAC information systems are being standardized amongst the 43 CCACs, however the providers are not yet linked to these systems. A common assessment tool (RAI) has been introduced for all chronic clients being discharged from hospital and is being used by all Ontario CCAC Case Managers (Ottawa/Carleton CCAC, 2002).

Home care is governed in Ontario by a Minister of Health, with a budget that is separate and distinct from the acute care sector. This separation influences the difficulties with coordination and integration with the acute care sector as well as the introduction of alternative ways to deliver health services.

In summary, home care comprises only 4% - 5% of the total health care budget, is reliant on caregivers, is comprised of chronic care clients (approximately two-thirds) who are increasingly elderly, female and live alone, as well as clients (approximately one-third) who require post acute short term care. Home care is not an insured service under the Canada Health Act, and national home care standards, funding and services are being recommended by recent commissions and reports. The Ontario MoHLTC uses a managed

competition process to provide home care and funds, operates and regulates the CCACs separately from the acute care hospital sector.

Human Resources in the Home Care Sector

A recent human resources survey of the home care sector reported that the work force is made up of close to 50,000 workers, of which RNs make up less than 10,000 (Home Support (32,304), RNs (9,241), LPNs (2,854) and OT/PT/Social Work (2,613) (Canadian Home Care Human Resources Study, 2003). Although the number of RNs in home care is small compared to hospitals, shortages are occurring for the same reasons as in acute care (Ryten, 1997; Nursing Task Force, 1999; RNAO, 2000; CNA, 2001; Joint Provincial Nursing Committee, 2001; Canada Nursing Advisory Committee, 2002; CIHI, 2003).

These contributing factors to the nursing shortage include:

- (a) **Demographics:** The average age of registered nurses is approaching 45 years of age, with more than 30% being between 55-59 (CIHI, 2003). Assuming that the typical retirement age is 65 and the total number of RNs working in Canada in 2002 was 230,957, Canada is projected to lose 29,746 RNs aged 50 or older to retirement or death by 2006 (CIHI, 2003). If RNs were to retire at 55, Canada would lose 64,248 RNs by 2006, a figure equivalent to 28% of the 2001 RN workforce (CIHI, 2003).
- (b) **Economic Instability:** The decrease in health care funding in the 1990's, resulted in restructuring of health care organizations into mergers, regionalized health authorities, bed closures, forced layoffs of nursing staff and decreases in full time positions.

New graduates as well as regular staff were unable to find full time positions and migration to other countries increased (RNAO, 2001). In 1996/97, Canada lost 825 RNs to the U.S. (Zhao, 2000).

Under the Canada Health Act, home care is not an insured service, resulting in considerable variability of guaranteed, funded services by the provinces. It is estimated that 40% of the registered nurses and home support workers are employed by government or regional health authorities, with 60% employed by private for-profit and not-for-profit employers (Canadian Home Care Human Resources Study, 2003).

The managed competition mechanism in Ontario of funding home care by 42 CCACs results in Request for Proposals (RFPs) for professional (RN, OT, PT) and home support services every two to three years. Staff lose their jobs when companies lose contracts, resulting in instability in the system as staff migrate to different companies or simply leave home care (Woodward, 2002; Doran, 2002). With the change in the awarding of a contract, staff who are laid off are buffeted between for-profit or not-for-profit companies that have different philosophies regarding professional nursing standards, education, opportunities, salary and benefit structures. In addition, salaries are lower in home care than in the acute care sector (Canadian Home Care Human Resources Study, 2003; Doran, 2002).

In 2001, there was a major cut to home care services in Ontario, resulting in decreased visit volumes across the provinces and ultimately staff layoffs. The dichotomy of layoffs in the midst of a nursing shortage, leads nursing staff to leave the home care sector altogether, in search of more stability (Woodward, 2002).

- (c) **Insufficient number of RN graduates:** As a result of the economic restructuring during the 1990's in the health care system, universities decreased undergraduate spaces. At the same time, the majority of the provincial professional associations committed to baccalaureate education as the basic entry level into the nursing profession, which resulted in the closure of diploma programs and the additional decreases in the number of RN graduates. Presently, across Canada, universities are increasing the undergraduate supply but at a pace too slow to meet demand (Joint Provincial Nursing Committee, 2001; Canadian Nursing Advisory Committee, 2002).
- (d) **Worklife Issues:** Studies have cited workplace safety, conflicts with professional colleagues, perceived lack of respect and lack of involvement in decision making as reasons for attrition from both the acute and home care sector (O'Brien Pallas, 2001, Gordon, 2000). In addition, the need for increased education and training is cited as a major issue in nursing dissatisfaction (Canadian Home Care Human Resources Study, 2003). Home care nurses visit 8 to 9 clients per day, in homes that may be unsanitary, pest infested, in remote areas, or in dangerous parts of a city, and in all types of

weather. The most frequent workman's compensation requests are for animal bites, muscle strains related to assisting and mobilizing clients without proper equipment and automobile accidents (VON National Office, 2003).

Inadequate or incorrect supplies are a frequent problem encountered in the home environment (Canadian Home Care Human Resources Study, 2003).

The use of computer assisted technology to record and send data to physicians' offices or the CCAC is rare, most documentation is manual. Pagers and telephones are more common to assist staff in information exchange. A considerable amount of time is spent by the nurse communicating client status to CCAC case managers and arranging client needs, such as changes in medication orders, adding support services or informing the physician of a change in client condition (VON National Office, 2003).

Home care staff are, for the most part, autonomous, which is considered by many to be an attractive component of the job. However, staff may be subject to violent and abusive behaviors by clients. The need for safe working environments is cited as a concern by current home care RNs and support staff (Canadian Home Care Human Resources Study, 2003).

In summary, nursing shortages being experienced in home care are related to the demographics within the profession, economic instability of the funding

for the home care sector and in Ontario, the managed competition process and issues related to the quality of worklife. One of the main reasons to investigate an alternative home care delivery system is to determine if nursing clinics can provide more visits, using less resources.

Therefore, the objectives of this study were to:

1. Develop and implement a new model of home care delivery for home care services that would better serve post acute clients;
2. Evaluate this process by determining the effectiveness of the new model;
3. Suggest how the model would complement and be assimilated with the acute and community health care sectors;
4. Determine if the new model is a more efficient way to use nursing resources;
5. Determine the satisfaction of the clients and nursing staff with the new model.

CHAPTER 2

THE “FOUR SECTORS” OF HEALTH CARE: FRAMEWORK FOR AN ALTERNATE HOME CARE DELIVERY SYSTEM

Home care is part of the larger health care system, which is made up of the acute care, long term care and community care sectors, loosely associated through disjointed linkages. Vertical and horizontal integration of these sectors has been a goal for all provinces. Mechanisms to achieve this goal include mergers, public-private alliances, and regionalization (Bogue, 1995; Leatt, 1996a; Leatt, 1996b; Sinay, 2003). Health care systems, however, are one of the most complex systems known to contemporary society and the sectors of the system tend to operate as independent “silos.” Bridging the sectors is challenging due to different governance structures in each sector, i.e. provincial Ministries of Health as well as volunteer Boards of Directors, different funding sources, i.e. private and public; and different philosophical perspectives, i.e. the medical focus dominates in acute care, contrasted by the social focus in community. Could a new venue for delivering health care, specifically nursing clinics, fit into the health care system and into which silo, the acute or community care sector?

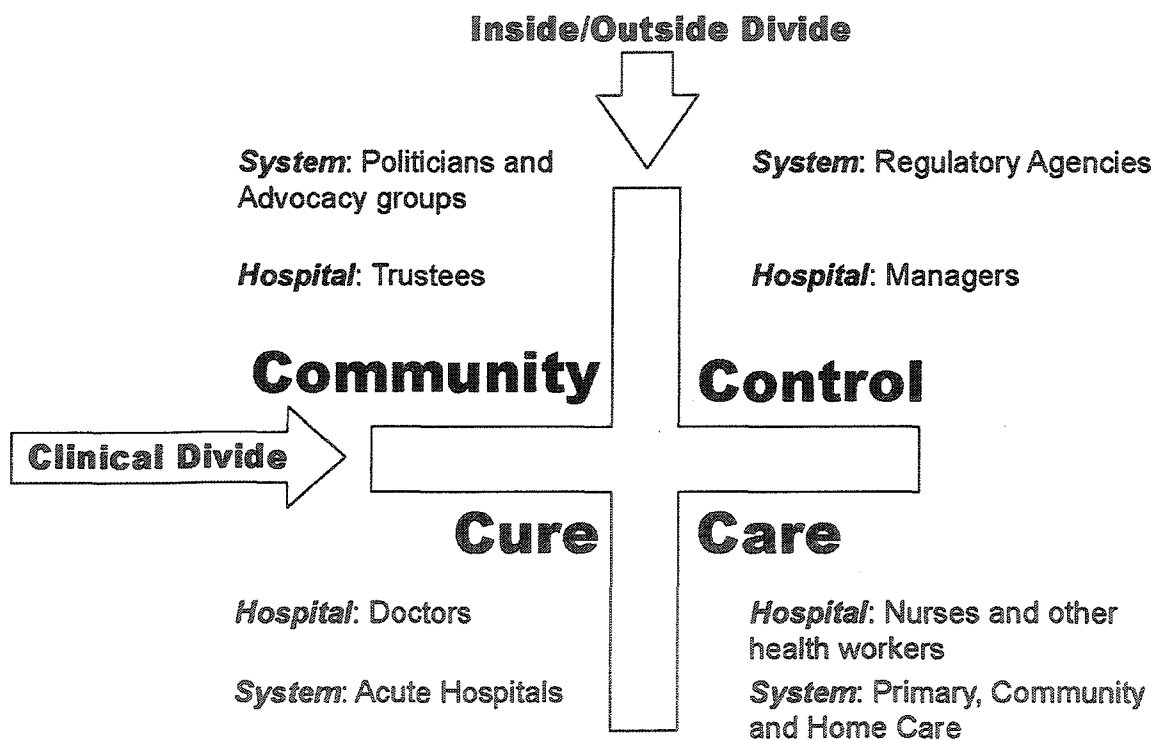
A theoretical framework has been proposed to explain the activities, organization and unreconciled mindsets of the healthcare world known as the acute, home care, long term sectors (Glouberman & Mintzberg, 2001a, 2001b). The purpose of introducing this model is to use it as a framework to explain how a new way to deliver health care services, through a nursing clinic, could be introduced into the system. The model divides health

care into a “four sectors” model of care, cure, community and control. In the bottom left of Figure 1 is “cure” representing acute care provided by physicians primarily in hospitals, highly specialized to focus on the acutely ill, or disease “cure”. In the lower right is “care” representing hospitals, long term care, home care and primary care provided by general practitioners, nurses, other professionals, as well as “alternative” health services. In the upper right, “control” at the societal level, is represented by authorities such as hospital managers, public health authorities, regulatory agencies, charged with controlling the overall system. At the societal level, upper left, “community” is represented by elected officials, advisory groups, hospital trustees who seek to exercise influence but not provide direct delivery of service (Glouberman, Mintzberg, 2001a, 2001b; Arundel & Glouberman, 2001).

The four sectors of health care are divided by horizontal and vertical boundaries or cleavages. Both the care and cure sectors are separated horizontally by a “clinical divide” from the control (government, regulatory agencies) and community (politicians, Board of Directors, advocacy groups), those sectors that are not directly involved in clinical work. The vertical cleavage separates those who are employees in the system and those who are not. The staff who work in the care quadrant (hospitals, long term care, community support) and control quadrant (government, regulatory agencies/managers) are employed by the system, whereas people working in the community (politicians, Boards of Directors, advocacy groups) and cure (physicians) quadrants are not employed by the system.

Figure 1

The Four Sectors of Healthcare



Glouberman, S., 2003

The model defines the boundaries between the quadrants and helps explain the difficulties in integrating and coordinating the delivery of health care services. The authors conclude that efforts to smooth boundaries between the system elements have either been unsuccessful or have concentrated on integrating one of the four sectors, i.e. merging hospitals, and not on the system as a whole (Arundel & Glouberman 2001, p.9).

The “four sectors” model represents a system that is highly differentiated and one that requires integration in order to work properly. Improved integration of the health care system is a tremendous challenge for every province in Canada. Various methods have been used, beginning with mergers in the early 1990s and followed by regionalization of acute and community services into geographic areas in all provinces except Ontario (Leatt, 1996a; The Merger Decade, 2000; Marriott, 2003). However, integrating acute and community services into a regional geographic area, governed by one Board of Directors and managed by a single regional management team does not necessarily result in coordinated services (Glouberman, www.healthandeverything.org). For the most part, acute care hospitals dominate a highly specialized part of the system, the “cure” quadrant, and primary community and home care services dominate the “care” quadrant.

A nursing clinic could serve as an alternative to home care and a bridge between the acute hospital and community, by offering post-acute services, similar to those discussed in the Kirby and Romanow reports (Kirby Commission, 2002; Romanow Commission, 2002). However, the proposal that nursing clinics could serve as a bridge between sectors requires empirical evidence.

Three forces are identified as necessary to bring the “care” and “cure” sectors together:

- a) commitment to purpose, represented by the notion that nursing clinics will be cost effective;
- b) desire to advance knowledge, based on the conviction that nursing clinics provide a more efficient alternative to home care;
- c) urgency to change, represented by the compelling need to use nursing resources more wisely. (Glouberman, Mintzberg, 2001a)

When introducing an alternative delivery service, such as a nursing clinic into the system, it is imperative to consider the mechanisms necessary to improve the integration of the new service. Four mechanisms, suggested by Glouberman and Mintzberg to improve coordination and integration of the health care system, are applied to the nursing clinic service.

1. **Coordination of the Acute “Care” Clinical Operations:** The first mechanism to improve coordination and integration is to have a well coordinated system within the acute care setting. The management of acute, chronic and complex disease processes is becoming more multidisciplinary, requiring skills of many trained professionals.

The concept of a web model where the professionals concentrate on treatment of specific groups of patients with the same diagnosis and share their expertise

with mutual respect, is appropriate for today's well educated, specialized health care staff. The health care team must understand how an alternative home care service, such as a nursing clinic, could serve the acute as well as chronic care population. Standard care pathways would direct hospital staff to send clients to nursing clinics for specific treatments and follow-up. In other words, the nursing clinic is built into the standardized care plan as the place where treatment will be provided similar to the movement of a client from acute care to rehabilitation. The essential component to coordinating movement from acute care to the nursing clinic is to educate hospital staff to the appropriate venue for follow-up care. Clients who require short term follow-up for acute conditions such as wound care, IV antibiotic treatment, as well as chronic conditions such as congestive heart failure, leg ulcer treatments or diabetes, would be appropriate clients for nursing clinics.

2. Coordination from the Acute to Community Care

The second mechanism to improve coordination and integration of the "care and cure" health sectors is to facilitate "continuity of care" from the acute to community care. The dimensions that frame continuity of care summarized by Harrison and others include:

- the chronological dimension of providing services over time;
- the geographic dimension of where services are given;
- the inter-disciplinary dimension of the team approach to treat the disease;
- the psychosocial, behavioral and family dimension;

- the relationship dimension between client and staff;
- the communication dimension of data dissemination via telephone, medical records and other methods;
- the ease of accessibility to service dimension;
- the stability dimension of the community involving the client and family;
- the longitudinal dimension provided by case management (Shortell, 1976, Rogers, 1980, Bedder, 1994, Harrison, 1999; Haggerty, 2003).

Considering the complexity of these dimensions it is easy to understand why “continuity of care” is a ubiquitous challenge in health care delivery.

The discharge planning process is essential to continuity of care and forms the bridge between the acute and community, the “care” and the “cure”. However, major problems have been described in assessing the individual client’s needs for discharge, primarily in managing the symptoms, treatments and complications of the illness, the need for emotional support, the lack of knowledge and skills and inadequate access to health and social services resources (Bowman, 1994; Bull, 1997; Lough, 1996; Naylor, 2000; Tierney, 1993; Gustafson, 2001; Weaver, 1998).

Research has shown that the treatment of complex disease processes such as stroke, congestive heart failure, and mental illness is improved with a comprehensive discharge planning and home follow-up (Naylor, 2002; Indredavik, 2000; Fonarow, 1997).

In a small group of patients with medical and surgical conditions, such as myocardial infarctions, respiratory infections, cardiac valve replacements, major small and large bowel procedures and orthopedic procedures, comprehensive discharge planning in hospital followed by home or telephone visits for four weeks post-operatively resulted in reduced readmissions to hospital, however, no change in functional status between the control and intervention group (Naylor, 1999).

Similar randomized control trials using different populations such as cardiac failure patients have found improvements in functional status and decreased readmission rates with comprehensive and individual discharge planning, as well as follow-up home visits to the client (Fonarow, 1997; Harrison, 1999; Ashton, 1995).

In a recent study, 25% (76) of the 328 patients discharged from general internal medicine units experienced an adverse event after discharge. The most common were adverse drug events (72%), therapeutics errors (16%) and nosocomial infections (11%) (Forster, 2004). It was proposed that with improved discharge planning, that 50% of the adverse events were preventable or ameliorable.

In most tertiary and community care hospitals, discharge planners or case managers are responsible for arranging and planning the care and treatments for clients making the transition to community. In the home care sector of Ontario, case managers are employed by the CCACs to work in hospitals. They have a unique opportunity to bridge the cure

and care sectors and a responsibility to choose the correct service(s) that reflect the needs of the client.

The discharge planning process consists of three activities:

- assessing the individual needs of the client and family, emphasizing the client perspective;
- planning the appropriate interventions necessary in the community setting;
- communication and education of the caregivers about the ongoing treatment for the client (Benjamin, 1999; Naylor, 2002; Brazil, 2000).

Although the discharge case managers are largely responsible for the discharge process, bedside nurses directly working with the clients are also central to making sure the process is begun prior to the case manager's involvement (McWilliam, 1994; Arundel, 2001). In addition, the social worker, physician and residents are also involved, which explains the frequent confusion as to who is ultimately responsible for planning the discharge. Nurses compensate for the fragmentation in the discharge process by troubleshooting, advocating on behalf of the client, coordinating the care and acting as the primary source of information (McWilliam, 1994). However, nurses may not see themselves as being primarily responsible for the discharge process, particularly if case managers are also involved.

Common discharge tools can assist the case managers and nursing staff in capturing essential information and identifying the client's concerns, knowledge gaps, social

services requirements and caregiver needs (Weiss, 1999; Landi, 2001, Hadjistavropoulos, 2002). These tools include standard care pathways that identify the required intervention including the need for other community services, such as meals on wheels or day away programs.

The case manager is key in completing the assessment, planning and facilitating the interventions and communicating to the client, family, physician and hospital staff. A major study analyzing the barriers to effective transfer of clients from acute to community care found that case managers assigned to the same grouping of units provided better coordination and communication regarding the discharge process than case managers assigned to all units in the hospital (Arundel, 2001). Additional best practices included regular meetings of the unit management, staff and case managers to discuss discharge needs of specific clients, as well as education and training of hospital staff about the case manager role and responsibilities (Arundel, 2001). Therefore, if an alternative way to offer home care, such as a nursing clinic was available, it would be essential that the case manager, unit staff and physicians be able to assess which clients would benefit from this alternative form of home care based on their needs and coordinate the intervention required to bridge from the acute to the community setting.

3. Collaborative Management Over Departmental Walls

The third mechanism to improve collaboration and integration between the health “care” and the “cure” sectors is for the managers in acute and community care to help facilitate the process of client movement from one sector to another and be able to

differentiate the nursing staff responsibilities versus the discharge planner's role.

Facilitating the discharge process involves inspiring, convincing and assisting nurses to consider the needs of the client beyond the walls of the institution (Mintzberg, 1994). However, the managers in both sectors must keep in mind that nurses do not necessarily see themselves as having or wanting the responsibility to discharge or facilitate the transition (Anthony, 1998).

Therefore, the managers must provide the environment for better discharge planning. In studies investigating what is important for nurses for more comprehensive discharge planning, structure, process and client readiness were identified as important considerations (Anthony, 1998; Hadjistavropoulos, 2002; Naylor, 2002; Brazil, 2000). Structure issues included availability of time, continuity of care amongst staff, especially with agency nurses, ability to access other resources such as physical therapy, occupational therapy and care pathways. Process issues were related to communication between physicians and nurses, nurses and home care agencies and the need to clarify discharge expectations of the patient and family. In addition, the patient's readiness, physically, psychologically, emotionally and socially to transition from the hospital to home is key to successful transitioning. Therefore the managers are key in facilitating better discharge planning through assisting the staff to fulfill their responsibilities, at the same time understanding where the case manager takes over. The acute and community care managers must also understand what kind of post acute care would be appropriate for the client, i.e. if a client could go to a nursing clinic rather than be seen at home.

4. Collaborative Management of the Entire System

The fourth mechanism suggests that to manage the entire health care system, the governance cannot be based on competition or a management hierarchy that is too “crude” to deal with the complexities of health care (Glouberman, 2001b). Instead, it is suggested that in order to bridge the gap between the disease “care” and health “cure”, the governance of “care” and “cure” sectors must be in a cooperative ownership of not-for-profit boards made up of people working for the broader “good”, in a system that is of the appropriate size to allow collaborative networks to form, made up of involved managers (Glouberman, 2001b).

It may appear that on the surface, the Ontario health care system complies with this governance and operations structure. However, the acute care and community sectors are governed under two separate branches of the Ontario Ministry of Health. The separation of the acute and community care sectors is therefore perpetuated by this structure. In addition, each CCAC has their own board of directors and CCACs employ both for-profit and not for profit providers whose governance is dissimilar. In the absence of a structure which facilitates the collaboration of acute and community care, such as regionalization, mechanisms to bridge the acute and community sector in Ontario will continue to elude us. If the nursing clinic project can provide empirical evidence, a bridge could form which could include other acute care clients, i.e. clients from emergency rooms, who could more appropriately be treated in a clinic setting (Brookoff, 1994; Coyte, 2001). The clinics would serve as a treatment

centre for post acute clients, similar to the group described in the Kirby and Romanow reports and provide a “bridge” between the “care” and “cure” sectors.

CHAPTER 3

REVIEW OF LITERATURE

The purpose of the study was to investigate if an alternative site for a home care visit, a nursing clinic, could provide specific “home” care services in an effective and efficient manner. A review of the literature revealed some experience in the United States, England and Canada with a “nursing clinic” concept, mostly for health promotion and prevention activities. There were no randomized control trials (RCT) found comparing the effectiveness of the nursing clinics to traditional home care visits, except for an RCT done in England comparing the cost effectiveness of nursing clinics versus traditional home care visits to treat patients with leg ulcers (Morrell, 1998).

As a result of these findings, the focus of the review of literature was altered to investigate the use of economic evaluation in home care studies. Economic evaluation is based on three fundamental concepts: scarcity (resources are insufficient to match the need); choices (decision makers must choose what programs to support); opportunity costs (certain programs are chosen, other programs are foregone) (Gafni, 2003). In the current Canadian political environment, different methods of health care delivery methods will not be financially supported by provincial governments, unless the effectiveness and efficiency of the alternative delivery system can be empirically proven by the outcomes. Therefore, it is imperative that economic evaluation methodology be based on valid and reliable methods, measurement tools and data.

Economic evaluation measures costs and outcomes using mechanisms of increasing complexities and theoretical underpinnings. Essentially, economic evaluation methodology produces a comparative analysis of alternative courses of action in terms of both the costs and consequences (Drummond, et al, 1996). For example, one can allocate a given level of expenditures and choose the programs that will provide the greatest benefit. A second method is to specify the given level of benefit (outcome) expected and choose the most efficient way to achieve the outcome (Weimer & Vining, 1992; Kane, 1999; Bishop, 1999). The mechanisms commonly seen, but not consistently applied, in the health care literature to economically evaluate alternative courses of action include cost minimization, cost effectiveness, cost utility and cost benefit analysis. The central function of economic evaluation is to show the relative value of alternative interventions for improving health.

The first level of economic evaluation is cost minimization which has its central, implicit assumption that the outcome of strategies are considered equivalent, so the goal is to find the least expensive way of achieving the outcome (Eisenberg, 1989). The second level of economic analysis, cost effectiveness, measures the efficiency and effectiveness of two or more alternative courses of action. The goal is to choose the program that is most effective for the least cost. Cost utility considers if the positive clinical outcomes can be expressed in terms of years of life gained for a particular intervention, called quality of life years (QALYS). The clinical outcomes consider the quality of life or “utility of the life improvement,” in the analysis measuring the effectiveness of the intervention (Mehrez, 1989; Gafni, 1994; Gafni, 1997).

A third level of economic evaluation, cost benefit analysis, measures the effectiveness of the intervention measuring the utility of both the costs and the benefit. It essentially provides a means for deciding if a program is worth doing at all (Stone, P., 1998). Both the costs of the intervention (numerator), and the benefits (denominator), are measured in units of currency (Eisenberg, 1989; Detsky, 1990). A comparison of two different interventions can then be performed by calculating the ratio of benefits to costs.

The review of the literature concentrated on studies using cost effectiveness as the evaluation method to compare and analyze home care against acute hospitalization or long term or preventative interventions. A framework was developed to judge the rigor of the cost effectiveness methods in home care studies. Allred (1998) explored the nursing literature for studies using cost effectiveness analysis and found only seven studies that used CEA. In addition, none of the studies consistently followed all of the principles set forth by the U.S. Panel on Cost Effectiveness in Health and Medicine (Allred, 1998). These principles were suggested to improve the comparability and quality of studies using cost effectiveness analysis and are summarized as follows:

- 1) conduct the analysis from the societal perspective;
- 2) determine the components belonging in the numerator and denominator of a cost effectiveness ratio;
- 3) measure resource use correctly in the numerator;
- 4) estimate the effectiveness of interventions;

- 5) value health consequences in the denominator;
- 6) incorporate time preference and discounting; and
- 7) handle uncertainty through sensitivity analysis.

(Weinstein, 1996; Siegel, J. 1996):

These principles provide an excellent template to guide cost effectiveness analysis in home health care studies. Consequently, the cost effectiveness in health and medicine principles were combined with Allred's recommendations of how to use CEA in the nursing studies and a template was formed by which to conduct the review of the literature.

Criteria for Cost Effectiveness Analysis

A Societal Perspective of Analysis:

The societal perspective accounts for the costs from a variety of points of view. In home care, the groups may include the client, caregiver, hospital, and community services. The positive effects to one group may be negative to another, i.e. the client may prefer being treated in the home but there may be an added burden to the caregiver. In addition, the loss of productivity for the client is discussed in the literature as a cost to be measured but productivity is difficult to quantify and measure. (Drummond, et al,1996).

Identification of Net Costs:

The total costs should include the direct costs of using services, indirect costs or the costs of client time expended for an intervention, unpaid and paid costs associated with care giving, costs associated with the illness such as travel, child care, employer costs for

absenteeism and turnover, in addition to costs incurred by the educational or criminal justice system. All costs should be adjusted for inflation and effects of time.

Identification of Net Effects:

The net effect refers to the outcome (s) of an intervention (s). Outcomes typically measure behaviour, physical, emotions, cognitions, and contextual variables such as disease related morbidities, patient demographics (Yates, 1996, Kane, 1997).

Multidimensional, generic, preference based measures of health state are preferred over unidimensional, disease specific or non-preference based measures (Allred, 1998, Ware, 1992).

Outcomes can be measured as a singular unit, such as number of hospital days or deaths. Multiple outcomes can be measured as a composite metric in which all measures are combined into a single measure, such as health related quality of life (Allred, 1998, Kane, 1997).

Outcomes can also be assessed according to the patients or providers preferences. The preferences can be expressed as a value judgement on health states achieved or avoided, as a result of an intervention (Sackett and Torrence, 1978), as a “utility,” i.e. the degree of desirability or satisfaction with a specific intervention outcomes, or as a “quality adjusted life year” (QALY) i.e. the preference for existence of a particular health state versus death among different diseases (Levin, 1983, Drummond, et al, 1997; Mehrez, 1989).

Analysis of Cost and Effects:

The effectiveness of an intervention is measured by the costs required to produce the effect, or outcome. The relationship measurement of the costs, outcomes and effectiveness can be expressed in cost to effect ratios, marginal analysis, graphic displays and sensitivity analysis. Describing and measuring relevant costs and effects in health services research studies is dependent on the quality of the data and study design, and patient populations, and as a result is subject to error, which is why marginal analyses, graphic displays and sensitivity analyses are recommended to minimize some of the uncertainty around cost effectiveness analysis (Allred, 1998).

Decision Outcome:

The final outcome of a policy and management decision must include other sources of information beside the cost effectiveness analysis. This is particularly true if the difference between two alternatives is small, lower than 10%. Therefore, CEA is an important component of the decision outcome, but should not be the only factor.

Literature Search and Selection of Articles

Due to the absence of empirical measures and randomized control trials measuring the effectiveness and efficiency of nursing clinics as an alternative to home care, the review of the literature focussed on randomized control trials comparing regular home care to an alternative service, specifically acute hospitalization, long term care, or preventative interventions using cost effectiveness as the method of comparison.

The strategies of the search included the following:

- a) Computerized searches using bibliographic databases: CINAHL, MEDLINE, COCHRANE CONTROLLED TRIALS REGISTER, HEALTHSTAR;
- b) Canadian and provincial government internet sites and documents from Health Canada, Canadian Institute of Health Information, Ontario Ministry of Health and Long Term Care;
- c) Documents prepared by non-governmental organizations focusing on community and home care issues from the Canadian Home Care Association, Ontario Community Support Association, Canadian Health Care Association, Ontario Associate of Community Care Access Centres;
- d) Provincial nursing organizational documents and monthly newsletter information.

Various combinations of subject headings and text words were used in the literature search which included "home care," "cost effectiveness," "elderly," "home nursing," "home health care," "community nursing," "nursing clinics," "community clinics," "efficiency," and "effectiveness." All subject headings were exploded, combined, deleted to include only randomized controlled trials, and English. The first searches went back to 1985. Although there were some studies attempting to study the cost effectiveness of home care, the methodologies were not established or complete enough for inclusion and the decision was made to limit the search from 1992 to 2003. The first stage of selection resulted in over 660 articles, which were further selected using more specific selection criteria:

- 1) Randomized control trials of at least 100 subjects over 18 years of age. Nursing care must be provided as an intervention; other professional care such as occupational or physical therapy may be provided in the intervention.
- 2) North American, Australian, New Zealand, British studies as well as European studies were selected due to the similarity of health care systems issues and experimentation with different home care delivery methods.
- 3) Cost effectiveness methodologies had to be clearly delineated in the study.

The second stage of selection separated the randomized controlled trials which used cost effectiveness methodology, into three groups using the definition of home care:

- 1) Home care as a substitute for hospital care such as “hospital in the home” or disease specific therapy in the home;
- 2) Home care as a substitute for long term care; and
- 3) Home care preventative visits to prevent deterioration in client functioning and continued independence in their own home. (MacAdam, 2001).

The one randomized control trial that compared the cost effectiveness of home care to nursing clinics was included in a separate category as an alternative to home care.

Rating of Literature

The methodological quality of the studies was screened using two tools, adapted from the literature. Criteria from the first tool, adapted from Roberts and Ciliska, focused on the

conceptual framework, methodology and results of each study (Ciliska, 1994; Roberts, 1997) and is illustrated in Table 1. If the studies qualified using the criteria from the first tool, the study was then evaluated by the second tool.

Table 1

<u>Study Screening Tool for Methodological Quality</u>
<u>Conceptual Framework</u>
<ul style="list-style-type: none">• background of research question is described• target population is described• randomization process explained• time horizon in explicit
<u>Methodology</u>
<ul style="list-style-type: none">• outcome measures are appropriate for the research question• sources of information for effectiveness data are described• method of data collection is clear• sources of information for cost data are explained
<u>Results</u>
<ul style="list-style-type: none">• both clinical and statistically significant results are explained• discussion clarifies results in relation to the research question• limitations of study are discussed

(Roberts, J., 1997, Ciliska, D., 1994)

The second screening tool, summarized in Table 2, used the guidelines for cost effectiveness analysis specifically adapted for nursing studies (Allred, 1998). Points were assigned to each criteria to provide a relative quality rating to all studies.

The data extracted from each study were a) the research question (s), b) location of study, c) subject selection, d) number in control and trial groups, e) types of outcome measures which were divided into health care and cost outcomes. Examples of health outcomes included functional status, mortality, readmission rates, length of stay, satisfaction levels of subject and caregiver, f) cost outcomes included direct, indirect, provider, caregiver and support costs, g) statistical analyses, and h) discussion / limitations.

All studies, except one, measured an intervention and cost comparison of the control and trial groups.

Cost Effectiveness Analyses Studies Comparing

Home Care as a Substitute for Acute Care

Hospital in the Home vs. Hospital Care

Hospital in the home (HITH) is defined as a service that provides active treatment by health care professionals in the patients home, for a condition that otherwise would require acute hospital in-patient care, always for a limited period of time (Shepperd, 2003). Hospital in the home originated in France in 1961 and has been adopted primarily in England, Australia and New Zealand (Richards, 1998; Board, 2000; Crotty, 2002; Caplan, 1999, Viney, 2001).

Table 2

Review of Literature

Scoring of CEA Studies

	Perspective of Analysis (3)	Identification of Net Costs (5)	Identification of Net Effects (5)	Analysis of Costs & Effects (5)	Decision Outcome (4)	Total
Hospital vs HITH						
Wilson, A. 1999	2/3	3/5	4/5	3/5	3/4	15/22
Jones, J., 1999						
Shepperd, S. 1998 (1a)						
Shepperd, S. 1998 (1b)	2/3	4/5	5/5	4/5	4/4	19/22
Coast, J., 1998	1/3	2/5	Only costs	2/5	2/4	7/22
Jester, R., 2003	2/3	3/5	3/5	3/5	3/4	14/22

Hospital vs home for specific disease groups						
Skwarska, E., 2000	2/3	4/5	4/5	4/5	3/4	17/22
Anderson, C., 2000	2/3	4/5	4/5	4/5	4/4	18/22
Home Care vs LTC						
Hollander, M., 2002	3/3	5/5	5/5	5/5	3/	22/22
Preventative Visits						
Bernabei, R., 1998	2/3	3/5	4/5	3/5	2/4	14/22
Stuck, A.E., 1995	2/3	4/5	5/5	4/5	3/4	18/22
Stuck, A.E., 2000	2/3	4/5	4/5	3/5	2/4	15/22
Robertson, M.C., 2001	2/3	5/5	4/5	5/5	3/4	19/22
Clinics vs Home Care						
Morrell, C.J., 1998	2/3	3/5	3/5	3/5	2/4	13/22

Impetus for hospital in the home services include constraints on acute care hospital beds, the availability of user friendly technology such as intravenous pumps, respiratory ventilation and specific clinical care protocols that allow for movement of patients to their home.

HITH differs from regular home care in the number and time of available visits, the requirement for in home physician visits, and allied health professionals, such as respiratory therapy and physical therapy. Clients may receive two, three or four nursing visits per day as well as on call availability of nursing staff.

Four randomized control trial studies comparing HITH against standardized home care satisfied at least three of the cost effectiveness criteria and were included in the review of the literature (Coast, 1998; Shepperd, 1998a,b; Jones, et al, 1999; Wilson, et al, 1999; Jester, 2003). One review article, which included two of the three individual studies is discussed because it included cost as one of the measured variables (Shepperd, 2003). A summary of the four individual studies, followed by the review article, is analyzed in Table 3.

Table 3

HITH vs Acute Care Hospital Care
Analysis of Studies

Study (Location)	Conceptual Framework		Number Allocated Intervention / Control Group
	Research Question	Patient Selection	
<p>Wilson, A., et al (1999) "Randomized Control Trial of Effectiveness of Leicester Hospital at Home Scheme Compared with Hospital Care" <u>British Medical Journal</u> 319: 1542-1546</p> <p>Jones, J., et al (1999) "Economic Evaluation of Hospital at Home versus Hospital Care: Cost Minimalization Analysis of Data from Randomized Control Trial" <u>British Medical Journal</u> 319: 1547-1550 (England)</p>	Are hospital at home costs lower than hospital costs for patients discharged earlier than normal?	Largest diagnostic group = cardiac and respiratory requiring hospital admission but suitable for "hospital at home project"	n=199 Hospital group = 97 Hospital at home = 102
<p>Randomized controlled trial comparing hospital at home care with inpatient hospital care I: three month follow-up of health outcomes (Shepperd, S. 1998) (England)</p> <p>Randomized controlled trial comparing hospital at home care with inpatient hospital care II: cost minimalization analysis</p>	Are hospital at home costs lower for patients with specific diagnoses or recovering from specific procedures?	Patients recovering from ¹ hip or ² knee replacement, ³ hysterectomy, ⁴ COPP, ⁵ elderly with mixed diagnoses	¹ n = 86 ² n = 86 ³ n = 238 ⁴ n = 32 ⁵ n = 96

Study (Location)	Conceptual Framework		Number Allocated Intervention / Control Group
	Research Question	Patient Selection	
(Shepperd, S. 1998) (England)			
Hospital at home or acute hospital care? A cost minimalization analysis (Coast, J. 1998) (England)	Are hospital at home costs lower than hospital costs for patients discharged earlier than normal?	Medically stable elderly patients with surgical, orthopaedic or medical diagnoses who had potential for good rehabilitative outcome	n = 241 Hospital home = 158 Hospital = 78
Using cost effectiveness to compare hospital at home and inpatient interventions (Jester, R., 2003)	Is hospital in the home more cost-effective than hospital for patients with joint replacement?	Patients who had total joint replacement	n = 109 joint replacement patients Hospital at home = 64 Hospital = 45

Study (Location)	Methodology		Intervention / Standard Care	Follow-up
	Effectiveness Outcome Measures	Efficiency (Costing) Outcome Measures		
Wilson, A., et al (1999) "Randomized Control Trial of Effectiveness of Leicester Hospital at Home Scheme Compared with Hospital Care" <u>British Medical Journal</u> 319: 1542-1546 Jones, J., et al (1999) "Economic Evaluation of Hospital at Home versus Hospital Care: Cost	Mortality, Change in health status (sickness impact) Cognitive function (CAPE) Dependence (Barthel index) Quality of Life (EuroQol) Philadelphia Geriatric Morale Index	Costs to government, social services, & costs to patients & families measured during admission and 3 months after admission	Nursing care in the home	2 weeks & 3 months after discharge from treatment

Study (Location)	Methodology		Intervention / Standard Care	Follow-up
	Effectiveness Outcome Measures	Efficiency (Costing) Outcome Measures		
Minimalization Analysis of Data from Randomized Control Trial" <u>British Medical Journal</u> 319: 1547-1550 (England)				
Randomized controlled trial comparing hospital at home care with inpatient hospital care I: three month follow-up of health outcomes (Shepperd, S. 1998) (England)	Patients general health status (Dartmouth COOP) Physical functioning (SF-36) Disease specific measures for COPD, (COPD questionnaire) Elderly (Barthel index) Hip (Oxford hip score) Knee (Bristol knee score)	Hospital costs, based on workload measurement scores Equipment, supplies & fixed costs (land and buildings) for hospital PT, OT hospital charges HITH direct & indirect costs HITH equipment & supplies	HITH care "more than is normally available through NHS community care" included: <ul style="list-style-type: none"> • 24 hour nursing care • observation • IV care • Rehab, nursing care • General practitioners visits 	Questionnaires repeated at one and three months
Randomized controlled trial comparing hospital at home care with inpatient hospital care II: cost minimalization analysis (Shepperd, S. 1998) (England)	Caregivers (caregiver strain index) and caregivers preferred form of care Mortality Hospital readmission	HITH travel costs Caregiver costs kept track of via diaries		
Hospital at home or acute hospital care? A cost minimalization analysis	Mortality	Direct & indirect costs only	Usual hospital/home care	
				Costs of hospital at home and hospital tracked for 3 months.

