University of Alberta

A Community Care RN in the Emergency Department: Service Utilization and Follow-Up

by

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Abstract

This descriptive study was conceptualized as a knowledge-transfer project using a retrospective chart review. The purpose was to compare a group of patients who received standard ED care with a group who received a Community Care RN (CCRN) assessment and standard ED care on their rate of return to the ED and utilization of community-based care. The activities of a CCRN and the feasibility and results of using the ISAR screening tool were also of interest. The first hypothesis was supported: The groups were different in some health and personal characteristics. The second hypothesis was supported: The CCRN group received more primary care service and more referrals for new service than did the comparison group. The third hypothesis was not supported: The ISAR did not identify individuals at risk for repeat ED visits. This finding must be viewed with caution because of the small number screened.

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CHAPTER 1:

INTRODUCTION

Emergency department (ED) visits are increasing, and this critical part of the healthcare system is often stretched to capacity. Individuals visit EDs for many reasons. Some are acutely ill and need immediate medical attention; others may not have a primary care physician or are unable to access their family physician when necessary. The elderly account for up to 21% of ED usage (Guttman et al., 2004), and it is predicted that, as our population ages, this use will continue to grow (Voyer & Sych-Norrena, 2003). The elderly arrive at the ED requiring treatment for a worsening chronic disease or a complication arising from it. At times their ability to recover from an acute illness is affected by additional underlying chronic diseases or lack of support at home. The two potential outcomes of ED visits are admission to acute care for further treatment and treatment in the ED and direct discharge home. The processes that accompany these two outcomes are quite different.

Currently, when an individual is admitted to an acute care hospital, discharge planning may be initiated to identify the potential barriers to discharge home and the services that may be required once there. There are many examples of the benefits, complications, and outcomes of discharge planning in the acute care hospital setting, but less scientific literature on how discharge planning is considered or implemented in an ED. Referrals from an

ED setting for primary care service in the community are most often at the direction of the attending physician. Physicians in an ED setting may have limited knowledge of the services or programs that a community is able to provide, which can lead to variability in their referral practices. Individuals who could benefit may not be referred to community services if there are no guidelines or protocols to indicate when referrals are appropriate. There may also be a lack of consistency in referral patterns among physicians, and referrals may also vary depending on whether the ED is located in a primary or a tertiary care facility.

Jeffery (2003) described discharge planning as part of the hidden work of nursing. Because nurses provide a consistent presence and continuous care, which differs from the episodic care of other health professionals, they should serve as pivotal professionals in the discharge process. There are few descriptions of how nurses accomplish the work of discharge planning or the impact of that planning. Studies have reported that patients benefit from the coordination and communication of the discharge plan; however, neither nurses nor patients have identified this work as important (Jeffery, 2003; McWilliam & Wong, 1994).

This descriptive study was designed to document the services and interventions that a Community Care RN (CCRN) provided in the ED of a rural hospital and to describe the differences, if any, in the ED outcomes between two groups of patients—those who saw and those who did not see the CCRN

during a particular timeframe. The CCRN's assessment included a screening tool for some of the participants called the *Identification of Seniors as Risk* (ISAR; see the Appendix) that was developed, tested, and validated in four Montreal EDs (McCusker, Bellavance, & Cardin, n.d.). At the time of this study, there was no published literature to indicate that any rural ED had used the ISAR or any screening tool like it.

Context for the Study

The research site is located in a rural community that serves a predominantly White middle-class population of approximately 70,000 people. It is part of the large regional health authority of Capital Health, which is based in Edmonton, Alberta, Canada. Currently, approximately 38,000 people are seen each year in the ED. Built in 2000, the health centre consists of individual departments that offer primary healthcare services that include emergency, acute care, continuing care, integrated rehabilitation, respiratory therapy, mental health, public health, Community Care (home care), and nutrition. A single site leader has overall responsibility for all programs and reports to the Senior Operating Officer of Suburban/Rural Communities of Capital Health. Some family physicians from the community have admitting privileges and provide service in the ED at the facility.

The range of primary care services, the programs that the site offers, and the small size of the site are factors that enable a high level of integration and cooperation between departments. The site as a whole has a philosophy of

client-centered care that is reflected in the frequently asked question, "How can we make this work?"

The Community Care program at the site has evolved through an integration process that began when Alberta created regional health authorities in 1995. To maximize resources, many lines of communication and teamwork models for care delivery were started. In 2001, following the Broda Commission report to Alberta Health and Wellness (2000) on continuing care services in the province, the managers changed the organizational structure of the Community Care program. To implement the provincial concept of single point of entry to community and continuing care services, Community Care Intake became the first point of contact for all patients and families who were seeking Community Care or continuing care admission. Registered nurses (RNs) who worked in the Community Care Intake office became experts on supportive services in the community, all services that the health authority offered, and discharge planning in the acute care hospital. The Community Care Intake RNs were empowered to decide how to best address requests for help within the available services and programs. At the same time, a team was formed whose sole responsibilities were to assess individuals who require long-term service (of greater than three months), to determine service agreements in consultation with clients, and to arrange access to continuing care beds if required. They complete the assessment by using a standardized assessment tool to access all continuing care services. This provides the program with baseline client data

that can be used to standardize care for all recipients, to quantify future service requests, and to measure functional decline in the elderly.

The Community Care program provides a range of services to over 700 individuals. These include professional nursing services, personal care, dressing assistance, medication assistance, social work for financial issues, provision of respite, equipment, Alberta Aids to Daily living authorizations, palliative care, assessment for care and placement in continuing care or facility respite, a dementia care program, an adult day program, Healthy Aging Clinics, and an Ambulatory Clinic that has 4,000 visits annually. RNs and licensed practical nurses (LPNs) act as case coordinators who provide nursing interventions and monitoring. In-house personal support aid (PSA) staff provide direct personal care.

The RNs who work in Community Care Intake are responsible for discharge planning from the acute care hospital unit. They report to the Community Care manager onsite and are part of a multidisciplinary team that determines the potential outcomes and choices for individuals in hospital. The RN's responsibilities include the coordination of discharge plans, communication between departments onsite, and liaison with tertiary-level facilities in the remainder of the healthcare region. Administrative data maintained onsite confirm that this approach to discharge planning has been effective in reducing the length of stay in hospital. During the 10 years that this approach has been in effect, all involved health professionals have developed a

high level of comfort with the process. The hospital nursing unit relies on the support and assistance of the intake RNs, who are also available in the ED to accept referrals from ED physicians. To provide a more consistent presence in ED, in February 2006 an additional CCRN was assigned to the ED, which added a further dimension to the Community Care discharge and planning process. The CCRN is expected to participate in daily multidisciplinary rounds in the ED and to assess and screen all individuals whom the team has identified as requiring additional supportive services.

Description of the CCRN Intervention

The CCRN is based in the ED to make referrals for primary care service (i.e., geriatric assessment, rehabilitation, social work, mental health), arrange for equipment, access or increase in-home support for personal care requirements, refer for admission to the Community Care program, and request increased nursing surveillance. The CCRN assesses, plans, implements, and evaluates whether Community Care services can assist patients in returning home and managing their own care for as long as possible. The presence of a CCRN allows the ED staff to focus on the presenting health problem, knowing that the CCRN assessment and follow-up services will ensure that other details are managed appropriately.

If the individual is not currently receiving Community Care service and does not need admission to Community Care, the CCRN makes home visits to provide direct nursing surveillance for the short term. This allows for some

continuity of care for the individual and helps to relieve some anxiety for the elderly, who may expect an admission to acute care.

Significance of the Study

Adopting CCRN assessment and intervention in an ED setting has the potential to decrease the number of ED visits or acute care admissions/ readmissions. A screening tool (ISAR) was used for the first time in a rural ED setting to identify elderly who might be at risk for a return to the ED. In previous studies on the ISAR, clinical nurse specialists who were based in the acute care hospital provided nursing interventions, but the use of a CCRN in the ED was unique to this study. The ability to determine who would benefit the most from targeted programs and services, with the ultimate goal of reducing the frequency of ED use and maintaining individuals at home for as long as possible, could potentially improve our current care-delivery system.

Although individuals with the highest risk scores determined by a risk indication tool may always be high healthcare users, it is possible that those with more moderate scores will benefit the most from community interventions. Identifying those at risk at the beginning stages of their chronic health conditions may help them to remain healthier for longer. The long-term goal of CCRN screening and intervention in the ED is to increase referrals to primary healthcare providers, physicians, nursing clinics, or Community Care so that interventions are in place for people who are at risk. The outcome of this is increased use of lower-cost primary healthcare services at a stage when

interventions, education, or increased monitoring can help to slow the progression of diseases that lead to a decline in functional status. The potential benefits for individual older people include the ability to remain in their own homes longer, greater empowerment and self-care, improved self-management of chronic illness, and decreased frequency of the interventions required in an acute care setting.

This study also has significance for the nursing discipline. The professional knowledge, skills, and interventions of RNs in the discharge planning process have been described as invisible work (Jeffery, 2003). The use of a CCRN for discharge planning in the ED identified an area of nursing expertise that has not previously been explored and that can improve patient outcomes.

The purpose of this descriptive study was to compare two groups of patients, one who received standard ED care and one who received a CCRN assessment as well as standard ED care. The CCRN assessment and intervention were operationalized, and indicators for measuring the impact of this intervention on repeat ED visits and primary care service utilization were identified from clinical and administrative records. The opportunity to describe the role of a CCRN for discharge planning in the ED was unique to this study and will provide the basis for further research to illuminate an important domain of invisible nursing work.

CHAPTER 2:

LITERATURE REVIEW

The published professional literature was examined to identify gaps in the knowledge on the utilization of ED services and assessment of discharge planning from EDs for elderly individuals. The CINAHL and MedLine electronic databases were searched for articles published within the last 15 years, and the reference lists of articles cited were utilized to obtain additional pertinent articles.

Canadians are aging. By 2011 the first of the baby boomers will become 65. Currently, the elderly make up 12% of the population, which will grow to 30% by 2030 (Voyer & Sych-Norrena, 2003). The elderly visit the ED more than any other demographic (Voyer & Sych-Norrena, 2003) and are more likely to arrive at the ED via ambulance, have a higher proportion of urgent visits (Aminzadeh & Dalziel, 2002; Grief, 2003), and have a higher rate of recidivism—a return visit to the ED for the same problem—within 14 days of discharge (Grief, 2003). Older people also have a higher likelihood of being admitted to hospital, are less likely to be diagnosed accurately, experience higher rates of adverse health outcomes, and have longer ED stays (Aminzadeh & Dalziel, 2002; Grief, 2003). Frequent visits to the ED by elderly adults often indicate increasing frailty and a decline in functional status that put them at greater risk in the community (Mion et al., 2003).

For many elderly, coping with multiple chronic illnesses is a reality. Advances in treatment of chronic disease have allowed people to live longer because of slower disease progression. However, a preexisting chronic illness is often a factor in presentation to the ED either because of exacerbation of the illness or the increased risk of complications. In addition, recovery may be longer because of the presence of multiple co-morbidities.

Continuity of Care

In recent decades, integration of healthcare services has been identified as critical to improving continuity of care (Smith, Smith, Newhook, & Hobson, 2006). In the United States, the Robert Wood Johnson Foundation has supported the need to integrate all sectors of health services by funding programs with the potential to enhance care by integrating services. The foundation provides grant funding with specific prescriptive criteria that must be met to receive funding. Emergency-services integration in the US is an initiative that has led to national and regional integration (Diehl, 1999) for ambulance service and access.

In a conceptual analysis, Glenn (1996) identified discharge planning as an integral part of the continuity of health services because its process mechanism may be the essence of continuity of care. A more recent comprehensive review of the continuity-of-care literature confirmed that discharge planning is integral to the process but that there is a lack of strong theoretical models or definitions of continuity, which hinders an understanding

of the concept and the communication of findings (Zboril-Benson, 2006). Discharge planning affects continuity of care by improving communication between healthcare providers in different settings, thereby improving informational continuity and management continuity for clients.

A major barrier to defining continuity of care is the lack of strong research based on theoretical models. The models that were used were derived from the literature based in case management, discharge planning, or organizational theory (Smith et al., 2006). Sparbel and Anderson (2000) reported that there is no consistent definition of continuity of care in the literature; instead, it is a "multi-factorial concept affected by environmental influences, communication, patient, professional and system factors" (p. 17).

Communication Between Care Providers

Hospital care usually results from a specific health incident that requires a level of intervention or if care is not available in another setting. However, the care required may not end once the individual leaves hospital. Many studies have indicated that poor communication among care providers causes confusion for patients and families as well as the professionals who must continue the care in another setting (Anthony & Hudson-Barr, 1998; Bull & Kane, 1996; Bull & Roberts, 2001; Dunnion & Kelly, 2005; Jewell, 1993; Lees, 2004; McKenna, Keeney, Glenn, & Gordon, 2000; McWilliam, 1992). As early as 1999 Pringle, as well as Wells, Martin, Moorhouse, Craig, and Foley, suggested

that involving Community Care professionals in planning the discharge from hospital would improve the process.

Discharge Planning From Acute Care

An abundance of definitions is a feature of the literature on discharge planning. Kee and Borchers (1998) defined discharge planning as the "coordination of services, resources, patient education, provision of care and consultation with other disciplines and with the patient, family and friends" (p. 206) to transition the patient from one setting to another. McKeehan (1981) defined it as "the process of activities that involve the patient and a team of individuals from various disciplines working together to facilitate the transition of that patient from one environment to another" (p. 3). Both of these definitions indicate the need to assess the individual's requirements and act upon self-care deficits. Discharge planning from acute care can be complicated and time consuming, and the specific elements of the process have rarely been discussed in research reports.

The literature review conducted for this study identified 27 descriptive studies that focused on discharge planning from acute care and 10 additional studies that explored the relationships among variables that affect hospital admission and tested the implementation of an intervention to minimize repeat ED visits. Some research reported the difficulty of trying to allow individuals to be autonomous while still being sensitive to family concerns (Abramson, 1988; Dill, 1995; McWilliam, 1992). Other studies have shown that a targeted

intervention by a clinical nurse specialist or advanced practice nurse is successful in reducing the costs related to readmission to acute care or reduced ED visits (Evans & Hendricks, 1993; Kee & Borchers, 1998; McCusker et al., 2003; Naylor et al., 1999; Naylor et al., 1994; Rich et al., 1995; Schneider, 1992).

In another study Weinberger, Oddone, and Henderson (1996) reported an increase in hospital use in the intervention group, who had greater access to primary care provided by a physician and an RN team. These authors suggested that the increase in hospital use could result from the severity of the patient's illness or increased monitoring from frequent primary care contact. Weinberger et al. reported that, even though they were in hospital for more days, the individuals themselves rated their satisfaction with their care substantially higher than the control group did.

Few studies have been conducted from the perspective of the individual who is receiving the discharge plan intervention. LeClerc and Wells (2001) completed a process evaluation of an integrated model of discharge planning that showed that it was possible to implement an integrated model within acute care and that, when the model was implemented, patient satisfaction increased. Jackson (1993) noted that individuals and families often do not see the same benefit from discharge planning that hospital personnel do. Nor is there evidence that the plan directly affects the individual's health. Whereas individual satisfaction is often an identified variable, few qualitative studies have been conducted on quality-of-life issues for patients (Jackson, 1993).

