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thesis entitled

UTILIZATION OF EMERGENCY DEPARTMENTS AND URGENT CARE CENTERS BY ELDERLY PATIENTS WITH NEWLY DIAGNOSED CANCER

presented by

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has been accepted towards fulfillment of the requirements for

Master of Science degree in Nursing

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Date 4/22/96

UTILIZATION OF EMERGENCY DEPARTMENTS AND URGENT CARE CENTERS BY ELDERLY PATIENTS WITH NEWLY DIAGNOSED CANCER

By

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A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

MASTER OF SCIENCE IN NURSING

College of Nursing

1996

ABSTRACT

UTILIZATION OF EMERGENCY DEPARTMENTS AND URGENT CARE CENTERS BY ELDERLY PATIENTS WITH NEWLY DIAGNOSED CANCER

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This is a descriptive study design using secondary analysis of the Community Based Cancer Study. A convenience sample of more than 400 patients, aged 65-95 years, were enlisted from participating cancer sites in Michigan at incident diagnosis of breast, lung, colon, or prostate cancer. Data were obtained by telephone interview and abstraction of medical records. The framework for this study focused predisposing, enabling, and need factors which influence the decision to use ED/UCC services. Logistic regression analysis identified number of hospital admissions as significant in predicting ED/UCC utilization. Other factors identified as having significance with ED/UCC use include: educational level, Medicaid coverage, patient symptoms, pain severity, comorbid disease, and limitations in physical functioning. Implications for APNs involve recognition of elderly cancer patients as having special care needs; education of patients, caregivers, and health care providers; and coordination of care management.

ACKNOWLEDGEMENTS

First, I would like to thank my Thesis Advisor, Barbara A. Given, RN, PhD, FAAN and the members of my thesis committee Charles W. Given, PhD and Sharon K. King, RN, CS, PhD for their continued guidance in this research project. Also, I thank Allen Shoemaker, PhD for his assistance with data analysis and Kaye Arnett for her preparation of my final thesis copy.

My sincere thanks is given to our family friend, George A. Murray III. His knowledge and skills in computer technology provided invaluable support.

Finally, my thanks is extended to my family. To my husband, Jim, and children, Traci, Marc, and Jill, I love you and appreciate the patience, love, and support you have given to me.

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Chapter I

THE PROBLEM

Introduction

How frequently and for what reasons do elderly patients with newly diagnosed cancer utilize emergency department and urgent care center services? Little attention has been paid to the use of emergency and/or urgent health care services by elderly patients, especially elderly patients with a recent cancer diagnosis.

The steady growth in the size of our elderly population is well documented along with increased incidences of certain cancers in the elderly (Butler, 1992; Oddone, Feussner & Cohen, 1992; Sanders, 1992). Cancer has shifted from an acute disease with prompt resolution, usually death, to a chronic disease with inherent episodic, and often long-term care needs (Given & Given, 1994; O'Hare, Yost & McCorkle, 1993). Changes in the health care delivery system have moved the focus of care from hospital to community and home (O'Hare et al., 1993).

The appropriateness, effectiveness, cost and outcomes of continued cancer care for elderly patients, especially those with urgent health care concerns, will be of significant importance for nursing and other health care professionals. However, effective planning and interventions can only be implemented after a firm knowledge base and understanding of this population is gained.

Therefore, this descriptive study will identify the frequency and reasons for which elderly oncology patients with a recent diagnosis of cancer utilize urgent health care services.

Rationale

The elderly are the fastest growing segment of the population in the United States both in absolute numbers and relative to the total population. By the year 2000, it is anticipated that 35 million or 13.1% of the population will be elderly (Sanders, 1992). The elderly are also the largest consumers of health care services with a disproportionate share of national health care expenditures (Baum & Rubenstein, 1987). Each year approximately $200 billion are spent on personal health services for the 29.2 million Americans over age 65 (Butler, 1992). Immense as this sum is, the nation's health and social services have neither kept pace with this increased aging population nor been oriented toward the long term care needs of the elderly (Sanders, 1992).

Cancer is a major problem for elderly individuals, with 50% of all documented cancers occurring in 12% of the population currently greater than 65 years of age (Oddone et al., 1992). Cancer is the second leading cause of death after heart disease. Incidence rates for the four most common cancers (breast, lung, colon and prostate) increase dramatically after age 65, with advancing age as the single most important risk factor for the development of these

cancers (Oddone et al., 1992). The American Cancer Society (1995) estimates 46,100 new cancer cases in Michigan for 1995 including: breast 6,800; colon/rectum 5,300; lung 6,100; and prostate 8,700.

Traditionally, both U.S. medicine and insurance arrangements have focused on short term acute care services with little support of longer term care. The prospective payment system and diagnosis-related groups (DRGs) under Medicare, plus managed care plans such as health maintenance organizations and other private insurances, advocate cost containment by shortened hospital stays and earlier discharge (Butler, 1992; Jecker, 1994; O'Hare et al., 1993).

When discharged early from hospitals to the home setting, elderly patients are usually quite ill and family members are often inadequately prepared to care for them. Studies of elderly patients rehospitalization rates indicate that powerful predictors of hospital readmissions are prior hospitalization, discharge placement back into the community for care in the home and loss of functional capabilities with inadequate community support (Kellogg, Brickner, Conley & Conroy, 1991; Lockery, Dunkle, Kart & Coulton, 1993; Rowland, Maitra, Richardson, Hudson & Woodhouse, 1990).

First year findings of the Cancer Study by Drs. Given and Given (1994) show family members take patients to five to six physician or urgent care visits within ten days of hospital discharge. Patients are symptomatic and families struggle to provide continued cancer care in the home.

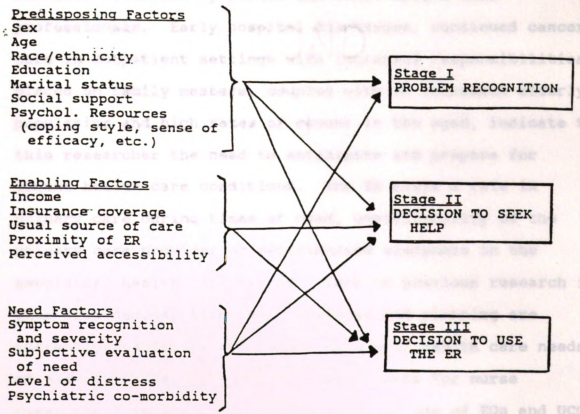
Emergency departments represent an important interface between the community and the acute care hospital. Many hospital admissions originate from ED visits, especially for the elderly (Baum et al., 1987; Eagle, Rideout, Price, McCann & Wonnacott, 1993; Lowenstein, Crescenzi, Kern & Steel, 1987). The ED serves elderly patients in at least three ways: as a place for treatment of emergencies, as a provider of primary care and as a major entry into the acute and long-term health care system (Lowenstein et al., 1986).

The needs of cancer patients change with treatment-related problems, ongoing disease progression, and other existing non-cancer medical conditions (Mor, Masterson-Allen, Houts & Siegel, 1992). Most older patients have private physicians but use ED services because of severity or acuity of illness, convenience and lack of availability of their private physicians (Baum et al., 1987).

"There is a paucity of research and education in geriatric emergency medicine. Little or no planning is ongoing to meet the emergency health care needs of the elderly in the future" (Sanders, 1992, p. 380). Information is essential on health services utilization by the elderly in order to plan new health care strategies.

The framework for this study is a model of determinants for ED use by Padgett and Brodsky (1992) adapted from both the Goldsmith, Jackson & Hough (1988) model for help-seeking behavior and a modified version of the Andersen and Newman (1973) model of health care utilization (see Figure 1).

Figure 1. Model of Determinants of Emergency Use by Padgett & Brodsky



Reasons influencing ED/UCC utilization will be the basis for this study and focus on: number of symptoms, pain severity, limitations in physical functioning/immobility, the existence of comorbid disease and hospital admissions within the past three months since cancer diagnosis.

Statement of The Problem

The urgent health care service utilization by elderly patients with newly diagnosed cancer is a phenomenon that warrants attention by nurses and other health care professionals. Early hospital discharges, continued cancer care in outpatient settings with increased responsibilities placed on family members, coupled with an increased elderly population and high rates of cancer in the aged, indicate to this researcher the need to anticipate and prepare for urgent health care conditions. The ED plays a role in primary care during times of need, unavailability of the primary care provider or deficiencies elsewhere in the ambulatory health care system. Lack of previous research in this area demonstrates that knowledge and planning are currently insufficient to meet the urgent health care needs of elderly cancer patients. A need exists for nurse researchers to identify the frequency of use of EDs and UCCs and explore reasons elderly oncology patients seek care there. Only with this knowledge can adequate resources, planning, and early interventions be implemented that are cost-effective and that enhance optimal outcomes for elderly cancer patients and their families. The problem to be

studied is: How do predisposing, enabling, and need factors predict Emergency Department and Urgent Care Center utilization by elderly patients within three months of cancer diagnosis?

Chapter II

CONCEPTUAL FRAMEWORK

Overview

The theoretical framework which provides the basis for this study will be discussed in this chapter. A three-stage model for determinants of ED use developed by Padgett and Brodsky (1992) will be presented more precisely. This will be followed by a discussion of how predisposing, enabling, and need factors will be modified for use in this study.

Conceptual Framework

An emergency department visit represents a behavioral endpoint--a culmination of a chain of events beginning with an assessment of a symptom, illness or injury and ending with a decision that the ED was the most appropriate site for care (Padgett & Brodsky, 1992). A modified version of the Andersen and Newman model of health care utilization (1973) and a three stage help-seeking model by Goldsmith, Jackson & Hough (1988) was used by Padgett and Brodsky (1992) to examine factors influencing three stages of the help-seeking process for ED use. The purpose of the Padgett and Brodsky study was to review and organize research literature on ED use. It focused on psychosocial as well as other factors that significantly influence ED visits for non-urgent reasons.

Goldsmith et al. (1988) used the stages of the help-seeking process as a model for organizing research

literature on mental health service utilization. Briefly, an individual first becomes aware of a mental health problem (Stage 1: Problem awareness). The individual then decides to seek informal assistance or the services of a mental health professional (Stage 2: Decision to seek help). Finally, the individual decides to seek a particular source of help (Stage 3: Service selection). Factors of the illness profile, predisposing orientation and enabling factors contribute to each stage of the help-seeking process. As the severity of a disorder and/or the distress of symptoms increases, the individual is more likely to seek help (Goldsmith, Jackson & Hough, 1988).