Study (Location)	Methodology		Intervention / Standard Care	Follow-up
	Effectiveness Outcome Measures	Efficiency (Costing) Outcome Measures		
(Coast, J. 1998) (England)				
Using cost effectiveness to compare hospital at home and inpatient interventions (Jester, 2003)	<ul style="list-style-type: none"> - hospital readmission rates - length of stay in hospital - patient and caregiver satisfaction - amount of joint stiffness 	<ul style="list-style-type: none"> - direct costs for HITH included nursing, therapy, costs, travel; indirect costs included set up costs & administration - direct costs per hospital day included nursing, therapy, medication, pt transport; indirect costs included utilities, administration & maintenance - amount of community and outpatient services in home setting - mean length of total treatment multiplied by cost / treatment / day 	<ul style="list-style-type: none"> - regular RN/PT visits to home clients - regular hospital care for hospital group - caregivers interviewed to determine costs they incurred 	Patients followed for 6 weeks post-op

Study (Location)	Results	
	Statistical Analysis	Discussion / Limitation
Wilson, A., et al (1999) "Randomized Control Trial of Effectiveness of Leicester Hospital at	Shorter length of stay for hospital in home group. Similar death rates in both	Patients preferred to be treated in their home HITH £3671 vs hospital £3877

Study (Location)	Results	
	Statistical Analysis	Discussion / Limitation
<p>Home Scheme Compared with Hospital Care" <u>British Medical Journal</u> 319: 1542-1546</p> <p>Jones, J., et al (1999) "Economic Evaluation of Hospital at Home versus Hospital Care: Cost Minimalization Analysis of Data from Randomized Control Trial" <u>British Medical Journal</u> 319: 1547-1550 (England)</p>	<p>groups (Cox proportional hazard model).</p> <p>Slightly higher rate of emergency admission to hospital in hospital at home group.</p> <p>No differences in measures of health status.</p> <p>No differences in measures of health status of independence.</p> <p>Power of study determined from Barthel index and sickness impact.</p>	<p>(lower costs for HITH group) however costs per day of care were higher for HITH group (mean £207) vs (mean £ 134) in hospital group (p<.001)</p>
<p>Randomized controlled trial comparing hospital at home care with inpatient hospital care I: three month follow-up of health outcomes</p> <p>(Shepperd, S. 1998) (England)</p> <p>Randomized controlled trial comparing hospital at home care with inpatient hospital care II: cost minimalization analysis</p> <p>(Shepperd, S. 1998) (England)</p>	<p>No significant difference for any group except 30% hospital at home knee patients required hospital care.</p> <p>All patients preferred hospital at home except COPD patients.</p> <p>Power of study determined for each group of patients: hip, knee (health care cost), COPD (COPD questionnaire), hysterectomy (S-36), medical elderly (Barthel index)</p> <p>No difference detected in total health care costs between hospital at home and hospital patients.</p>	<p>Not clear why patients preferred hospital in home</p> <p>Total treatment time for HITH patients <u>longer</u> than patients treated in hospital.</p> <p>Costs significantly increased for patients with:</p> <ul style="list-style-type: none"> • hysterectomy • COPD <p>General practitioners costs increased for HITH patients:</p> <ul style="list-style-type: none"> • elderly medical • COPD <p>Results suggest hospital in home merely shifts costs from one location to another.</p>
<p>Hospital at home or acute hospital care? A cost minimalization analysis</p> <p>(Coast, J. 1998) (England)</p>	<p>Total costs per patient based on mean cost of each resource item and then aggregated to estimate total cost per patient. Statistical analysis of costs not done.</p> <p>Caregiver costs <u>not</u> included.</p>	<p>Hospital at home costs were <u>lower</u> than costs of continued hospital care.</p> <p>Costs of GP increased only slightly and all other social costs stayed same for both arms.</p>

Study (Location)	Results	
	Statistical Analysis	Discussion / Limitation
	Sensitivity analysis shows HITH less costly until hospital costs are reduced by 50%.	
Using cost effectiveness to compare hospital at home and inpatient interventions (Jester, 2003)	<ul style="list-style-type: none"> - improved level of joint stiffness in HITH - improved level of patient and caregiver satisfaction in HITH - amount of time patients spent with physical therapy equal in both groups - additional outpatient and community interventions for hospital in home patients 	<ul style="list-style-type: none"> - Hospital in home less costly due to reduced hospital length of stay and cost per treatment day - Reduced joint stiffness in HITH group may be related to reduced LOS in hospital - HITH patients and carers may have increased psychological well-being due to reduced LOS in hospital. - HITH caregivers reported less travel time but lost income and some supplies costs; did not cost out caregiver time

Perspective of Analysis: HITH vs. Hospital Care:

All four studies partially considered the societal perspective. All measured costs to government for hospital and community services, but only one of the studies asked the caregivers to keep track of the costs they incurred, through documentation in a diary (Shepperd, S., 1998) , and three of the studies asked for caregiver satisfaction for HITH versus hospital care (Wilson, 1999; Shepperd, 1998; Jester, 2003). None of the studies calculated time lost from the client, or opportunity cost for time spent in illness or the intervention. The most common missing component was total costs to the caregiver.

Identification of Net Effects:

Effectiveness measures for two of the HITH studies resulted in no significant difference.

Wilson measured health status by Sickness Impact Profile 68 at two and three months

with no change; Shepperd measured disease specific indices for chronic obstructive pulmonary disease (COPD questionnaire), hip (Oxford hip index) knee (Bristol knee score), hysterectomy (SF-36), and elderly (Barthel index), at 3 months follow-up with no clinically important differences in health status, except hip HITH patients had improved quality of life (difference in change from baseline value = 0.50 (95% CI 0.13, 0.88)) (Wilson, 1999; Shepperd, 1998).

Client satisfaction was measured in the Shepperd study and indicated all five groups of patients except those with chronic obstructive lung disease preferred HITH (Shepperd, 1998). Caregivers in the Shepperd study preferred HITH except for those assisting clients recovering from hysterectomy. Jester reported improvements in joint stiffness, client satisfaction and career satisfaction for the HITH group (Jester, 2003).

Identification Net Costs: HITH vs. Hospital Care:

The methodology used to measure direct and indirect costs of hospital care and HITH differed in each study. Shepperd measured the time profile for hospital care for each of the five clinical groups and included the dependency scores (workload measurement) to reflect the decreasing nursing and physician hours required as the client recovered (Shepperd, 1998b). These scores were used to weigh the costs for each day that a client spent in a hospital. Coast used a sensitivity analysis and assumed the resources required would be either 75% or 50% of the average hospital cost per day (Coast, 1998). Jones based the hospital costs on length of stay and costs of specialty with no additional information on how they accounted for decreasing costs at the end of a clients stay in

hospital (Jones, 1999). These different methods of calculating hospital costs reflects the absence of standardization.

Equipment and supplies support cost items and capital charges for land and buildings were calculated on a charge per bed day in the Shepperd study but these items were not mentioned in the other three studies. Actual charges for physiotherapy, occupational therapy while in hospital were calculated by client in the Shepperd study.

The HITH costs were calculated in all four studies on a time per client basis and charged according to the specific level of practitioner, and the concomitant salary. Administrative costs, which would include office space, office equipment and communication, staff training, were included in the Shepperd study but not specific in the other studies. Medical equipment and supplies were depreciated over a 10 year period with a discount rate of 6% (Shepperd, 1998b; Coast, 1998; Jones, 1999).

Two of the four studies had difficulty with the HITH being utilized at full capacity, which resulted in increased unit costs. The capacity factor was included in the sensitivity analysis in two of the studies which contributed in keeping the HITH costs lower than originally calculated in the results (Coast, 1998; Jones, 1999). Start up costs may be a factor in doing a study comparison of two interventions, but should be identified and kept separate from the average cost per case. Ongoing maintenance and capital replacement costs need to be included in the indirect administrative costs. The Jester study was the

only study that identified start up costs, including new equipment, advertising and recruiting and training new team members. (Jester, 2003).

General practitioner costs are known to be higher in HITH. The College of Family Practitioner Home Care Survey cited time pressure, potential loss of income as the most significant barriers for family practitioners carrying out home care visits (College of Family Physicians of Canada, 2000). All four studies calculated physician at home visits but did not comment on numbers of visits or reasons for the visits.

Travel in all four studies were calculated using average mileage rates per government or agency standard. The costs of drugs were obtained from the hospital pharmacy department.

Caregiver costs were acknowledged but only calculated in the Shepperd study using a diary method to record expenditure, equipment, and travel related to care of the client. The calculations included time off work to care and loss of earnings to care for the client. There were no significant differences between the hospital and HITH group for expenses incurred by the caregivers. (Shepperd, 1998b).

Analysis of Costs and Effects: HITH vs. Hospital Care:

All four studies conducted a sensitivity analysis, either by reducing HITH costs due to unused capacity, or by reducing length of stay in hospital and comparing the results.

None of the four studies incorporated the clients' preference through a utility or quality of

life years analysis. However, client preference of whether they preferred HITH or hospital was asked in the Shepperd study, resulting in clients preference for HITH, except for participant clients with chronic obstructive lung disease (Shepperd, 1998a). It is important to consider however, that two of the four studies reported increased satisfaction for both client and caregivers which should be factored into the CEA measurement (Shepperd, 1998a); Jester, 2003). Jester's study found less joint stiffness with the HITH group which could have been related to the increased psychological well-being of both clients and caregivers, which in turn resulted in increased level of compliance, reduced length of stay and improved outcomes (Jester, 2003).

Decision Outcome: HITH vs. Hospital Care:

The outcome of the cost effectiveness analysis of three of four studies concluded that HITH is more cost effective, or potentially more cost effective than hospital care (Jones, 1999; Coast, 1998, Jester, 2003) . However, two of the four had no significance testing. In the Jones study, the mean costs per episode of HITH was slightly less than hospital, whereas the cost per day was higher in the HITH group (£ 207 (HITH) vs £ 134 (hospital) ($p < .001$) (Jones, 1999). The most complete statistical analysis was that of Shepperd who concluded that HITH did not reduce total healthcare costs for the five conditions studied in her study and significantly increased for those with hysterectomy and chronic obstructive lung disease.

Hospital in the Home vs. Hospital Care – Review Article

A Cochrane review of hospital in the home vs. in-patient hospital care of 16 randomized central trials was included in the literature search and is summarized in Table 4 (Shepperd, 2003). The Coast, (1998), Wilson (1999) and Shepperd (1998b) HITH cost effectiveness studies were included in the review and their results will not be repeated.

Perspective of the Analysis: HITH vs. Hospital Care – Review Article

The review did not comment on whether or not the societal point of view was taken in the 13 other studies, although it was clear in the analysis of the 13 studies that the provider and client costs were included, while caregiver costs were not consistently measured.

Identification of Net Costs: HITH vs. Hospital Care – Review Article

Overall, the studies that measured costs did not support that hospital in the home produced cost savings to their health system. Average costs, rather than marginal costs were used, details regarding the measurement and evaluation of benefits, and volume of resources used was not always provided in the data analysis and statistical significance of outcomes was not listed (Rudd, 1997; Hughes, 1992). Using average hospital costs overestimate the savings from HITH because intensity of care decreases as the client reaches discharge, as well, the hospital costs should be based on the actual costs of the clients who are participating in the study (Lilford, 1998).

Table 4

Hospital vs the Home: Analysis of Review Article

Study (Location)	Conceptual Framework	
	Main Objectives	Type of Analysis
Hospital at Home versus In-Patient Hospital Care (Shepperd, S., 2003)	<ol style="list-style-type: none"> 1. Do patients admitted to hospital at home have different health outcomes than patients being managed in inpatient hospital care? 2. Does patient satisfaction differ between hospital at home care and inpatient hospital care? 3. Does the workload of physicians working in primary care change as a result of hospital at home? 4. Do readmission rates differ for patients admitted to hospital at home compared with those who remain in hospital and are discharged at the standard time? 	<p>Meta-analysis performed for mortality readmission rates, hospital length of stay and total length of stay</p> <p>Health outcomes could not be compared due to large numbers of measurement tools used and different scales adopted.</p> <p>Direct comparison of costs could not be done</p>

Study (Location)	Methodology	
	Outcomes / Measures	Number of Studies and Dates of Publication
Hospital at Home versus In-Patient Hospital Care (Shepperd, S., 2003)	<ul style="list-style-type: none"> - Mortality - Clinical complications - Re-admission / hospital days saved - General and disease specific health status - Functional status - Psychological wellbeing - Patient satisfaction - Caregiver satisfaction - Caregiver burden - Staff views <p>Cost:</p> <ol style="list-style-type: none"> 1. to patient / family 2. to general practice 3. to hospital and community 	<ul style="list-style-type: none"> - 11 trials: elderly medical patients (1994 – 2000) - 3 trials: elective surgery (1978 – 1998) - 2 trials: terminal illness (1992 – 1998) - 1 trial: medical surgical patients (1998)

Study (Location)	Results
Hospital at Home versus In-Patient Hospital Care (Shepperd, S., 2003)	<ul style="list-style-type: none"> - no difference in mortality and readmission rates - few differences detected in clinical complications, general and disease specific status outcomes - patient satisfaction mixed but more satisfaction with hospital in the home - caregiver satisfaction less satisfied with hospital in home for specific conditions: elective surgery, but more satisfied for terminal illness patients - overall hospital in home does not appear to produce cost savings

Identification of Net Effects: HITH vs. Hospital Care – Review Article

A meta analysis was possible only on mortality, length of stay, and hospital readmission rates, which failed to detect a difference between the HITH and hospital groups. The meta analysis grouped the studies into elderly medical, surgical, admission avoidance and early discharge. The type and number of studies that used the particular indicator, i.e. mortality, hospital readmission or length of stay, are listed in parentheses.

Mortality (meta analysis)

Elderly Medical (8 studies)	*OR = 1.0 (C.I. 0.70, 1.44)
Surgical (3 studies)	OR = 0.17 (C.I. 0.00, 9.06)
Admission Avoidance (2 studies)	OR = 0.83 (C.I. 0.48, 1.44)
Early Discharge (1 study)	OR = 1.01 (C.I. 0.37, 2.81)

Hospital Readmission Rate (meta-analysis)

Elderly Medical (5 studies)	OR = 1.23 (C.I. 0.83, 1.80)
Surgical (5 studies)	OR = 1.08 (C.I. 0.67, 1.74)
Admission Avoidance / Outreach (3 studies)	OR = 1.16 (C.I. 0.72, 1.85)

Total Length of Stay (meta-analysis)

Elderly Medical (3 studies)	**WMD = 2.56 (C.I. 0.73, 5.86)
Surgical (4 studies)	WMD = 1.87 (C.I. 1.22, 2.51)
Admission Avoidance (2 studies)	WMD = -14.13 (C.I. -21.11, -7.15)

* Odds ratio = OR

** Weighted Mean Difference

Although hospital length of stay was reduced, this was offset by increasing the total length of stay of care for clients using HITH. Client satisfaction was increased for the HITH groups but it was not clear what aspect shaped their preference for hospital in the

home. In addition, Shepperd cautions that the satisfaction of clients must be balanced against the satisfaction of the caregivers, which, while a majority of the studies indicated no difference, three studies showed a decreased satisfaction and only two studies showed an increase level of satisfaction for caregivers (Shepperd, 2003).

Decision Outcome: HITH vs. Hospital Care Review Article

The outcome of the meta-analysis concludes that HITH should not be supported as a cheaper alternative to inpatient care, unless used as an alternate to increase the number of hospitals beds. In addition, HITH services must be fully utilized in order to achieve economies of scale. Client and caregiver satisfaction should be balanced. HITH services could be combined with rapid response, palliative care teams, or medical assessment services in Emergency Departments to make it more cost efficient (Shepperd, 2003).

Cost Effectiveness Studies Comparing Home Care

As a Substitute for Acute Care – Specific Disease Populations

A small number of cost effectiveness studies were found comparing home care as a substitute for acute care of specific disease populations. This specific review limited the disease populations to adult medical / surgical populations, although a number of excellent CEA studies were found for pediatrics and mental health, investigating the cost effectiveness of home interventions compared to hospital (Knapp, 1994, Parker, 2002). A number of CEA studies comparing the cost effectiveness of COPD or stroke patients to early discharge interventions were supportive of early discharge to home but their sample

size was less than 100 clients (Nicholson, 2001; VonKoch, 2001). A summary of the two studies (three papers) is analyzed in Table 5.

Table 5

Home Care As a Substitute for Acute Care
Analysis of Studies

Study (Location)	Conceptual Framework		Number Allocated Intervention / Control Group
	Research Question	Patient Selection	
<p>Randomized controlled trial in patients with exacerbation of chronic obstructive pulmonary disease (COPD)</p> <p>(Skwarska, E., 2000) (England)</p>	<p>What proportion of COPD patients can be cared for at home?</p> <p>Are there differences in readmission rates, quality of life between home and hospital patients?</p> <p>Is satisfaction as good in home as hospital group?</p> <p>Is home service economically viable?</p>	<p>Patients with exacerbation of COPD assessed in ER and randomized 2:1 to home support vs hospital</p> <p>Respiratory assessment: spirometry, chest x-ray, sputum culture, oxygen saturation, to determine admission into study</p>	<p>Hospital = 61 Home = 122</p>
<p>Home or hospital for stroke rehabilitation?</p> <p>Results of a Randomized Controlled Trial</p> <p>I. Health Outcomes at 6 months</p> <p>(Anderson, C., 2000)</p> <p>Home or Hospital for Stroke Rehabilitation?</p> <p>Results of a Randomized Controlled Trial</p> <p>II. Cost Minimalization Analysis at 6 months</p> <p>(Anderson, C., 2000) (Australia)</p>	<p>What is the effectiveness and efficiency of an early hospital discharge and home-based rehabilitation scheme for patients with acute stroke?</p>	<p>Stroke patients from 2 teaching hospitals randomized to early discharge of home based or hospital rehabilitation</p> <p>Eligible patients: Medically stable patients with sufficient cognitive and physical function / suitable home / willing caregiver</p> <p>Hospital rehab patients used care pathways and usual out patient care policies</p>	<p>Hospital rehab: n = 44 Home rehab: n = 42</p>

Study (Location)	Methodology			
	Effectiveness Outcome Measures	Efficiency (Costing) Outcome Measures	Intervention / Standard Care	Follow-up
Randomized controlled trial in patients with exacerbation of chronic obstructive pulmonary disease (Skwarska, E., 2000) (England)	Spirometry tests Quality of Life: Chronic Respiratory Questionnaire - Readmission to hospital for both groups - Satisfaction of general practitioners with home services	Hospital costs based on average length of stay, average drug costs for COPD Clients Clients asked about: MD visits, social work services, and amount of care from informal caregivers Home costs based on visit costs, drug costs (non-specific)	Home group: appropriate drug therapy / RN visiting every 2-3 days MD support available on call Hospital group; regular hospital care	Both groups assessed 8 weeks after initial assessment
Home or hospital for stroke rehabilitation? Results of a Randomized Controlled Trial I. Health Outcomes at 6 months (Anderson, C., 2000)	SF-36 for general health status Barthel Index for ADL assessment Mini-Mental State Examination for mental status. General Health Questionnaire for cognitive state	Hospital costs based on average costs Home costs based on direct and overhead costs, travel time Community services tracked per patient Caregiver costs calculated from self-reported questionnaire	Coordinator of team of OT/PT/rehab nurses arranged plan of care for home rehab including adaptations to home therapy sessions in home with emphasis on self-learning and adjustment to disability	1, 3, 6, 12 month follow-up in home by independent research nurse. All outcome measures administered to <u>patients</u> and <u>caregivers</u> at each follow-up meeting
Home or Hospital for Stroke Rehabilitation? Results of a Randomized Controlled Trial II. Cost Minimalization Analysis at 6 months; (Anderson, C., 2000) (Australia)	Adelaide Activities Profile for lifestyles of older people (domestic chores, household maintenance, service to others, social activities); McMaster Family Assessment Device for family dynamics and non-ADL activities; Readmission to hospital / residential care LOS in hospital; Patient & caregiver satisfaction	Drug costs not calculated for both groups		

Study (Location)	Results	
	Statistical Analysis	Discussion / Limitation
<p>Randomized controlled trial in patients with exacerbation of chronic obstructive pulmonary disease</p> <p>(Skwarska, E., 2000) (England)</p>	<p>No statistical differences between 2 groups on admission.</p> <p>25% of home support group and 34% of hospital group readmitted before 8 weeks ($p > 0.05$)</p> <p>Median time to discharge from service was 7 days for home support group and 5 days for hospital group ($p < 0.01$)</p> <p>No significant difference in number of GP visits</p> <p>No significant difference between 2 groups on Chronic Respiratory Questionnaire</p> <p>95% home support group "completely satisfied"</p> <p>50% of GPs responded to questionnaire: 65% stated home service did not increase demands</p>	<p>23% of COPD patients in ER could be cared for at home effectively and more efficiently.</p> <p>Cursory sensitivity analysis done to eliminate fixed costs of hospital</p> <p>No caregiver costs or other support services</p> <p>Cost per home patient: £877 Cost per hospital patient: £1753</p>
<p>Home or hospital for stroke rehabilitation? Results of a Randomized Controlled Trial I. Health Outcomes at 6 months</p> <p>(Anderson, C., 2000)</p> <p>Home or Hospital for Stroke Rehabilitation? Results of a Randomized Controlled Trial II. Cost Minimalization Analysis at 6 months</p> <p>(Anderson, C., 2000) (Australia)</p>	<p>Duration of home based rehab was 5 weeks (median)</p> <p>LOS in hospital for control = 30 days, for intervention group = 15 days ($p < 0.001$)</p> <p>No significant differences in frequencies of readmission to hospital, use of community services, or admission to residential care.</p> <p>No significant differences in any of outcome measures.</p> <p>Caregivers in intervention group had lower general mental health scores on SF-36; caregiver satisfaction did not differ</p>	<p>Accelerated discharge of stroke patients is less expensive and as effective as traditional rehab care in hospital.</p> <p>However, increased focus on emotional support for caregivers is recommended for early discharge of stroke patients.</p> <p>Home base rehab cost / pt = \$8,040 / pt for 6 months Hospital rehab cost / pt = \$10,054 / pt for 6 months (not significant) ($p = .14$)</p> <p>Functional status is independent predictor of cost in home based rehab; low level of disability; had lower costs after adjustment for</p>

Study (Location)	Results	
	Statistical Analysis	Discussion / Limitation
	<p>between the groups</p> <p>Multiple regression analysis showed cost of home based program was related to level of disability after adjustment for age, co-morbidity and presence or absence of caregiver</p>	<p>age, co-morbidity and presence or absence of caregiver</p>

Perspective of the Analysis: Home Care vs. Hospital Care

The two studies were conducted from the perspective of the health care system (government), patients, and in the Anderson study, the caregiver (Skwarska, 2000; Anderson, 2000a,b). Community support costs in the Anderson study included therapy, meals on wheels, respite care and alternative therapies. Neither study included the opportunity costs to the client for time spent in illness or intervention.

Identification of Net Costs: Home Care vs. Hospital Care

Anderson included an in-depth analysis of the direct and overhead rehabilitation hospital costs, equipment used in the home, direct and indirect home care costs and all community services. Rehabilitation hospital costs were calculated rather than acute hospital costs, as the average cost per day in rehabilitation was considered a more valid estimate of actual marginal (end of stay) acute hospital costs. Caregiver costs were based on cost of informal care in a hostel like residential care. (Anderson, 2000).

Skwarska used average hospital costs, but considered the impact of average costing versus marginal costing by doing a sensitivity analysis to eliminate the impact of the fixed costs. (Skwarska, 2000). Direct costs for the home group were included, but not indirect costs for overhead and administration, travel costs or caregiver costs which minimized the actual home care costs.

Identification of Net Effects: Home Care vs. Hospital Care

Both studies showed no significant differences in the effectiveness measures for the chronic respiratory questionnaire results (Skwarska) or the extensive general health, activities of daily living (ADL), instrumental activities of daily living (IADL), or mental health questionnaire in the Anderson study. The median time to discharge from service was seven days for the home support group and five days for the hospital group in the COPD study ($p < 0.01$) however, 25% of the home group and 34% of the hospital group were readmitted before 8 weeks ($p > 0.05$). (Skwarska, 2000). Length of stay in the rehabilitation hospital for the stroke client was 30 days and for the home group, 15 days ($p < 0.001$) therefore, in both studies, total hospital stay with readmission was less than the home group (Anderson, 2000a).

The caregiver satisfaction was not measured in the Skwarska study. There were no differences in caregiver satisfaction in the Anderson study, although the caregivers in the home group had lower, but not significant general mental health scores on the SF – 36.

The costs of the home group in both studies was less than the hospital group, although no statistical testing was done for the COPD group (hospital = £ 1753, home = £ 877); the difference was not significant in the stroke group (hospital = \$10,054 for 6 months; home = \$8040 for 6 months) ($p = 0.14$).

Analysis of Costs and Effects: Home Care vs. Hospital Care

Neither of the studies measured the utility or quality of life years, nor cost to effect ratios (CER). Multiple regression analysis, which showed cost of home based stroke program was related to level of disability after adjusted for demographics and presence or absence of caregiver (Anderson, 2000).

Decision Outcome: Home Care vs. Hospital Care

Both studies supported early discharge to home with nursing support for both specific disease groups. Although not all of the clinical and satisfaction outcomes were statistically significant, the studies supported the effectiveness of the early home intervention and the cost difference supported the efficiency.

Home Care as a Substitute for Acute Care – Review Articles

Two review articles were analyzed for their content on measuring the health and cost effects of substituting home care for inpatient acute care (Soderstrom, 1999, Anderson,

2002). Soderstrom included medical/surgical home case studies in his review, whereas Anderson's review was limited to stroke patients (see summary in Table 6).

In the first review, fourteen studies, completed between 1975 to 1998, passing some but not all of the internal validity criteria were reviewed to determine if sending clients home early from hospital adversely affected the health of the client, the caregiver and the effect on public and private costs (Soderstrom, 1999). The interest in this article was on the methodology used to evaluate the question of health and cost effects. The internal validity measures included:

- client eligible for home care
- comparable clients in home and hospital care group
- adequate patient sample size
- appropriate analytical techniques
- appropriate health measures
- appropriate costing methods

Table 6

Home Care as a Substitute for Acute Care: Analysis of Review Articles

Study (Location)	Conceptual Framework	
	Main Objectives	Type of Analysis
Stroke Rehabilitation Services to Accelerate Hospital Discharge and Provide Home-Based Care: An Overview and Cost Analysis (Anderson, C., 2002) (Australia)	<p>To analyze whether health outcomes following early discharge could be improved or maintained at the same or lower cost.</p> <p>To compare continued rehabilitation in hospital (including conventional discharge and rehabilitation at home) for patients with stroke who were admitted to hospital.</p>	Systematic review with meta-analysis and economic analysis of published randomized clinical trials.

Study (Location)	Methodology	
	Outcomes / Measures	Number of Studies and Dates of Publication
Stroke Rehabilitation Services to Accelerate Hospital Discharge and Provide Home-Based Care: An Overview and Cost Analysis (Anderson, C., 2002) (Australia)	<ul style="list-style-type: none"> - mortality - requirement for institutional care - disability - hospital length of stay - readmission to hospital - admission to residential care - resource use: <ul style="list-style-type: none"> o hospital days o rehabilitation at home o community services o other expenses - determined costs over 12 months (extrapolated from 7 studies) <p>* quality of life not included due to variability in instruments used across studies</p>	<ul style="list-style-type: none"> - 7 trials involving 1,277 patients (1997 – 2000)

Study (Location)	Results
<p>Stroke Rehabilitation Services to Accelerate Hospital Discharge and Provide Home-Based Care: An Overview and Cost Analysis</p> <p>(Anderson, C., 2002) (Australia)</p>	<ul style="list-style-type: none"> - No significant effect on mortality (odds ratio = .95, 95% CI: 0.65 to 1.38) - No significant effect on clinical outcomes - Mean costs were 15% lower for early discharge intervention patients - Significant differences in average length of stay in hospital between patients receiving early hospital discharge and those reviewing usual care - Patients in early discharge scheme had small non-significant trend to experience increased risk of readmission - Early discharge scheme = 12 fewer days in hospital, but with 17 more visits for home-based therapy

Study (Location)	Conceptual Framework	
	Main Objectives	Type of Analysis
The Health and Cost Effects of Substituting Home Care for Inpatient Acute Care: A Review of the Evidence (Soderstrom, L., 1999)	To determine the effects of acute home care on the health of patients and caregivers and on the social costs of managing the patients' health conditions. 1. Does acute home care adversely affect the health of patients? 2. Does acute home care adversely affect health of caregivers? 3. Does acute home care reduce public and private costs? (social costs = public and private costs)	Systematic review Internal criteria: a) patients eligible for home care b) comparable patients in home and hospital care group c) adequate patient sample size d) appropriate analytical techniques e) appropriate health measures f) appropriate costing methods

Study (Location)	Methodology	
	Outcomes / Measures	Number of Studies and Dates of Publication
The Health and Cost Effects of Substituting Home Care for Inpatient Acute Care: A Review of the Evidence (Soderstrom, L., 1999)	<ul style="list-style-type: none"> - Effects on patients' health - Effects on caregivers' health - Effect on social costs - Effect on health system costs - Effect on caregivers' and patients' costs 	(1975 – 1998) - 14 studies Class I studies (4): passed between 2-5 of Internal Validity Criteria specific conditions studied: 1) hip fracture 2) hip replacement 3) knee replacement 4) COPD 5) Hysterectomy Class II studies (10): only satisfied 2 of the 6 Internal Validity Criteria

Study (Location)	Results
<p>The Health and Cost Effects of Substituting Home Care for Inpatient Acute Care: A Review of the Evidence</p> <p>(Soderstrom, 1999)</p>	<p>Class I studies (4)</p> <ul style="list-style-type: none"> - no notable health effects found for knee replacement / COPD / hysterectomy / elderly medical patients - home care quality of life positive for hip fracture patients - no significant effect in care outcomes - higher readmission rates with home care hip fracture patients - patients receiving home care had better emotional adjustment in short term (1 study) <p>Class II studies (10)</p> <ul style="list-style-type: none"> - (8) home care had no effect on patients' health - (2) home care had no effect on caregivers' health - public and private costs higher with home care except for hip and knee replacement (3 studies)

However, very little information was included on the evaluation of the costing measures and the investigators' criteria adopted for Allred could not be applied. However, in regard to the first criteria, "perspectives of analysis", Soderstrom describes the effect of home care on public and private costs as being the "social cost" effect, including:

- 1) hospital cost savings from shorter stays
- 2) added home care program costs, including outpatient drugs and equipment, private support services and outpatient physician services
- 3) non-health costs to clients and caregivers including babysitting, travel and value of time required to manage the health condition. (Soderstrom, 1999).

The review article concluded from the fourteen publications that acute home care did not consistently reduce public and private costs, primarily for two reasons, that the cost effects may vary among health conditions, e.g. hip fracture show lower private and public costs whereas the costs were higher for hysterectomy clients and secondly, home care is underused for some clients who should be sent home sooner but consistent standards of care are not always applied (Soderstrom, 1999).

The second study review, a meta analysis involving 1277 clients, investigated the health and cost effects on stroke clients who experienced an early discharge program. The meta analysis revealed no significant effect on mortality (odds ratio = .95 (95% CI: 0.65, 1.38)) and no significant effect on clinical outcome. However, the mean costs were 15% lower

for the early discharge intervention clients, related to the decreased length of stay in hospital (Anderson, 2002).

The CEA evaluation criteria could not be applied because there was not enough detail on the seven studies, however a number of points can be made about the costing methodology used in the review:

- the average cost of hospital stay included both the acute phase (higher) and the rehabilitation phase (lower);
- the home visits based on average costs of visits, travel and time spent, rather than on actual costs from each study;
- modification costs to the home were assumed to be the same for both the control and intervention groups, which is probably a reasonable assumption;
- a sensitivity analysis was done increasing therapy and community costs by 50%, and early discharge was still less expensive;
- a sensitivity analysis was done decreasing costs of hospital and long term care beds by 50%, showing early discharge was slightly more expensive;
- the cost analysis determined that for every \$68,227 (U.S.) spent, routine rehabilitation in hospital could provide for six clients, whereas early discharge could provide for seven clients (Anderson, 2002).

The limitations of the review included a lack of statistical power because of the small heterogeneous studies, and the pharmaceutical and caregiver costs were not included in

the analysis. However, the sensitivity analysis and overall outcome provided information about the efficiency of the early discharge program.

*Cost Effectiveness Studies Comparing Home Care
As a Substitute for Long Term Care Facilities*

Early U.S. studies in the 1980's measuring quality of life, satisfaction, morbidity, mortality, functional status and admission rates of home care compared to long term care concluded that home care was not a cost effective alternative to long term care (Hollander, 2002). The design of the studies introduced case management and enhanced services to clients already eligible and receiving existing community services. The results found increased quality of life and satisfaction with home care, but no difference in admission to residential care, and increased costs primarily related to the fact that home care and case management were added costs (Berkely Planning Associates, 1995, Mathematica Policy Research Inc., 1986a,b). Subsequent studies of chronically ill individuals receiving home care appeared to have no impact on mortality, patient functioning, long term care placements and indicated that overall health care services and costs were increased (Hedrick & Inui, 1986; Weissert, 1985; Weissert, 1988).

Subsequent studies, in Canada and the U.S. found that home care can be a cost effective substitute for long term care, particularly if clients using home care were stable in their chronicity for the type and level of care (Hollander, 1994; HSURC, 1996, Weissert, 1997). However, most of the early and subsequent studies comparing the costs of home

care as a substitute for long term care did not include the costs of informal supports. One study comparing the cost of home care to long term care did an extensive cost effectiveness analysis, with particular emphasis on data collection and sensitivity analysis of informal costs and is summarized in Table 7 (Hollander, 2002).

Table 7

Home Care as a Substitute for Long Term Care:

Analysis of Studies

Study (Location)	Conceptual Framework		Number Allocated Intervention / Control Group
	Research Question	Patient Selection	
Study of the Costs and Outcomes of Home Care and Residential Long Term Care Services (Hollander, M., 2002) (Canada)	Does it cost less to provide care in the community than in a facility and are the outcomes of care worse, the same or better for community clients compared to facility clients?	Persons > 65 years receiving care in community or long term care facility in Winnipeg, Manitoba, or Victoria, British Columbia Community clients more function than facility clients	Community: n = 222 Facility: n = 358 (63% female) Total: 580 (77% female) Study divided into 2 samples, replication of each other (Victoria and Winnipeg samples) Caregivers = 501

Study (Location)	Methodology		Intervention / Standard Care	Follow-up
	Effectiveness Outcome Measures	Efficiency (Costing) Outcome Measures		
Study of the Costs and Outcomes of Home Care and Residential Long Term Care Services (Hollander, M., 2002) (Canada)	Clients <ul style="list-style-type: none"> - demographic data - functional abilities — functional autonomy measurement system (SMAF) - Health Status = SF36 - Cognitive abilities = mini mental status examination (MMSE) - Self worth = Rosenberg self-esteem scale - Emotional 	Client costs <ul style="list-style-type: none"> - Browne's Health and Social Services Utilization Tool 	Interviews, questionnaires and diaries kept by clients and caregivers for two weeks	Collection of data took place over period of time; one time interviews

Study (Location)	Methodology		Intervention / Standard Care	Follow-up
	Effectiveness Outcome Measures	Efficiency (Costing) Outcome Measures		
	<p>support = Seeman and Berkman social support scale</p> <ul style="list-style-type: none"> - Quality of life = Hadan's Quality of Life Scale, terrible-delightful scale and general satisfaction with life - Satisfaction = Penning & Chappell satisfaction with care related services <p>Caregiver outcomes</p> <ul style="list-style-type: none"> - demographic data - effect of caregiving – Montgomery Burden Scale - types of assistance provided to client - satisfaction = Penning & Chappell satisfaction with services <p>Interviews of client and caregivers</p>	<p>Caregiver costs 2 week diaries: costs of formal and informal caregivers determined through amount of time and types of assistance</p>		

Study (Location)	Results	
	Statistical Analysis	Discussion / Limitation
Study of the Costs and Outcomes of Home Care and Residential Long Term Care	Victoria clients more functional than Winnipeg clients, thus two study sites analyzed separately	Costs were lower for community clients than for facility clients <u>regardless</u> of whether only formal costs for both informal and

Study (Location)	Results	
	Statistical Analysis	Discussion / Limitation
Services (Hollander, M., 2002) (Canada)	<p>In both samples: client results</p> <ul style="list-style-type: none"> - facility clients felt better about overall health than community clients - community clients had higher cognitive functioning - community clients wanted more instrumental support than facility clients - facility clients perceived their health related quality of life to be better than community clients - community and facility clients were comparable with respect to their perceptions of overall quality of life <p>Caregiver results:</p> <ul style="list-style-type: none"> - over 60% of caregivers were children of client - 45% of caregivers were working (79% were 40 hours or less) - Caregivers of facility clients perceived less objective burden but more subjective (emotional) burden than caregivers of community clients 	<p>formal costs were considered. Home care costs for 50% of residential costs when only <u>formal</u> (public) costs considered. However, <u>informal</u> costs from out of pocket and informal caregiver time was one third of overall facility care costs</p> <p>Considerable time and money is spent on care by informal caregivers and clients: \$7,509 for BC home clients and caregivers \$16,746 for Winnipeg home clients and caregivers</p> <p>Costs of care covered by government different in British Columbia vs. Manitoba</p>

Perspective of the Analysis: Home Care vs. Long Term Care

The perspectives of the analysis in the Hollander study are clearly the societal perspective, with particular emphasis on the informal caregiver. The informal care giver costs collected from diaries kept by the caregivers, included time involved in care giving, housekeeping, meal preparation, maintenance, respect and companionship (Hollander, 2002).

An additional strength of the study is the comparison of direct provider costs stratified by level and type of client dependency from two different provinces – British Columbia and Manitoba.

Identification Net Costs: Home Care vs. Long Term Care

The cost analysis compared the cost of providing care to home clients to the cost of facility clients, by level of care, for each province. The costs were calculated by determining a) cost of continuing care services (home support, nursing, therapeutic staff), b) cost of other health services (physician, acute care hospital services); c) purchased services for community clients or user fees for facility (LTC) clients; d) direct informal costs (out of pocket expenditures) provided by clients or informal caregivers; e) the cost of assistance provided by informal caregivers. The cost of informal caregivers used three different approaches to costing the time of the caregiver: zero – pricing, minimum wage and replacement wage.

Whether or not to include facility user fees for clients in long term care facilities is an issue in CEA. Arguments can be made that facility user fees are an extra cost to the client and should be included, as an additional cost, whereas others argue that food and housing are found by clients whether at home or in long term care, therefore facility user fees should not be included. In the Hollander study, facility user fees were included, and excluded in the sensitivity analysis and found not to have a significant effect (Hollander, 2002).

Identification of Net Effects: Home Care vs. Long Term Care

Facility clients were more satisfied about their overall health than community clients Victoria sample $F(1,136) = 720, p < .01$) and the Winnipeg sample $F(1,72) = 15.55, p < .001$. However, the author had concerns about the internal consistency of this measure (Hollander, 2002).

The community clients had higher cognitive functioning than the facility clients in both samples, and the community clients indicated they would like more instrumental activities of daily living (IADLs) support than facility clients. The facility clients perceived their health related quality of life to be better than community clients.

Caregivers of facility clients from both sites indicated they had less objective burden but more subjective (emotional) burden than caregivers of community clients. In both sites,

caregivers satisfaction with the services clients were receiving was higher than clients satisfaction with the services.

Neither of the samples included an analysis of Quality of Life Years or utility calculations.

Analysis of Costs and Effects: Home Care vs. Long Term Care

A sensitivity analysis was included of the informal caregiver time calculated at zero-costing, minimum wage and replacement costs. The overall costing results, however, indicated that home care costs were 50% of the residential costs when only the public (formal) costs were considered. When the informal costs from out of and caregiver time was valued at replacement cost, the home care costs were two thirds of the facility costs. Considerable time and money were spent on care by informal caregivers and clients: \$7509 annual costs for British Columbia clients and caregivers, compared to \$16,746 for the Winnipeg group (Hollander, 2002).