In a systematic review of the literature, Shepperd, Parkes, McClaran, and Phillips (2006) concluded that

> the impact of discharge planning on readmission rates, hospital length of stay, health outcomes and cost is uncertain. This reflects a lack of power as the degree to which we could pool data was restricted by the different reported measures of outcome. It is possible that even a small reduction in length of stay, or readmission rate, could have an impact on the timeliness of subsequent admissions in a system where there is a shortage of acute hospital beds. (p. 2)

Discharge Planning From Emergency

Visits to the ED can have many possible causes, including chronic medical conditions with frequent relapse, the social and/or psychological characteristics of patients, and poor quality of care at the initial visit (McCusker, Cardin, Bellavance, & Belzile, 2000).

In the literature review conducted for this research, 11 descriptive studies on discharge planning from the ED were identified. Eleven additional studies either explored the relationship of variables that result in a return to the ED or were randomized controlled trials (RCTs) in which the researchers reported on the implementation of an intervention or screening tool. In busy EDs there may be a tendency to overlook how the patient functions at home and to treat only the urgent problem that precipitated the visit.

Lees (2004) suggested that follow ing up with a telephone call within 24 hours of an ED visit and documenting more explicit discharge plans on the chart would give patients and families more discharge information. However,

Lees also listed the following factors that are likely to reduce the need for telephone follow-up: a robust discharge process, standardization of the information given to the family and other care providers, involvement of the patient in the discharge plans, and a simple scoring system to identify those most likely to benefit from follow-up.

Aminzadeh and Dalziel (2002) reported in their literature review that only five studies have identified comprehensive geriatric assessments that were done in the ED, and only one of these used a matched control group. Some studies showed a decrease in subsequent ED visits, and others showed an increase. The authors commented that although the importance of identifying high-risk individuals in the ED was often reported, risk factors were often "poorly documented, inadequately addressed and under detected" (p. 242). Aminzadeh and Dalziel concluded that successful management of chronic conditions requires a movement away from a model of episodic disease-orientated care needs. Instead, care and interventions need to be coordinated and emphasize continuity, comprehensiveness, and integration (Aminzadeh & Dalziel, 2002).

A few examples of comprehensive assessment or models of case coordination for EDs have been reported in the literature (Mion et al., 2003). Mion et al. attempted to adapt to ED care the transitional model for home care that Naylor et al. (1999) developed. Their hypothesis was that "intervention would lead to lower 30 and 120 day rates of service use defined as subsequent

ED visits, hospitalizations or nursing home admissions: lower healthcare costs; and higher rates of community referrals among the intervention group" (p. 58). In this study the intervention required supplementation of the usual care received in ED to include a comprehensive geriatric assessment, a customized discharge plan, a faxed referral to appropriate agencies, and a summary of the plan for the individual's physician. Follow-up telephone calls determined the level of function. Mion et al. used a randomized clinical trial to complete their study in two urban teaching hospitals in a federally designated underserved community in the United States. The results demonstrated that discharge planning interventions show significantly higher rates of referral to community agencies and fewer nursing home admissions. However, there were no measurable differences in the overall service use of EDs or hospitals. The elderly involved in the process reported greater satisfaction with the ED discharge planning process. Mion et al. suggested that the overall lack of effect on subsequent ED visits and hospital use could involve several factors: (a) The original model was designed for in-patients and may not be appropriate for an outpatient setting; (b) because there was no direct contact from the advanced practice nurse after discharge, it was difficult to determine the type of service provided in the community; and (c) the acuity of the individual's illness in addition to many other existing chronic diseases might diminish the effectiveness of ED interventions (Mion et al., 2003).

In 2002 Hollander Analytical Services Limited published a report on the National Evaluation of the Cost-Effectiveness of Home Care that the Health Transition Fund of Health Canada sponsored. This national research was comprised of 15 separate substudies designed to determine whether home care (Community Care) is a cost-effective alternative to institutional care. Two studies in this evaluation report informed this literature review. Substudy 14 (Neudorf & Franko, 2001) evaluated the cost effectiveness of quick response teams (QRTs) located in EDs. These are teams that are designed to rapidly assess and determine service requirements for individuals in the ED and possibly prevent a hospital admission. Neudorf and Franko did not describe the types of professionals who may comprise a QRT or their specific activities or decisions. The results of the study show that QRTs are able to identify individuals who do not require hospitalization to have their care needs met and that the implementation of QRTs is an appropriate, client-focused method of providing access to Community Care services.

In the second substudy, number 15, Arundel and Glouberman (2001) analyzed the barriers to transferring patients from hospital to home care (Community Care) and identified six main barriers to effective patient discharge: (a) system barriers to working together, (b) family/caregiver/patient barriers, (c) geographic barriers, (d) system-management barriers, (e) constant system change, and (f) resource barriers. In addition, Arundel and Glouberman identified 11 factors in best-discharge practice that they grouped in the

categories of formal systems, relationships and informal networks, and system capacity. The authors recommended that additional research focus on the relationship between home care (Community Care) and the ED and on the importance of understanding the linkages between formal and informal care providers.

Screening Tools

Evans and Hendricks (1993) stressed the need for risk screening of high-risk elders to determine outcomes but suggested that protocols are infrequently validated. These researchers developed and tested a risk-screening tool in an acute care in-patient setting to identify patients who need help with disposition and to minimize inappropriate referrals. The intent of the tool, which includes eight variables that determine the outcome of hospitalization, was to determine the outcome risks of readmission, increased length of stay, or nursing-home placement. Evans and Hendricks designed and tested this tool on a population of in-patient male veterans. There are no other publications on the use of this tool in any setting.

In Montreal, Canada, McCusker et al. (1999) conducted a series of studies to develop, validate, and implement a screening tool for use in the ED. The tool, ISAR, has proven effective in predicting seniors who are most likely to experience functional decline, death, or admission to a nursing home or other long-term care facility. In addition, the ISAR predicts repeated visits to the ED within six months of index screening (McCusker et al., 2000). The ISAR consists

of six questions that the individual or a family member can complete in the ED. The questions have a yes-or-no format, and *yes* is a positive indicator. The tool identifies polypharmacy, vision impairment, help required at home before and after the illness/injury, the number of hospitalizations over the last six months, and memory impairment as predictors of early or frequent return to the ED. The original RCT (McCusker et al., 2003) used measures of the continuity of care and the "ISAR to identify individuals at risk for functional decline. Then high risk patients were referred to an intervention nurse who completed an evaluation of patient problems and needs and developed a discharge plan" (pp. 233-234).

Yeaw and Burlingame (2003) identified subgroups of older people who were at risk for a return visit to an ED. In identifying eight indicators that point to a referral to Community Care, the authors hoped to improve the rate of referrals. These indicators include (a) impaired mobility, (b) their living alone, (c) mental status change, (d) possible domestic violence, (e) substance abuse, (f) inadequate resources, (g) noncompliance, and (h) repeat ED visits. Yeaw and Burlingame developed a screening tool to be used in the ED to improve referrals to Community Care and reported that it was successful in identifying individuals at risk, possibly because of the benefit of creating a standardized approach to risk assessment in a difficult environment. Validation of the tool was not possible because Yeaw and Burlingame identified the study as seminal work that would need to be validated in other settings and in repeated testing.

Warburton, Parke, Church, and McCusker (2004) replicated the work of McCusker et al. (1999) and implemented the ISAR screening tool using modified ISAR questions in an ED in an integrated health region on Vancouver Island, BC. Designed as a quality-improvement implementation that uses plan-do-study-act cycles of change, Warburton et al. used the ISAR tool to identify older ED patients who were at risk and refer them to community-based services for intervention and follow-up. ED staff administered the ISAR and referred patients who received a score of 2 or higher to the required services. The authors did not report whether a physician or a nurse initiated the referrals or whether they followed a referral protocol based on the ISAR score. As a result of feedback during the implementation and consultation with the original developer of the ISAR, Warburton et al. slightly modified four questions.

Summary

In summary, both descriptive and experimental studies examined in this literature review focused on the elderly in the ED. The strongest and most recent of these studies have been RCTs that used screening to identify older people at risk for readmission to ED and intervention that involved assessment and referral to community agencies or primary care services.

If at-risk elderly are identified in the ED visit, referral to a Community Care program can result in the necessary support to increase their coping skills and level of knowledge. Indeed, Bull, Hansen, and Gross (2000) concluded that

referral to Community Care reduces the readmission rate for functionally impaired individuals compared to those who are higher functioning.

Several consistent themes emerged from all of the studies: (a) There is an increasing awareness of the need to target services to individuals at risk by using a screening tool, (b) services need to be better integrated to improve continuity of care, (c) communication between care providers and agencies needs to improve, and (d) ED care alone is expensive and not always effective. Although the literature identified various assessment tools and interventions, it did not describe the interventions themselves enough to enable replication in other settings. McCloskey et al. (1996) noted that evaluating nursing-management innovations is difficult because complex interventions lack definition, innovations are not implemented in isolation, it is difficult to obtain large samples, intervention variables are poorly defined, and the effect on staff and patients is often ignored.

The results of this literature review suggest the need for further studies to evaluate the outcomes of the interventions implemented to screen, assess, and refer older people who present to an ED in an urban setting. Two gaps in the literature were identified. First, there is not enough information in the literature on assessment, referral, and interventions in the ED. Failure to adequately operationalize the independent variables or interventions prevents the replication of studies in other settings. Second, there have been no reported

studies in rural emergency settings. The research reported in this thesis will help to develop knowledge to address these two gaps in knowledge.

The design and methods of this study are discussed in chapter 3.

CHAPTER 3:

RESEARCH DESIGN AND METHODS

A gap exists in nursing knowledge with regard to the effect of a CCRN in the ED on follow up primary care service utilization for people 50 years or older following an ED visit. Using data gathered from a retrospective review of hospital charts and administrative records, this descriptive study focused on a CCRN screening and assessment intervention in a rural ED. The study was designed to document the differences, if any, in ED outcomes between two groups of patients, those who saw and those who did not see a CCRN.

Background and Rationale

The student researcher who conducted this study became aware of a series of studies on the development of a screening tool called the *ISAR* and a nursing intervention in the ED designed to identify high-risk seniors. One study in this series showed that a nursing intervention in the ED reduced the rate of functional decline primarily as a result of the early provision of home care (McCusker et al., 2003).

Alberta EDs are experiencing multiple pressures as a result of the growing population and the shortage of professionals that are affecting all Western countries. In this context it was possible to gain support for the idea of assigning a CCRN in the ED at a rural hospital and to conduct the study reported in this thesis. The ISAR screening tool was incorporated into the

CCRN's assessments as a possible method to target services to those who would benefit the most. The nursing administration at the study site made the decision to place a CCRN in the ED for a defined period of time and to use the ISAR screening tool to identify patients at high risk for return to the ED. This decision to apply existing evidence to practice created the opportunity to conduct this study.

A CCRN was assigned to the ED for a trial period beginning on February 1, 2006, and continuing until June 30, 2006, for four hours in the morning. The hospital charts and administrative records of 108 patients that the CCRN saw during this period were available for review.

The following description of the study design includes the hypotheses, definitions, sampling strategy, setting, data-collection methods and tools, and data analysis and management. The assumptions, limitations, and protection of human rights are also discussed.

Hypotheses

The primary research objective for this study was to determine how two groups of ED patients compared in their rate of return to ED and utilization of primary care services. A secondary objective was to explore the feasibility and results of incorporating screening with the ISAR tool into the assessment process in rural ED. Three hypotheses guided the study:

1. The CCRN group will differ from the comparison group in terms of health and personal characteristics that indicate the need for primary care service.
2. The CCRN group will receive more primary care service than the comparison group will.
3. The ISAR score will help to identify individuals who are at greatest risk of a repeat ED visit.

Definitions

Health and Personal Characteristics

The clinical and administrative data available to the researcher included information about various personal and health characteristics: age, gender, marital status, living arrangements, number of medical diagnoses and medications, history of previous falls, presence of incontinence, whether the individual was already receiving Community Care service, and the ISAR score for patients who had been assessed with this standardized instrument.

Data were also available to document possible reasons for the ED visit. Theorized reasons for an ED visit were the worsening of a preexisting mental health condition, the level of social support available, the worsening of a preexisting chronic illness, pain or gastrointestinal complaints, or acute infections.

One purpose of descriptive research is to develop concepts and collect information that contributes to the design of future research. In this study it

was assumed that documenting the health and personal characteristics might help to understand any differences between the CCRN group and the comparison group. This in turn would enable the development of more refined hypotheses in future research.

The CCRN intervention was of interest in this study and was operationally defined in terms of five distinct elements:

1. A CCRN was based in the ED for specific days of the week and time periods.
2. The CCRN had a daily conference with members of the ED multidisciplinary care team to identify individuals who might benefit from a CCRN assessment.
3. The CCRN assessed the patients identified in the conference.
4. The CCRN made a discretionary decision to screen a subgroup of patients using the ISAR to determine their risk for return to the ED.
5. The CCRN made referrals to primary care services as determined by the screening and assessment.

Two outcomes were also of interest in this study: service utilization in both repeat ED visits and the primary care service received during the four months following the CCRN assessment in ED.

The following definitions of terms were used.

1. *Standard ED care*: medical assessment, diagnosis, treatment, and referral that are accompanied by nursing assessment and treatment, usually at the direction of the attending physician.
2. *Index visit*: the first time that an individual presents to the ED. During the four months following the index visit, the outcome indicators for every individual were documented and examined.
3. *Adverse health outcome*: the potential for death, admission to a nursing home or continuing care setting or long-term hospitalization, or a clinically significant decrease in functional status within six months of the ED visit (McCusker et al., 1999). Previous studies have shown that the ISAR screening tool predicts repeat ED visits and adverse health outcomes (McCusker et al., 1999).
4. *Primary healthcare*: service or services that health professionals provide that are required to maintain an individual's health at the first point of contact with the healthcare system (Merriam-Webster Online, 2004). It involves treatment, health promotion, education, monitoring, and referrals to other required services. A variety of health professionals (e.g., social worker, physiotherapist, RN, nutritionist, respiratory therapist) can offer primary care interventions in a variety of settings (e.g., in the physician's office, over the telephone, in the individual's home, in the ED, or in an

outpatient setting). The study site is considered a primary care setting.

The following indicators were measured to operationally define the outcomes following the ED visit: (a) number of days at home between the index ED visit and any subsequent visit within four months; (b) number of repeat ED visits per client counted for the four months following the index visit; (c) length of ED stay of the index visit in hours; (d) CCRN's total number of referrals; (e) CCRN's total number of referrals to each primary care service; (f) type of primary care service that the client used (RN, LPN, PSA, OT, PT, SW, other, Community Care Clinic, adult day program, geriatric assessment, Healthy Aging Clinic), reported as total minutes for each service in the four months following the index ED visit; and (g) number of days of primary care service.

Data Sources and Collection Methods for Groups

The CCRN had assessed a total of 108 individuals in the ED at the time the study commenced. When the inclusion criteria were applied to the 108 individuals, 59 remained who were over 50 years of age and resided in the service area covered by the health region; they became the CCRN group. Forty-nine individuals were excluded from the study because they were under 50 years of age or their follow-up health records were not available for review because they lived outside the health region or were members of First Nations communities.