The Padgett and Brodsky study (1992) found linking predictors of non-urgent ED use to separate stages of decision-making could only be discussed in general terms due to lack of ED research using a model of the help-seeking process. In their work no studies were found on problem recognition (Stage 1) specifically related to ED use and only one study, White-Means & Thornton (1989), was found that used a two-stage model to distinguish the decision to seek care (Stage 2) from the decision to use ED care (Stage 3). Padgett's and Brodsky's review was thus largely confined to ED users who had arrived at the end-point of decision-making.

The decision to seek medical care (Stage 2) and the decision to use a particular type of service such as the ED or UCC (Stage 3) depend on whether or not the person is

facing a perceived emergency. What perceptions constitute an emergency varies across individuals. People with perceived emergencies obviously have a greater incentive to seek care. The decision to seek ED/UCC services (Stage 3) is affected by the individual's perceived health status and also accessibility to these facilities. Patients who regard their condition as emergent see the ED as a logical choice. ED services are available at all times without an appointment and lend immediate access to high technology. Also, EDs have historically been well covered by most insurances and treatment is rendered regardless of the ability to pay (Ahern & McCoy, 1992).

The Andersen and Newman model (1973) is widely used in service use studies and stresses the role of individual and societal determinants for health care utilization. Basically, this behavioral model views the use of health services as a function of: 1) Predisposing factors, 2) Enabling factors, and 3) Need factors or illness level. These factors have differential ability to explain use depending on the type of service examined. Generally, research testing Andersen's model reports the importance of medical care need as the major predictor of health services use with little variance in use attributed to predisposing and enabling variables (Mutran & Ferraro, 1988).

The predisposing component exists prior to the perception of illness and consists of demographics, social structure and health beliefs. Demographic factors such as

age and gender represent biological imperatives suggesting the likelihood an individual will need health services. People in different age groups have different types and amounts of illness; hence, different patterns of health service utilization (Andersen et al., 1973).

Social structure variables include education, marital status and living arrangement. These variables determine the person's ability to cope and command resources to deal with the health problem (Andersen, 1995).

Health beliefs or attitudes, values, and knowledge about health and health services influence the subsequent perceptions of need and use of services (Andersen, 1995). According to Andersen (1995) beliefs examined about a particular disease, need associated with that disease, and services dealing specifically with that disease show stronger relationships between beliefs and use rather than relating general health beliefs to global measures of need and use of all services received within a certain time period.

Enabling factors describe the means individuals have available to them for the use of services (Aday & Andersen, 1974). These include situational or individual characteristics that facilitate or impede health care utilization, such as income, insurance coverage, availability or accessibility of services and established patterns of utilization. The Andersen and Newman model attempts to account for the use of health services in

general, not for the selection of a specific type of care such as ED/UCC.

According to Andersen and Newman (1973) need factors include both objective and subjective determinants. Perceived need by the individual helps to better understand care-seeking and adherence to a medical regimen where evaluated need is related to professional judgement about a person's health status and need for medical care. Andersen (1995) stated that "any comprehensive effort to model health services' use must consider how people view their own general health and functional state, as well as how they experience symptoms of illness, pain and worries about their health and whether or not they judge their problems to be of sufficient importance and magnitude to seek professional help." (P. 3)

This researcher will use the Padgett and Brodsky model (1992), incorporated from both the Andersen and Newman model (1973) and Goldsmith, Jackson & Hough model (1988), for the framework of the current study. This study will be confined to the end-point of the decision-making process, utilization of ED/UCC services. The study will determine how frequently elderly patients with newly diagnosed breast, lung, colon, and prostate cancer seek care in emergency departments and urgent care centers. The variables of: predisposing factors--age, gender, education, and living arrangement/ marital status; enabling factors--insurance coverage, income, and hospital admissions within three months after

cancer diagnosis; and need factors--number of symptoms, physical pain severity, limitations in physical functioning/immobility, and all existing comorbid disease will be analyzed as reasons which may influence urgent health care utilization within three months of cancer diagnosis.

Framework for Proposed Study

The conceptual framework for this study will be reason factors (predisposing, enabling, and need factors) adapted from the Padgett and Brodsky model (1992) for determinants of ED use but modified as described. In the Padgett and Brodsky study (1992) need factors include: symptom recognition and severity, subjective evaluation of need, level of distress and psychiatric comorbidity. Need factors for this study will be modified from those mentioned above. Symptom recognition and severity will be operationalized by number of symptoms and physical pain severity. Subjective evaluation of need will be limitations in physical functioning/immobility. Psychiatric comorbidity will be changed to all existing comorbid disease.

The primary reason factors addressed in this research will be: 1) Need factors--number of symptoms, physical pain severity, limitations in physical functioning/ immobility, number of comorbid diseases; 2) Enabling factors--insurance coverage, income, and hospital admissions within three months since cancer diagnosis; 3) Predisposing factors--age,

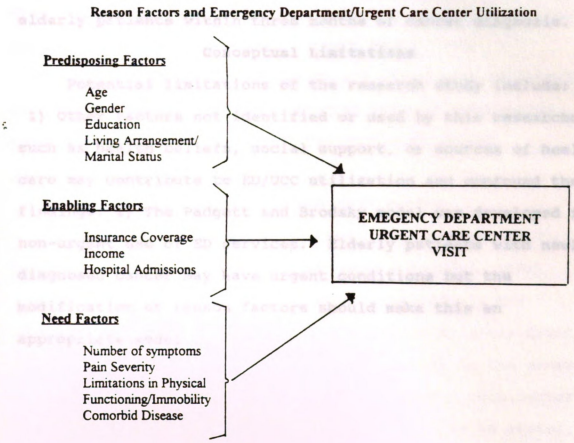


Fig. 2. Model of determinants of ED/UCC use.

gender, education, living arrangement/marital status (See Figure 2). This will be a descriptive study by design.

Conceptual Assumptions

This research study is based on the following assumption: Reason factors (predisposing, enabling, and need factors) influence the decision to use ED/UCC services by elderly patients within three months of cancer diagnosis.

Conceptual Limitations

Potential limitations of the research study include: 1) Other factors not identified or used by this researcher such as health beliefs, social support, or sources of health care may contribute to ED/UCC utilization and confound the findings. 2) The Padgett and Brodsky model was developed for non-urgent use of ED services. Elderly patients with newly diagnosed cancer may have urgent conditions but the modification of reason factors should make this an appropriate model.

CHAPTER III

LITERATURE REVIEW

Overview

The purpose of this chapter is to review pertinent literature and research related to frequency of ED/UCC utilization by elderly patients with newly diagnosed cancer. This review is limited because of lack of research on this specific population and their urgent health care utilization. Therefore, research and literature on elderly patient ED/UCC utilization, reported reasons influencing this urgent care utilization, and pertinent cancer literature will be reviewed.

Frequency of ED/UCC Utilization

Studies of ED utilization (Baum & Rubenstein, 1987; Lowenstein et al., 1986; Strange, Chen & Sanders, 1992) conclude that, as a whole population, the elderly are represented in the ED patient population in slightly greater proportion compared with their representation in the general population. Strange et al. (1992), reported a multicenter computerized data base study of 70 hospitals in 25 states, that showed 15% of ED visits were by elderly patients but that they represented 12% of the general population. Lowenstein et al.(1986) found the elderly represented 19% of the ED population at Boston University Medical Center but represented only 15.3% of the adult population. Baum and Rubenstein (1987) data from St. Joseph's Medical Center in Burbank, California reported no disproportionate use of the

ED by the elderly as a whole but did find a disproportionate use by those patients 75 years or older.

Studies (Baum et al., 1987; Eagle et al., 1993; Ettinger et al., 1987; Singal et al., 1992) have shown that elderly patients are not frequent attenders of EDs compared to patients less than 65 years of age. In fact, the elderly tend to be more seriously ill when entering the ED and often require hospital admission.

A study by Hedges, Singal, Rousseau, Sanders, Berstein, McNamara & Hogan (1992) from six geographically distinct U.S. hospital EDs compared group ED use patterns for elderly and younger (21-64 years old) patient groups. They found that even though the elderly made more visits to their primary care provider in the previous six months and had more comorbid disease, there was no difference in the number of ED visits between the two age groups.

Lowenstein et al.(1986) found 29% of patients 75 years or greater seen in an urban ED returned within 14 days, almost always for the same medical problem. However, this high recidivism rate could not be explained by noncompliance or lack of a primary health care provider. In fact, 94% of the elderly in this study reported they had a personal physician and 72% had made an office visit within the month preceding the ED visit.

One further study by Beland and associates (1991) was also unable to find any link between availability of medical care and reduced use of hospital Eds. These studies

indicate that many elderly patients may present with complex medical and social problems not easily solved in an ED/UCC setting.

Predisposing Factors

Padgett's and Brodsky's review of studies on non-urgent ED use (1992) revealed little influence on ED use by demographic factors other than race/ethnicity. Another study by Strain (1991) on medical need and overall health services utilization (including emergency clinics) by older men and women found the sociodemographic predisposing variables and enabling variables insignificant for use of health services.

Age

Age is a factor associated with the degree of urgency of patients' visits. Older patients are more likely to have an emergent diagnosis, arrive by ambulance, and be admitted to the hospital or intensive care unit (Ettinger, et al., 1987; Strange et al., 1992). Those patients aged 75 years or greater had an increased incidence of ED visits and increased severity of illness (Baum & Rubenstein, 1987). Among nonelderly patients only 8% were judged to be emergencies (Lowenstein et al., 1987). Older patients do not seem to be overusers of the ED for minor complaints; in fact, they tend to be more acutely ill on presentation than younger people (Baum & Rubenstein, 1987; Eagle et al., 1993).

Data from Denman, Ettinger, Zarkin, Coon & Casani (1989) showed 63% of the elderly chose the ED as their source of health care service because the problem was urgent. Studies by Hedges et al. (1992) and Lowenstein et al. (1987) also showed greater than half of the respondents felt their illness or injury was an emergency or serious enough to require care within the hour. These patients perceived high quality of care from the ED and approximately 30% acknowledged referral to the ED by their primary care provider.