Decision Outcome: Home Care vs. Long Term Care

The study demonstrated that considerable time and money is spent on care by informal caregivers and clients. Depending on the level of care, families of community (home) clients can contribute in purchased services, out-of pocket expenses and informal caregiver time (costed at replacement wage) one half as much of the cost as government

(British Columbia) and more than the overall cost to government (Manitoba). The study results raises the question as to how much in time and money should community clients and caregivers provide? In addition, the provincial coverage of community and residential services was quite different between the two provinces, and observation noted by other studies (MacAdam, 2000). Overall, however, this CEA study demonstrated that across all levels of care, home care is less costly, for stable clients, than residential long term care when only formal (costs to government) are considered; home care costs are on average 50% of residential care. Informal costs were found to be one third or more of the overall cost of long term care.

*Cost Effectiveness Analysis Studies of
Home Care Preventative Visits to
Improve Independence of Client Functioning*

The third major function of home care is the provision of prevention and promotion services to maintain or improve client independence. The studies investigating effectiveness of prevention measures in home care are inconclusive primarily due to the myriad of interventions employed as prevention and the variety of effectiveness measures used to evaluate the interventions. An extensive review of the prevention literature concluded that important elements for positive outcome included a comprehensive and ongoing assessment by an established multi-disciplinary team, that individualizes the plan of care, and coordinates the services required with the available community services (Markel-Reid, 2003).

A small number of prevention studies were found which included costs as one of the outcome measures (Bernabei, 1998; Stuck, 1995, Stuck, 2000, Robertson, 2001). Four studies satisfied at least three of Alred's criteria for satisfactory cost effectiveness analysis and are detailed in the Table 8. In three of four studies, an extensive geriatric assessment was performed by registered nurses, with unspecified interventions over a period of time (Bernabei, 1998, Stuck, 1995, Stuck, 2000). In the fourth study, the intervention was an exercise program taught and monitored by a registered nurse for elderly clients in their home (Robertson, 2001).

Table 8

Home Care Preventative Visits

Analysis of CEA Studies

Study (Location)	Conceptual Framework		Number Allocated Intervention / Control Group
	Research Question	Patient Selection	
Randomized Trial of Impact of Model of Integrated Care and Case Management for Older People Living in the Community (Bernabei, R., 1998) (Italy)	What is the impact of a program of integrated social and medical care among frail elderly people living in the community?	Subjects >65 receiving home health services in their home	Control: n = 100 Intervention: n = 100
A Trial of Annual In- home Comprehensive Geriatric Assessments for Elderly People Living in the Community (Stuck, A.E., 1995) (United States)	What is the effect of combining comprehensive geriatric assessment directed toward rehabilitation with the recommendations resulting from the assessment?	Subjects >75 years living in community	Intervention: n = 215 Control: n = 199 Sample of 200 subjects in each group sufficient with statistical power of .8 to detect 40% reduction in number of persons with disability and 25% change in hospital admission
A Randomized Trial of In-Home Visits for Disability Prevention in Community Dwelling Older People at Low and High Risks for Nursing Home Admission (Stuck, 2000) (Bern, Switzerland)	Do preventative home visits with annualized multidimensional assessments have more favourable effects on functional status and nursing home admissions in low risk compared with high risk, older persons?	Subjects >75 years living at home Randomization after baseline interview	Low Risk n = 148/296 intervention / control High Risk n = 116/231 intervention / control

Study (Location)	Conceptual Framework		Number Allocated Intervention / Control Group
	Research Question	Patient Selection	
Effectiveness and Economic Evaluation of a Nurse Delivered Exercise Program to prevent Falls 1 Randomized Controlled Trial (Robertson, M.C., 2001) (New Zealand)	To assess the effectiveness of trained RN prescribing home based exercise program to reduce falls and injuries in elderly people and to estimate the cost effectiveness of program.	Male / female > 75 years living at home received letter from MD inviting them into study Baseline assessment completed on 240 consenting clients, by independent assessor, followed by randomization	Exercise group: n = 121 Usual care: n = 119

Study (Location)	Methodology		Intervention / Standard Care	Follow-up
	Effectiveness Outcome Measures	Efficiency (Costing) Outcome Measures		
Randomized Trial of Impact of Model of Integrated Care and Case Management for Older People Living in the Community (Bernabei, R., 1998) (Italy)	<ul style="list-style-type: none"> - admission to long term care - mortality - ADL (6 item scale) - IADL (7 item scale) - Mental Status (Pfeiffer Mental Status Questionnaire) - Geriatric depression scale - Physical exam done by general practitioner - Physical function (British Columbia LTC assessment form) - Intention to treat analysis 	Related costs of health services measured over time, average costs of visits, including salaries of case managers and team	Evaluation unit = geriatrician, RN social work Case manager developed care plan based on assessment and physical exam done by MD Case manager did assessment every two months - unclear what nurse was responsible for in intervention group	Intervention subjects assessed every two months for 1 year Control subjects assessed at beginning and end of study Subjects lost to follow-up not reported
A Trial of Annual In-home Comprehensive Geriatric Assessments for Elderly People Living in the Community (Stuck, A.E., 1995) (United States)	<ul style="list-style-type: none"> - ADLs and IADLs measured - Cognitive function (mini mental state exams) - Depression (geriatric depression scale) - Amount of Medications - Ease of access to external environment 	<ul style="list-style-type: none"> - Annual costs of Nurse Practitioner and .1 geriatrician per 136 clients - Travel, supplies overhead \$48,000/100 persons - Marginal costs for increased visits to 	Comprehensive geriatric assessment completed by gerontologic nurse practitioners included: <ul style="list-style-type: none"> • medical history • physical exam • hematocrit • glucose levels • urinalysis • Oral health • Vision/hearing 	In-home follow up visits of intervention group every three months by nurse practitioner

Study (Location)	Methodology		Intervention / Standard Care	Follow-up
	Effectiveness Outcome Measures	Efficiency (Costing) Outcome Measures		
	<ul style="list-style-type: none"> - Quality of social support - Prevention of nursing home admissions 	<ul style="list-style-type: none"> - physicians (\$18,000/100 persons) - Marginal savings from decreased number of permanent nursing home days (\$42,000/100 persons) - Estimated number of permanent nursing home days avoided equal to \$6,000/year 	<ul style="list-style-type: none"> • Gait and balance • Ideal body weight • Extensiveness of social network / support • Ease of access to external environment • Quality of social support <p>Each year individuals given 5.9 (average) recommendations involving relief of functional problems, medications, use of devices or aids, safety issues, use of community services</p> <p>Primary and secondary prevention stressed (i.e., flu vaccination, eye exams)</p>	
A Randomized Trial of In-Home Visits for Disability Prevention in Community Dwelling Older People at Low and High Risks for Nursing Home	<ul style="list-style-type: none"> - ADLs - IADLs - Self-perceived general health - Number of admissions to nursing home - Cognitive function (mini mental state) 	<p>Cost data: utilization of hospital, ambulatory care obtained from insurance data</p> <p>Personnel costs for RNs, geriatrician, OT,</p>	<p>Multi dimensional geriatric assessment done annually by nurses included:</p> <p>Medical histories, hemotocrit, glucose levels, hearing, vision,</p>	<ul style="list-style-type: none"> - 3 year follow up with 15% drop out rate; do not know how drop out rate in

Study (Location)	Methodology		Intervention / Standard Care	Follow-up
	Effectiveness Outcome Measures	Efficiency (Costing) Outcome Measures		
Admission (Stuck, A.E., 2000) (Bern, Switzerland)	exam) - Depression (Geriatric Depression Scale) - Gait and balance performance - Medication use - Self-reported chronic conditions - Influenza vaccination status	PT, travel, overhead, supplies	nutritional status, oral health, medication use, safety at home, social contacts and support Problem list developed, discussed with geriatrician, recommendations made and follow-up visits made every three months / or phone calls Assess to PT/OT social work if necessary	control compared to intervention group - 8.5 visits made annually over 2 years
Effectiveness and Economic Evaluation of a Nurse Delivered Exercise Program to prevent Falls: Randomized Controlled Trial (Robertson, M.C., 2001) (New Zealand)	- number of falls - injuries resulting from falls separated into serious / moderate / no injury - health status SF36 given at entry	Definition: <u>incremental cost</u> is change in resource use resulting from exercise program <u>Incremental effectiveness</u> is difference between number of falls and number of falls resulting in moderate or serious injury	RN trained in exercise course provided muscle strengthening and balance retraining given over 5 visits at weeks 1, 2, 4, 8 and at 6 months Participants expected to exercise 3x/week for 30 minutes and to walk at least twice per week	12 months

Study (Location)	Results	
	Statistical Analysis	Discussion / Limitation
Randomized Trial of Impact of Model of Integrated Care and Case Management for Older People Living in the Community (Bernabei, R., 1998) (Italy)	<ul style="list-style-type: none"> - no significant different in mortality - all functional outcomes deteriorated in control (C) group compared to intervention (I) group <ul style="list-style-type: none"> ADLS: (-13%)(C) (5.1%)(I) IADLS: (-6.9%)(C) Unchanged (I) Mental status: (-9.4%)(C) (-3.8%)(I) Depression: (-11.8%)(C) (-4%)(I) - medication use decreased in intervention group ($p < 0.05$) - relative risk of admission to nursing home, hospital or ER less in intervention group, but not significant 	<ul style="list-style-type: none"> - intervention group showed less physical and functional decline, resulting in 23% savings \$1,800/person, in health care costs from decreases in nursing home and hospital admissions from number of days saved <p>Costs: did NOT include opportunity and direct costs of caregivers</p>
A Trial of Annual In-home Comprehensive Geriatric Assessments for Elderly People Living in the Community (Stuck, A.E., 1995) (United States)	<ul style="list-style-type: none"> - comparable baseline statistics - all analysis intention to treat - intervention group had higher mean functional status (adjusted odds ratio 0.4, (95% C.I.= 0.2 TO 0.8, $P = 0.02$) to being dependent on assistance for ADLs - intervention group (4%) less likely to be admitted to nursing home than control (10%)($p=0.02$) - no effect on hospital admissions - increased use of community services / physician visits with intervention group - cost of each disability free year of life gained = \$6,000 	<p>Significant reduction in assistance in performing ADLs and reduction in nursing home admissions for intervention group costs included:</p> <ul style="list-style-type: none"> • costs of nurse practitioner / .1 physician • marginal costs of physician visits • marginal costs saved from permanent nursing home placement • hospital and short nursing home stays were equivalent to both groups therefore not included in costing <p>Calculation of marginal costs not included</p>
A Randomized Trial of In-Home Visits for Disability Prevention in	Cost of low risk intervention group was greater \$472 (US) than control group for 2 years, but prevention	Nurse performance of Nurse C differed significantly from Nurse A & B. Nurse C had higher

Study (Location)	Results	
	Statistical Analysis	Discussion / Limitation
<p>Community Dwelling Older People at Low and High Risks for Nursing Home Admission</p> <p>(Stuck, A.E., 2000)</p> <p>(Bern, Switzerland)</p>	<p>of nursing home admissions resulted in net savings of \$1,403 (US) per person per year</p> <p>Increase in ambulatory costs in intervention group, but reduction in nursing home admissions</p> <ul style="list-style-type: none"> - comparable baseline statistics - all analyses intention to treat - no significant difference in mortality, hospital use, depression, affective or cognitive scores - only change in health status was higher influenza vaccination rate in the intervention group, and higher use of medications <p>Low risk intervention group less dependent on others for IADLs with higher use of primary care providers (p=.04)</p> <p>Higher use of nursing homes in high risk intervention groups</p>	<p>number of nursing home admissions compared to controls (p = .002)</p> <p>Increased number of ambulatory care costs for intervention group, during first two years of study</p>
<p>Effectiveness and Economic Evaluation of a Nurse Delivered Exercise Program to prevent Falls</p> <p>1 Randomized Controlled Trial</p> <p>(Robertson, M.C., 2001)</p> <p>(New Zealand)</p>	<p>More participants from exercise group finished trial</p> <ul style="list-style-type: none"> - 53% of exercise group carried out their prescribed exercise - 46% reduction in falls during trial for exercise group (incidence rate ratio = 0.54, 95% CI = .32, .90) - decreased number of serious falls in exercise group – 2 vs 9 (relative risk = 4.6, 95%CI = 1.0, 20.7) same number of moderate falls in both groups - program cost = NZ \$432 per person for 121 persons for one year - incremental cost per fall prevented = NZ \$1,803, but for >80 year old group, 	<p>- trained RN is capable of providing exercise program instead of PT</p>

Study (Location)	Results	
	Statistical Analysis	Discussion / Limitation
	<p>incremental cost per fall prevented was NZ \$682</p> <ul style="list-style-type: none"> - all falls resulting in admission to hospital were all over 80 years and all in control group; hospital cost = NZ \$47,818 - when hospital costs <u>averted</u> and costs for <u>implementation</u> were both used in CE ratios for those >80 years, resulted in cost <u>savings</u> NZ \$576 per fall prevented and NZ \$1,563 per injurious fall 	

Perspective of Analysis: Home Care Prevention Studies

The two Stuck studies and the Bernabei study calculated the costs of the providers who were responsible for the preventive intervention i.e. registered nurses, geriatricians, nurse practitioners, and allied health professionals. Days spent in hospital or a nursing home, were also considered as provider costs. Informal caregivers, and community support costs such as meals on wheels, day away programs, were not considered (Stuck, 1995; Stuck, 2000; Bernabei, 1998).

The Robertson study, investigating a falls prevention program for elderly community clients, described the perspective of the study as “societal.” Costs of the intervention program and those incurred if the client had a moderate or severe fall and was hospitalized during the study were included as direct costs. The costs incurred from a fall were used to calculate the costs saved from the intervention. The costs of informal caregivers and community support programs were not included (Robertson, 2001).

Identification of Net Effects: Home Care Preventative Studies

The effects of the prevention intervention visits in the first Stuck study were mixed: less people in the intervention group required assistance with activities of daily living than the control group (adjusted odd ratio 0.4, 95% CI 0.2, 0.8, $p = 0.02$); less people in the intervention group (4%) than the control group (10%) were permanently admitted to a

nursing home ($p = 0.02$). However, there were no significant differences in admission to acute care hospital and short term nursing home admissions, and there were significantly more visits to physicians in the intervention groups in year 1 ($p = 0.007$) and year 2 ($p = 0.001$) (Stuck, 1995).

The second Stuck study also had mixed results. The surviving participants at lower baseline risk in the intervention group were less dependent in instrumental activities of daily living (IADLS) than the control group (adjusted odds ratio 0.6, 95% CI – 0.3, 1.0, $p = 0.04$). Also nursing home placement was reduced in the low risk intervention group ($p = .004$), which resulted in a net cost saving of US \$1403 / year. However, there were no favourable intervention effects for groups that were at greater risk (Stuck, 2000).

Analysis of Costs and Effects: Preventative Home Care

Stuck calculated the disability from life years gained on the calculation of marginal savings of nursing home days saved (control group) minus the marginal costs of increased number of visits to physicians (intervention group); ($\$42,000 - \$18,000 = \$24,000$). The cost of the disability – free year of life gained was approximately \$6000. No sensitivity analysis was done, or substantive information provided on how the marginal cost analysis was done (Stuck, 1995).

In the second Stuck study, three nurses had been involved in doing the preventive visits. Performance results from one of the nurses differed significantly from the other two

nurses in that one nurse had higher number of nursing home placements. The study concluded that intervention can reduce disabilities among elderly at low risk, but not among those at high risk, and that the effects may be related to the home care workers' performance (Stuck, 2000). Neither of the Stuck studies did cost effectiveness ratios (Stuck, 1995; Stuck, 2000).

The survival analysis of the Bernabei study showed admission to hospital or nursing home in the intervention group occurred later and was less common than in the control group (hazard ratio = 0.69, 95% CI = 0.53, 0.91) (Bernabei, 1998).

Robertson performed a cost effectiveness ratio as follows: The incremental cost was defined as the change in resource use resulting from the exercise program which was divided by the incremental effect, defined as the difference between the number of falls (no injury) and number of falls resulting in moderate serious injury in the two groups. The resulting incremental cost per fall prevented was NZ \$ 682 for clients over 80 years old. All of the clients who had moderate or severe falls were over 80 years old and in the control group (Robertson, 2001).

Decision Outcome: Home Care Prevention Studies

For the first Stuck study (1995), the three year program of comprehensive in home geriatric assessments and subsequent visits by nurse practitioner concentrating on reducing risk factors resulted in prevention of decline in functional status of the clients in

the intervention group. The cost of U.S. \$6000 per disability for life year was calculated but no value judgment was made as to whether this amount was too much or too little.

In the second Stuck study, the three year intervention program resulted in cost savings for the low risk intervention group of U.S. \$1403/year. The effectiveness of other results were not significant for high risk intervention group, suggesting that preventive home visits were only helpful for low risk elderly.

In the Bernabei study, the intervention group experienced reduced admission to institution and function decline at reduced cost. However, the intervention attributed for the improvement was ill defined. The implication was that coordination of the medical, social and nursing by the case manager was the intervention.

In the Robertson study, the program cost was equal to NZ \$1803 per fall prevented for delivering the program and NZ \$155 per fall prevented when the hospital costs averted as part of the calculation were considered. In this study also, the cost of the program per fall prevented is stated without judgment.

Cost Effectiveness of Nursing Clinics

Versus Home Care

The substitution of home care by an alternative venue as a nursing clinic does not fall into the traditional purpose of home care. A project to treat leg ulcer clients in nursing clinics

specifically designed for that purpose has been on-going in England for the past ten years (Moffatt, 1992; Thorne, 1998; Thurlby, 2002). However, only one cost effectiveness randomized control trial that passed the investigators' criteria was found comparing the use of community leg ulcer clinics versus usual care provided by home care (Table 9) (Morrell, 1998).

Perspective of Analysis: Nursing Clinics vs. Home Care

The perspective was partially societal, in that the costs of the providers, the National Health Service, included physician and nurse worked hours, equipment, transport and overheads were included from both venues. However, Morrell noted the societal perspective would have included an account of client's time, personal costs and loss of production due to treatment and poor health (Morrell, 1998). Informal caregiver costs were not included, but were not appropriate for the comparison.

Identification of Net Costs: Nursing Clinics vs. Home Care

Complete data available for 66% of clinic group and 62% of home group concluded that the mean cost per clinic was £29.90, and £10.60 for home. Clinic costs were more expensive because of four layer compression dressing used for 100% of clinic clients and only 42% of home clients. Annual treatment costs calculated to £804.03 and £681.04 for the clinic versus home group respectively, which is a difference of £122.99 for the clinic

Table 9

Nursing Clinic vs Home Care

Analysis of CEA Studies

Study (Location)	Conceptual Framework		Number Allocated Intervention / Control Group
	Research Question	Patient Selection	
Cost Effectiveness of Community Leg Ulcer Clinics: Randomized Controlled Trial Morrell, C.J., 1998 (England)	What is the effective and relative cost effectiveness of four layer bandaging in a clinic setting on health of leg ulcers and health status against usual home-based care provided by nursing services?	Patients with venous ulcer between knee and foot that had been present at least three months. Arterial brachial pressure index had to be < 0.8 mm Hg Recruitment from four community trusts in Trent, England	Clinic group = 120 Home group = 113

Study (Location)	Methodology		Intervention / Standard Care	Follow-up
	Effectiveness Outcome Measures	Efficiency (Costing) Outcome Measures		
Cost Effectiveness of Community Leg Ulcer Clinics: Randomized Controlled Trial Morrell, C.J., 1998 (England)	<ul style="list-style-type: none"> - Time to complete ulcer healing - Percentage healed in 12 weeks - Recurrence and weeks free of ulcer - Health status survey SF-36 / EuroQol - McGill short form pain questionnaire - Frenchay activities index - Patient satisfaction 	<ul style="list-style-type: none"> Costs of treatment: staff time, materials, transport, overhead Cost per clinic or home visit MD costs / hospital costs 	<ul style="list-style-type: none"> - standard care for home group - 4 layer compression dressing for nursing clinic group (100%) whereas only 42% for control group - questionnaire distributed at 12 weeks and 12 months 	Patients followed for 12 months

Study (Location)	Methodology		Intervention / Standard Care	Follow-up
	Effectiveness Outcome Measures	Efficiency (Costing) Outcome Measures		
Study (Location)	Results			
	Statistical Analysis	Discussion / Limitation		
Cost Effectiveness of Community Leg Ulcer Clinics: Randomized Controlled Trial Morrell, C.J., 1998 (England)	<ul style="list-style-type: none"> - median healing time 20 weeks in trial group and 43 weeks in control group - clinic group = 1.65 times more likely to heal (CI 95% 1.15 – 2.35) - clinic group healed earlier (p < 0.03) and had longer time ulcer free - clinic group more expensive £29.90 vs £10.60 for home - no significant different between groups in health status - no significant difference in satisfaction levels 	<ul style="list-style-type: none"> - 42% of control group had four layer compression dressings whereas all of treatment group had four layer compression dressing making comparison difficult - results for faster healing time are statistically significant but wide CI's indicate true difference might be very small or very large - clinic group had specialty trained RNs on ulcer/compression treatment, home group did not - indirect costs to patients' caregivers not considered - mean costs used not individual costs for home visits - study conducted from National Health Service perspective / not societal, did not include patients personal costs <p>Author calculated a <u>cost-effectiveness ratio</u> measuring the additional cost for clinic group treatment for benefit of achieving the benefit of 5.9 ulcer free weeks</p> <p style="text-align: center;"> Δ Total Costs Δ Ulcer free weeks </p>		

group. However, the control group had more general practitioner and hospital services and when these costs were considered, annual treatment costs of clinic versus the home clients was reduced from £ 122.99 difference to £ 14.51.

Identification of Net Effects: Nursing Clinics vs. Home Care

The clinic group healed sooner than home group ($p = 0.03$). Median healing times were 20 and 43 weeks for patients in the clinic and control groups respectively. Using Cox model, the clinic clients were 1.65 (CI = 1.15, 2.35) more likely to heal in the clinic group versus the home group. However, in the clinic group 35% (27/78) who initially healed, had a recurrence compared to 23% (14/62) in the control group, but there was no evidence in the time to first recurrence. The mean time that each client was free from ulcers during follow-up was 20.1 and 14.2 weeks in the clinic and control groups respectively, which is 5.9 ulcer free weeks (CI = 1.2, 10.5) for the clinic group.

There were no differences between the groups in the four dimensions used to measure health status. Both groups showed deterioration over time in most dimensions of the SF – 36 and Euro Qual. Satisfaction was high in both groups with no significant differences.

Analysis of Costs and Effects: Nursing Clinics vs. Home Care

The deterioration of both groups in measures of health status despite the superior healing rate in the clinic group was a) attributed to sample size being based on healing rates and

not health status scores, b) measures of the changes in health status were not sensitive enough to detect the changes in health specific to the condition or c) time for follow-up measurements did not coincide when clients improved (Morrell, 1998).

The increased costs for clinic clients could be attributed to problem with the methodology a) the same treatment, four layer pressure dressing should have been used for all clients in both groups, in order to eliminate the variable of a superior treatment being given to only the clinic group; b) the same education and pay level was not used in both groups of nurses; c) the clinics were not well utilized, raising the direct costs per treatment. A sensitivity analysis using more visits per day to the clinic reduced the clinic cost from £29.92 to £23.37 per treatment.

The additional cost for the clinic treatment of £14.51 for achieving the benefit of 5.9 ulcer free weeks gave an incremental cost effectiveness ratio of £2.46 (£31.94 to £99.12) per ulcer free week (Morrell, 1998).

Decision Outcome: Nursing Clinics vs. Home Care

The importance of improved healing rate for leg ulcer has major implications. Although the results of this study point to improved healing rates, it is not clear if the results are related to the four layer compression dressing or the clinic setting. A current randomized control trial in Ottawa comparing the venue of treating leg ulcer clients in a clinic setting versus home setting controlled for the treatment variable, i.e. all control & clinic clients

had four layer compression dressings and used the same group of trained nurses in both groups. The variable being measured was the use of the clinic versus home setting. Preliminary results indicate statistically significant improved healing times occurred in the clinic group (Harrison, personal communication, 2003).

Summary of Cost Effectiveness Analysis as a Method in Home Care Studies

The review of the literature of how cost effectiveness analysis has been employed to evaluate different types of home care and hospital services revealed a great deal of disparity. The reasons for the disparity may be related to the absence of generally accepted and applied CEA methodologies, the difficulty in applying CEA and the inability to obtain the actual costs of certain categories, i.e. opportunity costs. The most frequently disparities found are summarized according to the criteria used in the review of the literature.

Prospective of Analysis

Provider costs were consistently documented and usually comprehensive as were client costs, although opportunity costs for missed work was rarely included in the analyses. Caregiver costs were not always considered, and inconsistently measured. The most comprehensive measurement of caregiver costs through daily diaries included time spent caring for clients, missed work, out of pocket costs (Hollander, 2002). Another finding was the absence of productivity measurement. The literature describes direct costs as

changes in resource use attributable to the intervention or treatment regimen, and indirect costs as the gain or loss in productivity related to illness (Drummond, et al, 1997).

Measuring the gains or losses in productivity of the client is rarely done in health care research.

Identification of Net Costs

As was seen in the review, using average costs versus marginal hospital costs was inconsistently followed. There was only one study in this review that used marginal costs and few were found in the other studies that were surveyed (Remonnay, 2002). While average costing of a hospital bed may not be the most accurate, calculating marginal costs is extremely difficult in healthcare. Provincial governments routinely use average costs/bed in health care planning. It is therefore more likely that researchers would use average costs per bed, as this information is available.

In Canada, the average hospital costs are based on accounting inputs regulated by Canadian MIS Guidelines, but the mechanisms and inputs for costing home care vary greatly within the province of Ontario and from province to province (Coyte, 1999; Guidelines for Management Information systems, 2003). As well, the managed competition process in Ontario results in a myriad of different home care costing methods by the not-for-profit and for profit providers (Doran, 2002).

In addition, time spent in treatment or time spent traveling to a facility are not always considered (Stone, 1998) as was experienced in this review. The costs of informal care giving is difficult, as well as the rate to use when estimating the caregivers' time (Kane, 1999). Hollander provided an interesting and only comparison of costing caregivers' time at zero, minimum wage and support worker wage rates with no effect to the conclusion (Hollander, 2002).

Identification of Net Effects

In the review of the literature, effectiveness was measured using generic health status tools as well as disease specific questionnaires. However, home care is not an end in itself, but is valued as an input into two distinct but interrelated outputs or outcomes, health status improvement and ongoing support of daily functioning (Bishop, 1999). In other words, home care functions are only valuable in themselves if they address the health problems and disability needs of the client. Effectiveness measures used to measure the outcomes may not be sensitive to the outputs, positive or negative.

In almost all the studies presented in this review of different home care modalities, the interventions measured were considered effective or equivalent to the control. However, the costs of the interventions were considered less expensive for the specific disease home care studies, and the use of home care versus long term care, but more expensive for HITH and some of the prevention intervention studies.

It would be preferable to connect the intervention effect with the cost through quality of adjusted life years or cost utility methodology (Mehrez, 1989; Gafni, 1997). This would allow the client to assist health care decision makers to judge the “value” of the intervention, especially when health care resources are scarce. However, it is a time consuming process to measure client preferences of disease specific outcomes using quality adjusted life years for every single patient and not commonly done, as was seen in this review (Allred, 1998).

Analysis of Costs and Effects

Direct costs were measured in a standard fashion, with the exception of using average versus marginal hospital costs. Indirect costs were poorly described, start up costs for an intervention were rarely included with the exception of two studies (Jester, 2003; Robertson, 2001). Measurement of caregiver costs or the use of other community resources was very inconsistent. Discounting of equipment was done in a number of studies, however discount rates differ between small and large equipment, as well as for technical equipment, such as computers.

Sensitivity analysis was done well in a number of studies and assisted in providing information if the intervention had been underutilized in the study.

Decision Outcome

As was seen in these studies, home care services or new interventions may be set up with specific outcomes, i.e. to replace hospital or long term care or provide preventative services but it is difficult to render the outcomes into one single measure (Kane, 1999); i.e. effectiveness or efficiency or both. Madigan reviewed research reports published between 1995 and 2001 of home care and found patient outcomes were inconclusive primarily because there were few studies using a consistent set of outcomes (Madigan, 2002). In addition, home care services are frequently a combination of nursing services, community services, such as homemaking or meals on wheels, as well as caregiver assistance, complicating the definition of “intervention” and resulting outcomes. In some studies, effectiveness is concluded to be positive or equivocal, and efficiency (cost) is stated but not judged to be too much or too little. Improved research techniques would assist in better understanding the connection between health care outcomes and their costs (Arford, 1995).

Influence of the Review of the Literature on Study Proposal

The goal of health services research should be to measure the effectiveness of the intervention as demonstrated by the outcomes, as well as the costs of the intervention that resulted in the outcomes. The cost effectiveness methodology used in this study will measure both the effectiveness and efficiency of nursing clinics versus home care using the adapted version of Allred’s criteria. In addition, a CEA framework will be used to classify the effectiveness and efficiency results in order to better connect health care outcomes with the costs (Birch, 1996).

CHAPTER 4

CONCEPTUAL FRAMEWORK

The operationalization of the nursing clinic concept into a new model of health services delivery had four components:

- a) investigate the North American experience of clinics managed by nurses;
- b) create and build a physical prototype to deliver home care services in a clinic setting;
- c) empirically test the effectiveness and efficiency of the prototype, using cost effectiveness methodology;
- d) propose how to introduce the nursing clinic concept to the Ontario Ministry of Health using the “four sectors” framework of health care services as a guideline.

Nurse Managed Clinics: North American Experience

The early concept of a nurse managed clinic is exemplified by the first aid rooms of the Henry Street Settlement in New York City. These clinics opened in 1900 in response to neighbourhood needs to care for clients with lacerations, old wounds, burns, local infections and accidents (Gloss, 1989). Historical notes about the clinic reflect the importance of direct, efficient treatment in the Henry Street Clinic, compared to a hospital setting: “it is hardly important enough to receive attention in large, crowded (hospital) dispensaries where the patient had to wait for hours for treatment” (Wald Collection, Columbia University, 1920-21). However, as the visits increased at the Henry Street Settlement, physicians concerned about nurses practicing medicine influenced the

legislation of the Nursing Registration Bill, which restricted nurses' independent practice ("Report of the Visiting Nurse Service Administered by the Henry Street Clinic", 1923). Lavinia Dock protected the continuation of the clinics through the acceptance of standing orders for emergency treatment and medications, and, combined with public support, the clinics continued for 15 years and treated between 10,000-23,000 patients/year (Buhler-Wilkerson, 2001).

At about the same time as the first nursing managed clinic, home nursing was evolving in North America. The first visiting nursing agency in Canada was established by Lady Aberdeen in Ottawa in 1897 (Penney, 1997). Throughout the twentieth century, nurses made home visits providing health promotion, prevention and treatments to individuals and families in need of medical, obstetrical, pediatric and palliative care. In the 1960's, Public Health nursing began to emerge and focus on the dimensions of prevention, infection control, wellness and health promotion, rather than treatment. Today, home nursing and public health nursing are seen as separate, with overlapping roles and responsibilities (Hayward, 1993; Ciliska, 1994; Ploeg, 1995).

The increasing opportunities for nursing practitioners to do primary health care in solo or in partnership with physicians in under serviced areas in North America and most recently Ontario is encouraging (Hall, 2001; Robinson, 2000; Kelly, 1996). However, these nursing roles in community health centres or in under serviced areas are focused on primary health care and not providing treatments that are traditionally done by home care nurses. A nursing clinic, housed in a community health centre, could treat clients

traditionally treated at home as well as provide health promotion, prevention typically provided in a community health centre. The purpose of this study is to test the feasibility of providing home care treatments in another venue, i.e. a nursing clinic which could be located in a community health centre, an ambulatory care facility or in an easily accessible public place.

A review of the literature did not find any examples of treating home care clients in a nurse managed clinic. However, the literature revealed some experience, primarily in the United States, with a “nurse managed community health centre” concept. The experience with nurse managed clinics revealed five functions:

- a) to promote health and prevent disease;
- b) to provide direct access to care;
- c) to serve as practice sites for faculty;
- d) to generate research, and
- e) to promote student learning

(Aydelotte & Gregory 1989). In 1993, Barger surveyed nurse managed clinics and found 170 spread throughout the U.S. Over 50% were affiliated with a university or other organization, serving indigent, ethnic, underprivileged populations and staffed primarily by masters prepared nurse practitioners (45%), registered nurses (55%); one third were financed by out of pocket funds (Barger, 1993a). The types of nurse-managed centres is best described by the following categories (Riesch, 1992a,b; Barger, 1993a,b; McGillion 1995);

- a) community health or institutional outreach models, operated by an academic setting and used for educational purposes (Barger, 1992; Hatcher, 1998; Newland, Lundeen, 1997; Cooksey, 1999);
- b) community wellness and health promotion models (Steel 1994, Malo 1998) non-academic and more commonly seen in rural or under serviced areas;
- c) independent practice or nurse entrepreneurship models serving a group of clients with a particular health problem (Phillips, 1994; Pike, 1998; Ruka, 1997).

In 1996, Watson developed a profile of U.S. nurse managed centres through a survey questionnaire, which produced a response from 57 academic and nonacademic nursing centres. The most frequent services reported were health teaching (97%), nutrition counseling (90%), routine physical exam (71%), ambulatory health visits for minor health problems, immunization (48%), maternal/infant care (52%), social services (26%), family planning (32%), psychiatric services (26%) (Watson, 1996).

The nurse managed clinics located in academic centres provide experiences for students in nursing programs and opportunities for faculty-generated research (Higgs, 1988; Markstrom, 1992; Barger, 1993b; Tyree, 1998; Cooksey, 1999). Frequently, the target populations are the underprivileged, economically deprived, ethnic minorities or elderly who reside in the geographic area of the university and do not have access to affordable medical or nursing care. The academic partnership arrangements have linked the university resources with other health and community service providers and residents to

strengthen the capacity to improve the health status of those who do not have other options (Borman, 1994; Hatcher, P.; 1998, Lundeen, 1997).

The second category of nurse managed clinics provide similar primary health services but are not academically affiliated, are multidisciplinary, and are more likely located in rural or remote areas (Ramsey, 1993; Lenz, 1992; Edwards, 1998; Anderko, 1999; Krein, 1999). The most common services provided in these clinics include wellness and health promotion, i.e. stress management, family counseling, nutritional consults, immunizations, and health screening (Gloss, 1987; Hawkins, 1993; Capan, 1993; Barger, 1993b). Partnerships with other community agencies, municipalities, hospitals or schools with common goals and commitments, including collaborative relationships with the medical community are key to ensuring the sustainability of the centres (Borman, 1994; Phillips, 1994; Steel, 1994; Krein, 1999). In addition, relationships with the community physicians and educating the public about the role of the nurse practitioners in the nurse managed clinic is very important (Pike, 1998).

The third category of nurse managed centres are those which service a particular population or group of clients requiring specific treatments. Examples of clinics servicing specific populations are: prenatal and obstetric clinics (Caplan, 1993), continence care (Lloyd, 1994), leg ulcer treatment, noted in England (Miller, 1994; Moffatt, 1992; Thorne, 1998; Thurlby, 2002) and cardiovascular disease (Dougherty, 2000). Other examples include the homeless (Reilly, 1992; Carter, 1994; Hunter, 1999) elderly

(Timms, 1990), multicultural groups (Lundeen, 1993; Matherlee, 1999), and families with chronic illness (Knafl, 1998).

A number of studies have suggested that the establishment of leg ulcer clinics increase healing rates through standardized care (Moffatt et al 1992; Thorne, 1998; Thurlby, 2002). As a result, leg ulcer clinics have grown in England where it is estimated that district nurses spend 25%-50% of their work in treating leg ulcer clients (Lees, 1992).

In Canada, a few nurse managed clinics exist in rural and urban areas, providing multidisciplinary health prevention and promotion services. These services include: lifestyle assessments and counseling; maintenance of independence in aging; child safety programs; pre/post natal programs; curative services such as health assessment, medication, nutrition counseling, management of disability and chronic illness; supportive services such as: mental health counseling, assistance for seniors, support groups for various conditions related to stress, abuse, family crisis, and substance abuse (AARN, 1994; AARN, 1995; Ritchie, 1995; Cadden, 1995). The Alberta Registered Nurses' Association was active in promoting and initiating regional community health projects/nursing clinics through distributing guidelines on how to develop and implement nurse managed clinics (AARN, 1994; AARN, 1995).

Funding for all three categories of nurse managed clinics is quite varied, although in Canada, the funding is primarily provincial and municipal governments. In the U.S., funding sources include private payments, health insurance, university subsidies,

charitable donations and for-profit payment arrangements (Barger, 1993a,b; Ervin, 1998; Carter, 1994; Pappas, 1998). The funding of nurse managed centres both in Canada and the United States share a common problem, specifically the resistance to paying nurses directly for the provision of treatments in a health centre setting without physician involvement (Phillips, 1994; Torisi, 1994). In addition, in the U.S., as in Canada, there are limitations on the scope of practice of nurse practitioners by state and provincial laws and disparate policies on prescriptive authority (Walker, 1994).

In the studies explaining the cost structure of the clinics, direct costs were accounted for with an incomplete analysis of fixed and start up costs. In addition to inconsistent cost data, there was a lack of information and analysis measuring the effectiveness. However, a number of authors recognized the growth of nurse managed clinics was dependent upon providing empirical evidence of the effectiveness of the nursing interventions (Helvie, 1999; Edwards, 1998). The paucity of effectiveness and efficiency studies in the U.S. and Canada is related to the small number of nurse managed clinics, and the fact that clinics provide disparate services to varied populations, in a wide variety of settings, and are supported by different financing schemes. It is not surprising that the available information about nurse managed clinics is primarily descriptive.

In summary, nurses, primarily nurse practitioners, are providing primary care, health promotion and treatments in nurse managed clinics located in urban and rural areas in the United States, England and Canada. These clinics are under the jurisdiction of a university, provincial/municipal governments, or a private group of nurses. Examples of

using nurse managed clinics to deliver home care services were not found in the literature.

It is proposed that nurse managed clinics could serve as an alternative place to deliver treatments to home care clients who would normally be treated at home. A nurse making home visits is able to complete eight to nine non-palliative nursing visits per day. Based on a pilot study, in a nurse managed clinic, a nurse can provide care to sixteen or more clients per day (Ottawa/Carleton CCAC/Ottawa/Carleton VON, 1999). In addition, the client is able to choose the time for his/her care. The most frequent inquiry from regular home clients is: "What time will the nurse arrive?" (Ottawa/Carleton VON, 1999). A clinic setting allows the client to know when they will receive treatment and thus reduce uncertainty in planning the activities of their day. It is estimated that 10-15% of clients who traditionally have been treated in the home can be treated in a clinic setting. The remainder and majority of home care clients must be seen in home due to the severity of their illness and disability. However, for those clients who can be seen in a nursing clinic setting and would prefer this option, "home care" services should be offered as a potentially more cost effective and efficient alternative to home care visits.

Creation of the Physical Prototype

A proposal for the nursing clinic concept was prepared for the Ottawa Carleton/CCAC in September 1999. Between 1999 and the start of the study in March 2001, three clinics, two by the Ottawa/Carleton Victorian Order of Nurses (VON) and one by the Ottawa-

Carleton We Care Agency were set up. For the initial period of the study, one of the VON sites was operated in partnership with a community health centre and then moved one block away to a VON owned site and separate building, a Respite Day Centre. All of these sites were established in collaboration and agreement with the O/C CCAC. The small equipment and furnishings for the VON clinics were supplied primarily by a charitable donation from the O/C VON, a one-time donation from the CCAC and two charitable organizations. The O/C We Care Agency covered the one-time costs for the south-central clinic. Equipment included an examination table, a reclining chair for IV administration, dressing trays, refrigerator and autoclave. Supplies such as dressings, intravenous fluids, and medications were supplied and delivered daily by the O/C CCAC supplier. A paper, called "The Nursing Clinic Primer" was written, explaining the concept of a nursing clinic, client eligibility, the logistics of the CCAC referral and appointment process, client record management, necessary equipment and supplies, travel arrangements for clients and staffing requirements. This paper was made available on request to other Ontario CCACs and VON nursing agencies throughout Ontario.