The comparison group was then selected. Beginning with the day of the first CCRN assessment, the researcher examined the computer-based admission records for each day that the CCRN was present in the ED. From the total group of patients seen in the ED on each of these days, a person of similar age was selected as a 'match' for one person in the CCRN group. If a comparison group participant of the same age (by birth year) could not be found, then an individual closest in age was selected. Every attempt was made to match the ages of the participant in the comparison group and the subject in the CCRN group. A total of 59 individuals were selected in this manner to form the comparison group, and these two groups of 59 individuals each comprised the subjects for the study. These and subsequent steps are summarized in Figure 1.

Data for this study were extracted retrospectively from clinical, administrative, and electronic health records. The data sources and specific indicators relevant to each hypothesis are summarized in Table 1.

A number of personal and health characteristics have been identified as risk factors for the elderly (Evans & Hendricks, 1993; McCusker et al., 2000; McCusker, Healey, Bellavance, & Connolly, 1997; Warburton et al., 2004; Yeaw & Burlingame, 2003). Data on some of these factors were available for both groups. The data elements of gender, age, marital status, living arrangements, and whether the individual was currently receiving Community Care were extrapolated from the ED

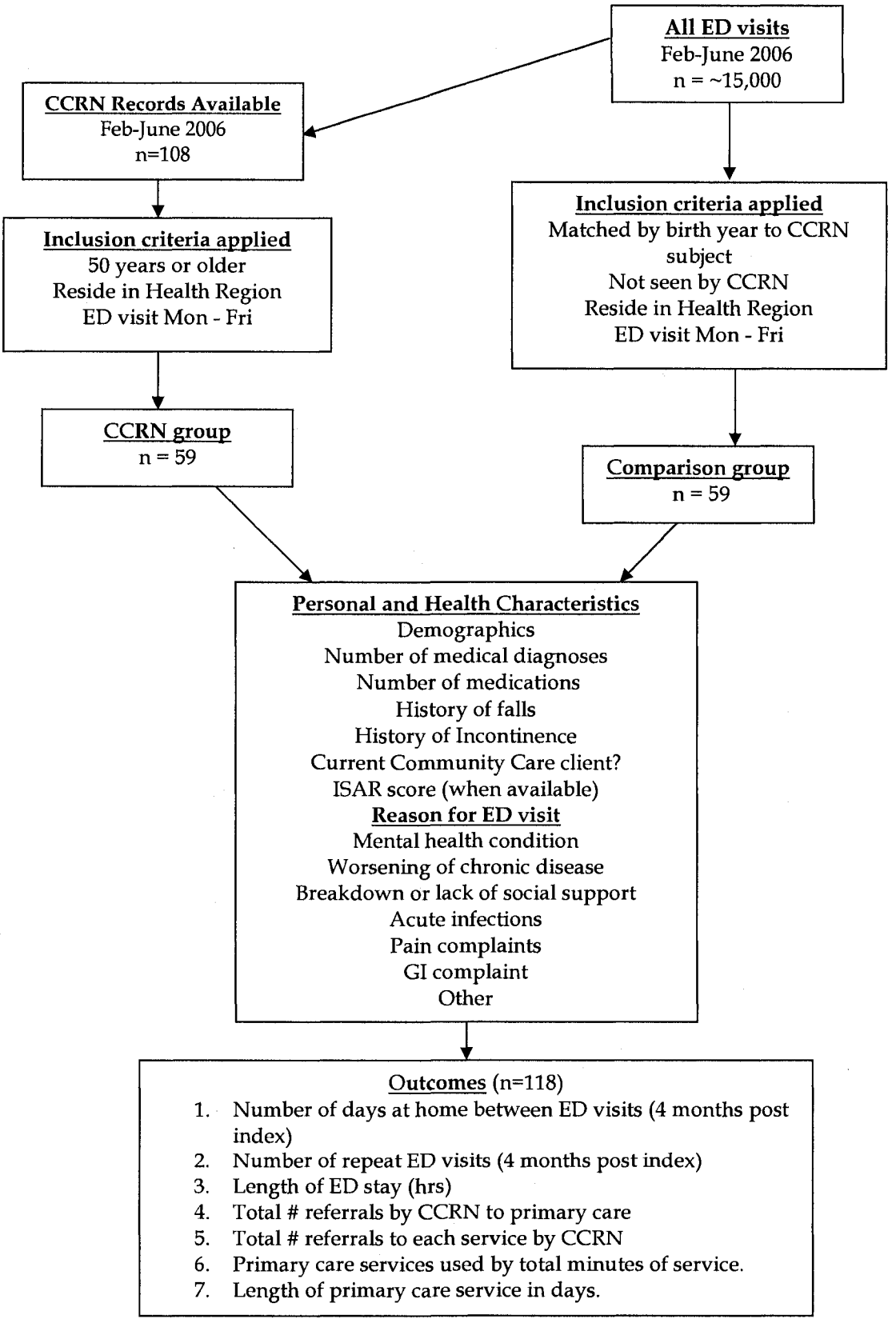


Figure 1. Research protocol.

Table 1

Summary of Data Sources

Hypothesis	Data source	Indicators
1. The CCRN group will differ from the comparison group in health and personal characteristics that indicate the need for primary care service.	ED record (C1) Community Care chart (C5)	Age Gender Marital status Living arrangements Community Care client? Reason for ED visit Documentation of incontinence History of falls Cumulative # of diagnosis documented Cumulative # medications
2. The group who saw the CCRN will receive more primary care service than the comparison group.	ED record (C1) (Multidisciplinary notes) Community Care Nursing Assessment (C4) Electronic health record (A2)	Total number CCRN referrals CCRN intervention by: Direct service (minutes) Assessment & screening (minutes) Case coordination (minutes) Total # minutes/client by CCRN Number of days at home between ED visits Number of repeat ED visits Length of ED stay (hrs) Total # referrals by CCRN to primary care Total # referrals to each service by CCRN Primary care services used by client in minutes/service Length of primary care service in days
3. The ISAR will help identify individuals who are at greatest risk of a repeat ED visit.	Community Care Nursing Assessment (C4) ISAR screening tool	ISAR screen (yes/no) ISAR score Number of days at home between ED visits Number of repeat ED visits Length of ED stay (hrs)

records and electronic administrative database. In addition, the ED record was examined to identify the reason that the individual presented to the ED, nurses' or physicians' documentation of whether the patient had experienced incontinence, whether the individual had a history of falls, and the cumulative number of medications and diagnoses listed. Indicators such as incontinence,

falls, number of medications, and number of diagnosis are associated with older people's frailty and use of health services (Evans & Hendricks, 1993; McCusker et al., 2000; McCusker et al., 1997; Warburton et al., 2004; Yeaw & Burlingame, 2003).

Data from Clinical Records

ED record. A one-page paper chart is created for each individual who presents to the ED. It includes demographics, presenting complaint, medication history, most responsible diagnosis as determined by a physician, and discharge date and time (Appendix). A Nursing Assessment and Clinical record form (Appendix) documents nursing assessments and physician-directed treatments. If required, a nursing narrative is started. Any other professional who sees, assesses, or treats patients documents their activities on a Multidisciplinary Notes form.

Community Care nursing assessment tool and ISAR. The CCRN uses a Community Care Nursing Assessment form (Appendix) that captures function, social support, history, and medications. The CCRN may have also made a clinical decision to complete the ISAR (Appendix) for specific individuals. These documents are not recognized as part of the permanent health record and are kept in the Community Care office. The CCRN summarizes the assessment, action, and plan for the patient on the Multidisciplinary Notes form that is kept with the permanent ED record. From these paper documents it was possible to

summarize the required information for this study on the summary tool that the researcher developed.

Community Care health record. If a patient already receives service through the Community Care program or is a new referral to the program, a permanent paper record is maintained onsite (Appendix) that includes nursing history and assessment, nursing care plan, medication history, physician orders, treatment or care provided, narrative notes, and a record of referrals.

Data From Electronic Heath Records

netCARE. The researcher had access to electronic records (Appendix) that captured ED visits across the region. It was therefore possible to determine whether the study subjects had presented to any ED in the Edmonton area in the four months following the index ED visit.

Medi-Patient database. Medi-Patient is a site-based electronic patient registration system that is used to document which services individuals have received. This database tracks ED visits, admissions to acute care, and referrals to other programs or departments. The researcher had access to this system in which service logs or staff activity records capture the number of hours of service provided and the number of visits. It was therefore possible to determine the service provider and the number and types of services that an individual received after referral. For the purposes of this study, a template was created to summarize the quantitative information (Appendix).

In summary, two groups of 59 subjects were compared on health and personal characteristics and the reason for their presentation to the ED, and data were extrapolated from clinical and administrative records. The groups were compared to determine whether there was any difference in primary care service utilization and repeat ED visits following the index ED visit.

Data Analysis and Management

Staff in the health region collected data for this study in the course of performing regular clinical and business procedures. The researcher analyzed the data for a six-month period from February to July 2007 using SPSS version 14 and extrapolated data for this study. Nonparametric statistical analysis and the T-test were used when required. The strategy for data analysis is summarized in Table 2.

Ethical Issues

This proposal received ethical approval from the Health Research Ethics Board of the University of Alberta and Capital Health. The study was a retrospective chart review and did not impact intervention in the ED or subsequent care. These records are the property of the site and are protected. The ISAR screening tool and other screening tools that CCRNs use do not become part of the permanent medical record and are housed in the Community Care program office. To assure anonymity and confidentiality, all identifying information was removed.

Table 2

Outcome Indicators and Data Analysis

Hypothesis & outcome indicators	Analysis
1. The CCRN group will differ from the comparison group on health and personal characteristics that indicate the need for primary care service.	Descriptive statistics of the two groups indicators using mean, standard deviation, frequency and percentage for relevant indicators
Demographics	T-test age Chi square gender and marital status
Reason for ED visit	Chi square for difference between groups
Current Community Care Client?	Chi square current Community Care client
Documentation of incontinence	Chi square history of incontinence
History of falls	Chi square history of falls
Number of Diagnosis (total #)	T test number of diagnosis between groups
Number of medications (total#)	T test number of medications between groups
2. The CCRN group will receive more primary care service than the comparison group.	Descriptive statistics of the groups using mean, standard deviation, frequency and percentage for relevant indicators
CCRN intervention by: Direct service (minutes) Assessment & screening (minutes) Case coordination (minutes) Total # minutes/client	

(table continues)

Hypothesis & outcome indicators	Analysis
Outcomes following ED visit by group	
Number of days at home between ED visits within 4 months	T test days at home
Number of repeat ED visits/client within 4 months	T test repeat ED visits
Length of ED stay (hrs)	T test length of stay
Total # referrals by CCRN to primary care Service	
Total # referrals to each service by CCRN	
Primary care services used by client in total minutes/service	
Total minutes	
Length of primary care service in days	
3. The ISAR will help identify individuals who are at greatest risk for a repeat ED visit	Descriptive statistics of the groups using mean, standard deviation
ISAR screen (yes)	
Days at home	
Repeat ED visits	

CHAPTER 4:

RESEARCH FINDINGS

This chapter reports the findings for the two groups. Statistical tests were determined based on the data properties generated by the hypotheses. Chi square with an alpha value equal to 0.05 was used to compare categorical data and the T-test to compare ordinal data; the alpha was set at 0.05.

Demographic Characteristics

The frequency and percentage distribution data and statistical comparisons of demographic and descriptive characteristics are shown in Table 3. For reporting purposes, these data are grouped in ordered categories where possible to condense the length of the table; the data analysis was conducted on the actual number or score and reported as a T-test value.

There were more females (n = 37, 62.7%) in the CCRN group than in the comparison group (n = 29, 49.2%); however, the difference is not significant ($x^2 = 2.20$, p = 0 .138). The mean age of the CCRN group was 75.4 years (range 50-94, SD 10.7), and the mean age of the comparison group was 73.5 years (range 50-97, SD 10.5). The greatest number of participants in the CCRN group were between 80 and 89 years of age (n = 24, 40.7%), whereas the greatest number of participants in the comparison group were between 70 and 79 years (n = 19, 32.3%). There is no statistical difference in the mean ages of the two groups (t = 0.957, p = 0.340).

Table 3

Frequency, Percentage, and Statistical Analysis of Demographic and Descriptive Data

	CCRN group (n = 59)		Comparison group (n = 59)			
Data	M	SD	M	SD	Chi square	T-test
Age	75.4	10.7	73.5	10.5		t = 0.957 p = 0.340
	n	%	n	%		
Age						
50-59 years	6	10.2	6	10.2		
60-69 years	9	15.0	14	23.0		
70-79 years	18	30.5	19	32.3		
80-89 years	24	40.7	18	30.5		
90+ years	2	3.4	2	3.4		
Gender					$x^2 = 2.20$	
Male	22	37.5	30	50.8	p = 0.138	
Female	37	62.7	29	49.2		
Marital status						
Single, widow, divorced	31	52.5	20	33.9	$x^2 = 4.18$ p = 0.041	
Spouse	28	47.5	39	66.1		
Living Arrangements						
Alone	24	40.7	17	28.8	$x^2 = 5.00$	
Spouse	28	47.5	39	66.1	p = 0.172	
Other family	1	1.7	0	0.0		
Supportive housing	6	10.2	3	5.1		
Current Community Care client?					$x^2 = 9.12$	
Yes	25	42.4	10	16.9	p = 0.003	
No	34	57.9	49	83.1		

(table continues)

Data	CCRN group (n = 59)		Comparison group (n = 59)		Chi square	T-test
	M	SD	M	SD		
Age	75.4	10.7	73.5	10.5		t = 0.957 p = 0.340
	n	%	n	%		
Reason for ED visit						
Worsening chronic disease	24	42.4	14	23.7	$x^2 = 4.96$	
Infection	8	13.6	11	18.7	p = 0.084	
Fall	7	11.9	7	11.9		
GI complaint	6	10.2	5	8.5		
Pain	5	8.5	5	8.5		
Other	8	13.6	17	28.9		
History of falls						
Yes	4	6.8	0	0	$x^2 = 4.14$	
Unreported	55	93.2	59	100	p = 0.042	
Incontinence						
Yes	4	6.8	1	1.7	$x^2 = 1.88$	
Unreported	55	93.2	58	98.3	p = 0.170	
	M	SD	M	SD		
Cumulative # diagnoses	4.84	12.73	2.25	1.63		t = 1.55 p = 0.124
	n	%	n	%		
Cumulative # diagnoses						
0-2	23	39.0	34	57.6		
3-5	27	45.8	21	35.6		
6-8	8	11.8	4	6.8		
missing	2	3.4				
	M	SD	M	SD		
Cumulative # medications	8.25	5.37	4.51	3.31		t = 4.56 p = 0.00
	n	%	n	%		
Cumulative # medications						
0-4	16	1.7	33	55.9		
5-9	23	3.4	20	33.9		
10-14	12	6.8	5	8.5		
15-19	4	5.1	1	1.7		
20-23	4	10.2				

Statistically significantly ($x^2 = 4.18$, p = 0.041) more individuals in the CCRN group were single, widowed, or divorced (n = 31, 52.5%) than in the comparison group (n = 20, 33.9%). In the CCRN group 52.5% of the participants lived alone (n = 31), compared to 28.8% (n = 20) in the comparison group; twice as many in the CCRN group lived in supportive housing (n = 6, 10.2%) as in the comparison group (n = 3, 5.1%). There is no statistically significant difference in living arrangements ($x^2 = 5.00$, p = 0.172). In the CCRN group 42.4% (n = 25) were receiving Community Care services prior to presentation to ED compared to only 16.9% (n = 10) in the comparison group ($x^2 = 9.12$, p = 0.003).