Age has a significant effect on ED time and the types of resources used in the ED. In general, there is an increased length of ED stay, increased probability of hospital admission, and more diagnostic tests performed for elderly patients (Baum & Rubenstein, 1987; Beland et al., 1991; Eagle et al., 1993; Lowenstein et al., 1986; Singal et al., 1992). Research by Eagle et al. (1993) showed an average stay of 4 hours 20 minutes for elderly patients versus 2 hours 32 minutes for a younger patient. Lowenstein et al. (1986) found additional time was required to illicit an aged person's history, wait for tests and x-rays, and wait for hospital admission or transportation home. Lowenstein stated that elderly patients often suffer from a variety of chronic medical and social disabilities that may confound ED care. These include multiple chief complaints and physical/functional disorders such as: diminished sight and hearing; incontinence; limited mobility; and

susceptibility to complications of acute care as drug interactions and side effects; and subtle, atypical manifestations of acute injury and disease.

Baum and Rubenstein (1987), Denman et al. (1989), Hedges et al. (1992), and Lowenstein et al. (1986) studied differences between those aged 65 years or greater and those 21 to 64 years of age. The elderly were more likely to: have a primary care physician, have most routine care provided in a private office, and have more visits to their primary care provider. There was no difference between the elderly and the younger groups in number of ED visits during the past 6 months. No difference was found between the age groups making their own follow-up arrangements (Hedges et al., 1992), but the elderly were more likely to keep the scheduled follow-up appointment (Denman et al., 1989). There were also no differences in patients' understanding of their diagnosis or in medication compliance. However, the elderly reported worse medical outcomes at 3 weeks after their ED visit (Denman et al., 1989) and a change in their ability to care for themselves from the injury or illness that resulted in their ED visit (Hedges et al., 1992).

Gender

Studies show more women than men utilize health care services. Hedges et al. (1992) and Singal et al. (1992) found more women than men received care in the ED for both the younger and older age groups. Females accounted for 60% of the patients attending an UCC (Rizos et al., 1990).

However, Miller, Lairson, Kapadia & Kennedy (1985) showed 57% males in their population sample for two freestanding emergency centers.

For whites, the probability of use of any medical facility is greater for females. However, for whites only, household heads and males had an increased probability of nonemergent ED use (White-Means & Thornton, 1989). Women with cancer were considered at greater risk for hospital readmission (O'Hare et al., 1993).

Education

White-Means & Thornton (1989) found educational status (college graduation) a significant deterrent to ED visits by whites. Whites with a high school education or less were more likely to visit the ED than whites with a post-high school education. However, education was an insignificant factor in visit decisions by blacks.

Miller et al. (1985) studied patient characteristics and the demand for care in two freestanding emergency centers in the South Central United States. Only 11% of the 548 respondents had not finished high school.

Living Arrangement/Marital Status

Studies by Brokaw et al. (1991), Hedges et al. (1992) and Lowenstein et al. (1986) found more elderly than younger ED patients lived alone. Of those patients living with others, most of the elderly lived with a spouse. However, the percentage who lived with a spouse declined for those 85 years or older (Hedges et al., 1992). Brokaw et al. (1991)

found that in the geriatric patients who frequently visited the ED 72.8% were either single, divorced or widowed. Nationally, 41% of the population greater than age 65 fall into this category.

White-Means & Thornton (1989) found single and widowed whites less likely than those married to use medical services. However, marital status was insignificant for medical use by blacks. For ED use, widowhood was an insignificant determinant of ED use by whites and decreased the likelihood of ED use in blacks. These researchers suggested the role of family structure in influencing medical utilization decision making is different across racial groups.

Eagle et al.(1993) studied 1,744 elderly persons attending the ED in a teaching Canadian hospital. Sample demographics found 57% were female, 53% were married, 40% were widowed, with four times more widowed women as men. Eighty-four percent of the elderly sample lived in their own home or apartment.

Two-thirds of the patient sample at two freestanding emergency centers by Miller et al.(1985) were married. More than 42% had lived in the area for more than 20 years.

O'Hare et al.(1993) reviewed literature relating to a cancer patient population. These authors reported people living alone or with someone other than a spouse were at a higher risk for hospital readmission.

In summary, some studies (Padgett & Brodsky, 1992; Strain, 1991) report little influence on ED use by predisposing factors. Studies have shown little variation between the elderly and younger groups in the number of ED visits with a 6-month time period. Numerous studies show age is a factor associated with increased severity of illness, increased comorbid disease, increased hospital admission rate, and increased time and resources spent in the ED. Women seem to utilize ED/UCC services in slightly greater proportion than do men. The ED/UCC population is predominately white with blacks as the largest minority group. There seems to be some inconsistency on marital status and education and its influence on urgent health care utilization. This researcher will look at the age, gender, education, and living arrangement/marital status of elderly cancer patients utilizing ED/UCC services. These predisposing factors will be examined to describe the sample and determine if they influence the use of urgent health care services.

Enabling Factors

Findings of the effects of enabling factors by Padgett and Brodsky (1992) for determinants of non-urgent ED use were inconsistent for income, insurance coverage and a usual source of care but were stronger for proximity of the ED. The accessibility and convenience of the ED facilitate this type of health care utilization.

Insurance

When compared to a younger age group, the elderly were more likely to have some form of insurance coverage, usually Medicare coverage, and less likely to be enrolled in a managed care plan or medicaid program (Hedges et al., 1992; Singal et al., 1992). However, Jecker (1994) forcasts an increase in the number of elderly persons participating in managed care plans. Patients insured through a managed care plan are less likely to be admitted through the ED while those patients on Medicaid face a higher probability of being admitted through the ED (Ahern & McCoy, 1992).

Patients without insurance or with Medicaid may experience difficulty accessing health care. For these individuals, the ED may serve as a site of primary care when other sources of health care are not readily available (Singal et al., 1992).

White-Means & Thornton (1989) found whites with Medicaid more likely to utilize ED services than the uninsured. Insurance coverage increased the probability that whites will use ED services.

Income

Miller et al. (1985) found that economic factors played little or no role in the demand for UCC utilization. These researchers expected income to have a positive effect on the demand for an UCC.

Other studies also demonstrated income had little influence on ED use. White-Means & Thornton (1989), Strain

(1991) and Padgett & Brodsky (1992) found income to be a nonsignificant indicator for ED use.

Hospital Admissions

Studies have shown substantial differences in ED hospital admission rates between elderly and nonelderly patients. The increased elderly patient admission rate supports the concept that geriatric patients in the ED have increased severity of illness compared to non-elderly patients. Baum & Rubenstein (1987) reported 46.3% geriatric patients with hospital admissions versus 10.2% of patients younger than 65 years of age; Lowenstein et al. (1986) found 33% of the 65-74 year old age group and 47% of those 75 years and older were admitted; Eagle et al. (1993) supported 45% hospital admissions by those 65 years and older compared with only 12% of the 16- to 64- year group.

Parboosingh and Larsen (1987) analyzed predictors of the frequency and appropriateness of ED utilization in a large Canadian city by a random sample of noninstitutionalized persons aged 65 years or greater. These researchers expanded the Andersen and Newman framework to include previous experience with the health care system to explain more of the variance in the number of ED visits. The number of hospital admissions within the previous 6 months was added to the set of enabling variables because previous experience with the health care system was considered to facilitate future use. This variable, the number of hospital admissions in the previous 6 months,

alone explained 34% of the variance in ED use by the elderly. This suggests that participants with more hospital admissions are likely to utilize ED services more frequently.

Data by Eagle et al. (1993) also supports this concept of hospital admissions influencing ED utilization. Thirty percent of their elderly patient sample had been hospitalized at least once within the previous year.

Ferrell, Grant, Rhiner & Padilla (1992) identified two major categories for unscheduled hospital admissions for cancer patients at home. The first was symptom management including uncontrolled pain and nausea. The second category was treatment of oncologic emergencies such as: fever, dehydration, sepsis, respiratory distress, bleeding, small bowel obstruction, chest pain and neutropenia. These researchers also found 54% of hospital admissions for symptom control occurred within two weeks of a hospital discharge.

O'Hare and associates (1993) reviewed literature from 1980 to 1991 relating to cancer patients hospital readmissions, discharge planning, and continued outpatient care to identify factors associated with increased hospital readmissions. These factors included: advanced age, the presence of chronic disease, increased severity of illness, poor self-reported health status, number of discharges in the 60 days prior to the index hospitalization, possession of supplemental Medicaid coverage and widowhood.

In summary, enabling factors of insurance coverage and hospital admissions seem to influence ED/UCC utilization. Income was a non-significant factor. Having some form of insurance coverage increases the probability a person will use ED/UCC services. The elderly tend to have some form of insurance coverage compared to a younger aged group. Also studies support the influence of hospital admissions as influencing ED utilization. This researcher will look at the enabling factors of insurance coverage, income, and the number of hospital admissions within three months since cancer diagnosis. These factors will be analyzed as reasons which may influence elderly cancer patients ED/UCC utilization.

Need Factors

While predisposition of the individual to use services and his ability to secure services are necessary components for health care utilization, need factors or perceived illness level represents the most immediate cause of health service use (Andersen & Newman, 1973; Mutran & Ferraro, 1988; Strain, 1991; Wolinsky & Johnson, 1991).

Limitations in Physical Functioning/Immobility

A study by Laurel A. Strain (1991) examined the influence of health beliefs on the use of various health services (including emergency clinics) by elderly individuals. In "overall health service use" need factors, particularly limitations in activities due to health problems, emerged as the most important determinant. Those

individuals with more chronic conditions, those with poorer perceptions of their health, and those who require assistance with activities of daily living tend to use more services.

Lowenstein et al. (1986) studied the care provided to the elderly and nonelderly patients visiting the ED. The health and demographic profile of elderly ED patients revealed 27% of elders reporting at least one major limitation of activity due to chronic illness.

Denman and associates (1989) compared short term functional and medical outcomes in elderly and nonelderly patients discharged from an acute hospital ED. Functional and mobility status were determined at baseline and at three week follow-up interviews. The elderly tended to have a greater number of functional impairments at three weeks than at baseline. Elderly patients were more likely to report worse medical outcomes at three weeks. Twenty percent were worse, including seven patients who had required hospitalization and four of whom had died. Age and impairment in baseline functional status correlated with poor medical outcomes at three weeks.

Comorbid Disease

Eighty-five percent of the elderly suffer from at least one chronic medical condition (Sanders, 1992). Singal et al. (1992) a study of age-related differences in ED visits found the elderly significantly more likely to have comorbid disease than controls. Lowenstein et al. (1986) reported

levels of chronic conditions among the ED elderly as follows: arthritis, 52%; hypertension, 52%; lung disease, 32%; heart disease, 29%; ongoing problems with vision, 43%; and poor hearing, 29%.