Cost Effectiveness Analysis Methodology

Cost effectiveness analysis (CEA) is the recommended method to assist health care planners in allocating scarce resource dollars. However, as demonstrated in the review of the literature, the application of CEA is difficult and inconsistent.

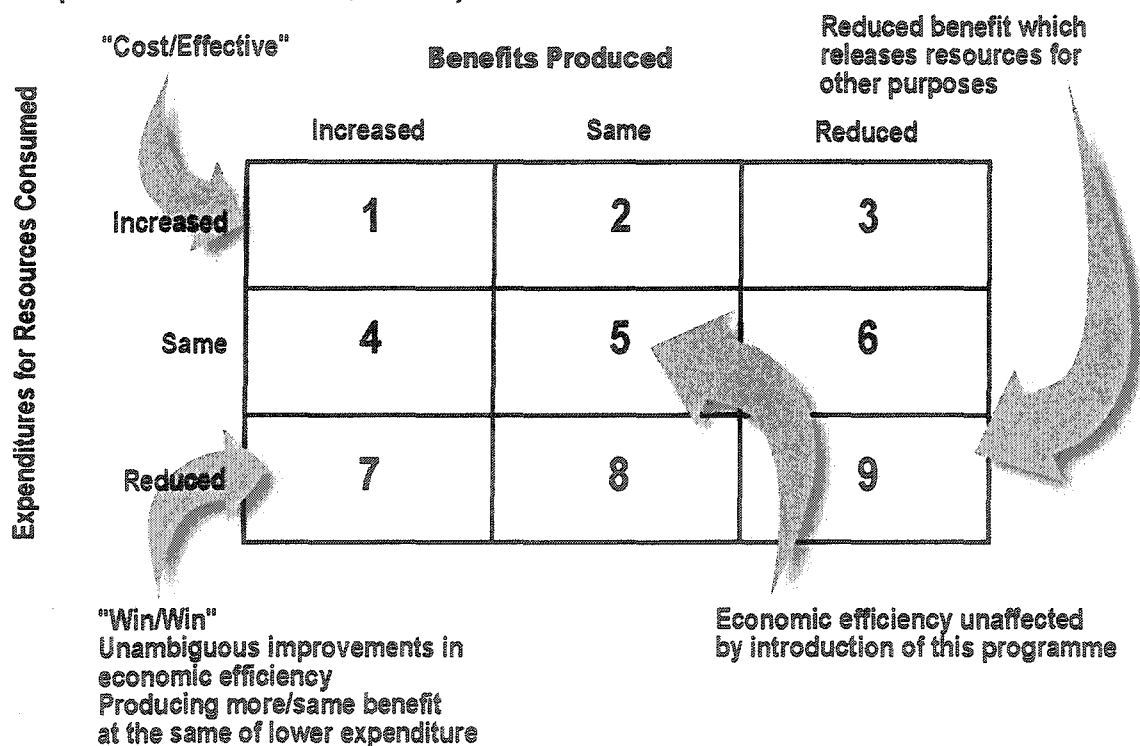
The template adopted from Allred's work to evaluate cost effectiveness methodology, i.e. identifying the extent of the societal approach, identifying the net costs and net effects,

analyzing the costs and effects and explaining the decision outcome, will be used to guide the methodology for this study. In addition, the framework developed by Birch and Gafni to classify the effectiveness and expenses of community studies using common measurement techniques will be used to carry out and classify the results of this study.

According to the Birch and Gafni classification framework, the effectiveness and expenditures of two alternatives in a randomized control trial, can result in nine possible outcomes, as shown in Figure 2 (Birch and Gafni, 1996). Cell #1 indicates that increased benefits produced by a program are possible, but at increased expenditures. This is in contrast to cells # 4 and #7, which illustrate that programs which produce increased benefits may do so at the same or reduced expenditures. Cell #3 depicts a program which results in reduced benefits at increased costs, whereas cell #9, the program has a reduced benefit but at reduced cost. Reduced expenditures may be preferred to release resources for other purposes. Cell #5 depicts the neutral position where the same benefits are produced with the same costs, which would indicate that the introduction of an alternative program has no effect.

The framework has been used to compare the effects and expense of alternative interventions for a single problem with the goal of maximizing improvements in health and well being of groups of primarily community clients. As recently shown in twelve different home care studies, the methodology allowed for comparisons and predictions to be made about which service(s) would benefit certain populations (Browne, G., 1999).

Framework for Evaluating Possible Outcomes of Economic Evaluation of Health Care Programmes (Birch and Gafni, 1996)



This CEA framework, as well as the adapted criteria from Allred's work, will be used to empirically test effectiveness and efficiency of the nursing clinics.

Application of the Four Sectors Framework to Introduce an Alternate Home Care Delivery System

Glouberman suggested four mechanisms to improve the coordination and integration of the healthcare system. These mechanisms will be applied to the introduction of a nursing clinic, which could serve as a bridge between the acute and community sectors.

1. Coordination of the Acute "Care" Clinical Operations:

In order for a new delivery service to be accepted by physicians, nurses and health care administrators, the "cure" and "control" group of the system, the service would need to be as, or more, clinically effective as the present home care delivery system. If the effectiveness can be supported, the new service must then be incorporated into care plans and "best practice" for clients who could benefit from nursing clinics.

2. Coordination from Acute to Community Care

Effective discharge planning would be essential to incorporating nursing clinics as an alternative home care service. Nursing staff, social workers, physicians, CCAC case managers would require education about the appropriate use of the nursing clinics and develop mechanisms to refer the clients to the clinics. The CCAC case managers are key to developing the referral mechanisms, treatment care plans and

the travel arrangements for the clients. The CCAC administration would require agreements with provider agencies to set up and run nursing clinics.

3. Collaborative Management over Departmental Walls

Managers between the acute care and community sectors are key to facilitating the link between the two sectors through (a) the development of best practice care plans that link the provision of treatments from out of acute into the community; (b) provision of common technology and equipment, such as IV pumps, which would be used by both sectors to complement the care from acute to community; (c) education of the acute care and community staff about the purpose of the clinics, the eligibility criteria and types of clients who would most benefit from the treatment.

4. Collaborative Management of the Entire System

The “control” (ministries of health, hospital administration) and “community” (boards of directors) quadrants of the model would not accept nursing clinics as an alternate model of health care delivery unless it could be demonstrated to be as, or more, cost efficient as the present home care services. In addition, it would be important to consider the capital costs involved to implement the new service. If the service could be provided in available facilities, without new capital investment, and with decreased operating costs, the argument to include nursing clinics in the present home care delivery system is compelling.

The purposes of the research were to:

1. Investigate if nursing clinics, as a venue for home care, can be as clinically effective as traditional home care services.
2. Investigate and compare the effectiveness of the two venues from the client and provider perspectives.
3. Compare the efficiency of delivering the services through the nursing clinic venue versus the traditional home care setting.
4. Determine if there are differences in the amount of other health care costs incurred by the clients served in the nursing clinics versus those served in the home, for a specified period of time post discharge from CCAC services.
5. Consider how nursing clinics would complement and be assimilated into the “four sectors” of the health care model.

CHAPTER 5

METHODOLOGY

Study Design

The study design is a randomized controlled trial comparing the effectiveness and efficiency of providing nursing care in a nursing clinic versus the traditional home care setting. Cost effectiveness analysis is the methodology used in the study. The perspective of the analysis is described as modified societal. All provider (government) costs for treatment and client costs incurred for specified periods of post treatment time will be measured. However, opportunity costs for lost client productivity will not be measured, due to the controversy of measurement (Dummond, et al, 1997). Caregiver costs will also not be measured because the group of subjects are primarily middle aged, employed, ambulatory and independent.

Study Setting

The study took place in an urban / rural area in Ontario with a population base of 774,072 people (Statistics Canada, 2001) and was a collaborative project with the Community Care Access Centre (CCAC) of Ottawa / Carleton, the Ottawa/Carleton branch of the Victorian Order of Nurses (VON), a private, not for profit agency affiliated with VON Canada, We Care of Ottawa/Carleton, a private for-profit agency, and the System-Linked Research Unit (SLRU), at McMaster University.

Over a period of twenty-four months, three nursing clinics were built, equipped and staffed in three different locations in the city. One clinic is located in a large shopping centre in the east end of the city, a second at a south central shopping centre and a third on the west end of the city in a building which cohabitates with a Day Respite Centre, sponsored by the Ottawa/Carleton Victorian Order of Nurses. A fourth temporary clinic in the west end of the city was housed for a twelve month period in a community health centre. This arrangement for the temporary clinic, with the community health centre, was made to allow for the completion of renovations in the Nursing Clinic/Day Respite Centre.

The availability of nursing clinics in the east, west and south central location of the city matched the catchment areas of the four hospitals involved in the study, thus limiting travel distance for clients to a clinic. The capital resources to build the east and west end clinics were provided by the VON Ottawa/Carleton and the south-central clinic was built by the Ottawa/Carleton We Care. Capital equipment in the clinics such as furnishings, examination tables, and autoclaves for sterilization purposes was funded through the respective agencies, with a small grant from the CCAC Ottawa/Carlton.

Case management services consisting of eligibility assessments, service arrangements and ongoing assessments were provided by the CCAC Ottawa for all subjects. The number of nurses trained to the clinic setting was limited to approximately 15 staff. These nurses worked in both the clinics and the home for the duration of the study.

Study Population

Subjects were referred to the Ottawa / Carleton CCAC Home Care Program from two tertiary care hospitals, a community hospital, the provincial francophone hospital and the community at large, including physicians' offices and long term care facilities. The eligibility criteria for the study were selected based on the following studies and observations:

- a) In 1999, Alcock studied and described all referred clients over a 4-week period to the O/C CCAC by age, diagnosis, and treatment. Wound dressings and IV therapy were the most common treatments provided by provider agencies (Alcock, 1998). 51% of the clients were described as acute. A second study described post acute clients as 27% of the home care population (Forbes, 2003).
- b) A two-week pilot study, completed by the O/C CCAC, determined that conservatively, 10-15% of all new referrals were ambulatory, and assessed clinically stable enough to attend a nursing clinic setting (Ottawa/Carleton CCAC, 1999).
- c) Data from the O/C VON indicated that the most frequent reason clients cancelled a nursing home visit was that they had a medical or other appointment outside their home (Ottawa/Carleton VON, 1999). It was assumed that if certain clients were physically well enough to travel for an appointment with their physician outside the home, they were well enough to travel to a nursing clinic for treatment.

Eligibility for the study included:

- a) clients who require intravenous therapy, dressing changes, medication administration by any route, wound irrigations or teaching;

- b) clients who are ambulatory and able to travel to a clinic setting;
- c) client who communicate in English or French.

Clients were ineligible for the study if they were bedridden, too physically ill to leave their homes or mentally incompetent. The presence of a caregiver was not required to participate in the study.

Study Groups

Control and Experimental Group: Case Management Services

Clients were referred to the O/C CCAC for home care services from the hospital, the emergency room, or on occasion, from a physician in the community. Case managers assigned to specific hospitals, were responsible for client assessment, determination of eligibility, and interviewing the client for their willingness to enter the study. All clients, whether in the control or experimental group were assigned another case manager, located at the CCAC offices, who was responsible for the on-going case management services provided by the CCAC and described in the case manager job description (Appendix A, CCAC Ottawa/Carleton, 2002). They were randomly allocated to either the experimental or control group.

Control Group: Care in the Home

Those clients randomized to the control group received the usual care in their home as determined by their assessment and treatment plan. Care was delivered and recorded by nurses who worked in the two provider agencies participating in the study. The

information recorded by the nurse for each visit included type of treatment, and the time required to complete the care, including the documentation and travel time.

Experimental Group: Care in the Nursing Clinics

Those clients randomized to the nursing clinics received care in the clinic setting as determined by their assessment and treatment plan. Nurses also reported the type of treatment for each visit, and time required to complete the care, including the documentation time. The job descriptions for the nurses who worked in either the home or the clinic was the same in either setting. That is, care performed by the nurse was expected to be the same, regardless of venue.

Duration of Treatment: Clinic or Home

The duration of treatment in the clinic or home was determined by the client's treatment regime, disease process and psychosocial needs. Regular care in either venue continued until time of discharge. After discharge from CCAC services, the research coordinator waited for six weeks and contacted the subjects in the control and experimental groups to complete the Time 2 study questionnaires.

Study Personnel

Case Managers: Identification of Subjects

The functions of case managers are to assess the eligibility of clients for home care services, plan and implement the appropriate service, reassess and evaluate the client at

intervals (Ontario Case Managers Association, 2000; CCAC Case Manager Job Description, Appendix A).

Approximately 20 hospital and community intake case managers, responsible for arranging CCAC home care services for clients being discharged from the tertiary and community hospitals in the Ottawa/Carleton region, were oriented to the study and given the responsibility to identify potential subjects for the study based on the eligibility criteria. In each hospital, the case managers work in specific areas: medicine, surgery, or the emergency room and each case manager was assigned primarily to one of the four hospitals.

Registered Nurses: Treatment of Subjects

All subjects were cared for by nurses who had completed an orientation to community nursing. Fifteen nurses from the Victorian Order of Nurses, Ottawa/Carleton branch and two at the We Care Agency were assigned and familiarized with the nursing clinic prior to the initiation of the study. For the duration of the study, these nurses cared for clients in clinic as well as clients in their home. It was possible that any of the other nurses working in the agency could encounter a study participant who had been randomized to the home. Therefore, both groups, those nurses working in the clinic and home and those nurses working only in the home setting received orientation to the data collection methods for the study.

Study Procedures

The study procedures required structures, groundwork and communication vehicles to be in place prior to the start of the study.

Structure: Nursing Clinic Study Steering Committee

The Nursing Clinic Study Steering Committee included membership from the O/C CCAC Director of Research, CCAC Director of Operations, CCAC Program Manager, the primary investigator, the project coordinator and nursing management from the O/C VON. The responsibilities of the Steering Committee were to:

- a) monitor the progress of the study, problem solve the process impediments and ensure the integrity of the research process;
- b) address conflicts regarding the research process, service delivery and ethics of client choice;
- c) assist in developing the education information for the CCAC hospital discharge case managers;
- d) plan the training for the CCAC hospital discharge case managers and nursing staff;
- e) address the concerns of the hospitals' case managers about availability of service, particularly during the budget restriction and nursing shortage periods.

A consultative relationship of the Steering Committee with the McMaster University, System Linked Research Unit was in place to advise and monitor the progress of the

study. During the CCAC budget restrictions that occurred from Fall 2001 to July 2002, the Steering Committee served as a vehicle to examine other mechanisms to improve recruitment, and seek involvement of other CCACs into the study, i.e. CCAC Sudbury (see p. 153). At the end of the budget restrictions, the Committee developed incentives to draw case managers back into the study.

The collaboration and commitment of the Committee members during the two-year intake period kept the study on track despite considerable obstacles in subject recruitment.

Groundwork and Training

Six months prior to the study were spent setting up the logistics of the intake and randomization process, clinic appointment processes, data collection tools, and processes to be followed by the CCAC case managers, VON and We Care nursing staff. Education packages were developed for the case managers which contained a summary of the study, data collection forms for demographic information, the consent form, step by step procedure of the randomization process, and instructions of how to set up a clinic referral and appointment. The education packages for the nursing staff contained a summary of the study, consent form, the activity and treatment flow sheet and an explanation of the case manager responsibilities.

The packages and presentations about the study were delivered to 150 O/C CCAC case managers, and administrative staff, by the investigator and CEO of the O/C CCAC. The

presence of the CEO of the CCAC at these meetings emphasized the CCAC support of the study. Only the 20 hospital case managers involved in hospital discharge planning would be directly involved in the assessment, recruitment, randomization and initiation of the client into the study. However, all case managers had to be aware of the study purpose and processes because the hospital discharge case managers transferred the subjects to the case managers responsible for ongoing treatment of the clients.

The presentation and orientation packages explaining the study were given to 150 VON staff at team meetings by the investigator. Registered nurses who worked in the nursing clinics on a regular basis would be involved in providing treatment to the subjects randomized to the clinic as well as non-study and study subjects in the home. RN staff providing care in the home but not the clinic could be assigned to a subject randomized to the home. The investigator and project coordinator met with the management of We Care to explain the study, procedures, randomization and data collection tools. A reference binder with the summary of the study, all of the data collection forms, the consent form and randomization instruction and procedure was provided to the Ottawa/Carleton CCAC, the Ottawa/Carleton VON and We Care.

The multiple presentations to the CCAC case managers, VON and We Care RN staff and management took place over a period of six weeks.

Communication Mechanisms and Coordination of Study Sites

The mechanisms of ongoing communication and coordination of sites was managed by the project coordinator and investigator. Regular meetings with the Steering Committee were held, as well as individual meetings with the Ottawa/Carleton CCAC Director of Research to discuss the study's progress, recruitment issues and case manager concerns.

Other communication mechanisms included the development of:

- A Nursing Clinic Study Newsletter for the hospital CCAC case managers, indicating the progress of the study, particularly the number of subjects recruited into the study;
- Regular e-mail contact between the CCAC Director of Research regarding any issues that arose between Steering Committee meetings;
- Regular voice message contact with the VON staff regarding the progress of the study, as well as reminders about correct data collection procedures.

Prior to the start of the study, the hospital CCAC case managers received instruction sheets and observed a "mock interview" of how to approach a potential subject. Regular meetings with the hospital case managers took place at each individual hospital, especially during the first year of the study, rather than bringing the case managers together in one group. The purpose of these meetings was to discuss their issues, concerns about the study procedures and any difficulties with the process at the particular hospital. These meetings resulted in improved changes to the coordination of clinic appointments and travel arrangements for the clinic subjects.

Communication of the Nursing Clinic Concept to Other Provinces and National Organizations

A “Nursing Clinic Primer” explaining the potential effectiveness and efficiencies of the nursing clinic concept and instructions on how to set up a clinic was written for external audiences. This primer included the conceptual framework supporting the nursing clinic experiment, the compelling concern of the nursing shortage and the political considerations of promoting another venue for home care services. The logistics of how to set up a clinic, the capital costs required, equipment and supplies were included for the reader. The Nursing Clinic Primer was made available to all national VON branches, as well as numerous CCACs in Ontario. As a result, a number of other nursing clinics were set up in the province (Sudbury, Windsor and Renfrew). The nursing clinic concept study was presented at a national health care conference and at two national VON annual meetings.

Recruitment and Consent

When receiving a referral for CCAC services, the responsibility of case managers is to determine eligibility for home care, arrange the type, the amount of services and the provider. In this study, the eligible subjects were recruited when being discharged from hospital or being referred to the CCAC community intake service. Throughout the study, the investigator did not have contact with any of the clients.

During first meeting with an eligible subject, the case managers explained the purpose of the study, the benefits and risks of the study, the consent process, the client’s rights

regarding participation, assurance of confidentiality of the client and the mechanisms for receiving treatment at the nursing clinic or home. An information sheet explaining the study was given to clients. The clients were told they had an even chance (50/50) of receiving treatment in the nursing clinic or at home. If they agreed to participate, they would be interviewed about their health status at the beginning of their treatments upon hospital discharge, and six weeks after discharge from home/or clinic CCAC services. If the clients gave their informed (written) consent to participate, the case manager initiated the randomization process. The clients were told they were free to withdraw from the study at any time.

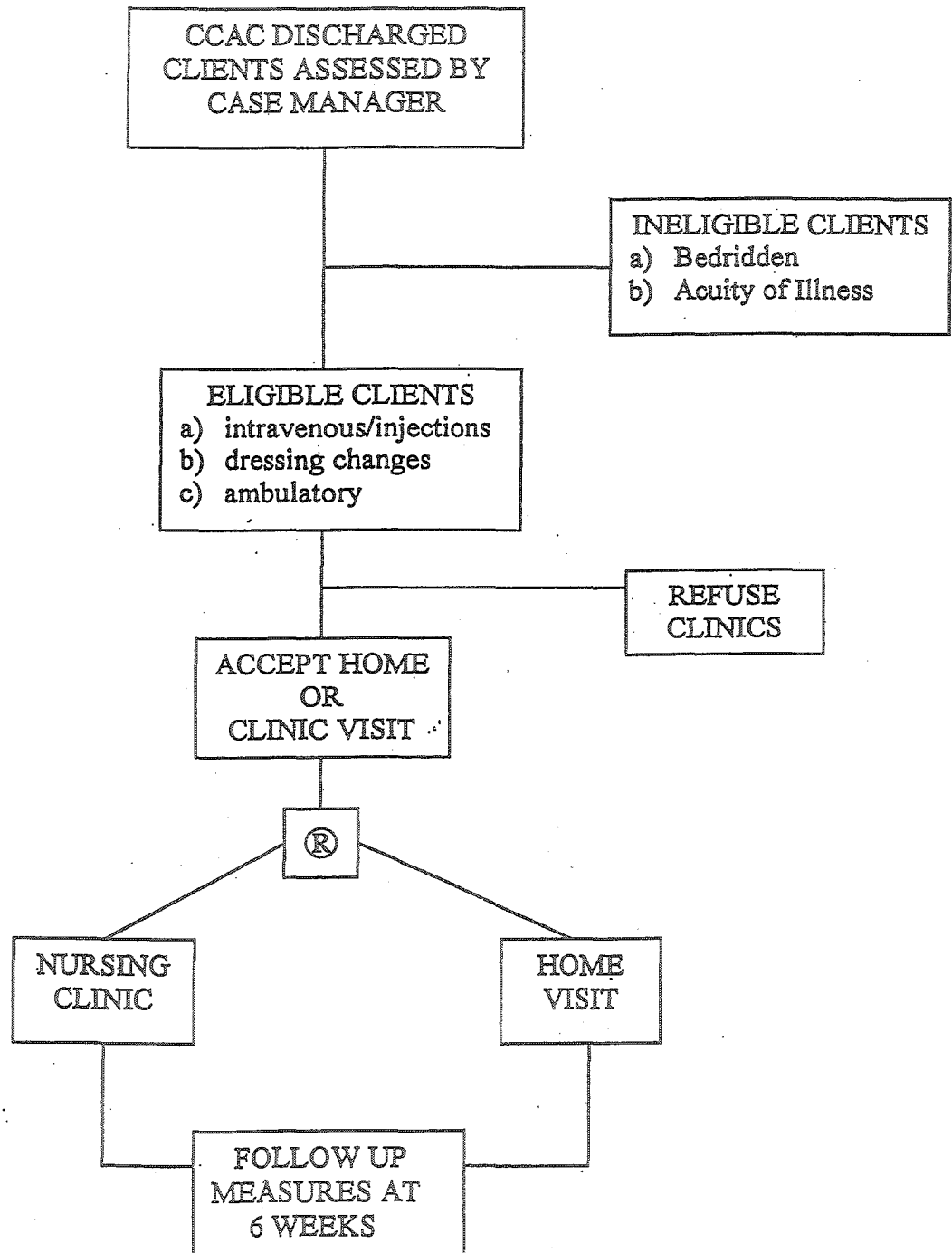
Randomization

Once the client gave their consent, randomization took place during the hospital discharge interview with the client. The VON district coordinator was responsible for randomizing the subjects to clinic or home care using a computer-generated schedule of randomization. Each hospital and the CCAC community intake desk were assigned their own computerized randomization schedule, which was managed by the same VON district coordinator.

The subject was made aware of the treatment assignment after randomization and the appointment to home or clinic was arranged by the case manager prior to the subject leaving the hospital. The consent and initial contact information was faxed to the project coordinator for follow-up within 72 hours. The Study Schema is illustrated in Figure 3.

Figure 3

TRIAL OF NURSING CLINICS VS HOME CARE VISITS



Data Collection

Data was collected at two points in time: Time (1) within 72 hours of the first clinic or home treatment, or referral from the community, and Time (2), 6 weeks following discharge from home care services. Both Time (1) and Time (2) interviews were conducted in person, or if an in-home interview was not feasible, interviews were conducted by telephone. On a few Time (2) occasions, the client agreed over the telephone to have the data forms sent and returned by mail.

It was not possible to blind the program coordinator to the clinic or home assignment as the satisfaction questionnaire asked information specific to the clinic or home, i.e. the client's ability to travel to the clinic. At Time (2), clients completed the questionnaires that assessed their functional status and quality of life (SF-36), (Ware, 1992) the amount and costs of health and social services (Browne, 1992) during the six weeks post CCAC discharge, their perceived satisfaction (Attkinsson, 1982) with the venue of treatment, including questions developed specifically for the study. See Appendices B to I for study questionnaires.

Demographic information of age, diagnosis, gender, living arrangement, and income was collected at T (1) using a questionnaire developed by the investigator for the study. The number of visits, type of treatments, methods of transportation (clinic subjects) and number of kilometers of travel for the nurse (home subjects), were collected for each client (see Appendix C) for socio-demographic questionnaire and treatment forms).

Nurses involved in treating clients in the clinic and home settings were asked to respond

to a satisfaction questionnaire developed by the investigator and to participate in a focus group facilitated by a manager not involved in the study.

Outcome Measures

A summary of the constructs being measured: client characteristics, effectiveness and efficiency, the corresponding variables and the measurement tools are listed in Table 10.

The effectiveness measures chosen were a comparison of functional, health, physical and mental, status measured at two different periods of time and satisfaction for services rendered at the two venues.

The selection of effectiveness outcome measures was based on the expectation that the subjects would be drawn from the general population base, with disparate but temporary conditions, relatively well and not elderly (over 75 years of age). Therefore the questionnaires and surveys were chosen for those appropriate for the study population, as well as ease of administration and length of time to complete. The client satisfaction questionnaire was a validated and reliable tool, designed and developed to test a new or established service, which reflects the description of the study venues (Attkinsson, 1982). The nurse satisfaction survey was developed specifically for the study and designed to probe the satisfaction and quality of worklife for nursing staff working in the clinics and home.

Table 10

LIST OF MEASUREMENT TOOLS

CONSTRUCT	VARIABLE	MEASURE	TIME	STATISTICAL ANALYSIS
Client Characteristics	Age, gender, living arrangements, language, marital status, income range, employment status	Socio-demographic questionnaire	T1	Chi Squared Measure
Effectiveness	Functional health & mental status upon discharge from hospital & 6 weeks post discharge from home care	Short Form-36 Health Survey (Version 2) (Ware, J.E., 1990)	T1, T2	Unpaired t test mean scores for each eight subscore; mean scores for physical and mental health component summary scores
	Healing Time and health status	Number of CCAC visits for both groups	T2	Mean number of visits per group
Satisfaction	Client Satisfaction . quality of service . satisfaction with service . recommendation regarding service	. Client Satisfaction Questionnaire of service provided (CSQ) (Attkisson, 1989) . Investigator questionnaire	T1, T2	Chi Squared Measure
	Staff Satisfaction	Staff Satisfaction Survey comparing home vs nursing clinic working environments	T2	Descriptive Analysis
Efficiency	Cost of Treatment in clinic vs home	Comparison of costs of clinic vs home visits	T2	Mean total visit time; Unpaired t test
	Health & Social Services Expenditures	(Browne, G., et al, 1995) Health & Social Service Utilization Questionnaire	T2	Mean utilization of listed services Mann Whitney U test

T1 = Baseline measurement

T2 = 6 weeks post discharge from CCAC home care

In keeping with the CEA methodology, the net effects of the effectiveness measures were compared for each group. The efficiency measures were the total number and cost of visits in each venue, as well as the expenditures on health and social services by the subjects during the six weeks post discharge from CCAC services.

The comparison of cost of treatment in clinic versus home was key to test the notion that the clinic visits would be more efficient. The costs measured included an indepth description of direct and indirect costs and was consistent with the identification of net costs from the adapted CEA recommendations.

Effectiveness Measure: Functional Health Status (SF-36 Health Survey)

The SF-36 Health Survey was derived in the 1970's from a 275 item questionnaire developed for the Rand Medical Outcomes Study. The SF-36 is a multi-dimensional generic instrument, which can be used to compare the health status of clients with different conditions to clients in the general population (Ware, 1992). The SF-36 includes multi item scales, which measure eight dimensions of health: physical functioning (10 items), role limitations related to physical health problems (4 items), bodily pain (2 items), social functioning (2 items), general mental health, including psychological distress and well being (5 items), role limitations due to emotional problems (3 items), vitality, energy or fatigue (4 items), general health perceptions (5 items) (Ware, 1993). The eight dimensions are scored separately on a scale from 0 to 100, the higher the score indicates better health.

There are two summary component scores for physical health and mental health. The physical health component score includes: the measures for physical functioning, role limitations, bodily pain and general health perceptions, while the mental health component score includes: general mental health, role limitations due to emotional problems, vitality and social functioning (Ware 2000). There are minor variations used in the SF-36 to measure the time element of the change in health status; i.e. over one year, four weeks or one week. In this study, the version used was: “change in health status in the past week”.

Reliability testing has been extensive and combining results from 14 studies resulted in the median alpha internal consistency coefficient exceeds 0.80, except for the two-item social functioning scale (0.76) (Ware, 1993). Correlation between the SF-36 and fifteen other tools revealed a range of .51 to .82 for the mental health range, and .52 to .85 for the physical function scale range (Ware, 1993). The SF-36 is sensitive to change on both the physical and psychological criteria (McDowell and Newell, 1996).

Client Satisfaction

The Client Satisfaction Questionnaire (CSQ) explicitly developed and validated to evaluate a new or established service was given to the clients upon discharge from the clinics or home visits (Attkisson, 1982; Larsen, 1979). The questionnaire consists of eight questions on a 4-point Likert scale asking the client to rate the service, if it was effective in meeting their needs, was it what they wanted, would the client recommend it, were

they satisfied with the amount of help they received, could the client deal more effectively with their problems because of the service, were they satisfied with the service and would they use the service again.

The original tool was comprised of thirty-one items from which two parallel forms were developed and tested for reliability (Attkisson, 1982). The two statistical means of the two forms did not differ significantly but correlated significantly $\eta = .822$ $p < .01$).

Through factor analysis, the thirty-one item tool was further reduced to eight items, which had a coefficient of .93, indicating a high degree of internal consistency (Nguyen, 1983). Different methods of administration of the tool (oral versus written) were also compared which found the oral administration method produced significantly fewer unanswered items than the written mode.

The development of the tool included a reduction of the items from 31 to 8 and identification of aspects of service delivery that were considered determinants of satisfaction. Construct validity was further measured by looking at the satisfaction questionnaire results with the relationship to two other measures of service utilization and therapy outcomes. Additional testing shows negatively skewed results reflecting high levels of satisfaction with health and mental services. The key challenge is to enhance the capacity of the tool to detect dissatisfied clients (Nguyen, 1983).

In addition to the Client Satisfaction Questionnaire, three questions were asked of the clients specific to this study:

- 1) Did you have any problems receiving home visits/having clinic visits?
- 2) Did your home/clinic visit interfere with your planned activities?
- 3) Did you have to miss a scheduled home/clinic visit?

Staff Satisfaction

There are no validated staff satisfaction questionnaires appropriate to compare staff's opinion about working in the clinics versus the home. Therefore, a qualitative staff satisfaction interview/questionnaire was developed to measure and compare staff satisfaction with working in either venue of care delivery. One of the outcomes of this study was to demonstrate that a scarce human resource, nursing personnel, could be used in a more efficient manner. It was hypothesized that providing care in one place with proper supplies and equipment and without travel responsibilities, would increase quality of worklife and potentially increase retention. Each nurse who worked in the nursing clinic also provided care in the home. The majority of nurses participating in the study worked full time and spent one to two full days per week in the nursing clinic and the remainder of the week making home visits. The nurses who worked both in the clinics and the home, approximately fifteen people, were asked to fill out the questionnaire and were invited to participate in a focus group to share their experiences of working in both venues. The focus group was chaired by a VON project manager who was coordinating another research study and was familiar with the nursing clinic research methodology. The investigator was not present for the focus group.

Effectiveness Measures: Proxy Measure for Healing time and Health Status

Effectiveness was measured using a proxy measure for healing time and health status, specifically the number of CCAC visits for each group. The number of CCAC visits is defined as the number of home care or clinic visits and weeks on either service required to care for the client, as determined by the nurse.

Efficiency Measures: Costs of Nursing Visits

The hypothesis of the study was that it would be more efficient to treat clients in a nursing clinic setting compared to the home environment. To test the hypothesis, direct and indirect costs of a clinic visit versus a home visit, based on a number of minutes per visit were compared. Direct costs consisted of the average salary and statutory benefits. Indirect costs consisted of administrative and operating costs.

The CCAC/provider (VON) contract is based on a cost per visit agreement, regardless of where the visit takes place. For the study, the cost of visit in a clinic was the same as in the home. Therefore, measuring the time per visit in the clinic or home was important to the study. If the time per treatment in the clinics was less than in the home, a case could be made that the cost per clinic visit could be less, thereby decreasing the charge per visit in a clinic setting.

Mileage is a factor in traveling from home visit to home visit but was separated from the actual time of the visit. The average amount of mileage traveled between visits, based on

an annual amount of 230,000 visits in 2000/01 by the VON Ottawa/Carleton, in an urban/rural area, was 7km. (VON Ottawa Carleton, 2001).

Equipment, dressing supplies and client medications were provided by an alternate CCAC provider and were delivered specifically for each client, whether they were being treated in the nursing clinic or at home. These costs were not considered in the data collection because they would be irrelevant to the venue of where the client was treated in a randomized controlled trial.

Caregiver costs and the opportunity costs of being off ill were not considered relevant because the eligible clients for this study were ambulatory, suffering from an illness of an acute nature, a breakdown of the costs are listed in Table 11.

Table 11

Nursing Visit Rate Cost Breakdown

(for Home or Clinic)

Direct Compensation to Nurses	\$25.52*
Benefits (see list) at 28%	7.40
Vacation	2.04
Transportation	6.82
Training	.51
Other employee related incentives	.07
Administrative costs (fixed)	<u>5.01</u>
	\$47.37

Benefits include:

Statutory benefits: CPP, EI, Health Tax, Workers' Compensation

VON benefits: Statutory holidays, sick leave, group benefits and pension plan

Transportation: based on 7 km/hr at \$0.31 per hour for car expense and paid time spent driving between visits.

* Compensation for visit time; driving time added separately

Efficiency Measure: Health and Social Services Expenditure Questionnaire

The second measure of efficiency was to compare the use and expenditures of acute hospitalization, physician visits and other health and community services for both groups of clients six weeks after discharge from CCAC services. The decision to measure health care expenditures post CCAC discharge was based on the notion that if the treatment for both groups was equivalent, the residual health effects post discharge should not be significantly different, i.e. one group should not require additional health care expenditures more than the other group.

The Health and Social Service Utilization Inventory (Browne, et al, 1992) was used to measure the costs expended for a 6-week period. The questionnaire asks about the clients, physicians (family or specialist), allied health (personnel such as physiotherapy, occupational therapists, social worker and others), nurses, community support such as Meals on Wheels, homemakers. Hospital episodes and lengths of stay, emergency room visits, laboratory and diagnostic services are recorded. Indirect costs and out of pocket expenses for medications (type, dosage and frequency), supplies, aids and medical devices were also recorded. See Appendix F for complete Health and Services Utilization Inventory.

The advantage of using this tool for this study is that it has been used in 12 studies measuring the effectiveness and efficiency of different types of community services. (Browne, et al, 1999). This is one of the first studies using the tool for an acute, post

hospital population. As was shown in the review of the literature, the disparate methodologies of costing expenses in cost effectiveness studies makes outcome comparisons difficult. The use of the Browne tool in multiple community studies allow for cost comparisons of different services and the development of best practice.

Statistical Analysis

Representativeness

The characteristics of those lost to follow-up at any decision point of the study were compared to those who completed the study. The characteristics compared included demographic, social data and the Time 1 scores from the SF Health Survey. The critical level of significance was $\alpha = .05$

Comparability

Subjects in the control and experimental groups who completed the 6-week follow up post CCAC discharge (T2) were compared on the baseline characteristics to determine the equivalence of the group using chi-square test. All subjects were expected to be similar at the baseline. The critical level of significance was $\alpha = .05$

Test of Hypothesis Using Experimental and Control Comparisons

Primary Null Hypothesis:

The null hypothesis was that there would be no difference in effectiveness and efficiency measures for those clients seen in nursing clinics compared to those treated in home settings.

The primary and secondary research questions are:

Primary:

- a) Is a nursing clinic an equally effective way, as measured by comparing differences in improvement in the SF-36 scores, to provide home care as compared to the traditional home visit, for clients with targeted conditions?

Secondary:

- 1) Are the nursing clinics, compared to home visits, a more efficient way to deliver community care?
- 2) Are health care costs incurred by the client six weeks post CCAC discharge different in the clinic versus the home group?
- 3) Are the clients more satisfied by the treatment received in the nursing clinics or that received in the home?
- 4) What are the advantages and disadvantages of the clinics versus home setting from the opinion of the providers?

Effectiveness and Efficiency Statistical Analysis

Effectiveness Data

A standard t-test statistic was used to compare the mean scores for the eight dimensions of health and the two summary component scores of physical and mental health from the SF-36 health survey of the two groups at 6 weeks post CCAC discharge. The mean number of both groups were compared using t tests.

Efficiency Data

The mean time per visits of both groups, including documentation and travel time, were compared using t tests. The expenditures of the health and social services utilization data for each group at 6 weeks post CCAC discharge will be compared using the non-parametric Mann-Whitney U test. This test is used because the data is typically skewed and variable.

Satisfaction Data

The percentage of clients satisfied was compared between groups at 6 weeks post CCAC discharge using chi-square analysis. Descriptive comments were categorized and summarized. The satisfaction data of the nursing staff, including average scores of the questions as well as descriptive comments were presented, categorized and summarized using analysis of standard deviation and percentage differences.

Justification of Sample Size

The sample size is based on a clinically important difference between the two groups in the SF-36 mental health scores. Using $\alpha = .05$ (2 tailed) and $\beta = .20$ for a clinically important difference of 8 between groups, we needed 34 per group (SF-36 Health Survey Manual, Ware, J.E., 1993).

Efforts to Minimize Bias

The randomized control trial methodology in this study minimized bias. However, nurses caring for either group were aware that the client was in the study because they were required to collect data for the study. In addition, the project coordinator was aware of which group the client was in because the follow-up satisfaction questions were different for the clinic versus the home group.

Ethics Approval

Ethics approval for clients to participate in research on human subjects was applied for and received from the University of Ottawa Research Ethics Board (subjects were located in the Ottawa area), McMaster University (investigator was a student at McMaster), the Ottawa/Carleton CCAC Ethics Committee and the VON Board of Directors. Approval letters are in Appendix J. All study participants were told that consent was voluntary and that their consent or refusal to participate would not, in any way, affect the care they received post hospitalization. All subject information was confidential and subjects were

assured they would not be identified on any verbal or written reports. Subjects were told they could withdraw from the study at any time.

Each client was assigned a number, which was known only to the project coordinator.

The principal investigator, project coordinator and research staff at McMaster University were the only personnel that had access to the data.

Data Entry and Storage

The data was entered and stored on a Pentium database using Microsoft Access software.

Only the investigator, project coordinator and statistician had access to the database.

Limitations

The limitations of the study were related to the challenges of health services research in a changing political environment. These limitations are listed:

- Total number of eligible clients was not known, only estimated using 10% of total client population.
- The budget constraints (2001/02) restricted recruitment for one year; the case managers and nursing staff required retraining after the one year period. The explanations about the study may have altered, as well as the case managers' perceptions about the study.

- A number of case managers were not active participants in the study, thereby missing potential subjects. The actual number of clients missed could not be measured without a daily audit. The CCAC was not able to provide the resources to do a daily audit of the potential clients lost to the study.
- The project investigator was not blinded to the clients at Time 2 because the questions were specific to where the client had treatment.