The most frequently cited reason for visiting the ED was a worsening chronic disease. Twenty-four (42.4%) in the CCRN group visited the ED for this reason compared to 14 (23.7%) in the comparison group. Other reasons included infections (CCRN: n = 8, 13.6%; comparison" n = 11, 18.7%), falls (CCRN: n = 7, 11.9%; comparison: n = 7, 11.9%), gastro-intestinal complaints (CCRN: n = 6, 10.2%; comparison: n = 5, 8.5%), and new onset of chest pain or other pain complaints (CCRN: n = 9, 15.3%; comparison: n = 5, 8.5%). The remaining were categorized in 'other,' which included fainting, nosebleeds, and electrolyte imbalances. In the CCRN group, 4 (6.8%) of the individuals were in this category, whereas in the comparison group it was 17 (28.9%) There is no statistical difference between the two groups in the reason for presentation to the ED ($x^2 = 4.964$, p = 0.084). This difference is approaching the significance level that the researcher set and may not be significant because of the small

numbers of individuals in each category. No participants presented to the ED for a worsening mental health condition or a breakdown or lack of social support during the study period.

In the CCRN group 4 (6.8%) had a history of falls and none in the comparison group. This difference is statistically significant ($x^2 = 4.14$, $p = 0.042$). Incontinence was documented for 4 (6.9%) of the CCRN group and 1 (1.7%) in the comparison group ($x^2 = 1.88$, $p = 0.170$).

The overall mean number of diagnoses for the CCRN group was 4.84 per patient (SD 12.7; range 0-8), whereas in the comparison group it was 2.25 diagnoses per patient (SD 1.6; range 0-7). There is no significant difference between the two groups ($t = 1.551$, $p = 0.124$) for the number of diagnosis. However, the standard deviation scores reveal a wide variation between the two groups on cumulative diagnoses. The CCRN group's standard deviation in the number of diagnoses was larger than that of the comparison group, which suggests that the statistical significance may have been precluded by the variability in the groups.

The CCRN group had a mean of 8.25 medications per patient (SD 5.4; range 0-23), whereas the comparison group had a mean of 4.51 (SD 3.3; range 0-12). This is a significant difference in the number of medications ($t = 4.559$, $p = 0.00$).

Outcomes Following ED Visit

Data on Repeated ED Visits, Days at Home, and Length of ED Stay

Data were collected from both groups to determine whether there was a difference in their outcomes following an ED. The indicators included (a) the number of days at home, (b) the number of repeat ED visits within four months post index visit, and (d) the length of ED stay. The frequency and percentage data are summarized in Table 4, and the mean, standard deviation, range and T-test data in Table 5. For reporting purposes, the data in these tables are grouped into ordered categories to compress the table length, but the data analysis involved the actual numbers or hours and were reported using the T value.

Table 4

Frequency and Percentage Data for Repeat ED Visits and Days at Home

	CCRN group (n = 59)		Comparison group (n = 59)	
Indicator	n	%	n	%
Repeat ED visits				
0-2 visits	46	78.0	52	88.1
3-5 visits	13	22.0	5	8.5
6-8 visits			2	3.4
Days at home				
0-30 days	27	45.8	17	28.8
31-60 days	8	13.5	4	6.7
32-90 days	2	3.4	2	3.4
91-120 days	21	35.6	36	61.1
Missing	1			

Table 5

Mean, Standard Deviation, Range and T-test for Repeat ED Visits, Days at Home, and Length of ED Stay

	CCRN group (n = 59)			Comparison group (n = 59)				
Indicator	Mean	SD	Range	Mean	SD	Range	*t* value	*p* value
Repeat ED visits	1.41	1.3	0-5	1.0	1.5	0-7	1.50	0.135
Days at home	58.5	47.9	1-120	81.3	50.0	1-120	-2.52	0.013
Length of stay in ED	11.5 hrs.	465.0 hrs	0.75-36 hrs.	4.1 hrs.	3.3 hrs.	0.25-16 hrs.	5.15	0.000

The descriptive data on these indicators showed that 52 (88.1%) participants in the comparison group returned to the ED once or twice compared to 46 (78.0%) in the CCRN group, and 2 people in the comparison group (3.4%) returned to the ED more than six times. The mean number of visits to the ED by the CCRN group was 1.41, compared to 1.0 visit for the comparison group. This difference is not statistically significant ($t = 1.504$, $p = 0.135$).

Twenty-seven (45.8%) participants in the CCRN group returned to the ED within 30 days compared to only 17 (28.8%) in the comparison group; and 36 (61.1%) participants in the comparison group never returned to the ED compared to 21 (35.6%) of the CCRN group. The mean number of days that the

CCRN group spent at home between ED visits was 58.5 (SD 47.9) compared to 50 (SD 50.0) for the comparison group. The comparison group stayed at home longer between ED visits, and the difference is statistically significant ($t = -2.253$, $p = 0.013$).

The mean length of ED stay for the CCRN group was 11.5 hours (SD 7.75 hrs., range 0.75-36 hrs.), compared to the comparison group's mean length of stay of 4.1 hours (SD 3.3 hrs., range 0.25-16.5 hrs.). The CCRN group spent longer in the ED, and the difference is statistically significant ($t = 6.756$. $p = 0.00$) with.

Interventions by the Community Care RN

The CCRN assessed and screened the CCRN group for Community Care or other primary care services. If the individuals were already receiving Community Care, the amount of service that they were receiving was determined in a patient interview and an administrative record check. The CCRN could then decide to provide more service if required. The CCRN recorded the time spent doing the assessment and screening in 10-minute blocks in the electronic database. In addition, a subgroup of patients ($n = 25$) received an ISAR screen to determine their potential risk for an adverse outcome or repeat ED visit. In the first month of the implementation the CCRN did not enter the time in the electronic database, and therefore one month's data on the time spent assessing and screening these individuals in the ED are

absent. The assessment and CCRN time are reported in Table 6 as 'missing data.'

With regard to the total minutes of CCRN intervention, the largest grouping of study participants (n = 26, 44.2%) received between 60 and 120 minutes. The mean total time, which included screening, assessment, and care-coordination activities, was 66.6 (SD 26.5) minutes. These data are summarized in Table 6.

Table 6

CCRN Minutes of Intervention

CCRN group (n = 59)	n	%
Assess and screen		
0-30 min	9	18.7
31-60 min	37	62.9
61-80 min	2	3.4
Missing	9	15.3
Case coordination		
0-20 min	7	11.9
21-40 min	20	33.9
41-60 min	5	8.5
Missing	27	45.8
Total minutes/client		
Mean time (n = 49)	67.9	39.1
0-60 min	23	44.2
61-120 min	26	1.7
121+ min	1	15.3
Missing	9	15.3

ISAR Screening Results

The CCRN used the ISAR to screen only 25 of the 59 individuals whom she assessed because the tool was designed and tested for individuals over the age of 65. Because this study included participants over 50, it was not appropriate to screen them using the ISAR. In addition, if they were already receiving service from Community Care, they would have been identified as higher risk by the program. Of the 25 individuals screened, 68.0% received a score of 2 or greater, which indicates a high risk for a repeat ED visit. Table 7 summarizes the ISAR scores in terms of frequency and percents, and Table 8 presents the mean number of repeat ED visits and the mean number of days at home between ED visits for the 25 individuals screened.

Table 7

ISAR Score Results

ISAR score (n = 25) (possible 6)	n	%
Low risk		
0	1	4.0
1	7	28.0
High risk		
2	5	20.0
3	7	28.0
4	5	20.0

Table 8

Comparison of ISAR score to Repeat ED Visits and Days at Home

	# of ED visits		Days at home	
ISAR score	M	SD	M	SD
Low risk (n = 8) Score 0, 1	1.12	1.13	81.5	48.58
High risk (n = 17) Score 2 or >	1.05	1.27	59.0	52.54

Eight out of 25 individuals who were screened using the ISAR received a score of 0 or 1, which suggests low risk of a repeat ED visit. Scores for the remaining 17 individuals varied from 2 to 4. Those with higher ISAR scores returned to the ED less frequently (1.05 compared to 1.12) but spent fewer days at home between those visits (59.0 compared to 81.5) than did those with lower risk scores. These findings raise questions that this study was unable to answer given the small numbers of individuals screened with the ISAR. All available data for those screened with the ISAR were visually inspected in an effort to better understand these findings. Although the ISAR was not developed to predict the number of days at home between ED visits, it can be theorized that high ISAR scores indicate a greater frequency of presentation to the ED, which means that these individuals would also spend fewer days at home between the ED visits. These two findings are contradictory, which could be a reflection of the weighting for each of the 17 individuals when the means for the small number of subjects in this subgroup were calculated.

Total Number of CCRN Referrals

For the 59 patients whom the CCRN saw in the ED, there was a total of 59 referrals (range 0-2) for primary care service. Not all individuals received a referral, some received more than one, and 16 (27.0%) were new referrals to primary healthcare. There were no new referrals to additional primary care services in the comparison group who received standard ED care.

Minutes of Primary Care Service Provided

The data on the number of minutes and the type of primary care service provided were collected from the electronic database in the four months after the index ED visit (Table 9). Of the individuals whom the CCRN screened, 42.0% (n = 25) were already receiving service from Community Care, and 27.0% (n = 16) had referrals to initiate primary care service. Fourteen of these referrals were for services that the Community Care program provides. Not all individuals received service from all provider types, and some received service from more than one type of provider. In Table 9 the number of people who received each service is listed in parentheses beside the type of service provided, and the mean number of minutes of service is included.

Table 9

Comparison of Primary Care Service Received After CCRN Referral

Primary care service type	CCRN group (n = 59)		Comparison group (n = 59)
	Current Community Care client (n = 25)	New referrals for primary care (n = 16)	Current Community Care client (n = 10)
Nursing (min)	(n = 16)	(n = 10)	(n = 5)
Mean	555.1	727.0	441.0
Standard deviation	408.9	908.0	245.0
PSA (min)	(n = 13)	(n = 3)	(n = 6)
Mean	1778.0	1165.0	1903.0
Standard deviation	1947.5	1255.1	1291.0
Social Work (min)	(n = 2)	(n = 2)	(n = 0)
Mean	55.0	15.0	
Standard deviation	77.78	21.2	
Community Care Clinic (min)	(n = 3)	(n = 2)	(n = 0)
Mean	212.0	279.0	
Standard deviation	130.7	9.9	
Geriatric assessment (min)	(n = 2)	(n = 0)	(n = 0)
Mean	107.5		
Standard deviation	38.8		
CARES assessment (min)	(n = 3)	(n = 1)	(n = 1)
Mean	270.0	33.0	45.0
Standard deviation	164.6	33.0	45.0
Respiratory (min)	(n = 0)	(n = 1)	(n = 0)
Mean		60.0	
Standard deviation			

(table continues)

Primary care service type	CCRN group (n = 59)		Comparison group (n = 59)
	Current Community Care client (n = 25)	New referrals for primary care (n = 16)	Current Community Care client (n = 10)
Occupational therapy (min)	(n = 3)	(n = 2)	(n = 0)
Mean	148.0	117.5	
Standard deviation	80.8	109.6	
Physiotherapy (min)	(n = 1)	(n = 0)	(n = 0)
Mean	50.0		
Standard deviation			
Total minutes primary care	(n = 25)	(n = 16)	(n = 9)
Mean	1716.7	789.2	1634.0
Standard deviation	1821.9	1131.8	1565.0
Length of primary care service (days)			
Mean	99.7	56.8	120.0
Standard deviation	38.5	48.6	120.0

The CCRN group who received new referrals for additional follow-up primary care service received a mean of 727.0 minutes (SD 908.0) of nursing service and a mean 1165.0 minutes of PSA service (SD 1255.2). Overall, the new referral group received a greater mean number of minutes of nursing service following the initiation of Community Care than did the group who were already receiving service prior to the ED visit.

In the comparison group 10 individuals were already receiving Community Care service prior to the ED visit and continued to receive this service after the ED visit. In the four months following the index visit these

individuals received a mean of 441.0 minutes of nursing and a mean of 1903.0 minutes of PSA service. There was no documentation of new referrals to Community Care, integrated rehabilitation, family physicians, or other primary care service for the comparison group. Overall, the CCRN group received more primary care service than the comparison group did from a variety of professionals in the four months following the index ED visit, and four individuals in the CCRN group were referred for follow-up with their own family physician. There was no documentation in the ER record of referrals to family physician for follow-up in the comparison group.

Summary

The research results support the first hypothesis: The groups differed on some health and personal characteristics. There were no differences between the two groups in age or gender; however, more members of the CCRN group were single. They also had a significantly higher number of cumulative medications and were already receiving service from Community Care when they were seen in the ED. The cumulative diagnosis did not reach a significance level, but the standard deviations were very different between the two groups, which might be a result of the small number of participants in the study.

The second hypothesis was also supported: The CCRN group received more primary care service. The CCRN made a total of 59 referrals to primary care service and 16 new referrals to initiate primary care following the ED visit compared to none in the comparison group. There was no significant difference

between the two groups in the number of repeat ED visits, but the CCRN group spent significantly longer periods of time in the ED and had fewer days at home between ED visits than did the comparison group. The number of minutes of primary care service that Community Care provided following the ED visit indicates that a large amount of care is being provided in the community that might otherwise have been offered in the ED or in an acute care hospital bed.

The second hypothesis was also supported in that the CCRN group received more primary care service. Individuals whom the ISAR score identified as high risk made fewer ED visits than did those who were low risk. This finding should be viewed with caution because the low number of individuals who were screened using the ISAR might have yielded atypical results. The expert RN's discretionary decision to use the ISAR can be viewed as demonstrating appropriate assessment and clinical decision making. These results are discussed in greater detail in chapter 5.

CHAPTER 5:

DISCUSSION OF FINDINGS

In this chapter the findings of the study are discussed in terms of the hypotheses, and significant and nonsignificant findings are summarized and interpreted in relation to the research literature. Some of the researcher's anecdotal observations are also included.

Hypothesis 1

It was hypothesised that the two groups who saw or did not see the CCRN would differ in terms of health and personal characteristics that indicate the need for primary care service. There was no significant difference in age and gender, but significantly more individuals in the CCRN group were single, widowed, or divorced than in the comparison group, and more in the CCRN group were already receiving Community Care service. This usually indicates a diminished capacity for self-care and the need for increased primary care service.

With regard to health indicators, the CCRN group showed a significantly higher number of medications than the comparison group did. However, there was no difference between the two groups in the cumulative number of diagnoses. Even though there was no significance in the number of chronic diseases, 35 individuals (21.0%) in the CCRN group had 3-8 diagnoses, compared to 25 (15.0%) individuals in the comparison group. These numbers

indicate a higher burden of multiple chronic diseases in the CCRN group even though the statistical analysis did not identify it as significant. This group's higher number of ED visits can be attributed to increasing frailty and their compromised ability to recover quickly from an acute or chronic episode of illness.

Most of the elderly whose ED experiences were documented in this study were there for treatment of an acute health problem. Many of these problems might have been managed in a family physician's office; however, presentation to the ED for this type of care is consistent with the findings in the literature of the increasing number of people who are accessing primary care services in the ED (Einstadter, Cebul, & Franta, 1996).