Satariano and Ragland (1994) studied the effect of comorbid disease on 3-year survival of women with breast cancer. Patients with three or more of the following comorbid diseases: MI, other types of heart disease, diabetes, other forms of cancer, and respiratory, gallbladder, and liver conditions had a 20-fold higher rate of mortality from other causes than breast cancer. Also, these same patients had a four-fold higher rate of all-cause mortality compared to patients without comorbid disease. Furthermore, the effect of comorbidity was independent of age, disease stage, tumor size, histologic type, type of treatment, race, and social and behavioral factors.

Brookoff (1994) stated cancer therapies are more toxic in the elderly. This is because of age-related changes such as decreased renal clearance and marrow cellularity and a higher incidence of comorbid disease. McCachren and Silberman (1987) acknowledged increased cerebral dysfunction in the eldery with such complications of cancer or cancer treatments as fever, sepsis, hypotension and hypercalcemia.

Number of Symptoms and Physical Pain

A study by Mor, Masterson-Allen, Houts, & Siegel (1992) on the changing needs of adult cancer patients at home found progressively higher levels of need at diagnosis, recurrence

and in the terminal phase of cancer. More than half the patients reported pain at initiation of chemotherapy or radiation. Of those who did not have pain at baseline 34% cited pain at the 3-month interview. However, an almost equal number of respondents no longer reported pain at the followup interview. Reporting any pain in a 3-month or 6-month interview was strongly related to the likelihood of acquiring a new need in all domains (personal, instrumental, transportation and home health).

Uncontrolled pain is a risk factor for hospital readmissions. Moderate to severe pain is experienced by one third of patients in active therapy and by 60-90% of patients with advanced disease (O'Hare et al., 1993).

McCorkle, Jepson, Malone, Lusk, Braitman, Buhler-Wilkerson & Daly (1994) researched variables including symptom distress among patients at home with early stage and progressive cancers. Their study reported high levels of symptom distress immediately after hospitalization.

Mor et al. (1992) found prevalence rates for nausea and diarrhea dropped between baseline and followup at three and six months. The prevalence of shortness of breath increased somewhat over the study period. Data indicate unmet needs are generally observable e.g., symptoms, functional impairment, and the ability of family and friends to provide assistance.

Postdischarge crisis following colon or genitourinary cancer surgery was studied by Oberst & James (1985).

Virtually all patients reported symptom distress after ten days home and their distress was often quite severe. Seventy-five percent of the patients experienced symptom distress for the first three months and the majority continued with symptoms six months after hospital discharge.

In summary, the elderly tend to have more limitations in physical functioning/immobility and comorbid diseases than a younger population which increases their need. Studies have also reported increased symptom distress and physical pain both within 10 days of hospital discharge and three months of cancer diagnosis. All of these need factors have demonstrated influence in health care utilization. This researcher will examine the need factors of limitations in physical functioning/immobility, comorbid disease, number of symptoms and physical pain. These factors will be analyzed for possible influence of elderly patients with newly diagnosed cancer in the decision to seek urgent health care services.

Summary

The literature shows nothing specific to elderly cancer patients and ED utilization. Available ED/UCC literature relating to older persons and ED use focuses primarily on the frequency and appropriateness of use, patterns of use, age-related difference between elderly and younger patient groups, and the care provided. Cancer literature discusses various oncologic emergencies, needs of cancer patients in the home setting and hospital readmissions. Reason factors

which may influence urgent care utilization in elderly patients with newly diagnosed cancer was gleaned from literature and research on emergency care services, elderly patient medical care use, hospital readmissions, and continued cancer care. As mentioned previously, there is a lack of literature on elderly patients with newly diagnosed cancer and their utilization of ED/UCC services lending evidence to the need for research in this specific area.

CHAPTER IV

METHODOLOGY

Overview

The purpose of this chapter is to describe the research methodology to be used in this study. The sample, definition of concepts, data collection, data analysis, protection of human rights and limitations of this study will be discussed.

Research Design

This is a nonexperimental, descriptive study to examine elderly cancer patients' utilization of EDs and UCCs within three months of incident diagnosis. Secondary analysis will be performed on a small part of the Family Home Care for Cancer: A Community-Based Model, grant No. 5R01.NR/CA01915-04, a complex cancer study by Principal Investigators Barbara A. Given, PhD, RN, FAAN and Charles W. Given, PhD. Briefly, the original research examines age, existing comorbid conditions, site and extent of cancer, aggressiveness of treatment and how these factors impact both patients' functional and mental states and also the involvement of family caregivers.

Target Population

Elderly patients aged 65 years or greater and their families who reside in participating communities throughout the lower peninsula of Michigan were recruited into the Cancer Studies from cancer treatment and care sites

following an incident diagnosis of breast, colorectal, lung, or prostate cancer. Patients and caregivers, or either alone, depending on the patient care situation, participated in this study. Participating communities include: Grand Rapids, Petoskey, Ann Arbor, Lansing, Flint, Midland, Saginaw and Kalamazoo.

Sample

A nonprobability, convenience sample of more than 400 cancer patients, aged 65 years or greater, was selected from the fifteen cancer treatment and care sites at incident diagnosis for participation in the Community Based Cancer Study.

Definition of Concepts

The following are definitions of concepts identified in the research problem and used throughout the study:

Emergency Department

Component of a health care organization that provides immediate evaluation and intervention to all patients presenting regardless of severity of illness, time of day or ability to pay (O'Leary, 1994; Lowenstein et al., 1986).

Urgent Care Center

A freestanding facility that provides treatment to patients with non-life-threatening illnesses and injuries on a walk-in, no appointment required basis less than 24-hours a day (Lumpkin, Glower, Fineberg & Jekel, 1986; O'Leary, 1994).

Frequency of ED/UCC Utilization

For this study, frequency of ED/UCC utilization is defined as the number of patient presentations to emergency departments and urgent care centers for medical care within three months of cancer diagnosis as reported by patients or their primary caregiver.

Reasons Which Influence ED/UCC Utilization

Reasons which influence ED/UCC utilization are those factors which influence individuals in the decision to use ED/UCC health care services. The reason factors for this study include: need factors--limitations in physical functioning/immobility, comorbid disease, number of symptoms, and physical pain; enabling factors--insurance coverage, income and hospital admissions within three months since cancer diagnosis; and predisposing factors--age, gender, education, and living arrangement/marital status.

Comorbid Disease

Comorbid disease will be concurrent medical conditions existing at cancer diagnosis. For this study comorbid diseases will include: hypertension, diabetes, previous cancer or malignant tumor, lung disease such as chronic bronchitis or emphysema, heart attack, coronary heart disease, angina, congestive heart failure, or other heart problems, stroke, emotional, nervous, or psychiatric problems, arthritis or rheumatism, previous hip fracture. A count of these past medical conditions will make up this need variable.

Number of Symptoms

For this study symptoms will include: nausea, pain, trouble sleeping, fatigue, difficulty breathing/shortness of breath, diarrhea, coordination problems, vomiting, poor appetite, weight loss, fever, cough, dry mouth, constipation, and frequent urination. For each symptom experienced by the patient in the past two weeks one point will be given for each symptom reported by the patient and then totaled for the number of symptoms.

Insurance Coverage

Insurance coverage is any personal medical or health insurance or coverage for the patient through another person such as a spouse, parent, or other. For this study health and medical plans which cover medical expenses include: Health Maintenance Organization, Medicare A, Medicare B, private Medigap insurance, Medicaid, CHAMPUS or CHAMPVA, Indian Health Service, Blue Cross/Blue Shield, or any other listed health insurance.

Income

For this study income is defined as the total dollars earned per household in the year respondent was interviewed.

Hospital Admissions

Hospital admissions for this study will include an incident of an overnight stay by the patient as an inpatient within a three month period since diagnosis of cancer. This variable will include one, two, or three or more hospital admissions.

Cancer Diagnosis

For this study cancer diagnosis is a formal diagnosis of either breast, lung, colon, or prostate cancer given to the patient by a physician.

Education

Education will be the highest level of formal schooling completed by the patient. For this study education will include: no formal education, completed grade school, completed some high school, completed high school, completed some college or technical training, completed college, completed graduate/professional degree (post baccalaureate degree).

Living Arrangement/Marital Status

Marital status is the patient's status regarding marriage at time of cancer diagnosis. Categories of marital status for this study include: never married, married, divorced/separated, and widowed. Living arrangement is the status of the patient in regard to either living alone or living with another adult.

Instrumentation

The MOS 36-item short-form (SF-36) is a multi-item scale to assess eight health concepts. These include: 1) limitations in physical activities because of health problems; 2) limitations in social activities because of physical or emotional problems; 3) limitations in usual role activities because of physical health problems; 4) bodily pain; 5) general mental health; 6) limitations in usual role

activities because of emotional problems; 7) vitality (energy/fatigue); and 8) general health perceptions (Ware & Sherbourne, 1992). The SF-36 was developed from the full-length MOS scale to survey health status in the Medical Outcomes Study.

The present study will be concerned with the aspects of physical functioning and bodily pain. Limitations in physical functioning/immobility for this study is the current limitations (within the past three months) including: moving objects, lifting or carrying groceries, climbing stairs, bending, kneeling, stooping, and walking various distances. Those coded (3), limited a lot, will make up this variable. Physical pain for this study is discomfort experienced by the patient within the past four weeks and is subjectively rated from none, very mild, mild, moderate, severe, to very severe (1 to 6 rating scale).

Reliability and Validity

The SF-36 physical functioning scale used the full-length MOS Physical Functioning Scale with two improvements. First, representations of levels and types of limitations were included. Second, revision of standardized responses was made to estimate the severity of each limitation (Ware & Sherbourne, 1992). Physical functioning is defined as the extent to which health interferes with a variety of activities including sports, carrying groceries, climbing stairs and walking. Cronbach's alpha is the most frequently used test to establish internal consistency. Alpha

correlates each individual item with each other item and the overall score, giving an overall measure of the consistency with which the score of an item can be used to predict the overall attribute being measured (Brink & Wood, 1994). The internal consistency reliabilties of the physical functioning measure of the SF-36 was 0.86. Thus, 86% of the variability in obtained scores can be said to represent true individual differences. Nunnally recommends reliability coefficients above 0.70 (Stewart, Hays & Ware, 1988).