CHAPTER 6

RESULTS

Study Environment

Intake of subjects into the study began March 2001 and continued until August 2003. Originally intake was planned for a one year period. However, in early fall, 2001, the Ontario Ministry of Health informed the CCACs that they would not receive budget increases for 2001/02 and instructed them to balance their budgets. In October, 2001, the Ottawa-Carleton CCAC informed the case managers that clients, ready for hospital discharge and assessed at a certain level of care, i.e. IV therapy of a short duration, were no longer eligible for CCAC services. These clients were instructed to seek treatment at their personal physician's office or the emergency room. Unfortunately, these clients would be the group most likely to be eligible for the nursing clinic study. As a result of these budget constraints, recruitment into the study nearly ceased from November 2001 to August 2002. During this period of time, numerous meetings took place with the investigator and CCAC management to find alternative solutions to reestablish recruitment. The Ottawa-Carleton CCAC sent out a questionnaire to all CCACs asking them if they were interested in becoming an alternative site for the nursing clinic study. Since the Ottawa-Carleton CCAC/VON nursing clinic was established, a number of other nursing clinics had been set up in the province. The CCAC management assisted the investigator in seeking recruitment from another CCAC (Sudbury), which had a very active nursing clinic. This nursing clinic had been set up by the VON Sudbury, using similar principles and guidelines as the VON Ottawa-Carleton, including the same

eligibility criteria. The VON Sudbury agreed to be part of the study and the investigator prepared an ethics proposal for the CCAC Sudbury. The CCAC Sudbury administration was very interested in being part of the study as an alternative site, but the CCAC Sudbury Ethics Committee would not agree to the randomization process. The CCAC Sudbury management did not want clients to have a choice of venue. Clients who lived within a certain travel radius of the nursing clinic were instructed, without choice, post hospital discharge, to go to the clinic for treatment. Therefore, CCAC Sudbury was eliminated as an alternative site. Other nursing clinics in operation were the Waterloo CCAC and Hamilton CCAC, however the Waterloo CCAC closed their nursing clinic during the budget constraints and the Hamilton clinic was not pursued because the contract changed administration from the VON to a different provider.

In September 2002, the Ottawa-Carleton CCAC lifted the restrictions to clients and recruitment resumed. In the fall, meetings were held with the new Ottawa/Carleton CCAC management, hospital case managers, VON management and nursing staff to educate new staff and reeducate staff previously involved in the study. The budget constraints had severe effects; only 22 clients were recruited from fall, 2001 to the fall of 2002. Therefore, due to the Ottawa-Carleton CCAC change in policy to refer certain clients to alternative venues for treatment, such as emergency rooms or physicians' offices, the number of clients who would have been eligible for the study is not known. The total number of CCAC clients in 2001 was 21,581 and in 2002 was 19,870 (O/C CCAC, personal communication). The initial pilot testing of eligible clients for the clinics

would indicate that there would be approximately 10%, or 2,158 (2001) and 1,987 (2002) clients eligible, far fewer than those actually recruited into the study.

An additional disruptive factor to recruitment was the total turnover in Ottawa-Carleton CCAC management, including the resignation of the CCAC CEO, who was a co-investigator in the nursing clinic study.

Quality Control Measures

Recruitment and retention of subjects in this study was challenging and required considerable coordination. Those involved in the study included four intake hospitals, community physician offices, over 150 nursing agency staff, twenty case managers and three different nursing clinics. A number of techniques, recommended in community studies, were employed for both the clients and the hospital case managers to improve recruitment and retention (Davis, 2002). These techniques are summarized as follows:

a) Emphasizing the Study Significance to the Clients: The case managers explained the importance of researching and evaluating other ways to deliver home care to the clients. Each client received an explanation of the study in writing, including a “question and answer” sheet about the study.

Not all of the hospital case managers wanted to participate in the randomization process, despite the fact that they agreed with the importance of the study. Some case managers expressed the opinion that clients who are eligible for the clinic should not have a choice

of either home or clinic. During periods of time when nurses were not available, some clients had to wait to be seen in the home, thus the case managers believed the study was “unethical” and that a home visit should not be given to an eligible clinic client randomized to the home, if it meant another client had to wait to be seen in the home. In other words, some case managers assigned eligible clinic clients directly to clinics because the clinics were available, without asking if the clients would like to participate in the study. In addition, some of the case managers did not want to spend the time to explain the study and ask for participation. Fortunately, the majority of the case managers supported the purpose of the nursing clinic study and participated in the recruitment process.

Numerous sessions took place with these case managers to discuss their concerns and emphasize the importance and reasons for randomization. The CCAC administration did not penalize the case managers for not participating in the study.

b) Establishing the Project Identity: The “Nursing Clinic Newsletter” and the “Nursing Clinic Primer” are both examples of strategies used to establish the project identity for the clients and staff. The “Nursing Clinic Newsletter” was sent out regularly to the hospital CCAC case managers, Ottawa/Carleton VON and CCAC management and kept staff informed about the study progress. The project was also identified by the logos of the partners involved in the study (CCAC, VON and McMaster University) which was displayed on the information sheet and consent form. Every client had the contact number of the project coordinator.

c) Skill Training for Study Staff: The VON nursing staff were kept informed about the study activities and regular reminders of how to fill out the visit record sheet was done through staff meetings, reminder voice mail messages and newsletters. The project coordinator met with new case managers at their hospitals and explained the study protocol to them.

d) Providing Meaningful Incentives: In order to encourage the CCAC case managers to resume recruitment in the fall of 2002, an agreement was made with the CCAC management to offer a small financial incentive to the case managers for each eligible client they recruited into the study. As a result of this policy change, recruitment improved but did not resume to the levels experienced prior to the budget cuts.

e) Individualized Data Collection: The project coordinator individualized the time for data collection depending on the client's circumstances. The project coordinator interviewed for Time 1 data collection, usually within 72 hours, either in the home, in the clinic or on the phone. Visits to collect data for Time 2 took place on weekends, evenings and in places convenient to the client within one week of the 6 week discharge period. On occasion, the client was unavailable for the Time 2 visit, and consented to fill out the information by mail. If the client did not return the information, the project coordinator called the client again. Every effort was made to find clients whose addresses or telephone numbers were changed after discharge.

f) Use of a Participant Tracking Database: Clients were first tracked with repeated phone calls and on occasions, tracked through next of kin contacts. A client was contacted by phone up to eight times before being dropped from the study.

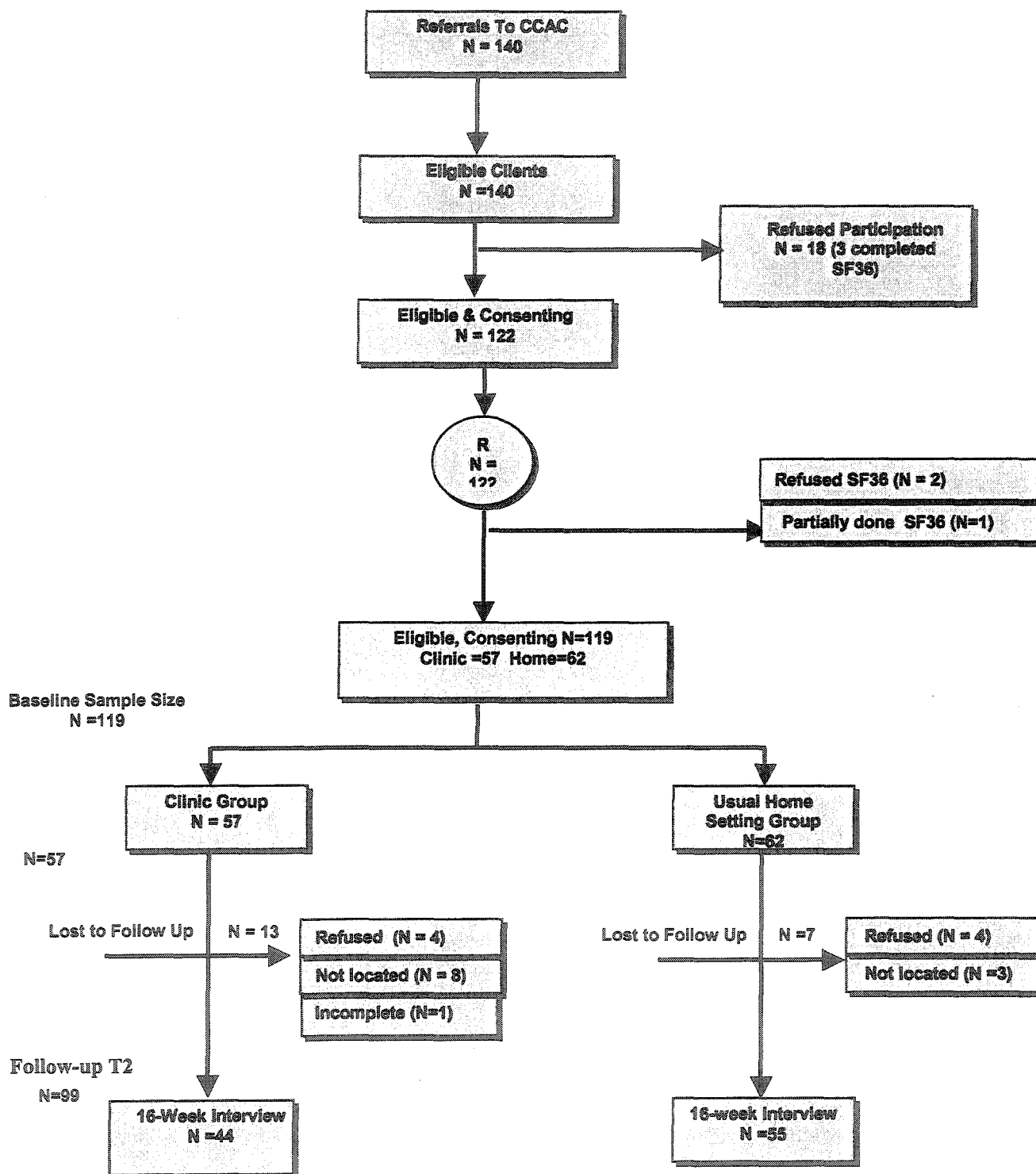
Eligible Population

Applicability: Individuals 18 and older, and eligible for the study, were screened from four hospital settings. Between March, 2001 and August, 2003, 140 individuals eligible for community care access services, and fitting the eligibility criteria for the study, were screened and asked to participate in the study. The total number of clients eligible for CCAC services and eligible for the study is not known and can only be estimated for two reasons: the CCAC budget constraints and the variability in case managers' willingness to enter clients into the study.

Of the 140 clients eligible for CCAC services and the clinic study, 18 refused participation (12.9% refusal rate). Of the 122 consenting clients, 3 subsequently refused to fill out the SF-36 after being contacted by the research nurse, for a total of 119 consenting, eligible clients. The Study Flow Diagram is illustrated in Figure 4.

**Figure 4 The Effectiveness and Efficiency of Providing Home care Visits in
Nursing Clinics vs The Traditional Home Setting
STUDY FLOW DIAGRAM**

March 1, 2001 – December, 2003



Representativeness of the Subjects

Of the 119 clients eligible and consenting to be randomized to the clinic or home setting, 99 or 83.2% were retained for Time 1 (T1) and Time 2 (T2), i.e. during the delivery of CCAC services, and for 6 weeks post CCAC discharge. If the CCAC services were still being delivered after 3 months since T1, the client was considered stable and chronic and was asked to fill out T2 data.

There were a total of 20 clients lost to follow-up between T1 and T2. The retention rate at T2 of the clinic group was 79%, and 87% for the home group. The primary reasons for lost to follow-up were refusal to complete T2 in the clinic group (7%) and 6% in the home group; and “not located”: 14% in the clinic group and 4.8% in the home group. One client (1.6%) in the home group only partially completed the T2 documents.

In Table 12a, study completers for T1 and T2 ($n = 99$) were compared to those lost to follow-up ($n = 20$) on their demographic and social characteristics at baseline to see if dropping out of the study affected the representativeness of the completer group for the study variables. All demographic and social characteristics of the study completers are similar to those lost of follow-up (gender, living/housing arrangements, marital status, language, employment status, income and age).

Table 12a

Representativeness Between Those that Complete the Study (N=99) vs Those that Drop out of the study (N=20)

	Total		Complete the study				Test Statistics	
			Complete the study		Drop Out			
	Count	%	Count	%	Count	%	Chisquare	p-values
Gender								
Male	53	44.50%	44	44.40%	9	45.00%	0.002	0.964
Female	66	55.50%	55	55.60%	11	55.00%		
Living Arrangement								
Live Alone	15	12.60%	13	13.10%	2	10.00%	1.291	0.731
Live with Spouse or partner	74	62.20%	63	63.60%	11	55.00%		
Live with other family member	25	21.00%	19	19.20%	6	30.00%		
Live with non-relative/roomate	5	4.20%	4	4.00%	1	5.00%		
Housing								
House or townhouse	94	79.00%	78	78.80%	16	80.00%	0.413	0.938
Apartment or condo	23	19.30%	19	19.20%	4	20.00%		
Supporting housing/Senior Housing	1	0.80%	1	1.00%	0	0.00%		
Other e.g. Bed and Breakfast	1	0.80%	1	1.00%	0	0.00%		
Marital status								
Married once	67	56.30%	56	56.60%	11	55.00%	3.508	0.622
Living together or commonlaw	10	8.40%	9	9.10%	1	5.00%		
Separated	6	5.00%	5	5.10%	1	5.00%		
divorced/annulled	7	5.90%	6	6.10%	1	5.00%		
Widowed	7	5.90%	7	7.10%	0	0.00%		
Remarried	22	18.50%	16	16.20%	6	30.00%		
Language								
English	99	83.90%	84	85.70%	15	75.00%	3.566	0.168
French	7	5.90%	4	4.10%	3	15.00%		
Either E or F	12	10.20%	10	10.20%	2	10.00%		
Employment status								
Full time work For pay	56	47.10%	45	45.50%	11	55.00%	3.269	0.774
Part time work for pay	13	10.90%	11	11.10%	2	10.00%		
Homemaker	6	5.00%	4	4.00%	2	10.00%		
Student	4	3.40%	3	3.00%	1	5.00%		
Retired from work for pay	27	22.70%	24	24.20%	3	15.00%		
Disable and unable to work	10	8.40%	9	9.10%	1	5.00%		
Unemployed	3	2.50%	3	3.00%	0	0.00%		
Income								
Low	28	23.90%	23	23.50%	5	26.30%	0.202	0.904
Medium	73	62.40%	62	63.30%	11	57.90%		
High	16	13.70%	13	13.30%	3	15.80%		
Hospital								
Not Stated	5	4.20%	4	4.00%	1	5.00%	7.041	0.218
Civic	12	10.10%	10	10.10%	2	10.00%		
General	27	22.70%	22	22.20%	5	25.00%		
Intake: CCAC	2	1.70%	2	2.00%	0	0.00%		
Montfort	12	10.10%	7	7.10%	5	25.00%		
Queensway-Carlton	61	51.30%	54	54.50%	7	35.00%		
	119	100.00%	99	100.00%	20	100.00%		

In Table 12b, the scores of the SF-36 of the 20 clients lost to follow-up was compared to the study completers and there were also no significant differences between the two groups. Thus, the results from the demographic and social characteristics as well as the SF-36 indicate that no adjustments need to be made when doing the statistical analysis of the primary and secondary questions.

Study Participants

The study group of 99 CCAC clients was a fairly healthy, middle-aged, working adult population with an acute episode of disease (see Table 13). There was no significant difference in age between the clinic and home groups with a slightly higher proportion of women (55.6%) than men (44.4%) overall. The average age was 52.8 years for the clinic group and 49.2 years for the home group. Most clients (90.8%) were living with a spouse, family member, partner or roommate with no significant difference in either clinic or home group. Over half of the total participants, 56.6% were working full time or part time, while 36.3% were retired, unemployed or disabled. The remaining group was homemakers (4%) and students (3%). Income was described as low (23.5%), medium (63.3%) to high (13.3%) with no significant difference among either group, except 16.7% of the home group described their income as high, compared to 9.1% of the clinic group. The diagnosis most commonly documented for the total group of clients was: surgical wound/wound infection (29.3%), abscess (16.4%), cellulites (17.1%), fistula/cyst irrigations (12.1%), burns (7.1%), leg/foot ulcers (3.6%) with the remaining 13.5% being

Table 12b

Quality of Life (SF36)

	Total			Status of the study						Test Statistics	
				Complete the study			Drop Out				
	N	Mean	S.D.	N	Mean	S.D.	N	Mean	S.D.	T-test	p-values
Age	119	49.7	17.3	99	50.8	17.7	20	44.3	14.2	1.449	0.15
Quality of Life (SF36)											
SF-36 PHYSICAL FUNCTIONING Index (0-100)	119	57.6	27.9	99	58.2	27.4	20	55	30.7	0.464	0.644
SF-36 Role-Physical Index (0-100)	119	33.6	31	99	33.8	29.9	20	32.6	37.1	0.155	0.877
SF-36 Pain Index (0-100)	119	44.4	28.7	99	42.9	27	20	52.1	35.8	-1.308	0.194
SF-36 General Health Perceptions Index (0-100)	119	68.7	24.5	99	70	23.6	20	61.9	28.4	1.355	0.178
SF-36 VITALITY (0-100)	119	45.1	26.2	99	45.4	26.1	20	43.8	27.2	0.255	0.799
SF-36 SOCIAL FUNCTIONING (0-100)	119	50.1	35.8	99	50.8	34.8	20	46.9	41.1	0.441	0.660
SF-36 ROLE-EMOTIONAL (0-100)	119	71	32.6	99	70.3	32.3	20	74.6	35	-0.522	0.603
SF-36 MENTAL HEALTH INDEX (0-100)	119	70.6	20.6	99	70.5	21.1	20	71	18.3	-0.093	0.926
SF36 Physical summary index score	119	53.18	19.7	99	53.54	18.92	20	51.32	23.85	0.448	0.655
SF36 Mental Health summary index score	119	60.53	20.64	99	60.47	20.73	20	60.81	20.74	-0.065	0.948

medical diagnoses such as: chronic renal failure, multiple myeloma, strictured ureter, the majority of which required intravenous treatments, catheter irrigations or other interventions. The largest percentage of required care being for wound/surgical infection dressings is consistent with other studies showing wound treatments being the most frequently cited reason for home care from the post acute hospital population (Alcock, 1998). The characteristics of the group, i.e. age, level of independence and medical diagnosis fit the assumptions of who would be most appropriate candidates for the clinic settings.

The clients were referred from 4 different hospitals located from the far east end to the far west end of the city. Half (51.5%) were referred from the community hospital in the west end, 32.4% were referred from the two teaching hospitals, 10.1% from the francophone community hospital and in the east end, 1.7% were referred directly from physician offices, leaving 4.2% not stated on the referral form. It was anticipated and experienced, that the majority of clients would come from the community hospitals. Nursing clinics were available in the west, east, and centre of the city, which left the amount of travel time fairly consistent for clients living at either end of the city. All clients were able to answer the questionnaires themselves without assistance.

Comparability of Groups

The baseline (T1) demographic and social characteristics of those randomized to the clinic or home group are displayed in Table 13. Group comparisons of the two

Table 13

			Total		Group				Test Statistics			
					Clinic		Home					
Demographics			Count	%	Count	%	Count	%	Chi-square	p-values		
Gender												
	Male	44	44.40%	22	50.00%	22	40.00%	0.990	0.320			
	Female	55	55.60%	22	50.00%	33	60.00%					
Living Arrangement												
	Live Alone	13	13.10%	5	11.40%	8	14.50%	1.100	0.770			
	Live with Spouse or partner	63	63.60%	30	68.20%	33	60.00%					
	Live with other family member	19	19.20%	8	18.20%	11	20.00%					
	Live with non-relative/roommate	4	4.00%	1	2.30%	3	5.50%					
Housing												
	House or townhouse	78	78.80%	34	77.30%	44	80.00%	2.139	0.544			
	Apartment or condo	19	19.20%	9	20.50%	10	18.20%					
	Supporting housing/Senior Housing	1	1.00%	1	2.30%	0	0.00%					
	Other e.g. Bed and Breakfast	1	1.00%	0	0.00%	1	1.80%					
Marital status												
	Married once	56	56.60%	26	59.10%	30	54.50%	2.356	0.798			
	Living together or commonlaw	9	9.10%	5	11.40%	4	7.30%					
	Separated	5	5.10%	3	6.80%	2	3.60%					
	divorced/annulled	6	6.10%	2	4.50%	4	7.30%					
	Widowed	7	7.10%	2	4.50%	5	9.10%					
	Remarried	16	16.20%	6	13.60%	10	18.20%					
Language												
	English	84	85.70%	36	81.80%	48	88.90%	1.105	0.575			
	French	4	4.10%	2	4.50%	2	3.70%					
	Either E or F	10	10.20%	6	13.60%	4	7.40%					
Employment status												
	Full time work For pay	45	45.50%	19	43.20%	26	47.30%	5.362	0.498			
	Part time work for pay	11	11.10%	4	9.10%	7	12.70%					
	Homemaker	4	4.00%	1	2.30%	3	5.50%					
	Student	3	3.00%	1	2.30%	2	3.60%					
	Retired from work for pay	24	24.20%	11	25.00%	13	23.60%					
	Disable and unable to work	9	9.10%	5	11.40%	4	7.30%					
	Unemployed	3	3.00%	3	6.80%	0	0.00%					
Income												
	Low	23	23.50%	11	25.00%	12	22.20%	1.217	0.544			
	Medium	62	63.30%	29	65.90%	33	61.10%					
	High	13	13.30%	4	9.10%	9	16.70%					
Hospital												
	Not Stated	4	4.00%	1	2.30%	3	5.50%	2.804	0.730			
	Civic	10	10.10%	5	11.40%	5	9.10%					
	General	22	22.20%	10	22.70%	12	21.80%					
	Intake: CCAC	2	2.00%	0	0.00%	2	3.60%					
	Montfort	7	7.10%	4	9.10%	3	5.50%					
	Queensway-Carlton	54	54.50%	24	54.50%	30	54.50%					
	Group Total			Group						Test Statistics		
	N		Mean	S.D.	N	Mean	S.D.	N	Mean	S.D.	T-test	p-values
Age	91	50.8	17.7	40	52.8	18.2	51	49.2	17.4		0.949	0.345

populations at the 6 week follow-up indicate that there was no statistically significant difference in the baseline characteristics between the experimental (clinic) and control (home) groups. Therefore, the drop-outs (20) between Time 1 and Time 2 did not affect the equivalence of the two groups at baseline.

Primary Research Question #1: Is a nursing clinic an equally effective way, as measured by the differences in improvement in the SF-36 Health Survey scores, to provide home care as compared to the traditional home visit, for patients with targeted conditions?

The mean scores and standard deviation for the eight SF-36 health scales and two summary component scales were compared at baseline (Time 1) and at 6 weeks post discharge from CCAC (Time 2) as shown in Table 14. At six weeks post discharge from CCAC, both the clinic and home group showed improvement in individual change scores in all eight dimensions and the two summary component scores, using standard t test.

In order to compare the general physical and mental health of the subject population to the general population, the entry and exit level scores of the eight health concept scores and two physical and mental health summary component scores were compared against the published norms for the general Canadian female/male population for the same average age bracket as the participating clients (45-54 years), as shown in Table 15 (Hopman, W.M., 2000).

Table 14

SF36 Index score Comparison												
		Group Total			Clinic			Home			Test Statistics	
		N	Mean	S.D.	N	Mean	S.D.	N	Mean	S.D.	T-test	p-values
SF-36 PHYSICAL FUNCTIONING Index (0-100)												
	Time 1	99	58.2	27.4	45	62.3	28.4	54	54.7	26.4	-1.381	0.171
	Time 2	99	75.6	25.8	45	76.4	24.6	54	75	26.9	-0.274	0.784
	Time 1- Time 2	99	-17.43	29.35	45	-14.06	27.95	54	-20.24	30.44	-1.043	0.300
SF-36 Role-Physical Index (0-100)												
	Time 1	99	33.8	29.9	45	32.4	30.6	54	35	29.6	0.428	0.670
	Time 2	99	70.9	32.7	45	71.1	34.3	54	70.7	31.6	-0.059	0.953
	Time 1- Time 2	99	-37.12	41.79	45	-38.75	44.25	54	-35.76	40	0.352	0.725
SF-36 Pain Index (0-100)												
	Time 1	99	42.9	27	45	40	28.9	54	45.3	25.3	0.961	0.339
	Time 2	99	72.6	26.7	45	73.1	27.7	54	72.1	26	-0.178	0.859
	Time 1- Time 2	99	-29.71	32.38	45	-33.09	34.71	54	-26.89	30.35	0.948	0.345
SF-36 General Health Perceptions Index (0-100)												
	Time 1	99	70	23.6	45	69.3	23.3	54	70.6	24.1	0.274	0.785
	Time 2	99	68.6	25.3	45	70.2	26.1	54	67.2	24.7	-0.583	0.561
	Time 1- Time 2	99	1.18	17.5	45	-0.89	21.79	54	3.01	12.51	1.056	0.295
SF-36 VITALITY (0-100)												
	Time 1	99	45.4	26.1	45	42.4	25	54	47.9	26.9	1.056	0.293
	Time 2	99	59.4	23.2	45	59.1	23.3	54	59.7	23.4	0.133	0.894
	Time 1- Time 2	99	-14.09	24.34	45	-16.9	27.68	54	-11.81	21.23	1.005	0.318
SF-36 SOCIAL FUNCTIONING (0-100)												
	Time 1	99	50.8	34.8	45	45.3	33.5	54	55.3	35.5	1.438	0.154
	Time 2	99	79.4	26.9	45	79.7	27.2	54	79.2	26.8	-0.102	0.919
	Time 1- Time 2	99	-28.66	37.6	45	-34.44	38.36	54	-23.84	36.61	1.404	0.164
SF-36 ROLE-EMOTIONAL (0-100)												
	Time 1	99	70.3	32.3	45	73.5	31.2	54	67.6	33.2	-0.909	0.365
	Time 2	99	81.1	27	45	81.9	25.2	54	80.4	28.6	-0.265	0.792
	Time 1- Time 2	99	-10.77	33.3	45	-8.33	34.45	54	-12.81	32.49	-0.664	0.508
SF-36 MENTAL HEALTH INDEX (0-100)												
	Time 1	99	70.5	21.1	45	68.6	22.3	54	72.2	20.1	0.850	0.397
	Time 2	99	78.4	18.1	45	75.7	18.6	54	80.6	17.6	1.330	0.187
	Time 1- Time 2	99	-7.68	18.5	45	-6.82	20.94	54	-8.38	16.42	-0.414	0.680
SF36 Physical summary index score												
	Time 1	99	53.54	18.92	45	53.8	18.65	54	53.31	19.32	-0.127	0.899
	Time 2	99	72.22	24.25	45	72.74	24.57	54	71.75	24.21	-0.197	0.844
	Time 1- Time 2	99	-18.65	20.98	45	-18.94	22.99	54	-18.4	19.26	0.125	0.901
SF36 Mental Health summary index score												
	Time 1	99	60.47	20.73	45	58.81	20.02	54	61.86	21.39	0.726	0.470
	Time 2	99	73.63	19.81	45	72.73	19.81	54	74.37	19.97	0.407	0.685
	Time 1- Time 2	99	-13.11	19.59	45	-13.84	21.21	54	-12.52	18.34	0.331	0.741

Table 15

Mean age and sex standardized scores for 8 domains of MOS SF-36 and for 2 summary scales (physical and mental components) for Canadians (Hopman, W.M. et al, 2000).

Age/Year 45-54Canadian Norm n = 1690NursingClinic Study n = 99

	Mean	Standard Deviation	Time 1 Mean (SD)	Time 2 Mean (SD)
Physical Functioning	88.0	(16.9)	58.2 (27.4)	75.6 (25.8)
Role physical	84.9	(31.9)	33.8 (29.9)	70.9 (32.7)
Bodily pain	76.2	(23.4)	42.9 (27.0)	72.9 (26.7)
General health perception	77.3	(18.4)	70.0 (23.6)	68.6 (25.3)
Energy/Vitality	65.5	(18.2)	45.4 (26.1)	59.4 (23.2)
Social Functioning	86.4	(20.3)	50.8 (34.8)	79.4 (26.9)
Role emotional	85.6	(30.1)	70.3 (32.3)	81.1 (27.0)
Mental health	76.8	(15.8)	70.5 (21.1)	78.4 (18.1)
Physical component scale	51.3	(9.0)	53.54 (18.9)	72.22 (24.25)
Mental component scale	51.4	(9.2)	60.47 (20.73)	73.63 (19.8)

SD = Standard Deviation

The Hopman study is the first study to publish norms for the Canadian population for the SF-36. The results indicate that there is a pattern of higher scores for Canadians for all domains when compared to the U.S. data and for four domains of the U.K. data (Hopman et al, 2000). However, the data from all three countries is consistent in that men score higher than females on all domains and summary component scores (Ware, 1993, Jenkinson, 1999).

The data from this study indicates that at T1 all subjects were well below the Canadian standard and at T2, they were much improved but still below the Canadian standard for all eight domains, except mental health.

In addition, the only clinically significant difference between the two groups for the eight dimensions and two summary component scales was social functioning, which showed a 10.6 point improvement in the clinic group compared to the home group ($34.4 - 23.84 = 10.6$). This finding may be related to the notion that the clinic setting diminishes the sick role and encourages clients to resume their normal work and social routine.

The mean scores and standard deviation for the two summary component scales and each of the eight dimensions on the SF-36 at baseline (T1) and 6 month post CCAC discharge (T2) was not statistically significant for any of the scales which supports the null hypothesis that patients attending the nursing clinics would be equivalent as the traditional home setting in their SF-36 functioning.

The point improvements in the mean scores of both groups between T1 and T2 were compared in Table 16.

Although the mean SF-36 scores were equivalent between treatment groups, the point improvement differences in the clinic group in the pain, role physical, vitality, and social functioning dimensions, may indicate that the client enters recovery stage more quickly after receiving treatment in the clinic setting. The home group showed a greater than 10% improvement difference between T1 and T2 compared to the clinic group in physical functioning only. However, only the social functioning dimension had a clinically significant (greater than 10 points) result for the clinic group.

Table 16

Improvement Shown Between the 2 Groups between Time 1 and Time 2

**SF-36 Dimension
Components**

Improvement Between T1 and T2

	Mean Improvement		Difference in Improvement	
	Clinic	Home		
Physical Functioning	14.06	20.24	6.18(h)	p = .300
Role Physical Index	38.75	35.76	2.99(c)	p = .725
Pain Index	33.09	26.89	6.2(c)	p = .345
General Health Perceptions Index	0.89	-3.01	3.9(c)	p = .295
Vitality	16.9	11.81	5.09(c)	p = .318
Social Functioning	34.44	23.84	10.6(c)*	p = .164
Role – Emotional	8.33	12.81	4.48(h)	p = .508
Mental Health Index	6.82	8.38	1.56(h)	p = .680
Physical Summary Index	18.94	18.4	.54(c)	p = .901
Mental Health Summary Index	13.84	12.52	1.32(c)	p = .741

* greater than 10 point difference between the two groups for improvement between T1 and T2

c = clinic showed more improvement

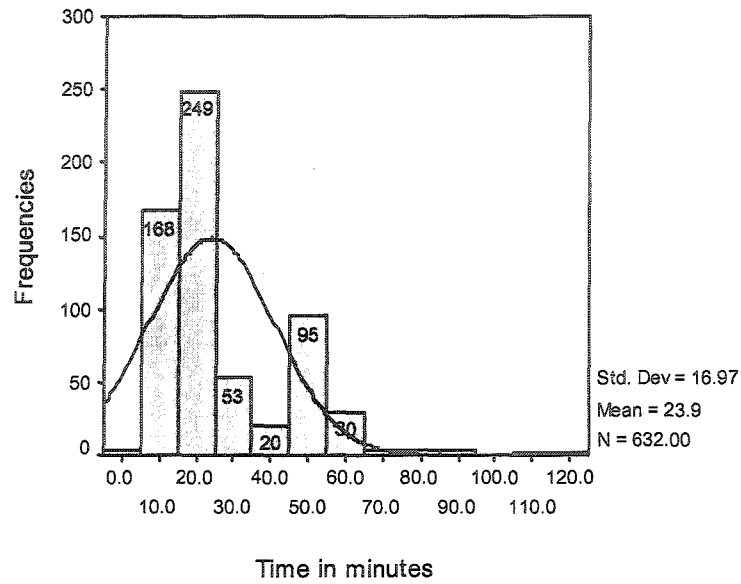
h = home showed more improvement

Secondary Research Question #1: Are the nursing clinics, compared to home visits, a more efficient way to deliver community care?

The difference in the average direct treatment time for those clients being seen in clinic compared to the home was statistically significant ($p < .001$). The clinic clients experienced 632 visits with a mean of 23.87 minutes per visit, compared to 35.19 minutes per visit, and 650 visits in the home group (Tables 17, 18). This finding supports the assumption that the same treatment could be offered at a nursing clinic setting in a far reduced period of time. Adding documentation time for the clinic group resulted in an average total time per visit of 29.62 minutes, while adding documentation and travel time for the home group resulted in 55.74 minutes per visit. The average travel time for each nurse between home visits was 12.79 minutes. This travel time is consistent with the VON average travel time between home visits (B. Cerniuk, ED VON Ottawa Carleton, 2003). If the travel time were removed from the average total home visit time, the average total time for direct treatment and documentation would be 42.95 minutes versus the direct treatment and documentation of 29.62 minutes in the clinic. The difference between the home and the clinic is the time required for the nurse to get accustomed to each home setting, arrange dressings and supplies, set up a safe place to do the care. In a clinic setting, the supplies and equipment are readily available, the nurse is accustomed to the setting and a sterile field is easily set up. The average number of visits per client was 14.4 for the clinic clients and 11.8 for the home clients, the difference of which was not statistically significant.

Table 17

Treatment Time For Clinic Visit Group



Treatment Time For Home Visit group

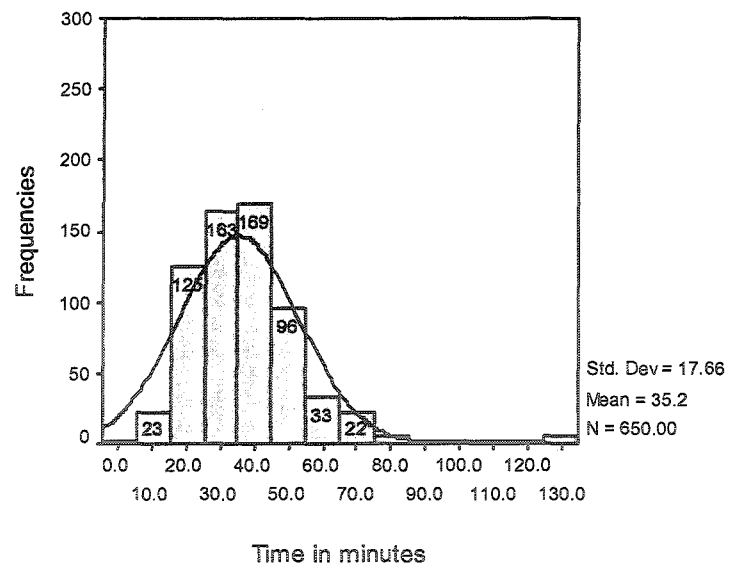
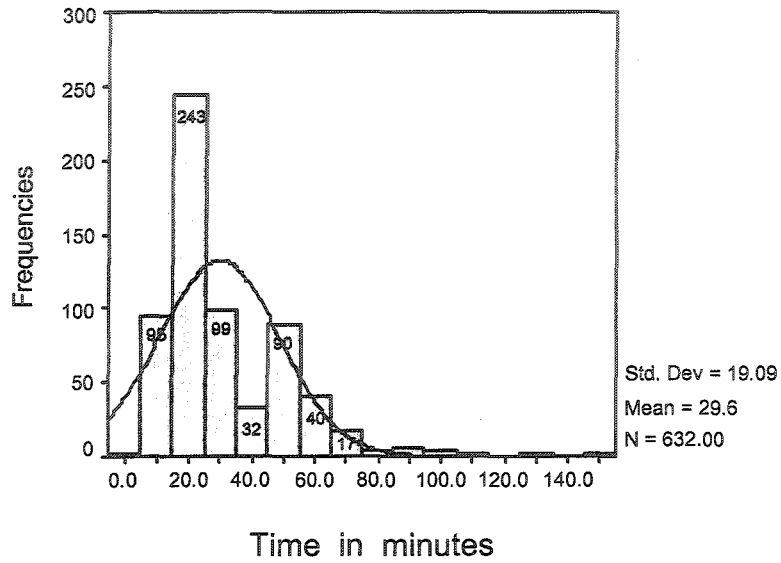


Table 18

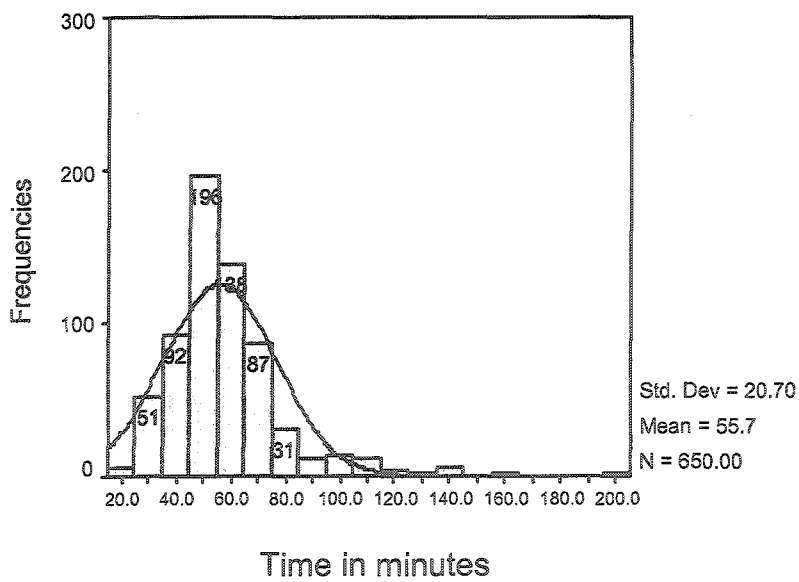
Total Treatment Time For Clinic Visit Group

(include document and travel time)



Total Treatment Time For Home Visit Group

(include document and travel time)



Secondary Research Question #2: Are the health care costs incurred by the client six weeks post CCAC discharge different in the clinic vs. the home group?

Clients were asked to complete the Health and Social Services Utilization Inventory (Browne et al, 1992) to capture the amount of services required by the two groups during the six weeks post discharge from home care. The inventory of unit charges or costs for each service was based on averages for Ontario, Canada as reported by Browne et al, as well as the current Ottawa/Carleton CCAC nursing rate contract charges (Browne, 2001).