For both the CCRN and the comparison group, the most frequent reason for visiting the ED was the exacerbation of an existing chronic disease. The second most common reason was infections and gastrointestinal complaints. Presentation to the ED for these issues may indicate an inability to immediately access family physicians. In addition, the elderly may delay seeking treatment at the onset of a problem for many reasons, and by the time they seek medical advice, the problem can be more intense and have a greater impact on daily functioning.

In the CCRN group 16 out of 34 (47.0%) individuals who were not already receiving service from Community Care received a referral to initiate primary care. Through the assessment process, the CCRN in the ED identified

this group of individuals who were at risk and facilitated their access to primary care. There was no corresponding increase in primary care referrals in the comparison group.

Incontinence was documented for more individuals in the CCRN group (4 vs. 1). Because incontinence may be managed on a daily basis primarily within a home setting, a CCRN may identify this problem more frequently, or it may be documented on the Community Care chart to which the CCRN had access. This lack of attention to incontinence in the ED is likely a result of the single-problem focus of the delivery of care in the ED. Even though incontinence may be an underlying indication of risk or fragility, it may not be possible to address the management of this problem in the ED. However, failure to address this issue may lead to other more acute health conditions.

A history of falls was documented in the ED record for more individuals in the CCRN group of (4 vs. 0). Frequent falls can be an indicator of the elderly's increasing difficulty with mobility. Frequent falls also put individuals at greater risk of injury due to the fall itself.

The data support the hypothesis that the groups were intrinsically different from each other in that the CCRN group's health and personal characteristics indicated possible poor health status or other risk factors. This is to be expected because more of the CCRN group were already receiving Community Care service (25 vs. 10), which is the first step into continuing care; it is therefore reasonable to assume that those individuals who were already

receiving service or were identified as requiring more service were already more at risk than were those in the comparison group.

Hypothesis 2

CCRN Activities and Decisions

It was hypothesised that the CCRN group would receive more primary care service than the comparison group. The CCRN group received CCRN assessment, screening, and case coordination during the ED visit. On average, the CCRN spent 67.96 minutes per client in the assessment process (range, 0-140 minutes). Neidlinger, Scroggins, and Kennedy (1987) reported a similar average time of 60 minutes for a geriatric clinical nurse specialist to complete an assessment. This time was based on the CCRN's recollection and was entered into the administrative database. It is possible that the time might have varied because of the subjective way in which the workload is measured. However, the activities of the CCRN are time consuming because they include a focused interview with the individual or family members, documentation of the results of the assessment for other care providers, and the necessary follow-up to ensure that the care provider is informed of the suggested services to which the individual agrees.

Of the 59 individuals whom the CCRN screened, 28 (47.5%) were admitted to the hospital. The placement of a CCRN in the ED might be expected to prevent unnecessary admissions to the hospital, but the role also involves identifying individuals who require greater levels of service than are

available in a community setting. The literature reported that early discharge planning is the most effective and that it should begin at first point of contact with the healthcare system (Brewer & Jackson, 1997; Romania, 2006; Walsh, 1999; Walsh & Greenwood, 2003). Although the individuals who were screened and then admitted to the hospital may not have received all of the services that the CCRN offers, there was extensive communication between the ED CCRN and the intake RNs who offer discharge planning services from the in-patient hospital beds. This exchange of information allows the intake RNs to spend less time on the initial assessment and to improve the continuity of information and their ability to assess the patient's discharge readiness to facilitate a timely and efficient discharge. The effects of the CCRN's presence in ED might have been diluted by the fact that these individuals were admitted to hospital and received discharge planning services from the Community Care Intake RNs. However, if the researcher had excluded these individuals, the CCRN group size would have been considerably smaller.

The CCRN group was more likely to receive referrals for follow-up care to other primary care services following the ED visit. It can be postulated that because the CCRN sent new referrals for 16 (27.0%) of the CCRN group, the same percentage of the comparison group could benefit from Community Care. This suggests the possibility that physicians have different referral patterns and lack knowledge on available Community Care services (Dukkers van Emden, Ros, & Berns, 1999) and/or that acute care staff underestimate unmet needs

(Bowles, Naylor, & Foust, 2002; Mamon et al., 1992). The CCRN also often sent multiple referrals per individual to other providers based on the assessed need, which thereby improved the speed of access to required services and increased the efficiency of the delivery of these services.

Understanding of Primary Care Services by ED Staff

Previous to the presence of a CCRN in the ED, there was a lack of understanding of the level of care that the community could support. Referrals for care were often made that were beyond the ability of the nursing and PSA staff to manage. However, ED staff now understand better the level of care that they can support and acknowledge that, even with the maximum care that the program can provide, individuals may still return to the ED. Community Care staff have identified EDs and hospitals as the resources that families should access when their care needs exceed their resources and those of Community Care programs. Meeting care needs at home is a complex dance that requires high levels of coordination and cooperation between formal and informal supports. Successful maintenance of individuals with high care needs in the community requires all participants' active and willing involvement and a common understanding of the goal. When one aspect of this supportive circle fails, the end results are often presentation to the ED and the need for hospitalization.

Primary Care Service Following ED Visit

On average, the individuals who were already Community Care clients received 555.0 minutes of nursing service in the four months following the ED visit. As well, the PSA staff spent a great deal of time on personal assistance—an average of 1,778.0 minutes. Ten of the individuals who were newly referred to Community Care received an average of 727.0 nursing minutes, and three received 1,165.0 minutes of PSA service. In addition, two clients referred to Community Care Clinic received 279.0 minutes of nursing service. The Community Care Clinic provides ambulatory care for intravenous infusions, home IV therapy teaching, wound care, and a number of other services. Individuals who received care in the clinic might have required this additional service from the ED if the clinic had not been available. The CCRN screening might have decreased the number of repeat ED presentations for these clients by identifying other programs that could help them to manage their health needs at home or in a clinic setting. The cost of providing this service in a setting other than the ED would be less than that of providing care in the ED.

Because the two groups were compared using multiple statistical tests, it is possible that some of the results occurred by chance alone. However, the descriptive statistics are in the predicted direction, which has led the researcher to believe that the significant findings were not a result of chance alone.

Hypothesis 3

It was hypothesised that the ISAR would help to identify individuals who are at risk of a repeat ED visit. The ISAR data must be interpreted in relation to the purposes and structure of the screening tool that the original researchers developed. They chose a cut-off score of 2 or greater because they determined that, with this cut-off, the ISAR would predict that 51.0% of individuals who received a score of 2 or greater would truly be at risk for an adverse outcome (a true positive). Therefore, 49.0% who screened at risk (2 or greater) would not be at risk for an adverse outcome (a false positive; McCusker et al., n.d.). Setting the cut-off score at 3, 4, or higher would increase the number of true positives (by 60.0% or 70.0%, respectively) and decrease the numbers of false positives. The researcher set the cut-off score at 2 to capture the great number of individuals who might have been at risk, with the idea of aiming for successful discharge and preventing repeat presentations to the ED. This allowed more people to receive information about the services available through the Community Care program to educate them in case of future issues.

The ISAR also has a sensitivity rating. With a cut-off score of 2 or higher, 75.0% of the individuals who develop an adverse outcome would have screened positive (a true positive). However, 25.0% would not have been identified (a false negative). Increasing the cut-off score would decrease the sensitivity of the tool, and in this study the researcher felt that there was more

value in keeping the sensitivity as high as possible to identify the greatest number of individuals at risk.

Of the 25 clients who were screened using the tool, those identified as low risk (n = 8) had a slightly higher number of return ED visits (1.2 vs. 1.05) but, on average, spent more days at home (81.5 days vs. 59.0 days) between visits than did the high-risk individuals. This finding was not expected, and it is possible that the screening tool did not identify these individuals as high risk; in other words, these individuals were false negatives. In addition, the individuals themselves completed the screen, which could have resulted in subjective bias or underreporting. Other possible explanations for this finding are that these individuals had health problems that were not being optimally managed or that they had no access to family physician support for ongoing evaluation and treatment. Moreover, nonprofessional staff (PSA) more frequently observe the day-to-day functioning over time of individuals who receive Community Care services, and/or nurses more frequently monitor them to identify problems in the initial stages that may lead to early evaluation by a physician. These individuals may also have a frailer health status overall, which causes them to decompensate quickly with the addition of a new health challenge. The Community Care program is considered the first step in accessing continuing care, and individuals on the program are supported at home for as long as possible to delay admission to continuing care. Therefore, it is possible that these individuals were close to reaching the maximum

community support available and required access to the increased levels of care and monitoring that a hospital facility offers.

Another unexpected finding was that the 11 individuals who scored as high risk on the ISAR had the fewest repeat ED visits. The small number of people screened may have been atypical on indicators that were not measured in this study. For example, they may have had higher levels of family and community support, which would enable them to manage at home despite health and personal characteristics that indicate high risk. This highlights the importance of collecting information on the type and availability of family and community support at the time of the ED assessment and in Community Care planning. Future research using the ISAR and evaluating ED and Community Care outcomes should include a measurement of this indicator. Intuitively, one can assume that the availability of family and community support is likely to be an important factor that enables people with chronic illness to manage at home for longer periods of time. These individuals may also belong in the false positive group when the ISAR tool is used.

Previous studies have shown mixed results on the attempt to contain the costs associated with admission to the hospital, repeat use of hospital EDs, or placement in nursing homes (Guttman et al., 2004; McCusker et al., 2003; McCusker, Jacobs, et al., 2003; Mion et al., 2003; Naylor et al., 1999; Naylor et al., 1994). Individuals with a high ISAR score might not be successful in decreasing their use of acute care because of the extent of their disease and its impact on

their functional capacity and ability to cope. However, an examination of screening from a health-promotion perspective reveals that individuals with a mid-range score might benefit the most over the long term from primary care interventions. Learning to access services, recognizing the danger signs, and having contact names before a crisis occurs could help to prevent acute episodes and ED admissions.

Unique Features of the Study

One of the unique aspects of this study was its focus on the elements of CCRN intervention in the ED. Researchers and clinical experts have pointed out that a lack of operational definitions of the variables makes it difficult to replicate the work in other settings. Hebert, Tourigny, and Gagnon (2005) suggested that continuity of services is the ultimate goal of integration. Somme, Hebert, Bravo, and Blanchard (2005) recommended the development of an individual service plan (ISP) with a set of seven standard elements that address all unmet care needs. Standardization of these elements will improve the continuity of care and inform all providers of the needs of the individual (Somme et al., 2005). A CCRN in the ED has the ability to improve continuity of services and develop an ISP for individuals with a format that is familiar to Community Care nursing staff and that they can operationalize quickly within the program. This eliminates the need to spend time on the same assessment in the community and makes more efficient use of community nurses' time because all of the necessary information to provide the care arrives with the

referral. Improved communication among care providers has repeatedly been identified as vital to the ongoing care of a client. Examining the activities and decision making of the CCRN in this study may assist researchers and program managers in other studies and settings to replicate this research.

Another unique aspect of this study has been the quantification of the amount of time that the CCRN spends on these activities. This presents an opportunity for program planning and resource allocation onsite and could enable financial modelling that, in turn, could help to compare the costs and outcomes of more than one intervention in future studies.

Interpretation of Findings Using Recent Literature

The use of a screening tool improves the identification of people who are at risk for adverse outcomes in an ED. Mamon et al. (1992) concluded that 97% of individuals over 60 years of age leave the hospital with unmet aftercare needs and that there is a need for better coordination and access to community services. The findings of this current study support those of Mamon et al. that the presence of a CCRN in the ED leads to higher utilization of Community Care and other primary care services. In addition, integrating primary care services within the sites improves access to all required services to address patients' unmet care needs.

Since the initiation of this study other researchers have evaluated the use of a discharge planner in the ED. There have been many anecdotal reports of the addition of a case manager to EDs in the United States to assist with

managed care programs, reduce discharge risk, improve patient and family after-hours access to care, improve communication, facilitate access to resources, improve patient outcomes, improve patient flow through EDs, and initiate early discharge planning (Brewer & Jackson, 1997; Romania, 2006; Walsh, 1999; Walsh & Greenwood, 2003). These case managers are usually employees of the acute care hospital itself. In addition, some researchers have evaluated the use of a community-based RN assigned to an ED as a discharge planner.

In the Netherlands, Dukkers van Emden et al. (1999) conducted a descriptive study based on a nationwide hospital survey as well as a critical review of studies that evaluated the effectiveness of initiatives involving a discharge professional. The type of professional in this role varied, and 70% were employed by a Community Care agency. These researchers sent a survey to hospitals in the Netherlands and found that 48% had a discharge professional within the hospital setting, but not specifically in the ED. The most common reason for the creation of this role was the problems associated with discharge (83%) and referral to community-based care (Dukkers van Emden et al., 1999). Forty-one percent of the hospitals cited a lack of knowledge of community services within the hospital. In introducing this role, 89% of hospitals hoped to improve the quality of their discharge process, and 71% hoped to achieve a more efficient process.

Overall evaluations of the role of the discharge professional were inconclusive because of the quality of the evaluations and the small numbers completed (Dukkers van Emden et al., 1999). With regard to the objective of improving knowledge of community-based services, hospital nurses assessed the value of the discharge liaison nurse very favourably, and all evaluation studies recommended that the function be maintained (Dukkers van Emden et al., 1999) even though no conclusions could be drawn about the indicators of improved quality of care or an efficient discharge process.

Three studies from Australia focused on ED discharge planning. Arendts, MacKenzie, and Lee (2006) used a survey study design to prospectively determine the adequacy of discharge planning and patient satisfaction on an emergency short-stay unit with a maximum length of stay of 24 hours. Although 85% of the patients reported that they had received adequate discharge information, Arendts et al. pointed out that the hospital had a re-presentation rate of 13% and a readmission rate of 9% for the same medical problem, which means that the discharge information or planning might have been suboptimal.

In the second study, Moss et al. (2002) described the implementation of a care coordination team (CCT) that was designed to "ensure ED patients are provided with services to facilitate their return to, or maintenance in, the community" (p. 427). The planning committee developed an algorithm and risk-screening method to help RNs in the ED triage identify at-risk populations.

For these individuals, the CCT comprehensively assesses the discharge risks and evaluates the services required at home. The team gives priority to ED patients, but will also plan discharges for hospital in-patients (Moss et al., 2002). The results showed a significant decrease in the number of patients admitted from the ED ($x^2 = 27.7$, $p = <0.001$) and a significant decrease in the number of patients who re-presented to the ED ($x^2 = 1.19$, $p = 0.28$). In addition, the survey results showed evidence of staff and patient satisfaction with the process following discharge (Moss et al., 2002).

At a third Australia site Hegney et al. (2006) utilized a before-and-after study design modeled on the previous work of Moss et al. (2002) in which a specialist community nurse conducted risk screening in the ED that was modeled on previous work (Aminzadeh & Dalziel, 2002; McCusker et al., 2001; Mion et al., 2003; Moss et al., 2002; Naylor et al., 1994). The community RN acted as a liaison between the ED and Community Care services, and the Community Care staff conducted follow-up assessments and carried out the required care. The results of Hegney et al.'s study showed a significant difference in the rate of re-presentation to the ED ($x^2 = 15.59$, $p = <0.001$) and readmission ($x^2 = 4.60$, $p = <0.05$) and a decrease in the average length of stay from 7.8 days to ~3.4 days. The authors concluded that the early identification of real or perceived issues through a risk-screening process could have decreased the pattern of repeated ED visits for some individuals.