The SF-36 measure of pain is the extent of bodily pain within the past four weeks (Stewart et al., 1988). The SF-36 retained the original SF-20 question concerning the frequency of pain plus added a measure of the extent of interference with normal activities related to pain. This latter item was added because of its predictability (r=0.84) of the total score used in the MOS (Ware & Sherbourne, 1992).

The validity of an instrument is the degree to which it accurately represents what it is supposed to measure (Brink & Wood, 1994). All correlations among the health measures of the SF-36 were statistically significant ($P < 0.01$). This pattern of correlations corresponded well with that observed from studies of the full-length versions of these measures (Stewart et al., 1988).

Data Collection

In the Community Based Cancer Study patients and families were recruited from the previously listed community

settings. Data were collected by means of a structured questionnaire with telephone interview and by abstraction from medical records. Data collectors were either graduate nursing students or medical students. Training consisted of procedural explanation and an interviewer manual with specific instructions. Prior to an actual interview, a mock interview was performed and reviewed with feedback given to the data collector. The first patient interview was critiqued in a similar manner and intermittent reviews continue. The patient or caregiver telephone interview lasted 45-60 minutes, and occurred within six weeks post-surgery or within 10 days of beginning adjuvant therapy. Specific questions and answers from the larger Wave I data set will be used to answer the research question: How do predisposing factors, enabling factors and need factors predict ED/UCC utilization by elderly patients within three months of cancer diagnosis?

Data Analysis

Simple frequency distributions were performed to deterimine how frequently ED/UCC services were utilized by respondents, and also to determine the characteristics of the total sample and the ED/UCC user sample. Logistic regression was performed to evaluate the relationship between the dichotomous dependent variable, ED/UCC utilization, and multiple independent predictor variables. The independent variables were divided into three main categories as follows: 1) Predisposing variables--age,

gender, education, and living arrangement/marital status; 2) Enabling variables--insurance coverage, income, and hospital admission within three months after a cancer diagnosis; and 3) Need variables--number of symptoms, pain severity, limitations in physical functioning/immobility, and comorbid disease. The dependent variable, the number of ED/UCC visits, was coded zero (no visits) or one (one or more visits). A logistic regression analysis was performed adding the predictor variables via the enter method. Adding the predictor variables into the model simultaneously creates equality among the independent variables in predicting the dichotomous dependent variable. Chi-square tests, regression coefficients and their significance level will be reported.

Protection of Human Rights

Guidelines specified by the University Committee for Research Involving Human Subjects at Michigan State University were followed for the protection of study participants' rights. Informed consent was obtained at the time of enrollment into the Cancer Study for interviews and review of medical records. Participants were informed of the right to refuse to participate or withdraw from the study at any time. Data previously collected by Drs. Given and Given (1994) are confidential and anonymous. Secondary analysis from a computer disc protects subjects' identity with assignments of ID numbers. Subject responses are also associated with code numbers.

Potential risks to the study participants were not anticipated because the data had already been collected. Additional time from the subjects was not required.

Limitations of This Study

The following limitations are identified:

1. The first limitation to this study is the use of a nonprobability, convenience sample. The risk of bias for this study may be minimized because the phenomenon under study, ED/UCC utilization by elderly patients within three months of diagnosis of either breast, lung, colorectal or prostate cancer in the lower peninsula of Michigan, is fairly homogeneous. The results of this study may not be generalized to a broader population of younger patients or patients with other types of malignancy.
2. Another limitation is the small number of patients falling into the outcome variable group (ED/UCC users) related to the number of independent variables and chance in the statistical probabilities.
3. There is no control over primary site of cancer, stage of cancer, or treatment modalities such as surgery, chemotherapy, radiation or combination of any of these. Primary cancer site, type of cancer treatment will be looked at, but stage of cancer data are unavailable.
4. There is also no control over other comorbid conditions or previous limitations of functional status in patients prior to cancer diagnosis which may influence

urgent health care utilization. Existing comorbid conditions and current physical functioning status was investigated.

5. One final limitation to this study is the lack of information regarding previous ED/UCC use by these patients prior to the study which may have influence on their utilization of urgent health care services.

CHAPTER V

RESULTS AND FINDINGS

Overview

The purpose of this chapter is to describe the results and findings from this study. Crosstabulations were performed of the dichotomous dependent variable, not used or used emergency care services, with several descriptive and/or independent variables. Observed and expected values, total percentages, the Pearson chi square, degrees of freedom, and significance were analyzed. Logistic regression analysis was performed with ED use as the outcome variable and six predictor variables. Beta coefficients with statistical significance will be shown. In addition, unexpected findings of this research will be presented.

Results and Findings

Of 425 valid cases 36 patients or 8.5% of the sample utilized emergency/urgent care health services within three months of cancer diagnosis. Thirty-one patients made one ED visit, four patients made two ED visits, and one patient made four ED visits.

The distribution of the ED user and ED non-user sample by primary cancer site and treatment modalities is presented in Table 1. Actual ED use percentages were slightly higher than the non-ED user group for those with colon and lung cancer, but showed a lower percentage in ED use in those patients with breast cancer (Chi-square 3.8; df 3; p=.28). Cancer type was not statistically significant with ED use.

Table 1.

Cancer Site and Treatment with Emergency Use by Number, Percent, and Significance

Variable	Not Used No.	(%)	Used No.	(%)	P value
Cancer Site	N=406		N=35		
Breast	122	(30)	6	(17)	
Colon	65	(16)	8	(23)	
Lung	83	(20)	10	(29)	n/s
Prostate	136	(33)	11	(31)	
Treatment	N=409		N=36		
Surgery Only	135	(33)	12	(33)	
Chemo Only	0		2	(6)	
Radiation Only	57	(14)	3	(8)	
Surgery & Chemo	35	(9)	3	(8)	
Surgery & Radia	111	(27)	8	(22)	<.01
Chemo & Radia	17	(4)	3	(8)	
All Three	32	(8)	5	(14)	
None	22	(5)	0		

There were patients from each possible treatment modality represented in the ED user population. The highest ED users were in the surgery only 33.3% (N=12), surgery and radiation 22.2% (N=8), and combination of all three treatment areas 14% (N=5). The largest representation of the non-ED user sample were also surgery only 33% (N=135), surgery and radiation 27% (N=111), and then radiation only 14% (N=57). Radiation only, surgery and radiation, and no treatment were represented in the non-ED users 5-6% more than ED users. The study shows cancer treatments of chemotherapy, chemotherapy and radiation together, and a combination of all three treatments (surgery, chemotherapy, and radiation) to be 4-6% higher in the ED user group.

Cancer treatment was statistically significant with ED use (Chi-square 28.5; df 7; p=.002). Those ED user patients receiving chemotherapy only, chemotherapy and radiation, and a combination of surgery, chemotherapy, and radiation showed counts higher than expected values.

Predisposing Factors and Emergency Use

The predisposing factors of: age, gender, level of education, marital status, and living arrangement are examined for influence on ED use.

Age

Patient ages ranged from 65-95 years (mean 74; SD 5) determined by the birth years 1900-1930. The 65-75 year range contained 70.3% (N=313) of the population. There were 122 patients aged 76-85 years or greater and 10 patients aged 86-95 years. Over 66% (N=24) of the ED user sample were 65-75 years of age. Only two patients aged 86 years or greater used ED services. Age was not statistically significant with ED use (see Table 2).

Gender

Of 445 cases in the sample 228 were male and 217 were female. Of the males 8.8% utilized ED services compared to 7.4% females. Thus, the ED population was represented by 56% (N=20) males and 44% (N=16) females. Gender was not statistically significant with ED use.

Education

Levels of education for both sample groups included one case without formal education and 18 cases completing

Table 2.

Predisposing Factors of Patients and Emergency Use by Number, Percent, and Significance

Variable	Not Used No. (%) N=409		Used No. (%) N=36		P value
Age					
65-75	289	(71)	24	(67)	
76-85	112	(27)	10	(28)	n/s
86-95	8	(2)	2	(5)	
Gender					
Male	208	(51)	20	(56)	
Female	201	(49)	16	(44)	n/s
Education					
No Formal Educ.	1	(.2)	0		
Grade School	25	(6)	7	(19)	
Some High School	87	(22)	10	(28)	
High School	133	(34)	2	(6)	<.01
Some College	88	(22)	12	(33)	
College Degree	42	(11)	3	(8)	
Graduate Degree	16	(4)	2	(6)	
Marital Status					
Single	13	(33)	1	(3)	
Married	259	(66)	20	(56)	n/s
Divorced/Sep.	29	(7)	3	(8)	
Widowed	93	(24)	12	(33)	
Living Arrangement					
Alone	94	(24)	10	(28)	
With Spouse	260	(66)	20	(56)	n/s
None of Above	7	(10)	6	(16)	

graduate school. The majority of the patients, 77.6% (N=332), ranged from completing some high school to completing some college. There was a non-linear statistical significance between level of education and ED use (Chi-square 18.5; df 6; p=.005). This significance was in the 31.5% (N=135) completing high school had an only 1.5% (N=2)

rate of ED utilization. Both lower and higher educational levels had a higher percentage of ED use. To compare, those in the lower/higher educational levels of: completed grade school 22% (N=7); completed some high school 10% (N=10); completed college 12% (N=12); completed college 7% (N=3); and completed graduate school 11% (N=2) utilized ED services. Looking specifically at the ED user sample, completing some college 33% (N=12) and completing some high school 28% (N=10) represented the educational levels with the highest ED use in this population.

Marital Status/Living Arrangement

From the entire sample approximately 65% (N=279) reported being married/living with their spouse and 24.4% (N=105) reported being widowed/living alone. Of those being married 7.2% (N=20) were ED users compared to 11.4% (N=12) ED users in the widowed category. Looking specifically at the ED sample 56% (N=20) were married and 33.3% (N=12) were widowed. There was no statistical significance in marital status/living arrangement and ED use.

Of the predisposing factors - age, gender, education, marital status, and living arrangement - level of education was shown to have a non-linear association with ED utilization. Completing high school showed a decreased rate of ED utilization compared to lower and higher educational levels.

Enabling Factors and Emergency Use

The enabling factors of: type of insurance coverage and number of hospital admissions within the past three months of cancer diagnosis are examined for influence of ED use.

Insurance Coverage

Over 99% (N=349) of the sample responded they had some form of health insurance. Medicare A and B were reported by 98% (N=341) and 97% (N=336) of the respondents respectively. Five percent (N=17) of the sample had Medicaid. Of those having Medicaid 24% (N=4) used ED services compared to 7% (N=24) without Medicaid (Chi-square 5.5; df 1; p=.02). Those patients with Medicaid are three times more likely to utilize ED services than those patients without Medicaid (see Table 3).