The mean costs of each item on the Health and Social Services Utilization Inventory was compared between the clinic and home groups, see Table 19. The costs were not annualized, as the need for health and social services was thought to be associated and limited to the recent episode of illness. The total costs for each group for the thirty-three services averaged \$954, with the clinic group costing the system less (\$782.19) than the home care group (\$1092.58) ($p = .071$). The main cost differences between the two groups was for the inventory items: physician specialist, social worker, laboratory test, other tests, medications and visiting nursing services. The largest difference, however, was the visiting nursing cost which was more costly for the home group (\$108.52) than the clinic group (\$12.92) $p = .009$. The reason for the nursing visits, either in the home or clinic, post CCAC discharge is two-fold:

- a) four clients in the home group and three clients in the clinic group continued their visits from T1 onward for three months. At the end of three months, they

Table 19

Expenditure of Health and Social Utilization during 6 weeks

	Total (N=99)		Group				Test Statistics		
			Clinic (N=44)		Home (=55)				
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mann-Whitney U	Z	Sig. (2-tailed)
1. Family Physician or walk-in clinic	32.71	46.24	28.10	34.16	36.40	54.04	1155	-0.411	0.681
2. Physician specialist	80.57	110.55	64.89	97.93	93.11	119.08	952	-1.877	0.060
3. Emergency room	85.03	279.88	62.29	248.96	103.22	303.40	1086.5	-1.325	0.185
4. Physiotherapist	24.47	111.77	27.53	92.48	22.02	125.89	1139.5	-1.050	0.294
5. Psychiatrist	0.57	5.70	1.29	8.55	0.00	0.00	1182.5	-1.118	0.264
6. Psychologist	14.73	95.68	18.41	122.11	11.78	68.69	1194.5	-0.368	0.713
7. Occupational Therapist	0.95	9.41	0.00	0.00	1.70	12.62	1188	-0.894	0.371
8. Social Worker	60.40	489.33	0.00	0.00	108.72	655.13	1122	-1.816	0.069
9. Family Counselor	0.00	0.00	0.00	0.00	0.00	0.00	1210	0.000	1.000
10. Nutritionist	2.65	13.78	3.58	17.53	1.91	9.92	1198	-0.248	0.804
11. Naturopath/homeopath	0.00	0.00	0.00	0.00	0.00	0.00	1210	0.000	1.000
12. Visiting nurse visit cost	66.03	184.93	12.92	51.45	108.52	236.27	951.5	-2.596	0.009
13. Clinic nurse visit cost	24.88	131.15	30.14	132.35	20.67	131.25	1185	-0.373	0.710
14. Chiropractor	5.71	32.57	10.93	46.93	1.54	11.44	1148.5	-1.269	0.204
15. Homemaker	0.70	6.96	0.00	0.00	1.26	9.34	1188	-0.894	0.371
16. Meals on Wheel	0.00	0.00	0.00	0.00	0.00	0.00	1210	0.000	1.000
17. Other health care providers/services	10.07	53.21	2.06	9.55	16.48	70.51	1128	-1.222	0.222
19. 911	0.94	6.60	0.00	0.00	1.70	8.81	1166	-1.271	0.204
20. Ambulance	9.90	69.29	0.00	0.00	17.82	92.57	1166	-1.271	0.204
Laboratory test Cost	81.58	156.46	45.27	85.71	110.63	191.42	929.5	-2.117	0.034
1. Blood work	33.30	70.81	19.86	42.40	44.05	86.03	1023	-1.528	0.127
2. Specimens (i.e. urine, throat swabs)	2.36	5.28	2.13	5.21	2.55	5.37	1162.5	-0.500	0.617
3. Scopes (i.e. endoscopy, bronchoscopy, sigmoidscopy)	0.00	0.00	0.00	0.00	0.00	0.00	1210	0.000	1.000
4. X-rays	7.38	37.29	10.28	52.85	5.06	16.97	1189.5	-0.276	0.782
5. Scans (ie. ultrasound, CT scan)	31.22	107.99	10.33	35.16	47.93	139.79	1049.5	-1.766	0.077
6. Breathing Test (e.g. Spirometry)	0.61	3.46	0.91	4.24	0.37	2.71	1177	-0.783	0.434
7. ECG	1.96	12.53	1.76	7.02	2.11	15.68	1151	-1.218	0.223
8. EEG (brain waves)	0.00	0.00	0.00	0.00	0.00	0.00	1210	0.000	1.000
9. EMG (Muscle)	0.00	0.00	0.00	0.00	0.00	0.00	1210	0.000	1.000
10. Other tests	4.75	21.24	0.00	0.00	8.55	28.02	1078	-2.248	0.025
21. Medication Cost	95.79	235.70	123.87	236.49	73.32	234.80	848	-2.852	0.004
22. Supply Cost	10.63	56.57	16.95	78.81	5.56	28.34	1181	-0.494	0.621
Direct Cost excluding Hospital Stay cost	608.3	830.05	448.2	548.77	736.36	986.41	901	-2.177	0.029
23. Hospital Cost	346.33	1423.98	333.96	1486.82	356.23	1385.42	1184	-0.387	0.698
Direct Cost including Hospital Stay cost	954.6	1854.64	782.2	1572.3	1092.6	2056.75	954	-1.804	0.071

were considered at T2 and interviewed even though they were not formally discharged. For the six weeks prior to the end of T2, the number of clinic or home visits that occurred were counted in the Browne survey;

- b) there were five clients that returned for CCAC services, post discharge and within the six weeks for T2 and their visits, whether home or clinic are captured.

The home group used more family physician, walk-in clinic and physician specialist services than the clinic group (\$92.99 clinic versus \$129.51 home) as well as social worker services (\$0 clinic versus \$108.72 home). Increased physician services resulted in increased laboratory test costs for the home group (\$45.27 clinic versus \$110.63 home). Of note is that the medication costs of the clinic group were higher than the home group (\$123.87 clinic versus \$73.32 home). Hospital costs were equal and low in both groups, indicating that the majority of the clients did not require further hospital care 6 weeks after discharge from CCAC services. The reason why the clinic group sought out less physician assistance than the home group is not evident. However, the clinic venue could assure clients that their needs are being addressed in a professional, ambulatory, medical-like atmosphere and as a result, the clients may seek out less physician assistance post CCAC discharge.

Secondary Question #3: Are the clients more satisfied by the treatment received in the nursing clinics or that received in the home?

The Client Service Evaluation questionnaire consisted of eight questions inquiring about the client satisfaction with the services they received in either setting (see Table 20). The difference in the responses of the home or clinic clients to all eight questions was not statistically significant, indicating that the clients were generally satisfied with the care in either setting. However, there were some differences in the gradations of the responses on each of the Likert scales.

To the question: “How would you rate the quality of the service you have received?”, 81.8% of the clinic group rated the service as “excellent”, compared to 72.7% of the home group. None of the clinic group rated the services as “fair” compared to 1.8% of the home group.

The answers to the question: “Did you get the kind of service you wanted?” were almost identical in both groups, as were the answers to the question: “To what extent has our program met your needs?”

In answer to the question: “If a friend were in need of similar help, would you recommend our program to him or her?”, 1.8% of the home answered: “No, I don’t think so”, versus 0% of the clinic group, although 47 (85.5%) of the home group stated: “Yes, definitely”, versus 36 (81.8%) of the clinic group.

Table 20

Attkinsson Satisfaction Survey

Client Follow up Information								
	Total		Clinic		Home			
	n	%	n	%	n	%	Chi square	P test
Did you have any problems receiving home visits/having clinic visits?								
Not stated	1	1.00%	0	0.00%	1	1.80%	6.994	0.030
No	81	81.80%	41	93.20%	40	72.70%		
Yes	17	17.20%	3	6.80%	14	25.50%		
Did your home visit/clinic visit interfere with your planned activities?								
No	83	83.80%	43	97.70%	40	72.70%	11.275	0.001
Yes	16	16.20%	1	2.30%	15	27.30%		
Did you ever have to miss a scheduled home visit/clinic visit?								
No	79	79.80%	38	86.40%	41	74.50%	2.118	0.146
Yes	20	20.20%	6	13.60%	14	25.50%		
Client Satisfaction								
1. How would you rate the quality of service you have received								
Fair	1	1.00%	0	0.00%	1	1.80%	1.645	0.439
Good	22	22.20%	8	18.20%	14	25.50%		
Excellent	76	76.80%	36	81.80%	40	72.70%		
2. Did you get the kind of service you wanted								
No definitely not	1	1.00%	0	0.00%	1	1.80%	2.051	0.562
No not really	1	1.00%	1	2.30%	0	0.00%		
Yes generally	18	18.20%	8	18.20%	10	18.20%		
Yes definitely	79	79.80%	35	79.50%	44	80.00%		
3. To what extent has our program met your needs								
Only a few of my needs have been met	2	2.00%	1	2.30%	1	1.80%	0.049	0.976
Most of my needs have been met	21	21.20%	9	20.50%	12	21.80%		
Almost all of my needs have been met	76	76.80%	34	77.30%	42	76.40%		
4. If a friend were in need of similar help, would you recommend our program to him or her								
No I don't think so	1	1.00%	0	0.00%	1	1.80%	1.319	0.517
Yes I think so	15	15.20%	8	18.20%	7	12.70%		
Yes definitely	83	83.80%	36	81.80%	47	85.50%		
5. How satisfied are you with the amount of help you have received								
Quite satisfied	13	13.10%	2	4.50%	11	20.00%	7.178	0.066
Indifferent or mildly satisfied	2	2.00%	0	0.00%	2	3.60%		
Mostly satisfied	15	15.20%	7	15.90%	8	14.50%		
Very satisfied	69	69.70%	35	79.50%	34	61.80%		
6. Have the services you received help you to deal more effectively with your problems								
No they didn't really help	1	1.00%	0	0.00%	1	1.80%	2.256	0.324
Yes they helped somewhat	21	21.20%	7	15.90%	14	25.50%		
Yes they helped a great deal	77	77.80%	37	84.10%	40	72.70%		
7. How satisfied are you with the service you have received?								
Indifferent or mildly dissatisfied	3	3.00%	0	0.00%	3	5.50%	2.590	0.274
Mostly satisfied	14	14.10%	7	15.90%	7	12.70%		
Yes very satisfied	82	82.80%	37	84.10%	45	81.80%		
8. If you were to need help again, would you come back to our program								
No definitely not	1	1.00%	0	0.00%	1	1.80%	1.800	0.615
No I don't think so	1	1.00%	0	0.00%	1	1.80%		
Yes I think so	16	16.20%	8	18.20%	8	14.50%		
Yes definitely	81	81.80%	36	81.80%	45	81.80%		

received?” The clinic group (79.5%) differentiated their response further by answering: “very satisfied” versus 61.8% of the home group.

Of note, 4.5% of the clinic group answered they were quite satisfied, versus 20% of the home group to the question: “How satisfied are you with the amount of help you

To the question: “Have the services you received helped you to deal more effectively with your problems?”, 0% of the clinic group stated: “No, they didn’t really help”, versus 1.8% of the home group. “Yes, they helped somewhat” was answered by 15.9% of the clinic group versus 25.5% of the home group. Finally, 84.1% of the clinic group answered: “Yes, they helped a great deal”, versus 72.7% of the home group. To the overall satisfaction question: “How satisfied are you with the service you have received?”, 0% of the clinic group answered: “indifferent or mildly dissatisfied”, compared to 5.5% of the home group. “Mostly satisfied” was answered by 15.9% of the clinic and 12.7% of the home, whereas 84.1% of the clinic and 81.8% of the home answered: “Yes, very satisfied”.

The clients were asked: “If you were to need help again, would you come back to our program?”, 0% of the clinic answered: “No, definitely not”, or “No, I don’t think so”, compared to an equal number (1.8% and 1.8%) of the home group. “Yes, I think so” was answered by 18.2% of the clinic group, compared to 14.5% of the home group. And, finally, “Yes, definitely” by 81.8% of both groups.

Although the differences in the responses between the two groups was not statistically significant, the satisfaction of the clinic group was more positive in the clinic than the home group for five out of the eight questions.

Three additional questions were asked which allowed for comments by the clients. To the question: "Did you have any problems receiving home visits/having client visits", 93.2% of clinic clients stated "no", compared to 72.7% of the home clients ($p = 0.03$).

Numerous comments were made from home group, including a few as follows:

- Client #1: "One visit was cancelled and no one came until the following week."
- Client #2: "Nurse was to call one hour prior to visit for drain removal so that client could take analgesic, this did not happen."
- Client #3: "One day on weekend, nobody showed up or called."
- Client #4: "There were a couple of issues with the time the nurse was to arrive. We had a couple of inconvenient times."

One comment was made from the clinic group:

"It was inconvenient to get to clinic – client unable to drive self, husband had to take time from work to bring client to appointment for dressing change."

To the question: “did your home visit interfere with your planned activities”, the number of home clients who answered “yes” (27.3%), was statistically significant compared to the number that answered “yes” (2.3%) in the clinic group ($p = .001$). Comments made by the home group were as follows:

- Client #1: “Simply having to wait from 1300-1600 for the nurse to arrive for an hour treatment every day was not always an easy time frame to have available”.
- Client #2: “Just timing for personal care (i.e. bathing).
- Client #3: “Had to be home for 3 hour window”.
- Client #4: “Had to wait for the nurse to arrive” (x2).
- Client #5: “A more definite time of visit would be helpful, especially when there are things I need to go out for. If a time is difficult to give, even just knowing if it will be morning or afternoon visit might help.”
- Client #6: “Difficulty planning activities, not knowing when visits or supplies would arrive”.
- Client #7: “I never knew when I had a nurse coming by – I had to phone and check all the time”.
- Client #8: “Home visits interfered with work, athletic participation and social life because I had to be home until visit with no specific visit time to plan around. The problem was quite significant for me”.
- Client #9: “Never know when nurse scheduled to visit.”
- Client #10: “Sometimes it was difficult for the nurse to narrow down a window of time (i.e. 2 hour window between 8-10 am)”.

No comments were made by the clinic group to this question. The comments from the home group indicate the level of client frustration of having to wait for the nurse, which interfered with their daily activities. In contrast, the clinic clients set their own appointments and planned their other activities around their clinic appointment.

In regard to “missing a scheduled home/clinic visit”, 86.4% of the clinic group did not miss a visit, versus 72.5% of the home group. Although not significant, more home clients missed visits (25.5%) versus (13.6%) of the clinic group. The reasons for canceling the visits were stated by the home group as:

- #1 “Doctor’s appointment”.
- #2 “Another activity came up”.
- #3 “Business travel”.
- #4 “Work”.
- #5 “My pet needed immediate attention”.
- #6: “At hospital to see doctor when nurse was trying to make arrangements for a visit”.
- #7: “Nurse didn’t come”.
- #8: “Was left off schedule twice”.
- #9: “Conflict with prescheduled MD appointment related to no set time for nurse to come”.
- #10: “I wasn’t feeling well”.

Clients in the clinic group also indicated other appointments:

- #1: "Because of other activities/appointments – able to reschedule appointment with no problem".
- #2: "Conflict with other appointment".
- #3: "Needed to reschedule due to personal reasons".
- #4: "Another appointment".
- #5: "Overslept".

The comments again indicate the importance to clients being able to set their own appointments and plan their lives accordingly.

Secondary Question #4: What are the advantages and disadvantages of the clinic vs. home setting from the opinion of the providers?

During of the data collection, there were fifteen nursing staff involved in providing care in both the clinics and home setting. Twelve of the fifteen responded to a staff satisfaction questionnaire. A summary of the advantages and disadvantages of clinic vs. home as perceived by the nurses is available in Table 21. The nurses perceived the advantage of the clinic environment to be safer, cleaner and a better equipped place to treat clients. The disadvantages of the clinic are that it is faster paced, with little down time, and is more task oriented, resulting in less social time spent with the clients.

Table 21

Summary of Advantages and Disadvantages of Clinic vs. Home Setting as Experienced by Nursing Staff

<u>Clinic</u>		<u>Home</u>	
Advantages	Disadvantages	Advantages	Disadvantages
<ul style="list-style-type: none"> . clinics have proper equipment, supplies, clean environment . timed appointments set by clients equals more client satisfaction . clients have more independence; have more control; motivation to get up & come to clinic . continuity of care is better/see more clients . able to see high risk clients in safe environment (drug abusers) . no driving, weather issues . you can see a lot more clients in a day/do more nursing care, less driving 	<ul style="list-style-type: none"> . clinic pace can be very busy; no down time . more task oriented; cannot spend time with clients or do in-depth evaluation . clients have to travel 	<ul style="list-style-type: none"> . pace more relaxed . can spend more time with client . client more at ease and comfortable in their own environment . nurse can do more complete assessment into client's lifestyle 	<ul style="list-style-type: none"> . home conditions are not conducive to procedures (lack of cleanliness) . risk to nurse of back injuries/exposure to smoking . client's expectations of guaranteed times to be visited is problem . traveling, weather, locating clients are problem . supplies not there/misuse and wastage of supplies is a problem

The advantages of the home environment are that the pace is more relaxed, the nurse can spend more time with the client to do an in-depth assessment. The disadvantages stated that the conditions in the home are not always conducive to procedures (lack of cleanliness) and there is an increased risk to nurses for back injuries, exposure to pets and smoking. Supplies are frequently not delivered to the home in time for treatment. In addition, the nurses mentioned traveling in all sorts of weather as a disadvantage as well as the clients' expectations of set times for visits, which cannot be guaranteed.

The question was asked if "different skills are required to work in the clinic". Five stated "no", the remainder commented that the nursing staff had to be "flexible, organized, able to work at a fast pace and comfortable in high tech skills" when working in the clinic. In the home, the nurse has to be able to adapt to different circumstances.

To the question "Are there issues with caring for clients in the clinics regarding: setting appointments, cleaning the rooms and arranging transportation for the client", the comments stated that the appointments the clients wanted weren't always available and that downtime in the schedule could be a problem. In addition, if a clerical person was not available, the nurse had to schedule appointments as well as clean up in the rooms, do the autoclaving and stock new supplies. Arranging transportation for the client was stated as not a problem, because it was infrequent and most people arranged their own transportation.

To the question: “What do the clients tell you they like about the clinics?”, the answers were similar to the client satisfaction questionnaire:

- Appointment time more convenient; no waiting for the nurse
- Control over time of the appointment; clients are seen and on their way
- Cleanliness: sometimes client expresses more comfort in clinic setting than home
- Smaller pool of nurses work in the clinic, therefore better continuity of care.

To the question: “What do the clients tell you they dislike about the clinics?”:

- Sometimes they have to wait if the clinics are backed up
- Travel in bad weather

To the question: “What do you like about working in the clinics?”:

- Continuity of care is better; like the wider variety of clients
- Opportunity to improve IV skills and feel confident
- Not driving all day; less wear and tear on my car
- Not having to “chase” clients for visits; spend less time on the phone
- Like the change and combination of home and clinic
- Clients are often more motivated; clients are task focused, less social involvement
- Nice clean conditions; well supplied; good work environment
- Like the fast pace

To the question: “what do you dislike about working in the clinics?”:

- Nothing

- Sometimes I feel rushed; spend more time on your feet
- Too small work environment; do not like to book appointments
- If clinic is not full, it is stressful to have to go do visits in community

To the question: “Where do you have a preference of working?”:

- No preference; like the variety and change (5 nurses stated no preference)

Clinic (2 nurses):

- I like the clinic better because less driving required, camaraderie and peer support (in clinic), I am not alone, other nurses and staff around;
- Although I do enjoy home nursing as well, I find that I am more active in the clinic and provide more nursing since I am able to see more patients. I am also able to see a greater turnover since there is a greater rate of recuperation with these active case clients.

Home (5 nurses):

- Driving between clients provides “down/recovery time” both physically and mentally
- Home visiting can be more challenging and often clients’ and caregivers’ needs are greater
- I like the freedom of the community. I like having a certain district

These comments from staff can be interpreted that the clinics provide a positive alternative working environment for nursing staff. Two additional comments from the nurse responders summarize this interpretation:

- I do enjoy working in the clinic. It is unfortunate that this setting is not embraced by CCAC to ensure that appropriate clientele is being referred to the clinic. We service a great number of clients in home settings that would be very appropriate for clinic settings. In a time of nursing shortage and budget constraints, I find it difficult to see days in the clinic not full.
- I feel the clinics should be more actively promoted. Their availability is not fully recognized or utilized. Working in the clinics is a very enjoyable and satisfying type of nursing.

CHAPTER 7

DISCUSSION

This study provides original information on the acceptability, effectiveness and efficiency of a new method of home care delivery. Three nursing clinics were built and equipped in geographically different areas of a large Canadian city for the purpose of providing home care to post acute hospital clients. The clinics were physically designed by a team lead by the investigator, and capital costs to build the clinics were shared by the provider agency, the Ottawa/Carleton CCAC and donations from the Ottawa/Carleton VON. The operating budget, logistics of running the clinic, referral mechanisms and eligibility criteria were established by the investigator with the Ottawa/Carleton CCAC prior to the start of the study. Of 140 clients discharged from hospital or referred to home care from their physicians, 99 (70.7%) were randomized to home or clinic treatments and retained for a six week follow-up after discharge from home care. The clients lost to follow-up and the study completers were compared on their demographic, social and SF-36 scores at Time 1 and the results indicated no statistical differences between the two groups. The average age of the completers was 50.8 years, compared to 44.3 years of those lost to follow-up ($p = 0.15$). Although insignificant, the age difference may signify the lost to follow-up group was younger, working, with families and less likely to have time to participate in research studies. The study participants were healthy, middle aged and working adults, 55.6% female, and 44.4% male. Approximately 56.6% were working, with 36.3% retired, unemployed or disabled. The most common diagnosis for the total group of clients was surgical wound/wound infection (29.3%), abscess/cellulites (33.5%), fistula/irrigations

(12.1%), burns (7.1%) and leg ulcers (3.6%); the remaining 13.5% being medical diagnoses.

The health of the participants, as reported on the SF-36 Health Survey was less than the Canadian norm upon discharge from hospital on all eight dimensions, however after discharge from home care (T2), their scores improved but still only exceeded the Canadian norm in one dimension, mental health, (score = 78.4 study participants, vs. 76.8 Canadian norm).

Effectiveness of the Nursing Clinic

Clients treated in a nursing clinic versus at-home maintain their equivalent health status on the eight health dimensions and two summary physical and mental component scales of the SF-36. This finding supports the null hypothesis that the nursing clinics would be as effective as nursing treatment in the traditional home setting. In addition, the improvement in scores shown between the two groups was not clinically significant except for a greater than 10 point improvement difference in social functioning between the clinic and home group. This finding may indicate that the independence experienced by the client, traveling out of the home to a clinic appointment set by the client, is in contrast to the dependent role of the client in the home setting, waiting for treatment by the nurse.

The Client Satisfaction Questionnaire, which compared the satisfaction of the clients for the service they received, found that the clients in the home were as satisfied as the clients in the clinic with their treatment. However, while there was no statistically significant difference in the satisfaction responses, there were important differences in the gradation on the Likert scale, in that more positive responses were elicited for the clinic group, compared to the home group for five out of the eight questions.

Three additional satisfaction questions were developed by the investigator to enquire about the convenience factor of the clinics versus the home for the client. The number of home clients who answered “yes” (27.3%) to the question: “Did your home/clinic visit interfere with your planned activities?” was statistically significant compared to the number that answered “yes” (2.3%) in the clinic group ($p = .001$). The comments made by the home clients about the inconvenience to them of “waiting at home for the nurse” indicates the importance to clients of being able to set their own appointments for treatment and plan their lives accordingly.

The overall results of the clinic versus the home group on the SF-36 health survey, the client satisfaction survey and the specific questions regarding the clinic/home convenience factor, found the clinic service to be as acceptable as the home service. The home group, however, were significantly less satisfied and inconvenienced waiting to be treated in the home.

Efficiency of the Nursing Clinic

The average treatment time for 632 visits of clients being seen in the clinic was 23.87 minutes, compared to the mean of 35.19 minutes for 650 visits for the home group ($p < .001$). When travel time and documentation were added to the visit time, the difference was 29.62 minutes for a clinic visit and 55.74 minutes for a home visit ($p < .001$). Travel time accounted for 12.79 minutes between home visits. The results support that the time per visit in a home setting is almost 32.2% longer for direct care and 46.4% longer when travel and documentation is included. This finding supports that it is more efficient to care for clients in a clinic setting than the home setting.

The average number of visits per client for a treatment period was 14.4 visits for clinic, versus 11.8 visits for home clients; the difference was not significant. The issue of what is a normal number of visits per episode of treatment based on diagnosis and required care has not been determined in Canadian home care. U.S. research studying home care utilization and outcomes revealed that alteration in mobility and IV therapy were strong predictors of resource use (Lee, 2000). However, organizational and operational variability in service delivery, such as: different levels of workers, different community supports such as: meals on wheels or respite and the assistance of caregivers, challenge researchers studying utilization of home care resources (Allred, 1994; Adams, 1995; Carefoote, 1998; Benjamin, 1999; Madigan, 1999). One finding, time per visit, is becoming more consistent despite the fact that we cannot predict the number of visits necessary for an episode of treatment. Research has shown that the average visit ranges

between 40-60 minutes, regardless of the diagnosis, whether in the U.S. or Canada (Bishop, 1996; Payne, 1996; O'Brien-Pallas, 2000).

The health care costs as measured on Health and Social Services Survey Inventory, incurred by the clients six weeks post discharge from CCAC services, were not significantly different, totaling \$782 in the clinic group and \$1,092 in the home group ($p = 0.071$). However, higher costs were incurred by the home group in the category of physician specialist ($p = 0.061$), social worker ($p = 0.034$), scans ($p = 0.07$), and other tests ($p = 0.025$). In addition, some of the home clients continued to require home visits after the cut off of 3 months being in the study ($p = .009$). On the other hand, medication costs were higher in the clinic group ($p = .004$). In summary, direct costs, excluding hospital for ambulatory services, was statistically and economically less for patients receiving clinic care ($p = .02$).

This finding of higher health and social services costs incurred by the home group may imply that the home group may not have “felt well” post discharge and sought additional physician advice and other health services.

Study Implications

Health Services Research: Cost Effectiveness Analysis

This study used two frameworks to guide the effectiveness and efficiency methodology and analysis. The first, adapted from Allred's CEA recommendations, guided the

methodology to analyze effectiveness and efficiency of the nursing clinic venue. The five components of the CEA framework considered the societal perspective of the study, the types of costs and how to measure them, the validity of the effectiveness tools, consideration of how to measure the cost and effectiveness data, and finally, how to judge the final outcome of the study. The second framework, the Birch, Gafni, Browne model, provided the means to summarize the effectiveness and efficiency outcomes of the study. This study fits into the “as effective/more efficient” cell #8 of the Framework for Evaluating Possible Outcomes of Economic Evaluation of Health Care Programs (Figure 2, Chapter 4) (Birch, 1996).

Health Services Research: Participation Challenges

Difficulties in achieving participation and preventing loss to follow-up have been cited as a challenge in community health services research (Davis, 2002). The investigator experienced problems securing subject participation for two reasons: the CCAC budget cuts in 2001/02 and the case manager resistance to recruit participants into the study. The budget constraints of the Ottawa/Carleton CCAC, imposed by the Ontario Ministry of Health and Long Term Care, all but stopped the intake of eligible clients into the study and created a limitation for the study. The actual number of CCAC clients treated in the clinics in 2001 were 804 (3.7%) out of a total of 21,581 clients. However, the effects of the 2001/02 budget cuts were experienced as the number of clinic clients dropped to 470 (2.4%) out of a total of 19,870 clients in 2002. The potential number of eligible clients for the clinics was estimated to be 10%, or 2,158 in 2001 and 1,987 in 2002. The

investigator attempted to measure the costs of treatment for the discharged hospital clients who were sent to physicians' offices or emergency rooms during the budget cuts. However, the Ottawa/Carleton CCAC refused the request, as the clients were discharged from the hospital and never admitted as a CCAC client, and thus not accessible to the investigator.

Case manager resistance was experienced in a small but influential group of the 20 case managers who believed that clients assigned to the clinics should not be given a choice of venue through the randomization process. The nursing shortage had resulted in transitory logistical problems in arranging home visits from the VON, in contrast to the clinics always being available for discharged clients. As a result, some case managers wanted all eligible clinic clients to go to the clinics and not be randomized to a home visit in order to serve more clients who could only be seen at home. Education sessions, frequent communication, and financial incentives were provided to the case managers to keep them engaged in the study, particularly after the budget constraints.

Policy Implications

Acceptance of the Nursing Clinics Model

A strategic plan is proposed to change health care policy and introduce nursing clinics as a venue to treat home care clients. The plan uses critical social theory as a framework and ties together the outcomes of this study (Habermas, J., 1987; Habermas, J., 1971). Critical

social theory suggests three forces, economic, social and political, are ubiquitous when introducing and implementing a change process. These forces are used to frame the evidence into a compelling argument as to why clinics are as effective and more efficient.

Economic Forces: This study provides the empirical data to support that nursing clinics are more efficient than home visits for eligible clients. Using the actual Ottawa/Carleton CCAC data from 2001/02 and 2002/03, an estimation of the total number of nursing positions that could be saved is illustrated in Table 22. Based on 10% of the 2001/2002 total (21,581) Ottawa/Carleton CCAC clients, which is 2,158 clients, at 13 visits per client, (or 28,054 visits), the number of RNs required to do home visits at 9 visits/day would be 15.6 full time equivalent in the home setting. In a clinic setting, this work would require 9.35 FTEs, a saving of 6.2 FTEs.

In 2003, 6,551,282 visits were supplied by the 43 CCACs (Doran, 2002). If 10% of these visits were provided in a clinic setting, a total of 146 full time equivalent (FTE) RNs could be saved. An average RN salary with benefits is \$40/hr. A savings of 146 FTE RNs amounts to \$11,388,000 to the home care system or 146 nurses that can be employed in other areas of community or the acute care sectors (see Table 22).

Another way to estimate the potential savings is to decrease the cost from the present \$47.37 per nursing visit, based on the decreased amount of time required per visit, and estimate the cost savings. A sensitivity analysis is presented in Table 23, in which the cost per visit is decreased by 15, 20, 25 and 30%, illustrating the savings that could be

Table 22

**Total CCAC Actual Visits/Clients
Compared to Potential CCAC Clinic Visits/Clients and Subsequent RN Savings**

		<u>2001/02</u>	<u>2002/03</u>
Actual	Total O/C CCAC clients	21,581	19,870
	Total O/C CCAC visits	277,412	236,381
Actual	O/C CCAC clinic clients	804	470
	O/C CCAC clinic visits	12,981	7,460
Potential	O/C CCAC clinic clients	2,158	
	O/C CCAC clinic visits	28,054 (based on 13 visits/client)	

Calculation of Number of Full Time Equivalent Saved (FTE)

Ottawa/Carleton

<p><u>28,054</u> visits = 15.6 FTEs</p> <p>1,800 visits</p> <p>@ 9 visits/day x 200 working days/FTE</p>	<p><u>28,054</u> visits = 9.35 FTEs</p> <p>3,000 visits</p> <p>@ 15 visits/day x 200 working days/FTE</p>
--	---

6.2 FTEs saved

Ontario

*6,551,282 visits @ 655,128 (10%)

<p><u>655,128</u> visits = 364 RNs</p> <p>1,800 visits</p>	<p><u>655,128</u> visits = 218 RN (FTEs)</p> <p>3,000 visits</p>
--	--

146 RNs Saved

Potential Savings to System:

146 RN FTE x \$40/hr x 1950 hrs/year = **\$11,388,000**

- Total Ontario CCAC visits in 2003 (Doran, D., 2002)

Table 23

Sensitivity Analysis

Potential Savings to Ministry of Health by Decreasing Price of Visit by 15-30%

Potential	\$47.37	\$40.26	\$37.90	\$35.53	\$33.16
Number of Clinic Visits	Present Cost	15% Decrease in Price/Visit	20% Decrease in Price/Visit	25% Decrease in Price/Visit	30% Decrease in Price/Visit
655,128*	\$31,033,422	\$26,375,453	\$24,829,351	\$23,276,697	\$21,724,044

* Based on 6,551,282 visits in Ontario 2002 (Doran, D., 2002)

achieved by treating 10% of the total home care visit volume in Ontario in 2003 in nursing clinics instead of the traditional home care setting. The savings range from \$4,657,969 to \$9,309,378. Clearly, this amount of potential savings would support the introduction of clinics as an alternative CCAC service venue.

Social Forces: The client satisfaction findings indicate clients prefer the independence to choose the time of their appointment, the absence of waiting time, responsive service and the cleanliness of the environment. These findings were supported by comments from the nursing staff, in answer to the question: “What do clients like about the clinics?” The client’s perspective and the concept of choice is integral to best practice. A consideration for future study would be to use decision theory to test what advantages and disadvantages clients would consider in choosing the clinic versus the home venue (O’Connor, 1998, Llewellyn-Thomas, 1995, Entwistle, 1998). However, the results of this study support that clients who have experienced the clinics are more satisfied with this venue than home clients. Client choice is a component of the Ottawa/Carleton CCAC community services mandate and should be considered as a supporting factor for the clinic model (Ottawa/Carleton CCAC Mission, Vision, Goals, 2003).

In addition, nursing staff who worked in both the clinics and home identified the clinic option as a retention factor, clearly important in the current nursing shortage in home care.

Political Forces: This study required the partnership of the investigators, the Ottawa/Carleton CCAC, two provider agencies and the System Linked Research Unit at McMaster University. Previous research has proven the advantages of making change in the health care system through partnerships with those who do the research and those who implement the research (Browne, 1999). In order for the Ontario Ministry of Health to accept and implement the research findings, the effectiveness and efficiency data must

be communicated to the appropriate decision makers in a way which illustrates that the clinic option is consistent with the government agenda for future health care services.

The current provincial government is introducing “local health integrated networks” (LHINs), which is a plan to improve integration of acute, community and rural health services into 12-14 regions. Nursing clinics could serve as a bridge between the acute and community sectors, as shown in Figure 5. Thus, nursing clinics become a mechanism to better coordinate and integrate the health care sectors. The economic, social and political reasons to introduce clinics become “forces” acting on the health care system (Glouberman model) to push for the introduction of clinics to improve integration and coordination. Suggested changes necessary to introduce nursing clinics as a mechanism of improved coordination and integration are:

- Introduction of clinics as “best practice”

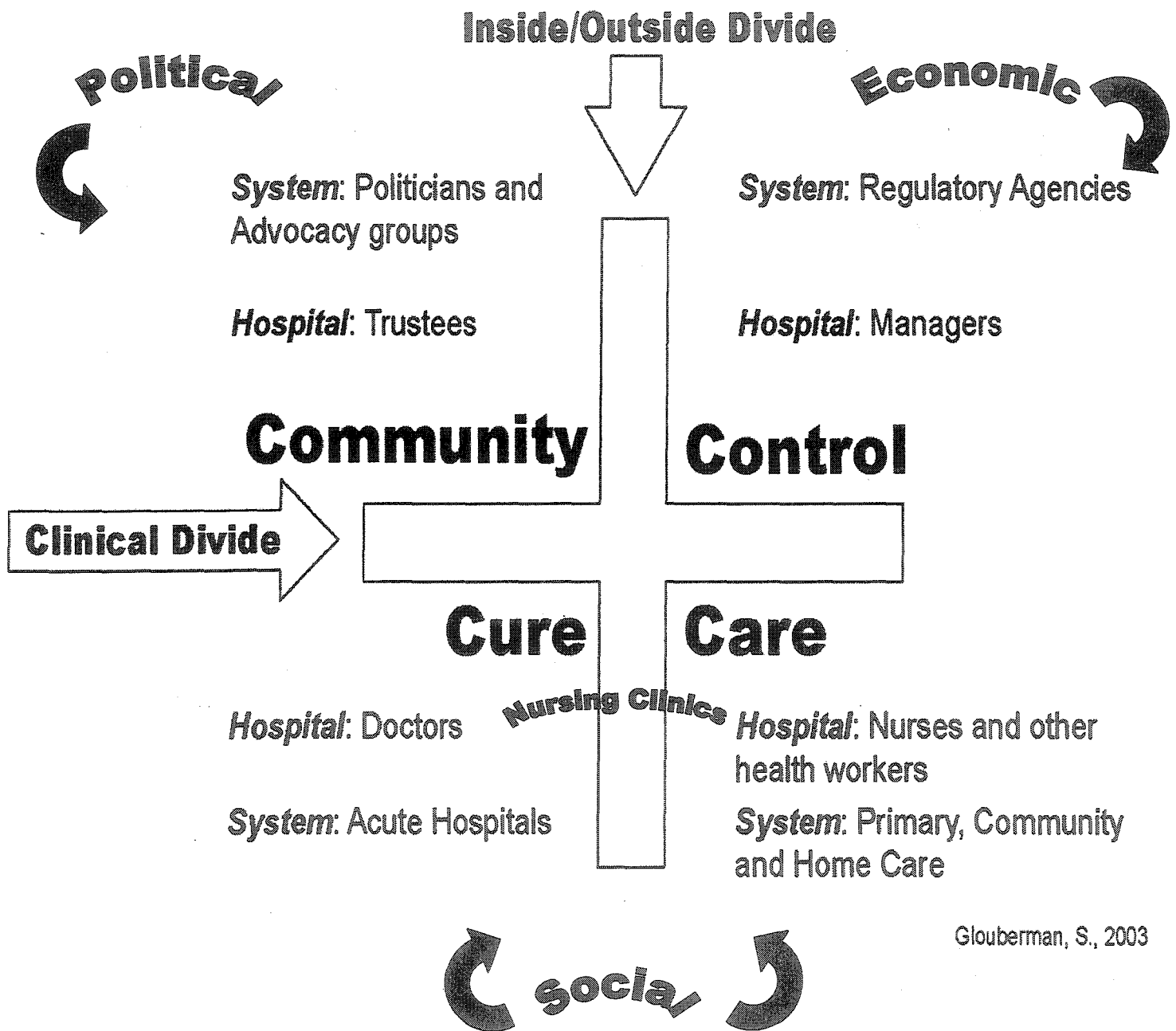
The nursing clinics should be introduced as “best practice” into the nursing care plan for eligible clients. Physicians, acute care hospital managers and CCAC case managers must be educated to “add” nursing clinics as an option for client treatments post discharge.

- Role of CCAC and hospital administration

As was experienced in this study, the CCAC case managers decide where clients will be treated. Case managers would be key decision makers in discharging eligible clients to nursing clinics. Alternate referral mechanisms, travel arrangements and treatment care plans for the nursing clinics would need to be developed and enforced.

FIGURE 5

The Four Sectors of Healthcare



The CCAC and hospital administration would need to formalize the nursing clinic as a standard venue for care.

In addition, emergency room (ER) patients who would normally be instructed to return to the ER for intravenous therapy or other simple procedures could be sent to nursing clinics for follow-up treatment, which would be far more cost efficient than emergency room care (Coyte, P.C., 2001). The clinics could also be used for follow-up treatments of clients ordinarily seen in hospital ambulatory care clinics, which are located in more expensive space than nursing clinics set up in a community health centre.

- Change in referral patterns and eligibility criteria

Management in the acute and community sectors must agree on eligibility criteria, equipment (IV, feeding pumps) that is compatible in both sectors, as well as referral processes. In addition, the client should receive education material explaining the purpose, location, appointment procedures, office hours and general operations of the clinics.

- Acceptance of clinics by Ministry of Health

The “control” (ministries of health, hospital administration) and “community” (boards of directors) sectors are key to providing the capital infrastructure that would be required to set up nursing clinics throughout the province (Parent, 2000). The Ministry of Health could consider community health centres as the location for nursing clinics. Community health centres provide numerous other health services

that might benefit the client in their post acute period, as well as easy access and usually free parking.

In summary, this study has demonstrated that nursing clinics are an effective, acceptable and more efficient alternative for home visits for certain groups of clients. The political, social and economic forces discussed provide the compelling reasons to introduce nursing clinics into the health care sector. The clinics are more efficient and will save money for alternate health care services (economic). The nursing clinics can act as a link between the acute and community care sectors and provide improved integration as advocated by the recent Ontario proposal for local health integrated networks (political). In addition, nurses in the study liked the variety of work in both the clinics and the home setting, which could positively influence quality of worklife and retention of nursing staff (political and economic).

Lastly, the clients in the study preferred the convenience factor offered by nursing clinics. Other clients seeking assistance through emergency rooms or walk-in clinics could also be treated in nursing clinics, probably as or more effectively (social).

Future plans are to present the results of this study and the compelling reasons to introduce nursing clinics into the system, and to the health care policy and decision makers of Ontario.