These findings are congruent with the findings reported in this thesis. Community Care RNs are beginning to be assigned to ED settings to bridge the transition from hospital to home. The findings from this study show that higher numbers of referrals to Community Care service occurred when a CCRN was in the ED. However, there was not a significant impact on the two groups' utilization of ED services because both groups re-presented to the ED following the index visit.

In summary, as the planning and analysis of the research data reported in this thesis were underway, the issue of the elderly in ED continued to be the focus of other research. The findings of this study are congruent with those of newly published studies in many respects. However, as this report is being completed, no other studies conducted in rural hospitals have been published. None of the other studies have focused on the elements and decision making of the CCRN intervention that has been the focus of this study. There is growing support for such a role in ED.

CHAPTER 6:

CONCLUSIONS AND RECOMMENDATIONS

The objective of this research was to determine how two groups of ED patients compared in their rate of return to the ED and utilization of community-based services. An additional purpose of this descriptive study was to document the roles and activities of a CCRN who completed assessments and planned interventions in an ED. The feasibility and results of using the ISAR screening tool were also of interest. The activities of the CCRN were discussed, and clinical and administrative records helped to identify indicators that measured the impact of this intervention on repeat ED visits and primary care service utilization. This study also documented characteristics of the elderly whom the CCRN had screened in a rural primary care ED. The following three hypotheses guided this study:

1. The CCRN group will differ from the comparison group in health and personal characteristics that indicate the need for primary care service.
2. The CCRN group will receive more primary care service than the comparison group will.
3. The ISAR score will help identify individuals who are at risk of a repeat ED visit.

Examples of Knowledge Transfer

Implementation of the CCRN intervention at the research site can be viewed as a positive example of knowledge transfer. Anecdotal and some research evidence pointed to the potential value of this role. However, there was no previously documented description of the role.

The implementation of the ISAR screening tool is also an example of knowledge transfer. This tool was developed and tested in a series of progressively rigorous studies and predicted repeat ED visits in an RCT. There was reason to expect that the ISAR would be a useful screening tool, but no reported evidence of its prior use in a rural ED.

Leaders and clinicians in the research setting were receptive to utilizing existing knowledge by introducing the CCRN role and adding the ISAR score to the clinical documentation. Although not a research finding, this application of evidence to practice can be considered an important contribution of this study.

Continuity of Care

Continuity of nursing care, which is a fundamental aspect of quality of care and a factor in patient safety, has three key components: (a) the ability to link the care required over time and between settings, (b) the ability to transfer the required information between settings to provide care, and (c) the ability to coordinate activities between nurses and other healthcare professionals (Zboril-Benson, 2006).

Bowles, Naylor, and Foust (2002b) conducted a secondary analysis of the data from a previous study by using a descriptive case study design to determine patient characteristics and home-care referral decisions. These authors compared the characteristics of in-patients who either received or did not receive a home-care referral on discharge from hospital and found that 96 of 99 were discharged without a referral but had unmet discharge needs. They concluded that there is a need for the accurate determination of patient care needs, skill in making decisions, improved communication within and across systems, and the clarification of role expectations and accountability.

The need to transition patients between settings has led some researchers to advocate for the development of hospital-based nurses who are familiar with both acute care and community settings (Anderson & Helms, 1993; Hofmeyer & Clare, 1999). Anderson and Helms reported that community agencies receive more information when the patient's length of stay is longer, which is likely a result of their having more time to identify unmet care needs and make referrals to community-based services. The short length of stay in the ED increases the likelihood that patients' needs may remain unidentified. Smith et al. (2006) considered the integration of healthcare services critical to improving the continuity of care. Sparbel and Anderson (2001) defined *continuity of care* as a "multi-factorial concept affected by environmental influences, communication, patient, professional and system factors" (p. 17), and Reid, Haggerty, and McKendry (2002) identified three types of continuity:

informational, relational, and management. Discharge planning, according to Glenn (1996), is a mechanism that may contribute to continuity of care.

Researchers in the Listen, Innovate, Navigate, Connect, and Share (LINCS) program, which is based in the Faculty of Nursing, University of Alberta, developed a conceptual model to determine how policy and management decisions can improve person-centered continuity of care (Smith et al., 2006, p. 87). Smith et al. contended that conceptualizing the interactions among the determinants of health, at-risk populations, locations/settings, organizational values, and system capacity enhances the ability to study the impact of such variables on health status and health-service outcomes. Continuity of care is considered a health-service outcome and a consequence of decisions made in other aspects of the model.

Discharge planning affects continuity of care in that it improves communication between healthcare providers in different settings and thereby improves informational and management continuity for the individual involved. Informational and management continuity should increase with the presence of CCRNs in the ED. Although there was no statistical difference between the CCRN and the comparison groups in the use of the ED in this study, it can be postulated that using a person-centered discharge planning approach will improve the outcomes in the ED.

Primary care staff have reported unsatisfactory levels of communication from the ED, which leads to confusion about the required follow-up care

(Dunnion & Kelly, 2005). The need for the comprehensive distribution of information between sectors was identified to improve the quality and continuity of care for the elderly. Tierney (2006) noted that discharge planning from the ED is an example of a healthcare challenge that must be addressed in an integrated way. In this study the use of the multidisciplinary team to triage and identify individuals who may benefit from primary care services was effective as demonstrated by the differences in the health and personal characteristics of the CCRN group.

Better integration of ED and community services has been widely recommended to improve continuity of care. The interventions used in previous research have not been operationally defined. The description of the activities and decision making of the CCRN in this study will aid in replicating the intervention in other settings and communities. A vital component of continuity is improved communication among care providers, and the introduction of the CCRN role in this setting provided an opportunity for the development of relationships among the CCRN, ED staff and physicians, Community Care staff, and integrated rehabilitation staff. It has been suggested that relationships between care providers are a necessary element of continuity of care.

Key Findings

When the CCRN was present in the ED, there were considerably more referrals to community-based primary care than at other times. The CCRN

referred 27% of the screened individuals for additional primary care services. It can be concluded that a CCRN in the ED can identify individuals in need of primary care service and facilitate their access to primary care. This is consistent with the finding in the literature that suggests that unmet needs in acute care settings are underidentified (Mamon et al., 1992).

On average, the CCRN spent 67.96 minutes per client assessing and making referrals for the care required at home. This is a great amount of time per individual, but this finding is also consistent with those in the literature. The activities of CCRNs are time intensive, and they spend large blocks of time with individuals. This study adds to nursing knowledge by describing and quantifying the RNs' assessment and coordination activities.

Some individuals who were referred to Community Care received nursing and PSA services in the home. The service provided to some of the individuals in the Community Care Clinic may have prevented them from returning to the ED for the same type of nursing care, reduced the number of repeat ED visits, and utilized healthcare dollars more efficiently. Further research on the time that CCRNs spend assessing and making referrals would provide a basis for future planning for primary care service needs and increase the understanding of the impact on existing Community Care programs.

The findings from the ISAR screening conducted in this study are not consistent with those reported in the literature. The level of informal support at home should be included in the documentation on the ED record to provide a

baseline comparison in the event of re-presentation to the ED. A determination of the support that is available might reveal that although individuals score as high risk on the ISAR, the level of informal support will allow them to continue to manage in the community. However, the danger is that the informal support can become overwhelmed without the addition of formal support. Attention to this on an ongoing basis may allow formal support to be offered before the family or caregiver reaches a crisis and may help to prevent the collapse of informal support for individuals who are identified as high risk but are currently managing.

The results of this study support the finding that utilization of the ED for primary care services is an increasing trend (Einstadter et al., 1996). Greater access to family physicians or nurse practitioners may help to alleviate this problem. Within the study area a number of nurse practitioners are now working in physicians' offices or with Community Care to increase access. As comfort with accessing this type of service increases, ED visits may decrease.

Assumptions and Limitations

The design of this study was informed by published and grey literature and the experience of the researcher as a discharge planner in the study setting. It was assumed that not all individuals will accept recommendations for primary care or community-based service and that it is not possible to impose a home-based service on those who will not accept it.

This study has several limitations. It was not possible to generalize the findings because of the nonrandom sample. The data were collected before the study commenced, and the sample size was limited to the total number of subjects whom the CCRN saw during the pilot who met the inclusion criteria.

The CCRN's assessment time is self-reported in nature and therefore has the potential for bias from the person who entered the time. It is also difficult for the CCRN to remember exactly how much time was spent on each activity, which might have led to an approximation of the time and not reflect the actual time spent.

The study was designed to explore the amount of Community Care service in the four months after the ED visit. Comparing the nursing and PSA time in a specific timeframe previous to the ED visit to a specific timeframe following the ED visit may be more indicative of the impact on service utilization in the Community Care program. Future research could be designed to compare the time before and after the ED visit on the indicator of minutes of primary care service received. This would lead to information on the ability of the Community Care program to be proactive in the assessment and treatment of individuals with chronic health conditions.

The fact that 47.5% of the intervention group were admitted to the hospital is a limitation because these patients also received discharge planning during their admission. This may have skewed the data on the number of repeated ED visits and the days at home reported in the findings. However, if

those 28 individuals had been eliminated from the study group, the overall sample size would have been smaller and less representative of the activities of the CCRN. Not all individuals whom the CCRN screens are appropriate for discharge home because of the limited amount and types of care available in the community. It should not be assumed, therefore, that the presence of a CCRN will eliminate all admissions from the ED. Part of the role of the CCRN in the ED should be to identify those individuals who are not appropriate for discharge home at that time because of their high care needs, family burnout, or lack of family support.

The research design of this study did not allow for the documentation of the effects of the intervention over time. A longitudinal study of the effects of health promotion and education by Community Care nurses may inform this area of nursing work that has been largely unreported in the literature. However, it was beyond the scope of this particular project to complete a longitudinal study.

Literature Review Gap Analysis

Screening Tool Use

The first gap is the medical community's need for a screening tool to target service to at-risk elderly. This study contributes to the body of knowledge on the use of the ISAR in the ED. The development and testing of a screening tool has occurred primarily in urban centres, and its application in a rural setting has not previously been reported in the published literature. In this

study the ISAR was shown to be ineffective in identifying seniors at risk. The tool did not perform as expected in a rural ED setting; however, this finding should be interpreted with caution because of the small number in the sample. Further exploration of ISAR use in a rural setting in a larger study design would be advisable.

Value of the CCRN

Shortly after the end of the data collection, the CCRN who was assigned to the ED left the position, which remained vacant for approximately six months. During that time many of the ED nurses and the ED manager advocated for the continuation of this role and the recruitment of a new CCRN. This demonstrates the perceived value of a CCRN in this role. Administrative data from the ED site showed that during the year that the CCRN was introduced, there was an overall annual admission rate of 1.9% from the ED to in-patient beds—a decline from 2% in previous years. The ED nursing manager (personal communication, October 22, 2007) suggested that the decline is a direct result of the activities of the CCRN. The ED manager also predicted that as the CCRN role evolves to its fullest capacity, the admission rate will continue to fall. During the year in which the CCRN was present for part of the time in the ED, the site decline of 0.1% means that, on average, 40 fewer people were admitted to acute care. In a setting with only 18 in-patient beds, this will have a significant impact on the level of utilization of those beds and the overall cost to the healthcare system. As this report is being written, the presence of the CCRN

in the ED has been extended to daytime coverage from Monday to Friday and half-day coverage on the weekends.

Implications for Practice and Future Research

This study has quantified the work of a CCRN in an ED setting in discharge planning and referrals to primary care services in the community and explored an area of nursing work that has previously been invisible. CCRNs could be placed in larger ED settings to facilitate discharge planning and thus improve the identification of individuals who can be managed at home and to organize the services that these individuals require. This has the potential to decrease in-patient bed-days within the hospital setting.

This study was originally conceptualized as a knowledge-transfer demonstration project in a small hospital setting. Effective utilizing nursing resources and identifying areas where RNs can make the biggest impact on the effective and efficient utilization of healthcare resources have the potential to improve patient care in any setting. This study could be extended from a descriptive study to a larger, more controlled research design that would allow for greater quantification of Community Care service and ED-utilization data.

Because the utilization of primary care services was quantified for the four months following the ED visit, future research could examine the nursing services that clients receive prior to their ED visit. With an increasing emphasis on integrated, proactive chronic-disease management in the community, nursing interventions and active management or early identification of an

exacerbation of chronic disease could be tracked to determine whether more can be done in the community to prevent the exacerbation and a possible ED visit.

This research design did not include any patient- or staff-satisfaction surveys in the process. The literature suggested that there is anecdotal evidence that staff find the presence of a discharge professional beneficial (Dukkers van Emden et al., 1999) and that, although the staff see the benefit of discharge planning, the patient does not always see the same benefit (Jackson, 1993). This is another potential area for future research.

A longitudinal study could be conducted to determine the impact of Community Care on health promotion and the prevention of chronic-disease progression. Many individuals who are living with chronic disease may benefit from an active disease monitoring and education program that emphasizes the maintenance of function and activity to slow the progression of the chronic disease. Nursing has a collaborative role to play in the education, monitoring, and maintenance of these individuals to minimize the impact of chronic disease on their health and well-being.

The design of this research focused on describing the interventions of a CCRN in the ED. The existing literature concurred that discharge planning is most effective with the use of a multidisciplinary team (Anaf & Sheppard, 2007; Bowles et al., 2003a, 2003b; Hansen, Bull, & Gross, 1998; Moss et al., 2002; Rich

et al., 1995). Future research could include the activities and responsibilities of all professionals who are currently involved in discharge planning onsite.

In the study setting the CCRN's assessment and decision making in the ED increased the utilization of primary care services. Although this study was not able to show any direct effect on the utilization of the ED or hospital care, it has highlighted the activities of the CCRN and provided insights into an area of nursing activity that has previously not been well documented. Even if there is no direct cost benefit, the ED staff perceive the role as valuable. The results of the study contribute to the body of knowledge on discharge planning and suggest a promising and cost-effective approach to improving ED utilization and outcomes.

REFERENCES

Abramson, J. (1988). Participation of elderly patients in discharge planning: Is self-determination a reality? *Social Work, 33*(5), 443-448.

Alberta Health and Wellness. (2000). *Strategic directions and future actions: Healthy aging and continuing care in Alberta: Long term care review.* Edmonton, AB: Author.

Aminzadeh, F., & Dalziel, W. B. (2002). Older adults in the emergency department: A systematic review of patterns of use, adverse outcomes, and effectiveness of interventions. *Annals of Emergency Medicine, 39*(3), 238-247.

Anaf, S., & Sheppard, L. (2007). Describing physiotherapy interventions in an emergency department setting: An observational pilot study. *Accident and Emergency Nursing, 15*, 34-39.

Anderson, M., & Helms, L. (1993). An assessment of discharge planning models: Communication in referrals for home care. *Orthopaedic Nursing, 12*(4), 41-49.

Anthony, M., & Hudson-Barr, D. (1998). Successful patient discharge: A comprehensive model of facilitators and barriers. *Journal of Nursing Administration, 28*(3), 48-55.

Arendts, G., MacKenzie, J., & Lee, J. (2006). Discharge planning and patient satisfaction in an emergency short-stay unit. *Emergency Medicine Australasia, 18*, 7-14.