Income

Very few respondents reported income. Because of the large number of missing data in this observation, income will be eliminated as a predictor variable.

Hospital Admissions

Approximately 81% (N=244) of the sample had one hospital admission within three months of cancer diagnosis. Of those with one hospital admission only 7% (N=18) used ED services. ED use increased to 23% (N=11) in those patients with two hospital admissions (Chi-square 10.8; df 2; p=.004). Those with two hospital admissions are three times more likely to use emergency care than those with one hospital admission.

Table 3.

Enabling Factors and Emergency Use by Number, Percent, and Significance

Variable	Not Used No. (%)	Used No. (%)	P value
Insurance			
Medicare A	N=319	N=29	
Yes	313 (98)	28 (97)	n/s
No	6 (2)	1 (3)	
Medicare B	N=319	N=29	
Yes	308 (97)	28 (97)	n/s
No	11 (3)	1 (3)	
Blue Cross/Shield	N=317	N=28	
Yes	175 (55)	14 (50)	n/s
No	142 (45)	14 (50)	
Medicaid	N=312	N=28	
Yes	13 (4)	4 (14)	.02
No	299 (96)	24 (86)	
HMO	N=315	N=29	
Yes	27 (9)	3 (10)	n/s
No	288 (91)	26 (90)	
No. of Hospital Admissions	N=272	N=30	
One	226 (83)	18 (60)	
Two	37 (14)	11 (37)	<.01
Three or more	9 (3)	1 (3)	

Enabling factors of Medicaid insurance and hospital admissions are statistically significant with ED use. Patients with Medicaid insurance and patients with two hospital admissions have three times the likelihood of ED utilization.

Table 4.

Need Factors and Emergency Use by Number, Percent, and Significance

Variable	Not Used No.	(%)	Used No.	(%)	P value
Number of Symptoms	N=409		N=36		
None	36	(9)	0		
One	42	(10)	1	(3)	
Two	37	(9)	8	(22)	.01
Three	64	(16)	4	(11)	
Four	53	(13)	6	(17)	
Five	45	(11)	2	(6)	
Six	28	(7)	3	(8)	
Seven	30	(7)	5	(14)	
Eight	25	(6)	1	(3)	
Nine	19	(5)	2	(6)	
Ten	12	(3)	0		
Eleven	8	(2)	1	(3)	
Twelve	6	(1)	1	(3)	
Thirteen	2	(0.5)	1	(3)	
Fourteen	0		1	(3)	
Fifteen	2	(0.5)	0		
Range of Patient Symptoms	N=409		N=36		
0 - 1	78	(19)	1	(3)	
2 - 7	257	(63)	28	(78)	.05
8 - 15	74	(18)	7	(19)	
Pain Severity	N=393		N=36		
None	121	(31)	16	(44)	
Very Mild	63	(16)	1	(3)	
Mild	91	(23)	7	(19)	.04
Moderate	76	(19)	5	(14)	
Severe	33	(8)	4	(11)	
Very Severe	8	(2)	3	(8)	
Current Physical Limitations	N=390		N=36		
Moderate Activities	138	(35)	11	(31)	n/s
Vigorous Activities	203	(52)	20	(57)	n/s
Lift, Carry Groceries	89	(23)	8	(23)	n/s
Climb Several Stairs	101	(26)	10	(28)	n/s
Climb One Stair	44	(11)	7	(19)	n/s

Table 4 (continued)

Variable	Not Used No.	Not Used (%)	Used No.	Used (%)	P value
Bend, Kneel, Stoop	65	(17)	11	(31)	.07
Walk One Block	54	(14)	5	(14)	n/s
Walk Several Blocks	88	(22)	12	(33)	n/s
Walk > One Mile	142	(37)	18	(53)	n/s
Number of Comorbid Diseases		N=409		N=36	
None	113	(28)	11	(31)	
One	115	(28)	10	(28)	
Two	107	(26)	9	(25)	
Three	50	(12)	3	(8)	.01
Four	15	(4)	1	(3)	
Five	8	(2)	0		
Six	0		1	(3)	
Seven	1	(0.2)	1	(3)	

Table 5.

Logistic Regression Analysis of Emergency Use With Six Predictor Variables

Variable	Regression Coefficient	P value	R
Patient Education	-.1154	.4723	.0000
Hospital Admissions	.7004	.0309*	.1171
Symptoms	.0250	.7287	.0000
Pain Severity	-.0831	.5587	.0000
Comorbid Disease	.0718	.6388	.0000
Phys. Limitations	.0812	.3113	.0000
Constant	-2.8446	.0032	

*$p<.05$.

The question studied by this researcher was: How do predisposing, enabling, and need factors predict Emergency Department and Urgent Care Center utilization by elderly patients within three months of cancer diagnosis? Because

of the small sample size (N=36) fitting the outcome variable, users of emergency services, predictor variables were limited to six for the logistic regression equation. The six predisposing, enabling, and need variables were chosen based on the Pearson chi-square significance of the previously discussed crosstabulations and also the theoretical perspective of the literature. The predictor variables included were: patient level of education, number of hospital admissions, count of symptoms, physical pain severity, count of comorbid diseases, and physical functioning that was currently limited a lot.

A correlation matrix was computed to identify any significant relationships among the six predictor variables. There was a negative correlation between patient education and number of symptoms ($p=<.01$). Patients with lower educational levels reported more symptoms. Also shown was a statistically significant relationship ($P=<.01$) between number of symptoms and physical pain severity, number of comorbid diseases, and current limitations in physical functioning. As the number of symptoms increase, so do pain severity, comorbid conditions, and limitations in physical functioning. Correlations showed significance in physical pain severity and current limitations in physical functioning ($P=<.01$). As physical pain increases limitations in physical functioning increases. There was significance ($P=<.01$) between number of comorbid diseases and symptoms/physical limitations. As the number of

comorbid diseases increases so do symptoms and physical limitations. There were a possibility of 15 interaction terms.

Logistic regression, performed with the predictor variables entered simultaneously, identified number of hospital admissions as significant in predicting ED utilization. Another analysis used the interaction term of pain severity and number of symptoms with the previous six predictor variables. This found only the number of hospital admissions as significant (P=.03) in predicting ED use.

Based upon the theoretical perspective of the literature and the significance of the correlation table, one further first order interaction term - number of symptoms by number of comorbid diseases - was entered into the logistic regression model with the six predictor variables. This interaction term did have statistical significance (P=.02) along with number of hospital admissions (P=.03) in predicting ED utilization. The four need predictor variables and the predisposing predictor variable were found not to be statistically significant in the logistic regression model.

With the exceptions of one enabling variable, the number of hospital admissions, and one interaction term, number of symptoms by number of comorbid diseases, logistic regression then did not show how predisposing, enabling, and need factors predict emergency utilization. However, there

were other findings identified by this researcher that were both interesting and significant.

Other Interesting Findings

Prior to aggregation of the variables for the logistic regression analysis bivariate correlations were performed on the 70 individual variables with ED use. Several variables were identified as having a relationship with use of emergency services. The first were the enabling factors of Medicaid and the number of hospital admissions which were previously addressed. Also identified were the need factors of: symptoms of fever and diarrhea, the comorbid disease of diabetes, and the physical limitations three months previous in walking several blocks and climbing several stairs (see Table 6).

Fever was statistically significant with ED utilization in crosstabulation statistics(Chi-square 14.4; df 1; $p=<.01$). Only seven percent (N=30) of the entire sample reported fever. However, of the ED user sample 22% (N=8) reported fever compared with 5.5% (N=22) of the non-ED users reporting fever.

Diarrhea was another symptom found to be of near statistical significance with ED use in crosstabulation statistics (Chi-square 3.5; df 1; $p=.06$). From the entire sample 26% (N=112) reported diarrhea but of the ED user sample, 39% (N=14) had diarrhea compared with 25% (N=98) of the non-ED users.

Table 6.

Specific Variables and Emergency Use by Number, Percent, and Significance

Variable	Not Used No. (%)	Used No. (%)	P value
Fever	N=399	N=36	
Yes	22 (6)	8 (22)	<.01
No	377 (94)	28 (78)	
Diarrhea	N=399	N=36	
Yes	98 (25)	14 (39)	.06
No	301 (75)	22 (61)	
Diabetes	N=379	N=31	
Yes	45 (12)	7 (23)	.09
No	334 (88)	24 (77)	
Climb Several Stairs 3 mo. ago	N=387	N=36	
No Limits	267 (69)	18 (50)	.02
Limitations	120 (31)	18 (50)	
Walk Several Blocks 3 mo. ago	N=395	N=36	
No Limits	299 (76)	23 (64)	
Some Limits	42 (11)	3 (8)	
A Lot of Limits	54 (13)	10 (28)	.07

One further interesting finding was to describe a respondent who was an outlier in his number of ED visits. Of the ED user sample 86% (N=31) made one ED visit, 11% (N=4) made two ED visits, and one patient made four visits. This patient was a 70 year old married male with colon cancer, who had completed some college and lived with his spouse. His cancer therapies were surgery and chemotherapy. He had two hospital admissions within three months since cancer diagnosis. He reported five symptoms: cough, dry

mouth, diarrhea, coordination problems, fatigue and mild physical pain. Current physical functioning was limited a lot in all areas. He also reported three comorbid diseases: hypertension, arthritis, and heart problems. This patient profile correlates with the findings of this study. His cancer type (colon), age (65-75), gender (male), educational level (some college), number of hospital admissions (two), count of symptoms (2-7), and count of comorbid diseases (three) support the findings of this study.

In summary, the need factors of the number of symptoms, pain severity, and the number of comorbid diseases showed statistical significance with ED use. Again this was a non-linear association. Specific need factors demonstrated statistical or near statistical significance with ED use. These included: fever, diarrhea, and physical limitations in climbing several stairs and walking several blocks three months previous, and current limitations in bending, kneeling and stooping. Enabling factors of Medicaid and the number of hospital admissions were significant with ED use. The predisposing factor, level of education, also showed statistical significance with ED use.

CHAPTER VI

DISCUSSION

Overview

The purpose of this chapter is to discuss the interpretation of the results in relationship to the literature, methodology and conceptual framework.