BIBLIOGRAPHY

Alberta Association of Registered Nurses (1994) "Discussion Paper on a Model of Community Health Centres Within the Health Care System" *AARN Newsletter* 50: 9

Alberta Association of Registered Nurses (1995) "Update of AARN Initiative on Increased Direct Access to Services Provided by Registered Nurses" *AARN Newsletter* 51(1): 23-24, 29

Alcock, D., Danbrook, C., Walker, D., Hung, C., (1998) "Home Care Clients, Providers and Costs" *Canadian Journal of Public Health* 89(5): 297-300

Allred, C.A., Arford, P.H., Mauldin, P.D., Goodwin, L.K. (1998) "Cost Effectiveness Analysis in the Nursing Literature, 1992-1996 *Image: Journal of Nursing Scholarship* 30(3): 235-242

Allred, C.A., Michel, Y., Arford, P.H., Carter, V. et al (1995) "Environmental Uncertainty Implications for Practice Model Redesign" *Nursing Economics* 13(3): 129-136

Anderko, L., Uscian, M., Robertson, J.F. (1999) "Improving Client Outcomes through Differentiated Practice: A Rural Nursing Centre Model" *Public Health Nursing* 16(3): 168-75

Anthony, M.K., Hudson-Barr, D.C. (1998) "Successful Patient Discharge" *Journal of Nursing Administration* 28(3):48-55

Arford, P.H., Allred, C.A. (1995) "Value=Quality+Cost" *Journal of Nursing Administration* 25(9): 64-69

Arundel, C.I., Glouberman, S. (2001) Study 15: Analysis of Blockage to the Effective Transfer of Clients from Acute Care to Home Care National Evaluation of the Cost Effectiveness of Home Care Canadian Policy Research Networks, Inc. Victoria, British Columbia

Ashton, C.M., Kuykendall, D.H., Johnson, M.L., Wray, N.P., Wu, L., (1995) "The Association between the Quality of Inpatient Care and Early Readmission" *Annals of Internal Medicine* 122(6): 415-421

Attkinsson, C.C., Zwick, R. (1982) "The Client Satisfaction Questionnaire: Psychometric properties and correlations with service utilization and psycho therapy outcome" *Evaluation and Program Planning* 5: 233-237

Aydelotte, M., Gregory, M. (1989) "Nursing Practice: Innovative Models" in *Nursing Centers: Meeting the Demand for Quality Health Care*, New York: National League for Nursing

- Barger, S., Kline, P. (1992) "Community health service programs in academe: Unique Learning Opportunities for Students" *Nurse Educator*, 18: 22-26
- Barger, S., Nugent, K., Bridges, W. (1993a) "Schools with Nursing Centers: A 5-year follow-up study" *Journal of Professional Nursing* 9: 7-13
- Barger, S., Rosenfeld, P., (1993b) "Models in Community Health Care: Findings from a National Study of Community Nursing Centers" *Nursing and Health Care* 14(8): 426-431
- Barrett, E.A. (1993) "Nursing Centers Without Nursing Framework: What's Wrong with This Picture?" *Nursing Science Quarterly* 6:3 115-117
- Bedder, S.M., Aiken, J.L. (1994) "Continuity of Care: A Challenge for Ambulatory Oncology Nursing" *Seminars in Oncology Nursing* 10(4): 254-263
- Benjamin, A.E. (1999) "A Normative Analysis of Home Care Goals" *Journal of Aging and Health* 11(3): 445-468
- Berkeley Planning Associates (May, 1985) "Evaluation of Co-ordinated Community-Oriented Long Term Care Demonstration Projects (Final report) Berkeley, California
- Bernabei, R., Landi, F., Gambassi, G., Sgadari, A., Zuccala, G., Mor, V., Rubenstein, L.Z., Carbonin, P. (1998) "Randomized Trial of Impact of Model of Integrated Care and Case Management for Older People Living in the Community" *British Medical Journal* 316: 1348-1351
- Birch, S., Gafni, A. (1996) "Cost Effectiveness and Cost Utility Analyses: Methods for the Non-Economic Evaluation of Health Care Programs and How We Can Do Better" In Geisler, E., Heller, O., eds. *Managing Technology in Health Care* Kluwer Academic Publishers, Massachusetts
- Bishop, C.E. (1999) "Efficiency of Home Care" *Journal of Aging and Health* 11(3): 277-98
- Bishop, C.E., Brown, R.S., Phillips, B., Ritter, G., Skwara, K.C. (1996) "The Home Health Visit: An appropriate unit for medicare payment?" *Health Affairs* 15: 145-155
- Board, N., Brennan, N., Caplan, G.A. (2000) "A Randomized Control rial of the Costs of Hospital Compared with Hospital in the Home" *Australian, New Zealand Journal of Public Health* 24(3): 305-11
- Bogue, R.J., Shortell, S.M., John, M., Manheim, L.M., Bozzoli, G., Chan, C. (1995) "Hospital Reorganization After Merger" *Medical Care* 33(7): 676-686

Borman, J. (1994) "Developing Community Partnerships through Nursing Centers" *Aspen's Advisor for Nurse Executives* 9: 4-6

Bowman, G.S., Howden, J., Allen, S., Webster, R.A., Thompson, D.R. (1994) "A telephone survey of Medical patients one week after Discharge from Hospital" *Journal of Clinical Nursing* 3: 369-373

Brainard, A. (1922) *The Evolution of Public Health Nursing* Philadelphia: WB Saunders

Brazil, K., Roberts, J., Hode, M., Van der Bent, S.D. (2000) "Managing the Transition from Hospital to Home for Family Caregivers of Stroke Survivors" *National Academies of Practice Forum* 2(4): 259-266

Brookhoff, D., Minniti-Hill, M. (1994) "Emergency Department Based Home Care" *Annals of Emergency Medicine* 23:5, 1101-1106

Browne, G., Roberts, J., Gafni, A., Byrne, C., Weir, R., Majumbar, B., Watt, S. (1999) "Economic Evaluations of Community-Based Care: Lessons from Twelve Studies in Ontario" *Journal of Evaluation in Clinical Practice* 5(4): 367-385

Browne, G (1999) "Evidence that Informs Practice and Policy: The Role of Strategic Alliances at the Municipal, Provincial and Federal Levels" *Canadian Journal of Nursing Research* 31(1): 79-94

Browne, G., Gafni, A., Roberts, J., Hoxby, H. (1992) "Approach to the Measurement of Costs (Expenditures) when Evaluating the Efficiency of Health and Social Programmes" System Linked Research Unit on Health and Social Services Utilization (Working Paper Series, Paper 92-12) McMaster University, Hamilton, Ontario

Browne, G., Gafni, A., Roberts, J. (2001) "Approach to the Measurement of Costs (Expenditures) When Evaluating Health and Social Programmes" System-Linked Research Unit on Health and Social Services Utilization (Working Paper Series 01-3) McMaster University, Hamilton, Ontario

Browne, P.L. (2000) *Unsafe Practices* Canadian Centre for Policy Alternatives Ottawa, Ontario

Buhler-Wilkerson, K. (2001) *A History of Nursing and Home Care in the United States* Baltimore: The Johns Hopkins University Press

Bull, M.J., Jervis, L.L. (1997) "Strategies used by chronically ill older women and their caregiver daughters in managing post hospital care" *Journal of Advanced Nursing* 25: 541-547

Cadden, B. (1995) "Comox Valley Nursing Centre: A True Nurse Experience" *Nursing BC* 30-32

Canadian Home Care Association (2003) *Expanding the Medicare Envelope: Publicly Funded Home Care Services* Ottawa: Canadian Institute of Health Information

Canadian Home Care Resources Survey (2003) Government of Canada: Ottawa, Ontario
www.homecarestudy.ca

Canadian Institute for Health Information (2000) *Health Care in Canada: A First Annual Report*. Ottawa, Ontario: Statistics Canada www.cihi.ca

Canadian Institute for Health Information (2003) *Health Care in Canada*, Ottawa, Ontario: Canadian Institute of Health Information

Canadian Institute for Health Information (2003) Workforce trends of registered nurses in Canada 2002. RNDB Registered Nurse Data Base (ISBN 1-55392-276-X[PDF])
Ottawa, Ontario: Canadian Institute for Health Information

Canadian Institute of Health Information (2001) Home Care Estimates in National Health Expenditure: Feasibility Study. Ottawa, Ontario: Canadian Institute for Health Information

Canadian Nurses Association (2000) *A National Approach to Home and Community Care: Through the Lens of the Canada Health Act* Ottawa, Canada Ontario

Canadian Nurses' Association (2001) "From Silence to Voice: Report of the 5th National Nursing Forum" CNA: Ottawa, Ontario

Canadian Nursing Advisory Committee (2002) "Our Health, Our Future: Creating Quality Workplaces for Canadian Nurses" CNA: Ottawa, Ontario <http://www.hc-sc.gc.ca>

Capan, P., Beard, M., Mashburn, M. (1993) "Nurse-Managed Clinics Provide Access and Improved Health Care" *Nurse Practitioner* 18: 50-55

Caplan, G.A., Ward, J.A., Brennan, N.J., Coconis, J., Board, N., Brown, A. (1999) "Hospital in the Home: A Randomized Controlled Trial" *Medical Journal of Australia* 170(4): 156-160

Carefoote, R.L. (1998) Home Care Quality Management: Where are We Now? Where do we go from Here? *Canadian Journal of Nursing Administration* May/June 1998: 78-93

Carter, K.F., Green, R.D., Dufour, L.T. (1994) "Health needs of homeless clients accessing nursing care at a free clinic" *Journal of Community Health Nursing* 11: 139-147

Chappell, N.L. (1994) "Home Care Research: What does it tell us?" *The Gerontologist* 34(1): 116-120

Ciliska, D., Hayward, S., Thomas, H., Mitchell, A., Dobbins, M., Underwood, J., Rafael, A., Martin, E. (1994) "The Effectiveness of Home Visiting as a Delivery Strategy for Public Health Nursing Interventions" Quality of Nursing Worklife Research Unit Working Paper Series 94-7 McMaster University – University of Toronto, Toronto, Ontario

Coast, J., Richards, S., Peters, J., Gunnell, D.J., Darlow, M., Poundsford, J. (1998) "Hospital at Home or Acute Hospital Care? A Cost Minimalization Analysis" *British Medical Journal* 316: 1802-1806

College of Family Physicians of Canada (2000) *The Role of the Family Physician in Home Care: A Discussion Paper* National Office, Toronto, Ontario

Conference Board of Canada (2004) *Understanding Health Care Costs: Drivers and Escalators* Ottawa, Ontario

Cooksey, J.A., Kaur, K., Matters, M.D., Simone, B., Chun, E., Hockstra, A. (1999) "Community Health Centers: Unrecognized partners in Health Professions Education" *Journal of Health Care for the Poor and Underserved* 10(3): 349-361

Coyte, P. (2000) *Home Care in Canada: Passing the Buck*, Home Care Evaluation and Research Centre Dept. of Health Administration, University of Toronto, Toronto Ontario

Coyte, P.C., Young, W. (1999) "Regional Variations in the Use of Home Care Services in Ontario, 1993/1995" *Journal of Canadian Medical Association* 161(4): 376-380

Coyte, P., Jamieson, E.G., McGeer, A., Milkovich, N., Morris, A., Ovens, H., Read, J. (2001) Substudy 11 "An Economic Evaluation of Hospital-Based and Home-Based Intravenous Antibiotic Therapy for Individuals with Cellulitis" *National Evaluation of the Cost-Effectiveness of Home Care* Canadian Policy Networks Inc. Victoria, British Columbia

Crotty, M., Whitehead, C.H., Gray, S., Finucane, P.M. (2002) Early Discharge and Home Rehabilitation After Hip Fracture Achieves Functional Improvements: a Randomized Controlled Trial" *Clinical Rehabilitation* 16(4): 406-13

Davis, L.L., Broome, M.E., Cox, R.P. (2002) "Maximizing Retention in Community-based Clinical Trials" *Journal of Nursing Scholarship* 34(1): 47-53

Detsky, A.S., Naglie, I.G. (1990) "A Clinician's Guide to Cost-Effectiveness Analysis" *American College of Physicians* 113(2): 147-154

Doran, D., Pickard, J., et al (2002) *Competitive Bidding for Community-Based Nursing Services: Report of Phase I, Community Nursing Services Study* University of Toronto, Toronto, Ontario

Doty, P., Kasper, S., Litvach, S. (1996) "Consumer-directed model of personal care: Lessons from Medicaid" *Milbank Quarterly* 74: 3, 377-409

Dougherty, C.M., Sperus, J.A., Dewhurst, T.A., Nichol, W.P. (2000) "Outpatient Nursing Case Management for Cardiovascular Disease" *Nursing Clinics of North America* 35(4): 993-1003

Drummond, M.F., O'Brien, B.J., Stoddart, G.L., Torrance, G.W. (1997) *Methods for the Economic Evaluation of Health Care Programmes* Oxford: Oxford University Press

Dumont-Lemasson, M., Donovan, C., Wylie, M. (1999) *Provincial and Territorial Home Care Programs: A Synthesis for Canada*, Ottawa: Health Canada www.hc-sc.gc.ca

Edwards, J.B., Kaplan, A., Barnett, J.T., Logan, C.L. (1998) "Nurse Managed Primary Care in a Rural Community: Outcomes of Five Years of Practice" *Nursing and Health Care Perspectives* 19(1): 20-25

Eisenberg, J.M. (1989) "Clinical Economics: A Guide to the Economic Analyses of Clinical Practices" *Journal of American Medical Association* 262(20): 2879-2886

Entwistle, V.A., Sowden, A.J., Watt, I.S. (1998) "Evaluating Interventions to Promote Patient Involvement in Decision Making: By What Criteria Should Effectiveness be Judged?" *Journal Health Service Research Policy* 3(2): 100-107

Ervin, N.E., Chang, W.Y., White, J. (1998) "A Cost Analysis of a Nursing Centre's Services" *Nursing Economics* 16(6): 307-312

First Ministers' Accord on Health Care Renewal (2003) Ottawa

Fonarow, G.C., Stevenson, L.W., Walden, M., Livingston, N.A., Steimke, A.E., Hamilton, M.A., Moriguchi, J., Tillisch, J.H., Woo, M.A. (1997) Impact of a Congestive Heart Failure Management Program on Hospital Readmission and Functional Status of Patients with Advanced Heart Failure *Journal American College of Cardiology* 30: 725-732

Forbes, D. et al (2003) "Two Distinct Subgroups of Home Care: The Interface of Medical and Social Policy", paper prepared for *The International Home Care Roundtable* (Kingston, Ontario: February 20-22, 2003)

Forster, A.J., Clark, H.D., Menard, A., Dupuis, N., Chernish, R., Chandok, N., Khan, A., van Walraven, C., (2004) "Adverse Events Among Medical Patients After Discharge from Hospital" *Canadian Medical Association Journal* 170(3): 345-349

- Gafni, A. (1994) "The Standard Gamble Method: What is Being Measured and How it is Interpreted" *Health Services Research* 29: 207-224
- Gafni, A., Birch, S. (1997) "QALYs and HYE: Spotting the Differences" *Journal of Health Economics* 16: 601-608
- Gafni, A., Birch, S. (2003) "Inclusion of Drugs in Provincial Drug Benefit Programs: Should "Reasonable Decisions" Lead to Uncontrolled Growth in Expenditures" *Canadian Medical Association Journal* 168(7) 849-851
- Gloss, E., Fiolo, S. (1987) "The nursing centre: An alternative for health care delivery" *Family and Community Health* 10: 49-58
- Glouberman, W., Mintzberg, H. (2001) "Managing the Care of Health and the Cure of Disease – Part I: Differentiation" *Healthcare Management Review* Winter: 56-69
- Glouberman, W., Mintzberg, H. (2001) "Managing the Care of Health and the Cure of Disease – Part II: Integration" *Healthcare Management Review* Winter: 70-87
- Gordon, S., Buresh (2000) *From Silence to Voice: What Nurses Know and Must Communicate to the Public* Ottawa: Canadian Nurses Association
- Guidelines for Management Information Systems in Canadian Health Services Organizations (2003) Ontario Health Care Reporting System v. 5.1
- Gustafson, D.H., Arora, N.K., Nelson, E.C., Boberg, E.W. (2001) "Increasing Understanding of Patient Needs During and After Hospitalization" *Joint Commission Journal on Quality Improvement* 27, 81-92
- Habermas, J. (1987) *Theory of Communicative Action: Life world and system: A Critique of Functionalist Reason* T. McCarthy, translator (Vol. 2) Boston: Beacon Press
- Habermas, J., (1971) *Knowledge and Human Interests* J. Shapiro, translator Boston: Beacon Press
- Hadjistavropoulos, H.D., Lawson, K., Peters, C., Asmundson, G.J.G., Boisvert, J.A. (2002) *Healthcare Management Forum* 15(1): 22-31
- Haggerty, J.L., Reid, R.J., Freeman, G.K., Starfield, B.H., Adair, C.E., McKendry, R. (2003) "Continuity of Care: A Multi-disciplinary Review" *British Medical Journal* 327: 1219-1221
- Hall, R., Coyte, P. (2001) "Determinants of Home Care Utilization: Who Uses Home Care in Ontario?" *Canadian Journal of Aging* 20(2): 175-192

Hanchett, M. (2001) "What You Need to Know About Consumer-Directed Home Care" *Home Health Care Nurse* 19(11): 681-686

Harrison, M.B., Browne, G.B., Roberts, J., Graham, J., Gafni, A. (1999) "Understanding Continuity of Care and How to Bridge the Intersectoral Gaps" *National Academies of Practice Forum* 1(4): 315-326

Hatcher, P.A., Scarinzi, G.D., Kneider, M.S. (1998) "Meeting the Need: A Primary Health Care Model for a Community-Based / Nurse-Managed Health Center" *NLN: Nursing and Health Care Perspectives* 19(1): 12-19

Hawkins, J.W., Thibodeau, J., Utley-Smith, Q.E., Ignou, J.F. (1993) "Using a conceptual model for practice in a nursing wellness center for seniors" *Perspectives* 17: 11-16

Hayward, S., Ciliska, D., Mitchell, A., Thomas, H., Underwood, J., Rafael, A. (1993) "Evaluation Research in Public Health Nursing" a background paper for systematic overviews of the effectiveness of public health nursing interventions, (Working Paper Series, 93-3) Quality of Nursing Worklife Research Unit, McMaster University, Hamilton, Ontario and University of Toronto, Toronto, Ontario

Health Canada (May 1999) *Provincial and Territorial Home Care Programs: A Synthesis for Canada* Ottawa, Ontario: Minister of Supply and Services Canada

Health Canada (2001) "Health Expenditures in Canada by Age and Sex 1980-1981 to 2000-2001" Ottawa, Ontario: Health Canada

Health Services Utilization and Research Commission (1996) *The Cost Effectiveness of Home Care. A Rigorous Review of the Literature* Background Paper (Saskatoon)

Health Services Utilization and Research Commission, (1998). *Hospital and Home Care Study* Summary Report No. 10, Saskatoon, Saskatchewan

Hedrick, S.C., Inui, T. (1986) "The Effectiveness and Cost of Home Care: An Information Synthesis" *Health Services Research* 20(6): 851-880

Helvie, C.O. (1999) "Efficacy of Primary Care in a Nursing Center" *Nursing Case Management* 4(4): 201-210

Higgs, Z. (1988) "The Academic Nurse-Managed Centre Movement: A Survey Report" *Journal of Professional Nursing* 4: 422-429

Hollander, M., Chappell, N., Havens, B., McWilliams, C., Miller, J.A. (2002) Study of the Costs and Outcomes of Home Care and Residential Long Term Care Services (Substudy 5) *National Evaluation of Cost-Effectiveness of Home Care* Canadian Policy Research Networks, Inc. Victoria, British Columbia

Hollander, Marcus J. (1994) *The Costs and Cost-Effectiveness of Continuing Care Services in Canada*, University of Ottawa/Queen's University Economic Projects Working Paper

Hopman, W.M., Towheed, T., Anastassiades, T., Tenenhouse, A., Poliquin, S., Berger, C. et al (2000) "Canadian Normative Data for the SF-36 health survey" *Canadian Medical Association Journal* 163(3): 265-271

Hughes, S.L., Cummings, J., Weaver, F., Manheim, L., Braun, B., Conrad, K. (1992) "A Randomized Controlled Trial of the Cost Effectiveness of VA Hospital-Based Home Care for the Terminally Ill" *Health Services Research* 26: 801-17

Hunter, J.K., Ventura, M.R., Kearns, P.A. (1999) "Cost Analysis of a Nursing Centre for the Homeless" *Nursing Economics* 17(1): 20-28

Indredavik, B., Fjaertoft, H., Ekeberg, G., Loge, A.D., Morch, B. (2000) "Benefit of Extended Stroke Unit Service with Early Supported Discharge" *Stroke* 31: 2989-2994

Jenkinson, C., Stewart-Brown, S., Petersen, S., Paice, C. (1999) "Assessment of the SF-36 Version 2 in the United Kingdom: *Journal Epidemiology Community Health* 53: 46-50

Jerome-Forget, M., St. Hilaire, (eds) (1998) "Canada's Social Union" *Policy Options* November, 1998

Jester, R., Hicks, C., (2003) "Using Cost-Effectiveness Analysis to Compare Hospital at Home and Inpatient Interventions" *Journal of Clinical Nursing* 12(1):20-27

Joint Provincial Nursing Committee (2001) "Good Nursing, Good Health: A Good Investment" RNAO/Ontario Ministry of Health and Long Term Care Toronto, Ontario

Jones, J., Wilson, A., Parker, H., Wynn, A., Jagger, C., Spiers, N., Parker, G. (1999) "Economic Evaluation of Hospital at Home versus Hospital Care: Cost Minimalization Analysis of Data from Randomized Controlled Trial" *British Medical Journal* 319: 1547-1550

Kane, R.L. (1997) *Understanding Health Care Outcomes Research* Gaithersburg, Maryland: Aspen Publishers

Kane, R.L. (1999) "Examining the Efficiency of Home Care" *Journal of Aging and Health* 11(3): 322-340

Kelly, M. (1996) "Primary Care Across Clinical Settings" *Nursing Clinics of North America* 31(3): 465-470

Knafl, K. (1998) "Establishing and Sustaining a Family Nursing Center for Families with Chronic Illness: the Wisconsin Experience" *Journal of Child and Family Nursing* 1(2): 104-105

Knapp, M., Beecham, J., Kotsogeorgopoulou, V., Hallam, A., Fenyo, A., Marks, M., Connolly, J., Audini, B., Muijen, M. (1994) "Service Use and Costs of Home-Based Versus Hospital-Based Care for People with Serious Mental Illness" *British Medical Journal* 165: 195-203

Krein, S.L. (1999) "The Adoption of Provider-Based Rural Health Clinics by Rural Hospitals: A Study of Market and Institutional Forces" *Health Services Research* 34(1): 33-60

Landi, F., Onder, G., Russo, A., Jabaccanti, S., Rollo, Rodolfo, Federici, S., Tua, E., Cesari, M., Bernabei, R. (2001) "A new model of Integrated Home Care for the Elderly: Impact on Hospital Use" *Journal of Clinical Epidemiology* 54: 968-970

Larsen, D.L., Attkinsson, C.C., Hargreaves, W.A., Nguyen, T.D. (1979) "Assessment of Client/Patient Satisfaction: Development of a General Scale" *Evaluation and Program Planning* 2, 197-207

Leatt, P., Lemieux-Charles, L., Aird, C., Leggat, S.G. (1996a) *Monitoring and Evaluating Strategic Alliances in Health Care* Ottawa, Ontario: Canadian College of Health Services Executives

Leatt, P., Aird, C., Lemieux-Charles, L. (1996b) "An Overview of Strategic Alliances in Health Care" in Leatt, P., Lemieux-Charles, L., Aird, C., Leggat, S.G., *Monitoring and Evaluating Strategic Alliances in Health Care* Canadian College of Health Services Executives, Ottawa, Ontario

Lee, T.T., Mills, M.E. (2000) "Analysis of Patient Profile in Predicting Home Care Resource Utilization and Outcomes" *Journal of Nursing Administration* 30(2): 67-75

Lees, T.A., Lambert, D. (1992) "Prevalence of Lower Limb Ulceration in an Urban Health District" *British Journal of Surgery* 79(10): 1032-1034

Lenz, C., Edwards, J. (1992) "Nurse Managed Primary Care: Tapping the Rural Community Power Base" *Journal of Nursing Administration* 22: 57-61

Levin, H.M. (1983) *Cost Effectiveness Primer* Newbury Park, California: Sage Publishers

Lilford, R.J., Shaw, H. (1998) "Hospital at Home Costings were Inadequate" *British Medical Journal* 317: 1651-2

- Llewellyn-Thomas, H. (1995) "Presidential Address – Patients Health Care Decision Making: A Framework for Descriptive and Experimental Investigations" *Medical Decision Making* 15(2): 101-106
- Lloyd, G. (1994) "A Dry Solution: The Hunter Area Health Service Continence Advisory Service" *Australian Nursing Journal* 1: 23-25
- Lough, M.A. (1996) "Ongoing Work of Older Adults at Home after Hospitalization" *Journal of Advanced Nursing* 23: 804-809
- Lundeen, S.P. (1993) "Comprehensive, Collaborative, Coordinated, Community-based Care: A Community Nursing Center Model" *Family and Community Health* 165: 57-65
- Lundeen, S.P. (1997) "Community Nursing Centers – Issues for Managed Care" *Nursing Management* 28(3): 35-37
- MacAdam, M. (2000) "Home Care" It's Time for a Canadian Model" *Healthcare Papers* 1(4): 9-36
- Madigan, E.A., Tullai-McGuinness, Felber Neff, D.(1999) "Home Health Services Research" *Annual Review of Nursing Research* Vol. 20, New York: Springer Publishing Co.
- Malo, D., Cote, S., Giguere, V., O'Reilly, L. (1998) "The McGill Model and Local Community Service Centres: A Fetching Combination" *Infirmiere du Quebec* 6(2): 28-25
- Markle-Reid, M. (2002) "Frail Elderly Home Care Clients: The Effects and Expense of Adding Nursing Health Promotion and Preventive Care to Personal Support Services" Doctoral thesis, McMaster University, Hamilton, Ontario
- Markstrom, M., Fiandt, K (1992) "Prevention as the intervention of choice" In J. Weisner (Ed.) *Perspectives in Nursing* 1991-1993 (pp. 83-92) New York: National League for Nursing Press
- Marriott, J., Mable, A.L. (2003) "Integration Update" presentation made at Ontario Hospital Association Convention, Toronto, Ontario November 3, 2003
- Mathematica Policy Research Inc. (April, 1986) "Channeling Effects on the Clients' Lives" Princeton, New Jersey: Author
- Mathematica Policy Research, Inc. (May, 1986) "The Evaluation of the National Long Term Care Demonstration (Final Report)" Princeton, New Jersey: Author
- Matherlee, K. (September 13, 1999) "The Nursing Centre in Concept and Practice: Delivery and Financing Issues in Serving Vulnerable People" Issue Brief: *National Health Policy Forum* (746): 1-10

- McCusker, J., Ardman, O., Bellavance, F., Belzile, E., Cardin, S., Verdon, J., (2001) "Use of Community Services by Seniors Before and After an Emergency Visit" *Canadian Journal on Aging* 20(2): 193-209
- McDowell, I., Newell, C. (1996) *Measuring Health: A Guide to Rating Scales and Questionnaires* New York: Oxford University Press
- McGillion, M., Mallette, C., Silverman, B., Goodine, W. "Nurse Run Centres – The Comprehensive Approach to Health Care Delivery: An Annotated Bibliography" (1995) Quality of Nursing Worklife Research Unit McMaster University – University of Toronto, Toronto, Ontario
- McWilliam, C.L., Wong, C.A. (1994) "Keeping it Secret: the Costs and Benefits of Nursing's Hidden Work in Discharging Patients" *Journal of Advanced Nursing* 19: 152-163
- Mehrez, A., Gafni, A. (1989) "Quality Adjusted Life Years, Utility Theory and Healthy Years Equivalent" *Medical Decision Making* 9: 142-149
- Miller, M. (1994) "Setting up a Nurse Led Clinic in Wound Healing" *Nursing Standard* 9: 54-56
- Mintzberg, H. (1994) "Managing as Blended Care" *Journal of Nursing Administration* 24(9): 29-36
- Moffatt, C.J., Dorman, M.C. (1995) "Recurrence of Leg Ulcers Within a Community Ulcer Service" *Journal of Wound Care* 4(2): 57-61
- Morrell, C.J., Waters, S.J., Dixon, S., Collins, K.A., Brereton, L.M., Peters, J., Brooker, C.G. (1998) Cost Effectiveness of Community Ulcer Clinics: Randomized Controlled Trial" *British Medical Journal* 316: 1487-1491
- National Forum on Health (1997) *Canada Health Action: Building on the Legacy. The Final Report of the National Forum on Health* (Catalogue H21-125/5-1-1997E)
- Naylor, M.D., Bowles, K.H., Brooten, D. (2000) "Patient problems and advanced Practice Nurse Interventions During Transitional Care" *Public Health Nursing* 17: 94-102
- Naylor, M.D., McCauley, K.M. (1999) "The Effects of a Discharge Planning and Home Follow-up Intervention on Elders Hospitalized with Common Medical and Surgical Cardiac Conditions" *Journal of Cardiovascular Nursing* 14(1): 44-54

Naylor, M. (2002) "Transitional Care of Older Adults" *Annual Review of Nursing Research* Vol. 20 editors: J.J. Fitzpatrick, P.G. Archbold, New York: Spring Publishing Co. 20: 127-147

Newland, J.A., Rich, E., (1997) "Nurse-Managed Primary Care Center" *Nursing Clinics of North America* 31(3): 471-486

Nguyen, T.D., Attkisson, C., Stegner, B.L. (1983) "Assessment of Patient Satisfaction : Development and Refinement of a Service Evaluation Questionnaire" *Evaluation and Program Planning* 6: 299-314

Nicholson, C., Bowler, S., Jackson, C., Schollay, D., Tweeddale, M., O'Rourke, P. (2001) "Cost Comparison of hospital and home-based treatment models for Acute COPD" *Australian Health Review* 24(4): 181-7

Nightingale, F. (1874) *Suggestions for Improving the Nursing Service of Hospitals and On Methods of Training Nurses for the Sick Poor*

Nursing Task Force (1999) *Good Nursing, Good Health: An Investment for the 21st Century Report of the Nursing Task Force*, Toronto, Ontario: RNAO

O'Brien-Pallas, L.L., Bauman, A., Birch, S., Murphy, G. T., (2000) "Health Human Resource Planning in Home Care: How to Approach It – That is the Question" *Healthcare Papers* 1(4): 53-59

O'Connor, A.M., Tugwell, P., Wells, G.A., Elmslii, T., Jolly, E., et al (1998) "A Decision Aid for Women Considering Hormone Therapy After Menopause: Decision Support Framework and Evaluation" *Patient Education Counselling* 33(3): 267-279

Ontario Case Manager Association/Ontario Community Support Association (2000) *Provincial Standards and Guidelines for Case Management* Toronto, Ontario: OCMA/OCSA (ocma@on.aibn.com)

Ontario Community Support Association (2000) *The Effect of Managed Competition on Model on Home Care in Ontario: Emerging Issues and Recommendations*, Toronto, Ontario: OCSA

Ontario Home Health Care Providers Association (2001) *Private Sector Delivery of Home Health Care in Ontario*, Toronto, Ontario: OHCPA

Ontario Home Health Care Providers' Association/Ontario Community Support Association (2002) *Home and Community Care Crisis in Ontario, The Commitment and the Reality*, Toronto, Ontario: OHCPA/OCSA

Ontario Ministry of Health and Long Term Care (2002) *Schedule of CCAC Reform Initiatives*, Toronto, Ontario

Pappas, C. Van Scoy-Mosher, S. (1998) "Establishing a profitable outpatient community nursing centre" *Journal of Nursing Administration* 18: 31-33

Parent, K., Anderson, M. (2000) "Developing a Home Care System by Design" *Healthcare Papers* 1(4): 46-52

Parker, G., Bhakta, P., Lovett, C.A., Paisley, S., Olsen, R., Turner, D., Young, B., (2002) "A Systematic review of the costs and effectiveness of different models of Paediatric Home Care" *Health Technology Assessment* 6(35): 1-118

Payne, S.M.C., Thomas, C.P., Fitzpatrick, T., Kayne, H.L., Abdil-Rahman, M. (1996) "Home Health Resource Use by persons with AIDS, mothers and children, and medical/surgical client" Paper presented at Association for Health Services Research 13th Annual Meeting: Atlanta, Georgia

Penney, Sheila (1997) *A Century of Caring 1897-1997. The History of the Victorian Order of Nurses for Canada* Ottawa, Ontario

Phillips, D.L., Steel, J.E. (1994) "Factors Influencing Scope of Practice in Nursing Centers" *Journal of Professional Nursing* 10(2): 84-90

Pike, M., Bowden, J., Peebles, S. (1998) "Challenges of Establishing a Nursing Center in Rural Eastern Oregon" *Journal of the American Academy of Nurse Practitioners* 10(10): 461-465

Ploeg, J., Dobbins, M., Hayward, S., Ciliska, D., Thomas, H., Underwood J. (1995) "A Systematic Overview of the Effectiveness of Public Health Nursing Interventions" Working Paper #95-5, Quality of Nursing Worklife Research Unit, McMaster University, University of Toronto, Toronto, Ontario

PriceWaterhouseCoopers (2000) *A Review of Community Care Access Centres in Ontario: Final Report* Toronto, Ontario

Rathbone, W. (1890) *Sketch of the History of District Nursing* London: MacMillan

Registered Nurses Association of Ontario (1999) *Vision: Making Long Term Care Community Services Work* Toronto, Ontario

Registered Nurses Association of Ontario (2001) *Earning Their Return: When and Why Ontario RNs left Canada, and What Will Bring Them Back* Toronto, Ontario

Reilly, F.E., Grier, M.R., Blomquist, K. (1992) "Living Arrangements, Visit Patterns, and Health Problems in a Nurse-Managed Clinic for the Homeless" *Journal of Community Health Nursing* 9: 111-121

Reisch, S. (1992a) "Nursing Centres: An Analysis of the Anecdotal Literature" *Journal of Professional Nursing* 8: 16-25

Reisch, S.K. (1992b) "Nursing Centers" in J.J. Fitzpatrick, R.L. Taunton and A.K. Jacox (Eds) *Annual Review of Nursing Research* p. 145-162 New York: Springer

Remonnay, R., Devaux, Y., Chauvin, F., Dubost, E., Carriere, M. (2002) "Economic Evaluation of Antineoplastic Chemotherapy Administered at Home or in Hospitals" *International Journal of Technology Assessment in Health Care* 18:3, 508-519

"Report of the Visiting Nurse Service Administered by the Henry Street Settlement, 1923" *Wald Collection*, Columbia University: New York, New York

Richards, S., Coast, J., Gunnell, D.J., Peters, T.J., Pounsford, J., Darlow, M.A. (1998) "Randomized Controlled Trial Comparing Effectiveness and Acceptability of an Early Discharge: Hospital at Home Scheme with Acute Hospital Care" *British Medical Journal* 316: 1796-1801

Ritchie, L., Boutell, B., Buchan, C., Foster, P., St. Aubrey, M. (1995) "Nursing Centre: Practicing What We Preach" *Nursing B.C.* Nov/Dec 1995: 14-16

RNAO/RPNAO (2000) "Ensuring the Care Will Be There: Report on Nursing Recruitment and Retention in Ontario" Toronto, Ontario: Registered Nurses Association of Ontario

Roberts, J., Bennett, K. (1997) "Evidence Based Nursing Care: How to Critically Appraise a Research Article Determining Effectiveness of a Health Care Intervention" Working Paper Series 97-9; System-Linked Research Unit, McMaster University, Hamilton, Ontario

Robertson, M.C., Devlin, N., Gardner, M.M., Campbell, A.J. (2001) "Effectiveness and Economic Evaluation of a Nurse Delivered Exercise Program to Prevent Falls: Randomized Controlled Trial" *British Medical Journal* 322: 697-701

Robinson, K.R. (2000) "Nurse-Managed Primary Care Delivery Clinics" *Nursing Clinics of North America* 35(2): 471-479

Rogers, J., Curtis, P. (1980) "The Achievement of Continuity of Care in a Primary Care Training Program" *American Journal of Public Health* 70(5): 528-530

Rudd, A.G., Wolfe, C.D., Tilling, K., Beech, R. (1997) "Randomized Controlled Trial to Evaluate Early Discharge Scheme for Patients with Stroke" *British Medical Journal* 315: 1039-44

Ruka, S.M., Brown, J., Procope, B. (1997) *Clinical Nurse Specialist* 11(4): 179-187

- Ryten, E. (1997) "A Statistical Picture of the Past, Present and Future of Nursing in Canada" Canadian Nurses Association: Ottawa, Ontario
- Shepperd, S., Cliffe, S. (2003) "Hospital at Home versus In-Patient hospital care" *Cochrane Review* Issue 3: 2003
- Shepperd, S., Harwood, D., Jenkinson, C., Gray, A., Vessey, M., Morgan, P., (1998) "Randomized Controlled Trial Comparing Hospital at Home Care with Inpatient Hospital Care. I: Three Month Follow up of Health Outcomes" *British Medical Journal* 346: 1786-1791
- Shepperd, S., Harwood, D., Gray, A., Vissey, M., Morgan, P., (1998) "Randomized Controlled Trial Comparing Hospital at Home Care with Inpatient Hospital Care. II: Cost Minimalization Analysis" *British Medical Journal* 346: 1791-1796
- Shortell, S.M. (1976) Continuity of medical care: Conceptualization and Measurement *Medical Care* XIV: 377-391
- Siegal, J.E., Weinstein, M.C., Russell, L.B., Gold, M.R., (1996) "Recommendations for Reporting Cost-Effectiveness Analyses" *Journal of American Medical Association* 276(16): 1339-1341
- Sinay, T., Campbell, C.R. (2002) "Strategies for More Efficient Performance through Hospital Merger" *Health Care Management Review* 27(1): 33-49
- Smith, C. (2001) "Technology and Home Care" (Chapter 6) *Research on Nursing Care Delivery: Annual Review of Nursing Research* Vol 19 New York: Spring Publishing Company
- Soderstrom, L., Torisignant, P., Kaufman, J., (1999) "The Health and Cost Effects of Substituting Home Care for Inpatient Acute Care: A Review of the Evidence" *Canadian Medical Association Journal* 160(8): 1151-1155
- Statistics Canada (2001) *2001 Census of Population Ottawa*: Statistics Canada
- Statistics Canada (2001) *2001 Population and Dwelling Counts for Ottawa Division* Ottawa, Ontario: Statistics Canada
- Steel, J.E., Wagner, D., Adams-Davis, K., Fitzpatrick, J.J. "Planning a Community Nursing Centre" *International Nurse Review* 41(5): 151-154
- Stone, L. (2000) *Seniors at Risk: Analytical Fact Sheets* Division of Aging and Seniors, Health Canada Ottawa, Ontario: Statistics Canada,
- Stone, P. (1998) "Methods for Conducting and Reporting Cost-Effectiveness Analysis in Nursing" *Image: Journal of Nursing Scholarship* 30(3): 229-234

Stuck, A.E., Aronow, H.U., Steiner, A., Alessi, C.A., Bula, C.J., Gold, M.N., Yukas, K.E., Nisenbaum, R., Rubenstein, L.Z., Beck, J.C. (1995) "A Trial of Annual In-Home Comprehensive Geriatric Assessments for Elderly People Living in the Community" *The New England Journal of Medicine* 333 (18): 1184-1189

Stuck, A.E., Minder, C.E., Peter-Wuest, I., Egli, C., Kesselring, A., Leu, R., Beck, J.C. (2000) "A Randomized Trial of In-Home Visits for Disability Prevention of Community-Dwelling Older People at Low and High Risk for Nursing Home Admission" *Archives of Internal Medicine* 160: 977-986

Taylor, M.G. (1987) *Health Insurance and Canadian Public Policy: The Seven Decisions that Created the Canadian Health Insurance System and their Outcomes* Montreal: McGill-Queens University Press

The Clair Report (2000) *The Commission of Study on Health and Social Services* Quebec <http://www.cessss.gouv.qc.ca/pdf/en/01-109-01apdf>

The Fyke Report (2001) *Caring for Medicare – Sustaining a Quality System* Saskatchewan

The Kirby Report (2002) *The Standing Senate Committee on Social Affairs, Science and Technology* Canadian Federal Government: Ottawa, Ontario

The Mazankowski Report (2001) *The Premier's Advisory Council on Health* Alberta <http://www.premiersadvisory.com/reform/index.html>

"The Merger Decade: What Have We Learned from Canada Health Care Mergers in the 1990's: A Report on the Conference on Health Care Mergers in Canada" (2000) Canadian Health Services Research Foundation, Ottawa, Ontario

The Romanow Report (2002) *The Commission on the Future of Health Care in Canada* Canadian Federal Government: Ottawa, Ontario

The Sivret/Newbould Report (2002) *Health Care: A New Brunswick Perspective* New Brunswick

Thorne, E. (1998) "Community Leg Ulcer Clinics and the Effectiveness of Care" *Journal of Wound Care* 7(2): 94-99

Thurlby, K., Griffiths, P. (2002) "Community Leg Ulcer Clinics vs. Home Visits: Which is More Effective?" *British Journal of Community Nursing* 7(5): 49-55

Tierney, A.J., Closs, S.J., Hunter, H.C., Macmillan, M.S. (1993) "Experiences of Elderly Patients Concerning Discharge from Hospital" *Journal of Clinical Nursing* 2: 179-185

Timms, J. (1990) "Innovative Community-Based Health Care for the Elderly" A University-Community Partnership" *Nursing Administration Quarterly* 14:75-78

Torisi, D.L. (1994) "NP dialogue... Nursing centres and managed care: Collaboration and contracting" *Nurse Practitioner* 19: 69-71

Tyree, E.A., Henly, S.J., Schauer, J.B., Lindsey, D.L. (1998) "Undergraduate Preparation for Primary Health Care Roles in an Academic Nursing Center" *Journal of Nursing Education* 37(8): 337-344

Viney, R., Haas, M., Shanahan, M., Cameron, I. (2001) "Assessing the Value of Hospital in the Home: Lessons from Australia" *Journal Health Services Research Policy* 6(3): 133-138

Von Koch, L., de Pedro-Cuesta, J., Kostulas, J., Almazan, J., Widen Holmquist, L. "Randomized controlled Trial of Rehabilitation at home after Stroke: one year follow-up of patient outcome, resource use and cost" (2001) *Cerebrovascular Disease* Aug; 12(2): 131-8

Wald Collection, 1920-21, Columbia University; New York, New York

Walker, P.H., (1994) "Dollars and Sense in Health Reform: Interdisciplinary Practice and Community Nursing Centers" *Nursing Administration Quarterly* 19(1): 1-11

Ware, J.E., Sherbourne, C.D. (1992) The MOS 36-item short form health survey (SF-36) Conceptual framework and item selection *Medical Care* 30: 473-481

Ware, J.E. Jr., Snow, K.K., Kosinski, M. et al (1993) *SF-36 Health Survey: Manual and Interpretation Guide* Boston, Massachusetts: The Health Institute, New England Medical Center

Ware, J.E., Kosinski, M., Dewey, J.E., (2000) *How to Score Version 2 of the SF-36 Health Survey: Standard and Acute Forms* (2nd Ed.) Lincoln, Rhode Island: Quality Metric, Inc.