Arundel, C., & Glouberman, S. (2001). Substudy 15: An analysis of blockage to the effective transfer of clients from acute care to home care. Retrieved November 18, 2007, from http://www.homecarestudy.com/reports/full-text/substudy-15-final_report.pdf

Bowles, K., Foust, J., & Naylor, M. (2003a). Emergency department case management: The dyad team of nurse case manager and social worker improve discharge planning and patient and staff satisfaction while decreasing inappropriate admissions and costs: A literature review. *Case Management, 7*(6), 243-251.

Bowles, K., Foust, J., & Naylor, M. (2003b). Hospital discharge referral decision making: A multidisciplinary perspective. *Applied Nursing Research, 16*(3), 134-143.

Bowles, K., Naylor, M., & Foust, J. (2002). Patient characteristics at hospital discharge and a comparison of home care referral decisions. *Journal of the American Geriatrics Society, 50*(2), 336-342.

Brewer, B., & Jackson, L. (1997). A case management model for the emergency department. *Journal of Emergency Nursing, 23*(6), 618-621.

Bull, M., Hansen, H., & Gross, C. (2000). A professional-patient partnership model of discharge planning with elders hospitalized with heart failure. *Applied Nursing Research, 12*(1), 19-28.

Bull, M., & Kane, R. (1996). Gaps in discharge planning. *Journal of Applied Gerontology, 15*(4), 486-500.

Bull, M., & Roberts, J. (2001). Components of a proper hospital discharge for elders. *Journal of Advanced Nursing, 35*(34), 571-581.

Diehl, D. (1999). The emergency medical services program. In S. Isaacs & J. Knickman (Eds.), *To improve health and health care 2000* (pp. 229-252). Princeton, NJ: Robert Wood Johnson Foundation.

Dill, A. P. (1995). The ethics of discharge planning for older adults: An ethnographic analysis. *Social Science Medicine, 41*(9), 1289-1299.

Dukkers van Emden, D., Ros, W., & Berns, M. (1999). Transition of care: an evaluation of the role of the discharge liaison nurse in the Netherlands. *Journal of Advanced Nursing, 30*(5), 1186-1194.

Dunnion, M., & Kelly, B. (2005). From the emergency department to home. *Journal of Clinical Nursing, 14*, 776-785.

Einstadter, D., Cebul, R., & Franta, P. (1996). Effect of a nurse case manager on post discharge follow-up. *Journal of General Internal Medicine, 11*, 684-688.

Evans, R. L., & Hendricks, R. D. (1993). Evaluating hospital discharge planning: A randomized clinical trial. *Medical Care, 21*(4), 358-370.

Glenn, M. R. E. (1996). *Continuity of care: A concept analysis.* Unpublished master's thesis, University of Alberta, Edmonton, AB.

Grief, C. L. (2003). Patterns of ED use and perceptions of the elderly regarding their emergency care: A synthesis of recent research. *Journal of Emergency Nursing, 29*(2), 122-126.

Guttman, A., Afilalo, M., Guttman, R., Colacone, A., Robitaille, C., Lang, E., et al. (2004). An emergency department-based nurse discharge coordinator for elder patients: Does it make a difference? *Academic Emergency Medicine, 11*(12), 1318-1327.

Hansen, H., Bull, M., & Gross, C. (1998). Interdisciplinary collaboration and discharge planning communication for elders. *Journal of Nursing Administration, 28*(9), 37-46.

Hebert, R., Tourigny, A., & Gagnon, M. (2005). *Integrated service delivery to ensure persons' functional autonomy.* St. Hyacinthe, QC: Edisem.

Hegney, D., Buikstra, E., March, J., McKay, M., Cope, G., & Fallon, T. (2006). Nurse discharge planning in the emergency department: A Toowoomba, Australia, study. *Journal of Clinical Nursing, 15*, 1033-1044.

Hofmeyer, A., & Clare, J. (1999). The role of the hospital liaison nurse in effective discharge planning for older people: Perspectives of discharge planners. *Contemporary Nurse, 8*(3), 99-106.

Hollander, M., & Chappell, N. (2002). Final Report of the National Evaluation of the Cost Effectiveness of Home Care. Prepared for the Health Transition Fund, Health Canada. Retrieved February 14, 2005, from www.homecarestudy.com.

Jackson, M. F. (1993). Discharge planning: Issues and challenges for gerontological nursing. A critique of the literature. *Journal of Advanced Nursing, 19*, 492-502.

Jeffery, C. (2003). *An exploration of the nurse-patient dyad in acute care discharge.* Unpublished master's thesis, University of Saskatchewan, Saskatoon, SK.

Jewell, S. (1993). Discovery of the discharge process: a study of patient discharge from a care unit for elderly people. *Journal of Advanced Nursing, 18*, 1288-1296.

Kee, C., & Borchers, L. (1998). Reducing readmission rates through discharge interventions. *Clinical nurse specialist, 12*(5), 206-209. Retrieved October 6, 2004, from http://gateway.ut.ovid.com

LeClerc, M., & Wells, D. (2001). Process evaluation of an integrated model of discharge planning. *Canadian Journal of Nursing Literature, 14*(2), 19-26.

Lees, L. (2004). Improving the quality of patient discharge from emergency settings. *British Journal of Nursing, 13*(7), 412-421.

Mamon, J., Steinwachs, D., Fahey, M., Bone, L., Oktay, J., & Klein, L. (1992). Impact of hospital discharge planning on meeting patient needs after returning home. *Health Services Research, 27*(2), 155-121.

McCloskey, J., Maas, M., Huber, D., Kasparek, A., Specht, J., Ramler, C., et al. (1996). Nursing management innovations: A need for systematic evaluation. In K. Kelly & M. Maas (Eds.), *Outcomes of effective management practice: SONA 8: Series on Nursing Administration* (pp. 3-19). London: Sage.

McCusker, J., Bellavance, F., & Cardin, S. (n.d.). *Identification of seniors at risk: Development of screening tool for elderly patients.* Retrieved February 7, 2006, from http://www.smhc.qc.ca/english1/staff/Epidemiology/Research%20Projects/epipro-en.htm

McCusker, J., Bellavance, F., Cardin, S., Trepanier, S., Verdon, J., & Ardman, O. (1999). Detection of older people at increased risk of adverse health outcomes after an emergency visit: The ISAR screening tool. *Journal of the American Geriatrics Society, 47*(10), 1229-1237.

McCusker, J., Cardin, S., Bellavance, F., & Belzile, E. (2000). Return to the emergency department among elders: Patterns and predictors. *Academic Emergency Medicine, 7*(3), 249-259.

McCusker, J., Dendukuri, N., Tousignant, P., Verdon, J., de Courval, L., & Belzile, E. (2003). Rapid two-stage emergency department intervention for seniors: Impact on continuity of care. *Academic Emergency Medicine, 10*(3), 233-243.

McCusker, J., Healey, E., Bellavance, F. & Connolly, B. (1997). Predictors of repeat emergency department visits by elders. *Academic Emergency Medicine, 4*, 581-588.

McCusker, J., Verdon, J., Tousignant, P., de Courval, L., Dendukuri, N., & Belzile, E. (2001). Rapid emergency department intervention of older people reduces risk of functional decline: results of a multicenter randomized trial. *Journal of the American Geriatric Society, 49*, 1272-1281.

McKeehan, K. M. (1981). Conceptual framework for discharge planning. In K. M. McKeehan (Ed.), *Continuing care: A multidisciplinary approach to discharge planning* (pp. 3-27). St. Louis: C. V. Mosby.

McKenna, H., Keeney, S., Glenn, A., & Gordon, P. (2000). Discharge planning: An exploratory study. *Journal of Clinical Nursing, 9,* 594-601.

McWilliam, C. L. (1992). From hospital to home: Elderly patients' discharge experiences. *Family Medicine, 24*(6), 457-468.

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.

Merriam-Webster Online. (2004). *Primary health care*. Retrieved November 21, 2004, from http://www.m-w.com

Mion, L., Palmer, R., Meldon, S., Bass, D., Singer, M., Payne, S., et al. (2003). Case finding and referral model for emergency department elders: A randomized clinical trial. *Annals of Emergency Medicine, 41*(1), 57-68.

Moss, J., Flower, C., Houghton, L., Moss, D., Nielsen, D., & McTaylor, D. (2002). A multidisciplinary care coordination team improves emergency department discharge planning process. *Medical Journal of Australia, 177,* 427-431.

Naylor, M., Brooten, D., Campbell, R., Jacobsen, B., Mezey, M., Pauly, M., et al. (1999). Comprehensive discharge planning and home follow-up of hospitalized elders: A randomized clinical trial. *Journal of the American Medical Association, 281*(7), 613-620.

Naylor, M., Brooten, D., Jones, R., Lavizzo-Mourey, R., Mezey, M., & Pauly, M. (1994). Comprehensive discharge planning for the hospitalized elderly: A randomized clinical trial. *Annals of Internal Medicine, 120(12),* 999-1006.

Neidlinger, S., Scroggins, K., & Kennedy, L. (1987). Cost evaluation of discharge planning for hospitalized elderly. *Nursing Economic$, 5,* (5), 225-230.

Neudorf, C., & Franko, J. (2001). Substudy 14: Evaluation of the cost-effectiveness of the Quick Response Program of Saskatoon District Health. Retrieved November 18, 2007, from http://www.homecarestudy.com/reports/full-text/substudy-14-final_report.pdf

Pringle, D. (1999). Getting in and out of hospital and getting home: Challenges for patients and the health care system. Unpublished manuscript, University of Alberta, Edmonton, AB.

Reid, R., Haggerty, J., & McKendry, R. (2002). *Defusing the confusion: Concepts and measures of continuity of healthcare*. Ottawa, ON: Canadian Health Services Research Foundation.

Rich, M., Beckham, V., Wittenberg, C., Leven, C., Freedland, K., & Carney, R. (1995). A multidisciplinary intervention to prevent the readmission of elderly patients with congestive heart failure. *The New England Journal of Medicine, 333*(18), 1190-1195.

Romania, M. (2006). The benefits of an emergency department case management program. *The Pennsylvania Nurse, 61*(3), 15, 33.

Schneider, J. K. (1992). Clinical nurse specialist: Role definition as discharge planning coordinator. *Clinical Nurse Specialist, 6*(1), 36-39.

Shepperd, S., Parkes, J., McClaran, J., & Phillips. (2006). Discharge planning from hospital to home. *The Cochrane Collaboration, Issue 4.*

Smith, D., Smith J., Newhook, C., & Hobson, B. (2006). Continuity of care, service integration, and case management. In J. M. Hibberd & D. L. Smith (Eds.), *Nursing leadership and management in Canada* (3rd ed., pp. 81-112). Toronto, ON: Elsevier Mosby.

Somme, D., Hebert, R., Bravo, G., & Blanchard F. (2005). Individualized service plan, (ISP) concept utilization: a review of experiments on integrated services for the elderly in Quebec and elsewhere. In R. Herbert, A. Tourigny, & M. Gagnon (Eds.), *Integrated service delivery to ensure persons' functional autonomy* (pp. 273-289). Edisem: Quebec.

Sparbel, K. J., & Anderson, M. A. (2000). Integrated literature review of continuity of care: Part 1: Conceptual issues. *Journal of Nursing Scholarship, 32*(1), 17-24.

Tierney, A. (2006). Commentary on Dunnion, M. E., & Kelly, H. W. (2005) From the emergency department to home. *Journal of Clinical Nursing, 15*, 789-791.

Voyer, P., & Sych-Norrena, L. (2003). Challenges in emergency room care for the elderly: If health services today do not adequately address our aging population, tomorrow's reality in emergency rooms will be overwhelming. *The Canadian Nurse, 99(1)*, 22-24.

Walsh, K. (1999). ED case managers: One large teaching hospital's experience. *Journal of Emergency Nursing, 25*(1), 17-20.

Walsh, K., & Greenwood, C. (2003). A successful emergency department case management practice model. *Case Manager, 14*(6), 54-57.

Warburton, R., Parke, B., Church, W., & McCusker, J. (2004). Identification of seniors at risk: Process evaluation of a screening and referral program for patients aged ≥ 75 in a community hospital emergency department. *International Journal of Health Care Quality Assurance, 17*(6), 339-348.

Weinberger, M., Oddone, E., & Henderson, W. (1996). Does increased access to primary care reduce hospital readmissions? *The New England Journal of Medicine, 334*(22), 1441-1447.

Wells, D., Martin, D., Moorhouse, A., Craig, D., & Foley, J. (1999). An integrated model of discharge planning for acutely ill elderly patients. *Canadian Journal of Nursing Literature, 12*(3), 6-12.

Yeaw, E. M., & Burlingame, P. A. (2003). Identifying high-risk patients from the emergency department to the home. *Home Healthcare Nurse, 21*(7), 473-478.

Zboril-Benson, L. (2006). The effects of health care restructuring on continuity of care. Unpublished doctoral dissertation, University of Alberta, Edmonton, AB.

APPENDIX:

RESEARCH INSTRUMENTS AND DATA-COLLECTION FORMS

Data Summary Tool Client # _____

Research Question	
1. Demographic characteristics Age Gender Marital Status Living Arrangements Day of Week Time of Day	 Single Married Divorced Widowed Alone Spouse Other Family Supportive Housing Continuing Care
Current Community Care client?	Yes No
2. Reason for Visit to ED	Worsening chronic disease Breakdown or lack of social support Mental health problem Fall Other
3 Health status Documentation of incontinence Cumulative # of Dx listed History of falls Cumulative # medications	 Yes No Yes No
4. What happened at ED visit?	
CCRN assessment ISAR screen Care Coordination CCRN intervention by: Direct service (minutes) Assessment & screening (minutes) Case coordination (minutes) Total # minutes/client by CCRN	Yes No Yes No Score /6 Yes No
5. Outcome indicators following ED visit. -Number of days at home between ED visits within 4 months	
-Number of repeat ED visits/client within 4 months	
-Length of ED stay (hrs)	
-Total # referrals by CCRN	
-Total # referrals to each service by CCRN	
-Primary care services used by client (RN, LPN, PSA, OT, PT, SW, Other, Community Care clinic, Adult day program, Geriatric assessment, Health Aging) in minutes/service. Total minutes.	
-Length of service in days	

CAPITAL HEALTH

WESTVIEW HEALTH CENTRE - STONY PLAIN
4405 SOUTH PARK DRIVE, STONY PLAIN, ALBERTA T7Z 2M7
PHONE (780) 968 - 3600 * FAX (780) 963 - 7192

REGISTRATION RECORD

LAST NAME	FIRST NAME	VISIT TYPE	VISIT DATE/TIME YYYY/MM/DD
MOUSE	MICKEY	emergency	2005/02/22 13:00
DATE OF BIRTH	AGE / SEX	ACTIVITY / SERVICE / OPD RM #	FACILITY ID #
Feb 4 2002	4Y male		
PERMANENT ADDRESS		CASE # / CCI #	REGIONAL ID #
123 magic castle		4909	21008
CITY / PROV. / POSTAL CODE		FAMILY PHYSICIAN	ATTENDING PHYSICIAN
Los Angles		DR. CAVE, DONNA	DR. EMERGENCY ROOM PHYSICIA
PHONE # / REP / WCB		PRESENTING COMPLAINT	
(780) 865 - 2222 / Uninsured Prov Resident			
PHN #			
TEMPORARY ADDRESS	#	NEXT OF KIN NAME / RELATIONSHIP / PHONE #	
		Minny Mouse / spouse / (780) 865 - 2222	
CITY / PROV. / POSTAL CODE		EMERGENCY CONTACT / RELATIONSHIP / PHONE #	
			() -

NURSING

NURSING HISTORY/ ASSESSMENT

TEMP	PULSE	RESP	BP	VA/R	VA/L	RIGHT PUPIL SIZE	RIGHT PUPIL REACT	LEFT PUPIL SIZE	LEFT PUPIL REACT	WT	O_2 SAT	GCS

ALLERGIES

☐ N/K ☐ yes

MEDICATIONS

NURSE SIGNATURE

PHYSICIAN

DOCTOR'S RECORD & ORDERS

DOCTOR NOTIFIED	DOCTOR ARRIVED

CAEP TRIAGE

☐ 1. RESUSCITATION ☐ 2. EMERGENCY ☐ 3. URGENT ☐ 4. SEMI-URGENT ☐ 5. NON-URGENT

TESTS	
CBC	☐
LYTES	☐
CREAT	☐
GLUCOSE	☐
CPK	☐
PT	☐
PTT	☐
ECG	☐
U/A	☐
URINE C&S	☐
X-RAYS	
CHEST	☐
OTHER	☐

☐ IF THIS IS WCB, PLEASE COMPLETE THE INFORMATION ON THE VISIT AGREEMENT PAGE.