Findings Interpreted with Literature

Predisposing Factors

In practical terms, this study has shown that elderly patients are not frequent users of emergency care services. This is in agreement with previous studies by Baum et al., 1987; Eagle et al., 1993; Ettinger et al., 1987; Hedges et al., 1992; and Singal et al., 1992. However, this researcher did not identify a disproportionate ED use among those patients greater than 75 years of age as identified by Baum et al., 1987 and Lowenstein et al., 1986. Over 66% (N=24) of ED users in this study were 65-75 years of age.

Most research supports greater use of health care services by women. However, this study's ED gender representation is similar to Miller et al.(1985) which showed a 57% male representation in their freestanding emergency center population.

Having a high school education was found to be statistically significant in this research for decreased ED use. This finding supports the literature (White-Means & Thornton, 1989). Those patients with less education may not have the problem solving skills nor the resources available

when seeking health care services. However, this study also found that the ED users with higher educational levels (some college or above) were just as likely to use ED services as those without a high school diploma. This finding may support the premise that individuals with higher educational backgrounds demand immediate attention to their needs.

Widowed patients were represented in the ED user sample in slightly greater proportion than the non-ED users (33% vs. 24%). White-Means & Thornton (1989) found marital status an insignificant determinant for ED use. Eagle et al. (1993) found 40% widowed in their ED sample demographics. Little variation was found in this study between the ED user/non-ED user groups in living arrangement.

Enabling Factors

The findings support the literature (Hedges et al., 1992 & Singal et al., 1992) that the elderly are likely to have some form of insurance especially Medicare coverage. Medicaid was found to increase the likelihood of ED use which agrees with the study by White-Means & Thornton (1989). Accessibility and reimbursement issues surround Medicaid. Patients with Medicaid may have difficulty getting an appointment with a primary care provider. However, there is relative ease for Medicaid patients to make an ED visit. The impact of Medicaid is a systems issue that creates barriers for alternative forms of care in those patients with Medicaid. An alterantive view, is that for

those patients not having Medicaid, especially those with HMO and Blue Cross/Blue Shield, there may be difficulty getting reimbursement for ED visits. Insurances may not agree that the patient condition warranted an ED visit, thus refuse to authorize payment for the emergency charges. Reimbursement issues with private insurances may be a deterrant for some elderly patients in seeking ED care.

The number of hospital admissions was statistically significant. Having two hospital admissions vs. one hospital admission within three months of a cancer diagnosis greatly increased the likelihood of ED use. This finding supports previous studies by Parboosingh and Larsen (1987) and Eagle et al. (1993). However, the amount of variance in hospital admissions found in this study did not reach the magnitude found in the research by Parboosingh and Larsen (1987).

Need Factors

Contrary to most studies of health care utilization need factors did not significantly predict ED use in the logistic regression analysis. This could have been related to methodological issues with the measures of need or to the small ED user sample size.

This research looked at the counts of the number of symptoms as predicting ED use. Although the literature did not report specific counts on the number of symptoms, Oberst and James (1985) found 75% of their patient sample experienced symptom distress three to six months after

hospital discharge. The present research showed even higher results with 82% (N=366) of the entire sample reporting two or more symptoms, increasing to 97% (N=35) reporting two or more symptoms in the ED user group alone.

The present study demonstrated a 33% (N=12) reporting of moderate to severe pain in the ED user group. This finding coincides with O'Hare et al. (1993) that moderate to severe pain is experienced by one third of patients in active therapy. Mor et al. (1992) found a higher percentage (>50%) in their study with initiation of chemotherapy or radiation.

Current physical functioning limitations were similar between the two groups with the exceptions of an 11-16% increase for ED users in areas of walking several blocks, bending, kneeling, stooping, and walking more than a mile. A study by Strain (1991) reported limitations in physical functioning to be an important determinant for health service use.

The ED user/non-ED user groups had similar frequencies of comorbid disease counts. Sixty-one percent (N=22) of the ED user sample had one to three comorbid diseases. This finding agrees with the study by Singal et al.(1992) that the elderly are likely to have comorbid disease. The percentages in specific conditions such as hypertension (49.1%, N=202) and heart disease (28.2%, N=116) in the elderly cancer patient sample were similar to the reported findings by Lowenstein et al.(1986). This study found an

interaction effect with number of symptoms and number of comorbid diseases to be significant in predicting ED use.

To summarize, findings in this research have similarities to previous literature on emergency utilization studies and also to cancer studies. Elderly cancer patients are not frequent attenders of emergency care services. Number of hospital admissions was found significant in predicting ED use in logistic regression analysis.

Method, Analysis, and Research Question Issues

A major methodological issue in this research was the small ED user sample size and the amount of predictor variables studied. Prior to aggregation of the independent variables there were 70 individual factors. Correlations were performed to determine possible statistical significance between these and ED use. Aggregation of the factors were done and there remained 11 independent predictor variables. Six of these were chosen for the logistic regression model.

Another possible problem with the logistic regression method could have been a non-linear association in statistically significant variables with ED use. Because of looking at the prediction of ED/UCC utilization in this sample by predisposing, enabling, and need factors, logistic regression analysis was the correct statistical procedure. However, this statistical procedure needs a linear relationship in the variables for possible significance. Perhaps further statistical procedures could have been

attempted in these variables to create a more linear relationship with ED use.

The interaction effects among the independent variables may be an issue in predicting ED use. The interaction term of number of symptoms by number of comorbid diseases showed statistical significance in the logistic regression model in predicting ED use.

Again, the only factor significant in predicting ED/UCC utilization, without consideration of interaction effects, was the enabling factor of hospital admissions. The other predisposing and need factors did not predict ED use. A differently phrased research question looking at the relationships of the predisposing, enabling, and need factors with ED/UCC use may have yielded improved results in this study using different statistical analysis. There were significant relationships found but usually a non-linear association.

The framework used for this research was appropriate but again due to the small sample size perhaps adjustments should have been made. In looking for significance in predictor variables logistic regression analysis was performed with both the four predisposing variables and need variables alone in the equation, but without significance. Possibly using specific variables in this framework such as fever or diarrhea that had a linear association could have yielded significant results.

The questionnaire used for this study may not have been specific enough for ED utilization. The questionnaire was developed to study how cancer site/treatment, age, and comorbid disease impact patient functional and mental states and also the involvement of family caregivers. There may not have been enough specific detail to get the important information for ED utilization.

Other factors not studied may account as predictors of ED utilization such as: health beliefs or attitudes; availability of help at home or social support provided by relatives, friends, and community members; access or proximity to primary care; or the number of health care sources. With several specialty health care providers coordination and continuity of patient care may be lacking and thus result in the likelihood of ED utilization. Attitudes or health beliefs about cancer, primary care and emergency care influence health service use. Decreased social support such as those living alone or with minimal assistance could also influence ED/UCC utilization.

Stage of cancer may be a factor predicting ED use. Those patients with terminal stages of cancer have increased symptomatology. Caregivers may have symptom concerns, be overburdened at this time and may want an immediate solution to a need which prompts an ED visit.

In summary, there were issues of difficulty with this study surrounding methodology, statistical procedures, and the research question as stated. The main issues were: 1)

The need for logistic regression with prediction in the question; 2) Having predictor variables of a non-linear association with ED use for a logistic regression model; 3) A small ED user sample size in relation to the large number of independent variables; 4) The possibility of factors not used in this study that may be important predictors of ED/UCC use; and 5) The possibility of further interaction effects of the independent variables that were not explored and placed into the logistic regression model.

CHAPTER VII

IMPLICATIONS FOR ADVANCED PRACTICE NURSES

Advanced Practice Nurses (APNs) in primary care could impact the emergency service utilization by elderly patients with newly diagnosed cancer. Family Nurse Practitioners (FNPs) and Geriatric Nurse Practitioners implementing their various role characteristics can improve patient/family outcomes in both the family practice and emergency care settings.

APNs as clinicians tend to be holistic in their care and take more time with patients. Subtle changes often difficult to detect in the elderly because of comorbid disease processes coexistant with cancer therapy effects and the normal physiologic aging changes could be identified to prevent deteriorations in the patient's health status. Symptoms are often increased at cancer diagnosis and the terminal stages, but may be inconsistent during the course of the disease. This requires ongoing assessment of the patient's condition.

Case management by the APN assures continuity and coordination of care in these patients. This concept is very important especially if several specialists are managing only segments of the patient's health care. Medical records may not be forwarded to all the various providers creating either duplication or lack of patient services. The APN as case manager could ensure

comprehensive patient management to prevent some higher cost ED visits, repeat ED visits, and hospital admissions.

The APN as researcher can track the frequency, demographic profiles, health status, and outcomes of elderly cancer patients seeking care in the hospital ED. High risk elderly patients such as those with severe symptomatology, limitations in mobility, decreased self-care abilities, those living alone, those on Medicaid, or those with two or more hospitalizations can be identified and targeted for close follow-up.

Quality of care provided to the elderly cancer population can also be assessed through evaluation. Optimal outcome criteria may not be simply survival or prolongation of life, but may involve other areas such as pain control and symptom management. Quality assurance studies to measure effectiveness of the ED care could be conducted to examine patient/family satisfaction with the care received, determine the degree of symptom resolution, and the understanding of the discharge teaching/instructions. Outcomes could be followed longitudinally for symptom control and management, return ED visits and hospital readmissions post ED discharge.

Historically, a very large portion of nursing practice involves patient and family teaching. The APN using the educator role could inform the patient/caregiver about his/her condition, expected symptoms, and the gravity of certain signs and symptoms. For example, symptoms of fever

and severe diarrhea can be frightening to patients and caregivers with the possibility of sepsis and dehydration. The APN can provide measures to be undertaken at home for symptom control/management. The APN can also provide anticipatory guidance with specific ranges related to fluid intake, number of stools, urinary output, and degrees of fever as to when medical care (ED visit) is needed. The APN could audiotape educational/instructional information and send the tape home with patients to play when needed. This measure could be both reinforcing and reassuring to patients listening to their APN's familiar voice relating specific instructions. The APN educates to improve the decision making process by elderly patients and/or their caregivers in choices available for specific episodes of need.

The educator role of the APN may involve development of programs. Specific programs developed for patients and/or caregivers to recognize, manage, and minimize common side effects of chemotherapy, radiation, and postoperative complications should be developed. These programs should also include teaching of skilled care techniques such as colostomy, foley catheter, and wound/drain care. Program development toward education of patients/families could adequately prepare them for cancer care continued in the home. Initiation of APN directed group education and support groups for cancer caregivers and patients could lend additional education and resources through association with others in similar circumstances.