Watson, L.Y., (1996) "A National Profile of Nursing Centers" *Nurse Practitioner* 21(3): 72-81

Weaver, F.M., Perloff, L., Waters, T. (1998) "Patients and Caregivers transition from Hospital to Home: Needs and Recommendations" *Home Health Care Services Quarterly* 17(3): 27-48

Weimer, D., Vining, A. (1992) *Policy Analysis Concepts and Practice* (2nd edition) Englewood Cliffs, New Jersey: Prentice Hall

Weinstein, M.C., Siegal, J.E., Gold, M.R., Kamlet, M.S., Russell, L.B. (1996) "Recommendations of the Panel on Cost Effectiveness in Health and Medicine" *Journal of American Medical Association* 276(15): 1253-1258

Weiss, R.L., Milone-Nuzzo, P. (1999) "A Tool to Assess Homebound Status" *Home Healthcare Nurse* 17(8): 486-490

Weissert, W.G. (1985) "Seven Reasons Why it is so Difficult to Make Community-based Longterm Care Cost-effective" *Health Services Research* 20(4): 423-433

Weissert, W.G., Cready, C.M., Pawelak, L.E. (1988) "The Past and Future of Home and Community-Based Long Term Care" *The Millbank Quarterly* 66(2): 309-388

Weissert, W.G., Lesnick, J., Musliner, M., Foley, K.A. (1997) "Cost Saving from Home and Community-Based Services: Arizona's Capitated Medicaid Long Term Care Program" *Journal of Health Politics, Policy and Law* 22(6): 1329-1357

Wilkins, K., Beaudit, M.P. (2000) "Changes in Social Support in Relations to Seniors' Use of Home Care" *Health Reports, Catalogue* 82-003, 11(4): 39-61

Wilkins, K., Park, E., (1998) "Home Care in Canada" *Health Reports* 10(1): 29-37

Wilson, A., Parker, H., Wynn, A., Jagger, C., Spiers, N., Jones, J., Parker, G. (1999) "Randomized Controlled Trial of Effectiveness of Leicester Hospital at Home Scheme Compared with Hospital Care" *British Medical Journal* 319: 1542-1546

Wittmer, E. (2000) "Bringing Health Care Closer to Home: One Province's Approach to Home Care" *Healthcare Papers*, Vol 1(4): 98-102

Woodward, C., Albelson, J., Hutchison, B., Brown, J. (2002) "Measuring Consistency of Personnel in Home Care: Current Challenges and Findings" Centre for Health Economics and Policy Analyses, McMaster University, Hamilton, Ontario

Yates, B.T. (1996) *Analyzing Costs, Procedures, Processes and Outcomes in Human Services* Thousand Oaks, California: Sage Publishers

Zhao, J., Drew, D., Murray, T.S. (2000) "Brain Drain and Brain Gain: The Migration of Knowledge Workers from and to Canada" *Education Quarterly Review* 6(3), 8-35

OTTAWA
 COMMUNITY CARE ACCESS CENTRE
 CENTRE D'ACCÈS AUX SOINS COMMUNAUTAIRES
 OTTAWA

JOB DESCRIPTION

DESCRIPTION DE POSTE

JOB TITLE: CASE MANAGER

AFFILIATION: CIPP

SUPERVISOR'S JOB TITLE: Manager, Client Services **POSITIONS REPORTING:** Not Applicable

EFFECTIVE/REVISION DATE: September 2002

POSITION SUMMARY:

Under the general direction of the Manager, Client Services and in accordance with provincial and OCCAC standards, legislation, policies and guidelines, the Case Manager is responsible for client assessment, determination of eligibility, admission, service planning and authorization, implementation, monitoring, reassessment, adjustment and discharge planning of all client service programs (home care and placement), including the provision of community resource information and referral.

The Case Manager acts as a key resource to the client and his/her family for entry into and management within the Provincial system of community health and long term care and/or referral to alternate sources of care and support through community based organizations and other health facilities. The Case Manager is responsible for ensuring efficient and cost effective management of resources and quality service while automated information technology.

SPECIFIC RESPONSIBILITIES:

Identification and Engagement

- Establishes and develops a helping relationship with client and family, honouring the client's values and preferences.
- Assesses referred clients for admission to the Ottawa CCAC programs on the basis of legislated and defined admission eligibility criteria using defined assessment tools following client assessment protocols, and following process for outcome measures, quality indicators, case mix and method for assigning priority levels.
- Assists ineligible clients in the provision of alternate resources by providing information and referral services.
- Obtains informed consent.

Assessment

- Performs a multi-dimensional assessment using defined assessment tools determining clients values, past history, physical and emotional health, cognitive status, coping abilities, economic resources, social supports and environment.
- Assigns priority levels for contracted services
- Assesses risks and identifies the need for crisis intervention and/or prevention strategies.

Goal Setting and Service Planning

- Based on assessment, eligibility and service priority levels, establishes an initial, suitable and realistic care and service plan, balancing client's needs, choices and available resources.
- Develops a care plan in collaboration with the client, other health care professionals, care providers or family, stating priorities, services authorized, mutual goals and anticipated duration of service.
- Ensures common understanding and participation by client and service provider towards the achievement of care plan within defined time frames and criteria.
- Provides information and counselling service on complex continuing care, short term and long term care options.

- Initiates and completes placement through defined processes according to client's interest, eligibility and priority including crisis admissions.

Accessing Resources and Linking

- Collaborates and partners with the networks of service providers.
- Facilitates the client's access to appropriate community or alternate resources.

Service Implementation

- Facilitates the implementation of the multi-disciplinary service plan to meet the client's needs.
- Initiates and authorizes the implementation of the care plan through contracted providers, supplies and equipment necessary to achieve the care goals.
- Seeks special authorization as required and initiates wait list process where necessary.
- Initiates process and facilitates admission and placement to long term care facility in accordance with established guidelines, policies, procedures and legislative requirements. Completes the functional assessment to determine eligibility. Initiates wait list process where appropriate.
- Participates in LTC facilities opening processes.

Accountability, Monitoring and Reassessment

- Reviews and maintains care plan in compliance to quality standards, outcome measures, quality indicators.
- Through regular monitoring, based on assessment and reassessment and in collaboration with other partners, adjusts the service plan based on changes in the client's needs and strengths. Receives and reviews regular service provider reports, performs timely re-assessment visits, client and family conferences and regular review of caseload.
- Maintains open communication with service providers, conducts case conferences and regular home visits to optimise care planning and appropriate services.
- Maintains and reviews client records.
- Provides regular reports to Physicians, service providers, clients, families and other authorized parties as required.
- Ensure care plans and long term care placements follow defined standards and resource allocations as defined.
- Initiates crisis management activities and processes during client care crisis or change in client status.

Advocacy

- Advocates for the client to facilitate positive client outcomes.
- Accepts and resolves client concerns and complaints and/or initiates client complaint process where appropriate.
- Promotes and interprets the role of the OCCAC to the public and health care partners.
- Participates in OCCAC program development and process improvement.
- Encourages community resource development.
- Participates in research activities.

Evaluation of Outcomes

- Plans for evaluation of processes and follow up in relation to organizational objectives, client satisfaction, goal attainment and service plan efficiency.

Discharge Planning

- Collaborates and negotiates with the client, family and service provider based on the needs identified and the achieved goals formulated throughout the case management process.
- Conducts discharges from service process and/or redirects clients and families to alternative resources.

Professional Accountability

- Manages the caseload through the delivery of quality, cost effective, equitable and timely services.

- Functions as an integral member of a team by sharing caseload responsibilities, discussing individual cases, assisting team with crisis management, coverage and acting as a peer resource.
- Works in close collaboration with all staff to optimize care planning, service delivery, record keeping and compliance with processes to ensure appropriate service to clients.
- Responsible to ensure confidential service including access to records, security of equipment and supplies.
- Participates on internal and external committees, teams and work groups as assigned.
- Represents the CCAC in maintaining effective client and community relations.
- Continually maintains and enhance professional knowledge, skills and abilities through participation in professional and job related education, training and development.
- Assists with the orientation of new staff, students and carries out preceptor/mentor responsibilities
- Embraces continuous improvement in professional practices and services of the CCAC
- Contributes to a safe and healthy environment for OCCAC employees, practices safe work procedures, reports illnesses and injuries, abides by health and safety standards as determined by the OCCAC and legislative requirements.
- Abides by policies and procedures and adheres to professional standards and ethics.
- Other related duties consistent with above

STATEMENT OF QUALIFICATIONS

Education:	<p>Degree in Nursing with a current Certificate of Competence from the Ontario College of Nurses or, Degree or diploma in physiotherapy and registered with the College of Physiotherapy of Ontario, or Degree or diploma in Occupational Therapy and registered with the College of Occupational Therapy of Ontario, or Degree in Social Work and registered with the Ontario College of Social Workers and Social Service Workers.</p> <p>All of the above require at least <u>4 years</u> related professional experience.</p> <p>OR</p> <p>A Registered Nurse with a current Certificate of Competence from the Ontario College of Nurses and a minimum of <u>5 years</u> professional experience.</p>
Experience:	<p>Professional experience in health care should include: linkages with community health agencies, and other health disciplines;</p> <ul style="list-style-type: none"> - inter-agency contract - needs assessment - case management and/or, - discharge planning.
Language:	<p>Fluency in English required, fluency in English and French may be required in accordance with French Language Services Plan and Designation.</p>
Vehicle:	<p>A valid Ontario Driver's License and access to a motor vehicle are required, some positions may not require regular travel.</p>

Knowledge of: Health care delivery system within Ottawa;
 Community resources within Ottawa;
 Client centred, multi-disciplinary team approach to client care;
 Medical conditions and cognitive/psychiatric disorders.

Abilities to: Demonstrate effective time management and organizational skills;
 Demonstrate leadership qualities;
 Communicate effectively orally and in writing;
 Negotiate and implement an effective goal oriented, client centred care Plan;
 Demonstrate effective decision making and problem solving in crisis situations;
 Work effectively on a team and independently;
 Utilize outcome measures in care plans;
 Maintain cooperative and collaborative relationships with partners and colleagues.

Personal Suitability: Recognition of and sensitivity to feelings, beliefs and value systems of others;
 Pleasantly assertive;
 A team player;
 Positive attitude;
 Ability to accept and deal with change;
 Willingness to share knowledge and assist others.

Skills: Superior communication and organizational skills;
 Proficient with the use of computerized processes (client information system, automated assessment tools, Intranet and Internet, etc.) including the use of mobile (lap top) technology.

Preferred Qualifications:

Experience: Prior experience within a Home Care Program or a Community Care Access Centre in Ontario. Working with clients who are cognitively impaired, have psychiatric disorders, are developmentally or physically challenged and working with Seniors.

Language: Fluency in other languages representing Ottawa's demographics.

Knowledge of: The philosophy and function of the Ottawa Community Care Access Centre and its relationship within the greater provincial health care delivery system.

SIGNATURES

INCUMBENT: Multi-incumbent position

DATE: _____

SUPERVISOR: _____

DATE: _____

DIRECTOR/ HR or ED: _____

DATE: _____

STUDY ID# _____

NURSING CLINIC/HOME VISIT STUDY – REFERRAL FORM

Date(y m d): ____/____/____ Hospital: _____ Case Mgr Initials: _____

Client is eligible for study:

- ☐ Referred to the Ottawa CCAC for nursing care (previously established criteria for care delivery at VON clinics, eg. IV therapy, dressing changes, medication administration etc.)
- ☐ Fluent in either English or French: ☐ English only ☐ French only ☐ bilingual

Is the client:

Willing to fully participate in the study ☐ Yes ☐ No

If “No”, please:

1. Ask the client if they would be willing to complete a questionnaire about their health and well-being and return it to the VON via the stamped envelope provided
☐ Client given SF-36 ☐ Client declined

2. Ask the client if they would answer the following question and record the response:
“As you leave the hospital today, would you say your health is:”

Excellent	Very Good	Good	Fair	Poor
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(Thank you, this form is now complete if the client does not wish to participate fully in the study)

If “Yes”, please:

Ask the client to sign the consent form, randomize (Tel: # 720-7574), complete the identifying information (below) and give to the client the “Information for Clients” sheet.

Randomized to: ☐ Nursing Clinic ☐ Home Visit

Client Name: _____

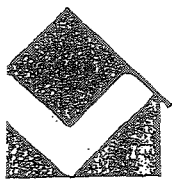
Address: _____

Phone: _____ 2nd phone: _____

Family MD: _____ MD phone: _____

Diagnosis on discharge from hospital:

- 1 Primary diagnosis: _____
- 2 Diagnosis 2: _____
- 3 Diagnosis 3: _____



Victorian
Order
of Nurses

Infirmières
de l'Ordre
de Victoria

OTTAWA-CARLETON BRANCH
SUCCURSALE D'OTTAWA-CARLETON



VON
CANADA

COMMUNITY CARE ACCESS CENTRE/VICTORIAN ORDER OF NURSES/
MCMMASTER UNIVERSITY, NURSING CLINIC STUDY

*Caring
for Life
Souci
de la Vie*

Title of Study: The Effectiveness and Efficiency of Providing Home Care Visits in Nursing Clinics vs. the Traditional Home Setting.

Who is doing the study?

The Victorian Order of Nurses, Ottawa-Carleton (VON), the Community Care Access Centre (CCAC) of Ottawa-Carleton, and researchers from McMaster University.

Why are we doing this study?

To evaluate the effectiveness of providing nursing care in an easily accessible clinic setting versus providing nursing care at home.

What are we asking study participants to do?

You will be asked to fill out two questionnaires, now and in six weeks. The interviews will consist of questions related to your health status and your use of health care services. As part of the study you will receive your nursing visits, either at a nursing clinic or at your home.

Confidentiality

All answers you give in the interview are confidential. Your name will not be recorded with your answers and you will not be personally identified in any discussion or written report.

Participation

You are free to withdraw from the study at any time. If you have any further questions or decide not to participate in the study, please feel free to contact _____ (project coordinator) at telephone number _____.

A summary of the study results will be available to study participants after _____. If you wish to have a copy of the results of the study, please let _____ (project coordinator) know and we will send one to you. The study is expected to take one year to gather the data and results.

NURSING CLINIC/HOME VISIT STUDY

YOUR HEALTH AND WELL-BEING

Study ID# _____

Today's Date / /
(year) (month) (day)

Thank you for completing this survey

This survey asks for your views about your health. This information will help keep track of how you feel and how well you are able to do your usual activities.

1. In general, would you say your health is: [Mark an X in the one box that best describes your answer.]

Excellent	Very Good	Good	Fair	Poor
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Compared to one week ago, how would you rate your health in general now?

Much
better now
than one
week ago

☐

Somewhat
better now
than one
week ago

☐

About the
same as
one week
ago

☐

Somewhat
worse now
than one
week ago

☐

Much
worse now
than one
week ago

☐

3. The following questions are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much? [Mark an X in a box on each line]

	Yes, limited a lot	Yes, limited a little	No, not limited at all
a) <u>Vigorous activities</u> , such as running, lifting heavy objects ,participating in strenuous sports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) <u>Moderate activities</u> , such as moving a table, pushing a vacuum cleaner, bowling, or playing golf	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Lifting or carrying groceries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Climbing <u>several</u> flights of stairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Climbing <u>one flight</u> of stairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Bending, kneeling, or stooping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Walking more than a mile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) Walking several hundred yards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) Walking one hundred yards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j) Bathing or dressing yourself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. During the past week, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of your physical health?

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
a. Cut down on the <u>amount of time</u> you spent on work or other activities	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
b. <u>Accomplished less</u> than you would like	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
c. Were limited in the <u>kind</u> of work or other activities	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
d. Had <u>difficulty</u> performing the work or other activities (for example, it took extra effort)	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

5. During the past week, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
a. Cut down on the <u>amount of time</u> you spent on work or other activities	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
b. <u>Accomplished less</u> than you would like	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
c. Did work or other activities <u>less carefully than usual</u>	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

6. During the past week, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?

Not at all	Slightly	Moderately	Quite a bit	Extremely
<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

7. How much bodily pain have you had during the past week?

None	Very mild	Mild	Moderate	Severe	Very severe
<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆

8. During the past week, how much did pain interfere with your normal work (including both work outside the home and housework)?

Not at all	A little bit	Moderately	Quite a bit	Extremely
<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

9. These questions are about how you feel and how things have been with you during the past week. For each question, please give the one answer that comes closest to the way you have been feeling.

How much of the time during the past week...

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
a Did you feel full of life?	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
b Have you been very nervous?	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
c Have you felt so down in the dumps that nothing could cheer you up?	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
d Have you felt calm and peaceful?	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
e Did you have a lot of energy?	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
f Have you felt downhearted and depressed?	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
g Did you feel worn out?	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
h Have you been happy?	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
i Did you feel tired?	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

10. During the past week, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives, etc.)?

All of the time	Most of the time	Some of the time	A little of the time	None of the time
--------------------	---------------------	---------------------	-------------------------	---------------------

☐

1

☐

2

☐

3

☐

4

☐

5

11. How TRUE or FALSE is each of the following statements for you?

		Definitely true	Mostly true	Don't know	Mostly false	Definitely false
a	I seem to get sick a little easier than other people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	I am as healthy as anybody I know	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	I expect my health to get worse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	My health is excellent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Thank you for completing these questions!

CONSENT FOR STUDY TO COMPARE
NURSING CLINIC AND HOME CARE VISITS
CLIENT EVALUATION OF SERVICES

Study ID# _____
Today's Date ____/____/____
(Y) (M) (D)

Please help us improve our program by answering some questions about the services you have received. We are interested in your honest opinion, whether they are positive or negative. *Please answer all of the questions.* We also welcome your comments and suggestions.
Thank you very much, we really appreciate your help.

CIRCLE YOUR ANSWER

1. How would you rate the quality of service you have received?

4 _____ Excellent	3 _____ Good	2 _____ Fair	1 _____ Poor
-------------------------	--------------------	--------------------	--------------------

2. Did you get the kind of service you wanted?

1 _____ No, definitely not	2 _____ No, not really	3 _____ Yes, generally	4 _____ Yes, definitely
----------------------------------	------------------------------	------------------------------	-------------------------------

3. To what extent has our program met your needs?

4 _____ Almost all of my needs have been met	3 _____ Most of my needs have been met	2 _____ Only a few of my needs have been met	1 _____ None of my needs have been met
---	---	---	---

4. If a friend were in need of similar help, would you recommend our program to him or her?

1 _____ No, definitely not	2 _____ No, I don't think so	3 _____ Yes, I think so	4 _____ Yes, definitely
----------------------------------	------------------------------------	-------------------------------	-------------------------------

5. How satisfied are you with the amount of help you have received?

1 _____ Quite satisfied	2 _____ Indifferent or mildly Dissatisfied	3 _____ Mostly satisfied	4 _____ Very satisfied
-------------------------------	---	--------------------------------	------------------------------

6. Have the services you received helped you to deal more effectively with your problems?

4 _____ Yes, they helped a great deal	3 _____ Yes, they helped somewhat	2 _____ No, they really didn't help	1 _____ No, they seemed to make things worse
--	--	--	---

7. In an overall, general sense, how satisfied are you with the service you have received?

4 _____ Very satisfied	3 _____ Mostly satisfied	2 _____ Indifferent or mildly dissatisfied	1 _____ Quite dissatisfied
------------------------------	--------------------------------	---	----------------------------------

8. If you were to seek help again, would you come back to our program?

1 _____ No, definitely not	2 _____ No, I don't think so	3 _____ Yes, I think so	4 _____ Yes, definitely
----------------------------------	------------------------------------	-------------------------------	-------------------------------

(cf. Larsen, Attkisson, Hargreaves, & Nguyen, 1979)

NURSING CLINIC/HOME VISIT STUDY
FOLLOW UP INFORMATION

Study ID# _____

☐ Home ☐ Clinic

Today's Date _____/_____/_____
(year) (month) (day)

Please complete this form by checking the appropriate box.

1. Are you still receiving home visits/going to clinic visits?

1 ☐ No If not, about what date did you stop _____

Estimated date? ☐ Yes ☐ No

2 ☐ Yes

2. Did you have any problems receiving home visits/having clinic visits?

1 ☐ No problems

2 ☐ Yes, I had some problems (Please tell us what they were)

3. Did your home visit/clinic visit interfere with your planned activities?

1 ☐ No

2 ☐ Yes (Please tell us how)

4. Did you ever have to miss a scheduled home/clinic visit?

1 ☐ No

2 ☐ Yes (Please tell us why)

5. If you had to miss a scheduled home visit/clinic visit, how did you get your treatment?

1 ☐ I phoned to cancel the visit and rescheduled the visit

2 ☐ I was not able to cancel, but telephoned to rescheduled

3 ☐ The office phoned me to reschedule my visit

4 ☐ Other (Please specify) _____

Thank-you for your assistance

Section HS
Browne et al

HS1. In the last 12 months, how many visits have you had with a:

- | | | | |
|-----|---|--------------------------|--------------------------|
| 1. | Family Physician or walk-in clinic | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. | Physician specialist | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. | Emergency room | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. | Physiotherapist | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. | Psychiatrist | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. | Psychologist | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. | Occupational Therapist | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. | Social Worker | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. | Family Counselor | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. | Children's Aid | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. | Adolescence /School Counsellor | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. | Probationary Services | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. | Child Care or Day Care Services | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. | Subsidized Day Care Services | <input type="checkbox"/> | <input type="checkbox"/> |
| 15. | Nutritionist | <input type="checkbox"/> | <input type="checkbox"/> |

- | | | | |
|-----|--------------------------------------|--------------------------|--------------------------------|
| 16. | Naturopath/homeopath | <input type="checkbox"/> | <input type="checkbox"/> |
| 17. | Public Health Nurse | <input type="checkbox"/> | <input type="checkbox"/> |
| 18. | VON | <input type="checkbox"/> | <input type="checkbox"/> |
| 19. | St. Elizabeth's Visiting Nurses | <input type="checkbox"/> | <input type="checkbox"/> |
| 20. | Chiropractor | <input type="checkbox"/> | <input type="checkbox"/> |
| 21. | Homemaker | <input type="checkbox"/> | <input type="checkbox"/> |
| 22. | Meals on Wheels | <input type="checkbox"/> | <input type="checkbox"/> |
| 23. | Employment Retraining Services | <input type="checkbox"/> | <input type="checkbox"/> |
| 24. | Recreational Services (ie. Scouts) | <input type="checkbox"/> | <input type="checkbox"/> |
| 25. | Other health care providers/services | <input type="checkbox"/> | <input type="checkbox"/> _____ |
| 26. | Other unpaid providers/helpers | <input type="checkbox"/> | <input type="checkbox"/> |
| 27. | 911 | <input type="checkbox"/> | <input type="checkbox"/> |
| 28. | Ambulance | <input type="checkbox"/> | <input type="checkbox"/> |

HS2. Have you had a hospital admission in the past 12 months? Y N

HS2a. How many hospital admissions in the last 12 months

☐☐

HS2b. Total number of days in the hospital (12 months)

☐☐☐

HS3. Have you had any out-patient tests done in the past 12 months? Y N

If yes, please tell me how many times for each of the following tests:

1. Blood

☐☐

2. Specimens (ie. urine, throat swab)

☐☐

3. Scopes (ie. endoscopy, bronchoscopy, sigmoidoscopy)

☐☐

4. X-rays

☐☐

5. Scans (ie. ultrasound, CT scan)

☐☐

6. Breathing tests (ie. spirometry)

☐☐

7. ECG (heart monitoring)

☐☐

8. EEG (brain waves)

☐☐

9. EMG (muscles)

☐☐

10. Other tests

☐☐

Please specify test:

HS4. Have you taken any medications over the past 2 days? Y N

If yes, please list any medications that you have taken in the last 2 days
(including prescription medications, over-the-counter drugs, homeopathic, etc.):

Drug name & dose _____

of pill/doses _____

Cost coded later ☐☐☐☐

Drug name & dose _____

of pill/doses _____

Cost coded later ☐☐☐☐

Drug name & dose _____

of pill/doses _____

Cost coded later ☐☐☐☐

Drug name & dose _____

of pill/doses _____

Cost coded later ☐☐☐☐

Drug name & dose _____

of pill/doses _____

Cost coded later ☐☐☐☐

Drug name & dose _____

of pill/doses _____

Cost coded later ☐☐☐☐

HS5. Have you used any supplies, aids or devices in the past 12 months Y N
(ie. wheelchairs, syringes, walker, crutches, dressings, pillows, tissues, etc.)

Item description _____

Cost to nearest \$.

Item description _____

Cost to nearest \$.

Item description _____

Cost to nearest \$.

Item description _____

Cost to nearest \$.

Due to your health, in the last 2 weeks, did you/your partner/children:

Family

ive household help

Y N

hours

ive babysitting

Y N

hours

n the last 2 weeks, did you:

Respond

vel to receive health care services
st at 30¢/km if by car)

Y N

cost

' for parking while receiving health
e services

Y N

cost

Was any time lost from your (partners) work
e to your own (partners/children's) health

Y N

hours

\$lost

As a rule, how much time do you (partner)

ve to miss from work when you go for health care visits

hours

\$lost

§10. In the last 6 months, did you (partner/children) receive any government cheques from:

	Y	N	If yes, how many	Amount of each cheque
Worker's Compensation			<input type="text"/>	\$ <input type="text"/>
Old Age Security			<input type="text"/>	\$ <input type="text"/>
Disability Pension, private			<input type="text"/>	\$ <input type="text"/>
Canada Pension			<input type="text"/>	\$ <input type="text"/>
Canada Pension, Disability			<input type="text"/>	\$ <input type="text"/>
GAINS (Guaranteed Annual Income Supplement)			<input type="text"/>	\$ <input type="text"/>
Veteran's Pension			<input type="text"/>	\$ <input type="text"/>
Baby Bonus			<input type="text"/>	\$ <input type="text"/>
Survivor Benefits (CPP)			<input type="text"/>	\$ <input type="text"/>
Unemployment Insurance			<input type="text"/>	\$ <input type="text"/>
Family Benefits Assistance			<input type="text"/>	\$ <input type="text"/>
Welfare			<input type="text"/>	\$ <input type="text"/>
Others			<input type="text"/>	\$ <input type="text"/>
please specify: _____				

IS11. Due to your health, in the last 6 months,
did you receive any other cheques
from private insurance

Y	N		\$
		<input type="text"/>	<input type="text"/>

Note to interviewers: This question refers to income from private insurance. It does not include private insurance which compensates respondents for their costs (e.g. dental insurance, supplies for colostomies etc. Supplies and devices should be entered in question HS5).

le cong. que

Nursing Clinic and Home Visit Study – Visit Form

Client ID _____ DOB (m d y) ____/____/____ Visits in Home ☐ or Clinic ☐ Clinic name _____

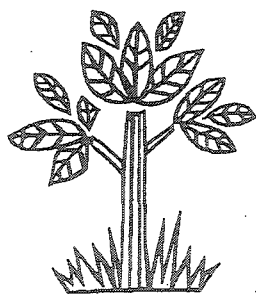
Client Name _____

Date of visit (m d y)	Start time ¹	Reason for visit ²	Primary treatment	End time ¹	Client transport ³	Transpt paid by ⁴	Travel (min.) ⁵	Docu. (min) ⁶	Nurse (init.) ⁷

- Please use 24 hour clock or indicate am or pm; count only time with the client (not travel or documentation)
- Please enter the main reason for visit DC=dressing change IV=IV therapy IN=injection O=Other (if other, please write out reason)
Please record any no-shows or cancelled visits/appointments in 'reason' section and fill in date
- Client transport - if clinic visit, how did the client get to clinic D=drove self A=Another person drove B=bus T=taxi P=ParaTranspo O=other
or just write the words if you prefer
- Transport paid by: CCAC = CCAC C= Client (or client's family etc)
- Travel time - if clinic visit, how long (in minutes) did it take *client* to get TO clinic
- if home visit, how long (in minutes) did it take *nurse* to get TO client's home
- Docu. time - please indicate how many minutes were spent documenting the visit
- Please put your initials in the last column

Notes on the Nursing Clinic/Home Visit Form

- *The Start time and End time* are the times you are with the client e.g. at a home visit, it is the time that you arrive at the clients home(start time) and the time you finish the clients care and prepare to leave (end time) , BUT count the documentation time as a separate time
e.g. in the clinic – start time and end time again is the time you are with the client, and again documentation time should be accounted for separately, But here though, if you are preparing IV's, meds etc. ahead of time – this type of client care activity needs to be accounted for – therefore you must add this time to either the start or end times
- *“Reason for Visit”*: in this section note what the actual care provided is eg DC (dressing change), IV medication, Hickman flush etc., brief, but specific is good.
- *“Primary Treatment”*: may be the same as “Reason for Visit”, if so just write “same”, however where there is a change in the clients condition, and your treatment changes from the original reason for the visit or appointment – indicate this here
- *“Travel Time”*: is for both you and the client – if a clinic visit, how long did it take for the client to get to the clinic, for a home client – how long did it take for you to get to the client's home from your previous client



Hope this helps –please give me a call if you have any questions at all !!

Chantal Bornais
Project Co-ordinator, NC/HV Study
599-4139

NURSING CLINIC STUDY

Nursing Staff Questionnaire

The Nursing Clinic Research Study is coming to a close and results are being tabulated over the next three to fourth months followed by the written report.

Nursing staff who have worked in the nursing clinics at the St. Laurent, Carling Street or Billings Bridge Nursing Clinic, are being asked to share their opinions and comparisons of caring for clients in a nursing clinic versus the home.

I would appreciate your input about your experiences. Your comments will help shape the nursing clinics of the future by providing information and suggestions for improvement.

Thank you for your help and your opinions. Your comments will be held in confidence. You are NOT obligated to sign the questionnaire

Nursing Staff Questionnaire

What are the advantages and disadvantages of working in a nursing clinic versus the home?

HOME

Advantages:

Disadvantages:

NURSING CLINIC

Advantages:

Disadvantages:

Are there different skills you need to work in the nursing clinic compared to working in the home?

Are there issues with caring for clients in the clinics?

☐ Setting up appointments:

☐ Performing treatments:

☐ Cleaning up the Clinic rooms after treatments:

☐ Arranging transportation for clients to and from the clinics: _____

☐ Documentation requirements: _____

☐ Availability of equipment and supplies: _____

☐ Other issues: _____

What do the clients tell you that they like about the clinics?

What do the clients dislike?

What do you like about working in the clinics?

What do you dislike?

☐ Where do you have a preference of working:

- ☐ Clinic
- ☐ Home
- ☐ No Preference

Nursing Questionnaire - Page 2

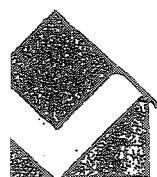
Why do you prefer one over the other? (If you have a preference)

Do you have any comments you wish to share about your experience working in the nursing clinics?

Thank you for completing the questionnaire.

Please send complete questionnaires to the following address:

Karen Lorimer
VON Ottawa Carleton
St. Laurent Shopping Centre
1200 St. Laurent, P.O. Box 205
Ottawa, Ontario
K1K 3B8



VON
CANADA

COMMUNITY CARE ACCESS CENTRE/VICTORIAN ORDER OF NURSES/
MCMASTER UNIVERSITY, NURSING CLINIC STUDY

Caring
for Life
Souti
de la Vie

Title of Study: The Effectiveness and Efficiency of Providing Home Care Visits in Nursing Clinics vs. the Traditional Home Setting.

Who is doing the study?

The Victorian Order of Nurses, Ottawa-Carleton (VON), the Community Care Access Centre (CCAC) of Ottawa-Carleton, and researchers from McMaster University.

Why are we doing this study?

To evaluate the effectiveness of providing nursing care in an easily accessible clinic setting versus providing nursing care at home.

What are we asking study participants to do?

You will be asked to fill out two questionnaires, now and in six weeks. The interviews will consist of questions related to your health status and your use of health care services. As part of the study you will receive your nursing visits, either at a nursing clinic or at your home.

Confidentiality

All answers you give in the interview are confidential. Your name will not be recorded with your answers and you will not be personally identified in any discussion or written report.

Participation

You are free to withdraw from the study at any time. If you have any further questions or decide not to participate in the study, please feel free to contact _____ (project coordinator) at telephone number _____.

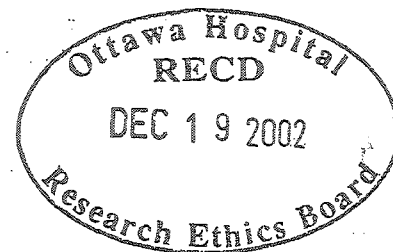
A summary of the study results will be available to study participants after _____. If you wish to have a copy of the results of the study, please let _____ (project coordinator) know and we will send one to you. The study is expected to take one year to gather the data and results.



Ottawa-Carleton
Community Care
Access Centre



Centre d'accès aux
soins communautaires
d'Ottawa-Carleton



CONSENT FOR STUDY TO COMPARE NURSING CLINIC AND HOME CARE VISITS

The purpose of the study is to see if nursing care can be delivered satisfactorily to people in a clinic setting in a shopping mall as well as in the traditional home environment.

I understand that if I am able to have my treatment in the nursing clinic at St. Laurent Shopping Centre, or Pinecrest Community Health Centre, I will be assigned to receive treatment in my home or in the clinic based on chance (similar to pulling names from a hat). If I am chosen to go to the clinic, I will be responsible for getting there. If I have no transportation, I will receive Para-Transpo or alternate arrangements.

I understand I will be asked to fill out a questionnaire upon discharge from hospital asking me about my health status. I will be asked to fill out the same questionnaire six weeks later after I have been discharged from nursing care. In addition, I will be asked if I have had any reason to see my doctor, or seek other medical attention during the six weeks after I no longer needed the clinic or home visit.

I have had the opportunity to discuss the study with the Case Manager and my questions have been answered to my satisfaction.

I understand there are no known risks or benefits to me from this study, but it will help the researchers understand if nursing clinics can serve as an alternative to traditional home care.

Information about me learned in this study will be kept confidential. My name and any other identifying particulars will not appear in any publication or be made available to anyone other than the investigators.

I consent to take part in this study, knowing that I may withdraw at any time, even after signing this form. This withdrawal will not affect any community support service I receive now or in the future, in my home or in the nursing clinics, or by any other health professional.

Client Signature

Date

Client Name (print)

I have explained the nature of this study to the client and believe he/she has understood it.

Case Manager Signature

Date

Case Manager Name (print)

If you wish additional information about this study, please call

(Valid until January 20, 2004)

NURSING CLINIC/HOME VISIT STUDY

Role of Case Manager

1. **Identify** the clients from the daily CCAC referrals who would be eligible to receive nursing services at the VON nursing clinic(s).

Clients are eligible for participation in this study if they are referred for:

IV therapy
dressing changes
medication administration
or other nursing care services applicable to the clinic setting

Clients are **not** eligible if they are:

confined to bed/immobilized
referred for palliative care
too acutely ill
requiring treatment more than once per day

2. **Provide an explanation of the study** to the client. (The Appendix attached provides a framework for your use.)

3. For those clients who **are eligible**, but **do not wish** to be part of the study:

- Complete the study referral form
- Ask the client if they would be willing to complete the "Health and Well-Being Questionnaire" (SF 36). The completed form can be returned to the VON in the stamped, addressed envelope provided. Please write the client "Study ID#" on the envelope in the space designated.
- Process the CCAC referral as per routine procedure, and also fax the Study Referral Form to the VON

4. For those clients who **are eligible** and **agree** to be part of the study:

- Have the client read and sign the "Consent for Study to Compare Nursing Clinic and Home Care Visits", and give a copy of the "Information for Clients" sheet to the client.
- Complete the "Nursing Clinics vs. Home Visit Study Referral Form"
- Obtain randomization by calling VON Clinic Admin. Assistant (Pat Lawlor), tel # and inform client of outcome. Arrange clinic appointment if client is randomized to the clinic.
- Complete the CCAC referral as per routine procedure, also fax the Study Referral Form and study consent to the VON. Please place the originals of these forms in the designated envelope located in the hospital CCAC office. The envelopes will be picked up by the Project Co-ordinator bi-weekly.

Appendix

Case Manager's Guideline

- The VON and the CCAC supported by McMaster University are conducting a study to
 - 1.) see if nursing care can be delivered satisfactorily in a clinic setting (located at Pinecrest and St. Laurent shopping centres) compared to the traditional home setting
 - 2.) determine if there is any difference in your health care needs in the 6 week period following discharge from CCAC (nursing services) whether you received care at a nursing clinic or in the home.
- It is anticipated that the VON clinic setting will be very suited to some clients in terms of scheduling their appointments
- If transportation to the clinic is a problem, the CACC/VON will provide assistance
- If you agree to participate in this study, you will be randomized to receive care in the home or in the clinic.
- All clients who participate will be asked to:
 - Sign a consent form
 - Complete a questionnaire about your health and well being 24 to 48 hours after discharge from hospital. This will be done by means of a telephone interview of approximately 15 minutes with the study Project Coordinator.
 - Agree to a home visit 6 weeks following discharge from the CCAC (nursing services) by the Project Coordinator. At this time you will be asked to complete the "Health and Well-Being Questionnaire". In addition you will be interviewed regarding your satisfaction with the nursing services you received, and what health care you received/required within the six-week period. It is anticipated that the visit would not exceed 20 – 30 minutes.
- If you choose not to participate in the study we ask that you please consider completing only the questionnaire about your health and well-being and returning it to the VON by mail (stamped, addressed envelope provided)