DISCHARGE

DISCHARGE DIAGNOSIS

PHYSICIAN SIGNATURE

INSTRUCTIONS TO PATIENT

☐ WOUND/SUTURE CARE ☐ PRE-OP
☐ CAST CARE ☐ SPRAINS/STRAINS
☐ FEVER ☐ HEAD INJURY
☐ RX ☐ EYE CARE
☐ DRIVING IMPAIRMENT ☐ _____ DIET

DISCHARGE DATE / TIME:

☐ DISCHARGED ☐ OBSERVE ☐ ADMITTED

☐ TRANSFERRED TO _____ VIA _____

NURSING SIGNATURE

Capital Health

Nurse's Assessment and Clinical Record
Emergency Department

Room

Date _____ Time to bedside _____

PRESENTING CONCERN

ALLERGIES ☐ none known ☐ see attached

MEDICATIONS ☐ none known ☐ see attached

VITAL SIGNS T_____ P_____ R_____ BP_____ **Pupils** R____ L____ Wt____ **Glucometer**____ **SpO_2**____

RESPIRATORY ☐ Intubated ETT size _____

Quality: ☐ unlaboured ☐ laboured

Auscultation: ☐ breath sounds equal ☐ breath sounds decreased ☐ right ☐ left ☐ wheezes ☐ crackles

Oxygen Administered: ☐ N/A Mode _____ Flow rate _____

CARDIOVASCULAR ☐ Attached to monitor

Pulse: R = regular, I = irregular, T = thready, B = bounding

	R	L		R	L
Brachial	☐	☐	Pedal	☐	☐
Radial	☐	☐	Carotid	☐	☐
Femoral	☐	☐			

ENTEGUMENTARY

☐ normal ☐ pale ☐ flushed ☐ jaundice
☐ cyanotic ☐ warm ☐ hot ☐ cool
☐ diaphoretic ☐ dry ☐ rash

Comments _____

GASTROINTESTINAL ☐ N/A

☐ pain ☐ nausea ☐ vomiting ☐ diarrhea
☐ constipated ☐ abdominal distention ☐ incontinence ☐ ostomy
☐ bowel sounds ☐ absent ☐ present
Last BM _____

GENITOURINARY ☐ N/A

☐ frequency ☐ urgency ☐ incontinence
☐ burning ☐ discharge ☐ other _____
☐ hematuria ☐ dysuria

Dipstick
blood _____ ketones _____ leukocytes _____
LNMP _____ Gravida _____ Para _____

ADMITTING NURSE *(signature)* _____

CENTRAL NERVOUS SYSTEM

☐ alert ☐ drowsy ☐ unresponsive
☐ confused ☐ restless ☐ combative
☐ sedated
Pre-hospital GCS _____

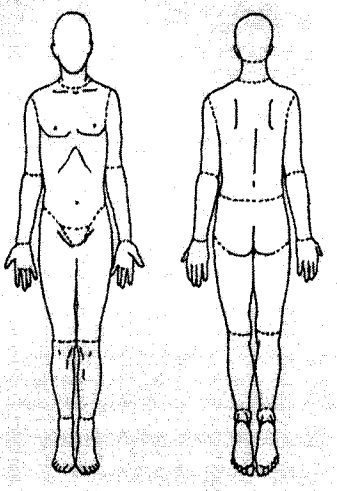
Comments _____

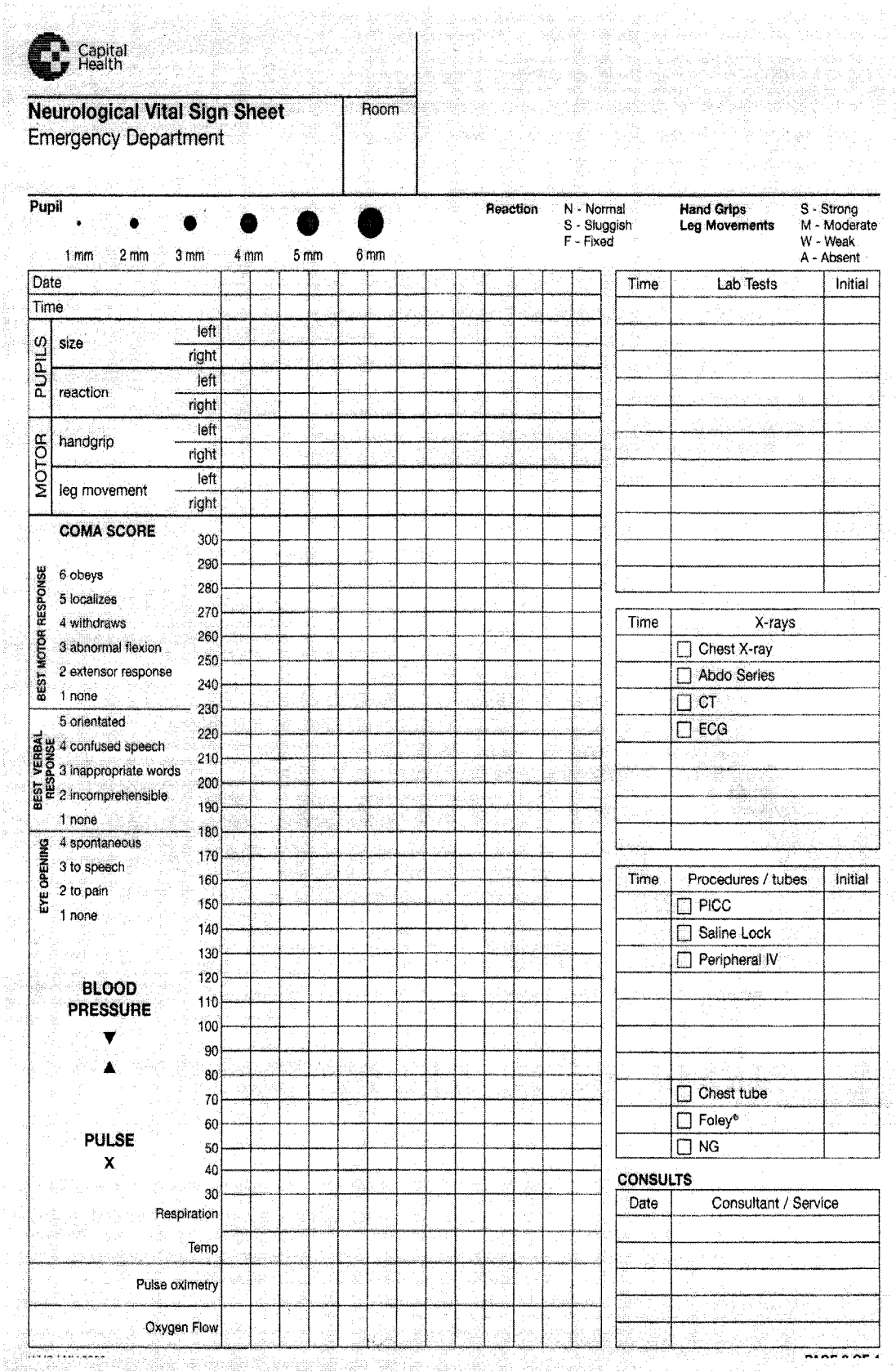
SPINAL PRECAUTIONS ☐ N/A

☐ blocks ☐ scoop
☐ tape ☐ board
☐ hard collar ☐ straps
☐ Other _____

MUSKULO SKELETAL

INDICATE: **H** - hematoma **(circle)** - pain ✓ - burn
C - confusion **X** - amputation **E** - edema # - fracture
A - abrasion **D** - deformity **WW** - laceration **S** - swelling





Capital Health

Neurological Vital Sign Sheet
Emergency Department

Room

Pupil

1 mm 2 mm 3 mm 4 mm 5 mm 6 mm

Reaction N - Normal S - Sluggish F - Fixed

Hand Grips / **Leg Movements** S - Strong M - Moderate W - Weak A - Absent

Date			
Time			
PUPILS	size	left	
		right	
	reaction	left	
		right	
MOTOR	handgrip	left	
		right	
	leg movement	left	
		right	

COMA SCORE

BEST MOTOR RESPONSE
6 obeys
5 localizes
4 withdraws
3 abnormal flexion
2 extensor response
1 none

BEST VERBAL RESPONSE
5 orientated
4 confused speech
3 inappropriate words
2 incomprehensible
1 none

EYE OPENING
4 spontaneous
3 to speech
2 to pain
1 none

BLOOD PRESSURE
▼
▲

PULSE
X

300 290 280 270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30

Respiration

Temp

Pulse oximetry

Oxygen Flow

Time	Lab Tests	Initial

Time	X-rays
	☐ Chest X-ray
	☐ Abdo Series
	☐ CT
	☐ ECG

Time	Procedures / tubes	Initial
	☐ PICC	
	☐ Saline Lock	
	☐ Peripheral IV	
	☐ Chest tube	
	☐ Foley®	
	☐ NG	

CONSULTS

Date	Consultant / Service

URINARY OUTPUT ☐ Indwelling catheter (Foley®)

Date / Time												
Volume output												
Total output												

INTRAVENOUS THERAPY

Line #	Time	Intravenous solutions / additives blood and blood products / medications	IV Size	Angio size	mL per hour	Level in bag	Level in buretrol	Amount Absorbed	Signature

Time	Medications	Ordered by	RN signature

Capital Health
Edmonton and area

ISAR Questionaire

label

1. Before the illness or injury that brought you to the Emergency, did you need someone to help you on a regular basis?	☐ Yes ☐ No
2. In the last 24 hours, have you needed more help than usual?	☐ Yes ☐ No
3. Have you been hospitalized for 1 or more nights during the past 6 months?	☐ Yes ☐ No
4. In general, do you have serious problems with your vision that can not be corrected by glasses?	☐ Yes ☐ No
5. In general, do you have serious problems with your memory?	☐ Yes ☐ No
6. Do you take 6 or more different medications every day?	☐ Yes ☐ No

Capital Health
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Section 1 Information Source
(check one box and make appropriate follow-up)

☐ Patient oriented to time and place	Patient complets ISAR
☐ Patient oriented to time and place, but unable to complete ISAR for various reasons (can't read, physical deficiency.....)	Patient complets ISAR with the help of the intervenant of the informant
☐ Patient disoriented to time and space, informant available	Informant Complets ISAR
☐ Patient disoriented to time and place, informant not available	Positive screening
☐ Patient medically unstable	Impossible screening, postponed

Name of informant: _____ Tel: _____

Section 2 Score

Compile the answers (0 or 1 point)
If the patient obtains 2 points or more, it is a positve screening

Results: ___/6

Positve screening ☐ Negative screening ☐

Section 3 - If positve, inform as needed

☐ Liaison nurse: _____

☐ Social worker: _____

☐ Other: _____

/groups/hc/erteam/isar qureltonaire

Date _____
Assessor _____

LABEL

ER Assessment for Admission/Discharge

Chief Complaint:

_____

_____

Medical Diagnosis:_____

PMH:_____

_____

_____

_____

Medications: None ☐ See ER record ☐ See Attached ☐ New medications this visit ☐ Specify:

_____

Current Services: None ☐ Healthy Aging ☐ CCC ☐ ADP☐ Rehab ☐ Other ☐ _____
Community Care/Homecare: Place: _____Contact Name: _____
Services/Frequency:_____

#ER visits in past 6 months: _____ Reason:

_____

_____

Where Else Can Care Be Provided?
Healthy Aging ☐ Community Care Clinic ☐ ADP☐ Other ☐ _____
Community Care/Homecare ☐ _____

Referral sent: None☐ Community Care☐ Healthy Aging☐ CCC ☐ Rehab ☐ Healthy Aging ☐ Geriatric Assessment ☐ Other ☐ _____

MD Collaboration:

Plan:
Admit ☐ Home with support ☐ Discharged ☐ Transferred ☐ _____

Functional: Road Test

Ambulation: unassisted ☐ cane ☐ walker ☐ wheelchair☐ bed bound☐
Identified concern: _____

Transfer: unassisted ☐ 1-person ☐ 2-person ☐ full lift ☐ mechanical lift in place ☐
Identified concern: _____

Stairs: unassisted ☐ 1-person assist ☐ cannot climb ☐
Identified concern: _____

Access to residence: Stairs into home☐ Stairs in home ☐ Bathroom on another level ☐
Identified concern: _____

Meals: Independent ☐ Assistance in home ☐ Assistance outside home ☐ MOW ☐
Identified concern: _____
Other functional or safety concerns: _____
_____

ADL: Independent ☐ Dependent ☐
Identified concern: _____

Clinical:

Cognitive Function: No concern ☐ Known dementia ☐ Change in mental status ☐
Identified concern: _____

Med Management: Independent ☐ Blister ☐ Scripts ☐ Assisted☐ _____
Identified concern: _____
Home O_2 ☐ Assess for Home O_2 ☐ Puffers ☐
Identified clinical needs: _____
_____
Identified teaching needs: _____
_____

Social:

Lives: Alone ☐ With Spouse ☐ With Others ☐ Care Facility ☐
Where: _____
Identified concern:
_____
Available Caregivers: _____
_____
Contact information: _____
_____

Community Care Permanent Record

It is possible that some of the individuals screened in ED are already receiving service from the Community Care program. The researcher has access to these charts to determine level of service prior to the ED visit and if this service is increased following the ED visit.

Administrative Records

Administrative Record 1: Service logs

Service logs located in Medi-pt database that captures referrals to departments, service provider (PSA, RN, LPN, OT, PT, SW), minutes of service, type of service (direct, coordination) for each individual in the study. Staff activity is divided into different type of service provision. These types of service include provision of respite, direct care (treatment or education), case coordination, assessment, reassessment or personal care.

Administrative Record 2: Repeat ED visits

The 'tracer tree' located in the Medi-pt database captures repeat visits to ED or admission to WHC each time an individual presents to ED. In addition, netCARE electronic health record captures visits to EDs within the Capital Health region. These two data sources would be counted as a cumulative number with each visit counted separately.