A "hot-line" or nurse based telephone assistance program for cancer patients and caregivers use would lend immediate contact with a qualified APN to answer questions and concerns. Telephone screening and assistance could be a cost-effective way to prevent both complications and unnecessary ED/UCC visits.

The APN in the ED could develop evaluation tools and protocols for certain patient groups or medical conditions. Those patients who are widowed, living alone, or lacking a support system need identification with interventions initiated and frequent medical contact after discharge. Another example would be a protocol for the functional assessment of elderly patients especially the special care needs of older cancer patients. Often times functional status is ignored by ED physicians when treating patients in this busy health care environment. In the study by Hedges et al.(1992) over 70% of elderly patients were not asked about the ability to care for themselves. Improved ED assessments in this area may avert return visits and prevent hospital readmissions because of interventions planned and implemented at initial ED evaluation. An evaluation tool to measure the patient's functional status could be developed from the SF-36 instrument for efficient, objective information about patients' functional health.

In the Medical Outcomes Study, patients with two or more comorbid conditions, including diabetes, hypertension, coronary heart disease, and depression, were more likely to

report functional impairments than those patients with single conditions (Satariano, 1992). Patients with more than one comorbid condition or those having a significant level of severity in a comorbid disease should be identified as high risk patients. When discharged from the ED, those patients assessed with two or more comorbid diseases, significant severity of a comorbid disease, or impaired functional status should be targeted for close medical follow-up and ready access to health services.

The APN as educator, planner, and leader could also improve the process of ED care for all aged persons through systems improvement and individual staff development of personnel, including residents and attending physicians. There is a paucity of education in geriatric emergency care. Less than five percent continuing education time for practicing physicians is devoted to topics in geriatric emergency care. In addition, 53% of residency-trained ED physicians considered their education on the emergency care of the elderly to be insufficient (Sanders, 1992). Care of the elderly in the ED should be identified and treated as a special entity. Stimulation of interest in this area, improved knowledge in the physiological changes of the aging process, with the different and altered presentations of serious acute and chronic illnesses in the elderly, and the high risk potential for adverse effects are all fundamental tenents for the care of older persons. Through an increased knowledge base and interest in geriatric emergency care

improved and innovative models of urgent health care delivery could be developed.

Educational courses in geriatric emergency nursing/medicine, similar to pediatric courses, could be developed specific to the elderly population. Health care providers/workers need to recognize the elderly population as a special entity and challenge. The delivery of emergency care will improve with increased knowledge, assessment skills, and specific interventions planned for the unique physiologic, medical, and social needs of the elderly.

The APN as a planner and communicator develops safe, effective discharge planning. The APN could assure adequate information transfer and improve communications between ED health care professionals and elderly patients, caregivers, and primary care providers. The APN could communicate directly from the ED with the primary care provider to discuss the patient's history, plan care and management collaboratively, and refer the patient back to this provider for a scheduled follow-up appointment. The APN could also communicate with the patient/family with follow-up phone calls within 24-48 hours, one week, and 2-3 weeks after ED discharge to assess patient status and assist with any needs or concerns.

Hospitalizations of elderly cancer patients increase emergency service utilization. Those patients living alone, those having Medicaid, those with comorbid disease such as

diabetes, and those with functional limitations should be identified as high risk patients. The APN as case manager in inpatient hospital services can collaborate with physicians, social workers, and home care agencies for close follow-up and access to needed resources for those high risk elderly cancer patients after hospital discharge. The same functional assessements previously discussed for the ED setting could be instituted on medical, surgical, and oncology units and also the home setting. Additional protocols could be developed for discharge planning in identified high risk patients.

The APN as an advocate would be knowledgeable about community resources and assist patients/families with referrals to social and service agencies such as Hospice, Meals on Wheels, and senior citizen transport services. The APN could also advocate for assistance devices such as canes, walkers, tub rails, bedside commodes, etc. in home settings for patient limitations in mobility.

As a collaborator the FNP in the ED and/or family practice setting could have arrangements with other primary care providers for coverage during times of their unavailability. The FNP could also collaborate with specialists for continuity and comprehensiveness of treatment plans for elderly cancer patients.

The FNP could offer flexible hours and allow available time slots or walk-in urgent care visits in the primary care practice. This accessibility for elderly cancer patients

may prevent ED visits or exacerbations in patient symptomology that could result in poorer patient outcomes.

In the community the APN can be a leader to actively educate the public and advocate for adequate resources in the elderly cancer patient population. The APN can play an active role in professional organizations and fight against legislative acts that reduce the elderly's health care benefits and limit resources available to this population.

There are many areas where the APN can impact the care and improve patient/family outcomes for elderly cancer patients. In the primary care office, the emergency/urgent care settings, and the hospital APNs will offer continuous, coordinated and comprehensive patient care management by implementing various role characteristics inherent in advanced nursing practice.

Future Nursing Research

This research study, a secondary analysis, was a beginning attempt to identify factors which predict emergency utilization in an elderly cancer patient population. There are several ways in which future research could be expanded and improved. Foremost, reason factors precipitating these urgent health care visits need to be explored, identified, and clarified. This basic foundation of knowledge has to be in place prior to future research. A qualitative study specifically asking patients open-ended questions about what events, signs or symptoms prompted the ED visit may identify factors which should be included in

future research. There may be patterns of symptoms or certain groups of symptoms, cancer therapy side effects, problems from certain comorbid diseases, or just lack of resources and/or coordination of care. Knowing more about the patient and his/her circumstances could identify other significant reason factors for seeking ED care. Then further studies can build onto this knowledge base.

Certain symptoms such as fever, diarrhea, vomiting, shortness of breath, or bleeding may cause more fear or anxiety in elderly patients and thus prompt an ED visit. Patients may have heard the term "diarrhea" or "fever" with radiation or chemotherapy treatments. Examination of symptoms associated with fear or anxiety, symptoms of sudden onset, or those producing distress need to be explored in future studies.

Additional qualitative and quantitative research needs to use the Padgett & Brodsky model (1992) to examine factors influencing three stages of decision-making for ED use. This study was confined to stage 3, the decision to use a particular service, the emergency department. The literature showed no studies on problem recognition (Stage 1) and only one study which used the decision to seek help (Stage 2) from the decision to seek a particular service (Stage 3). This area of stages in the decision-making process needs to be explored. How long did the patient have symptoms, such as pain or diarrhea, before he/she became of aware of this and labeled the symptom a problem? Patients

have a rationale for their decision to utilize ED services. Factors such as: distracting or disrupting activities during the daytime, interruption of sleep, thoughts fixated on the problem, availability of transportation, length of time waiting to be seen, and accessibility to health care interplay in the decision-making process to seek health care.

Another way to expand research is to increase the sample size of the elderly patient ED user group. This could be accomplished by conducting the study over a longer period of time, repeating the study in the future and enlisting more ED facilities to participate in the research for data collection. Future research should be active data collection specific to ED utilization by elderly cancer patients. Variables significant in the present research should be included in further studies.

Need factors may need to be refined. Data on specific symptomatology, severity of symptoms, existing health conditions, functional status with limitations in activities, timing in relation to cancer therapy should be included. Data on cancer stages were unavailable for this study. However, stage and type of cancer along with treatment modality may be significant factors in ED utilization and need to be included in future research.

Advanced statistical analysis related to interaction effects of independent variables needs to be further developed in future research. The present research showed

significance in the interaction term of number of symptoms with number of comorbid diseases in predicting ED use. The interaction of symptoms with limitations in physical functioning or comorbid diseases with limited physical functioning may be significant in predicting ED utilization. These are only a couple areas to consider. Then there is the possible interaction effects with specific symptoms such as fever/diarrhea or certain comorbid diseases that need exploration.

This study was confined to Wave I or the initial three month time period after cancer diagnosis. Little is known about the trajectory of adjuvant therapy over the course of time and urgent care service utilization. There is a need for continued research in future Waves of the Community Based Cancer Study or another study done involving a later time frame in relation to cancer therapy and ED use.

The area of medications may be a factor related to ED utilization. Many patients may be given a new medication after ED or hospital discharge. Compounding this is the fact that a number of physicians may fail to adequately communicate with one another constructing polypharmacy regimens in patients. Thus, there is potential for medication interactions, toxicity and impairment of functional/mental status with significant clinical consequences in patients with added medications.

Disposition of the patient after the ED visit needs to be included in future research. Was the patient discharged

home to family or alone, or admitted to the hospital? How frequently are elderly cancer patients admitted through the ED? What were the predisposing, enabling, and need factors for these two groups (home vs. hospital admission)? Which factors from this framework predict hospital admission?

Outcomes of elderly cancer patients treated in the ED need to be studied. If the patient was discharged home, was there close follow-up? If appropriate, was home care evaluation, resources, and referrals initiated at the ED visit? Did the patient/family understand aftercare instructions? What is the patient status 24-72 hours and two weeks after the ED visit? Were there further urgent care visits or hospital admissions? Certain comorbid diseases, symptoms or physical limitations in certain activities may effect patient outcomes. Which ones are identified with poorer or better outcomes?

Future research should also include clinical trials of interventions initiated by APNs for those patients identified at high risk. For example, in those patients living alone did home health care visits, frequent telephone contact, and meals on wheels improve patient outcomes and decrease ED visits and hospital readmission? Did the audiotape given to the elderly patient by the APN allay his/her fears related to symptoms? Do educational and support groups by the APN empower patients and their caregivers and thus decrease ED visits?

Does assessment of patient functional status make a difference? This assessment will identify those elderly cancer patients at high risk with limitations in their physical functioning. Effective planning and intervention measures, such as community service referrals, home health care, or assistance devices, instituted at the initial ED visit will improve outcomes.

Are patient outcomes improved in EDs with staff development and educational programs on emergency care of elderly cancer patients? An interest in this population could develop through an increased knowledge base and tools developed upon which to assess elderly cancer patients. Instead of looking at this population as time consuming and complicated, a mind set of challenge and competence and actually being able to make a difference in the quality of patient/family outcomes could be developed.

There are many reasons for nursing research to continue in this area. The most obvious is the lack of previous research in ED utilization by the elderly cancer patient population. Urgent health care problems should be anticipated. An increased size of the elderly population, increased rates of cancer in older persons, the serious illnesses for which elderly patients seek ED care, the complexities of diagnoses in older cancer patients, early hospital discharges, high levels of responsibility placed on family members for continued cancer care, and the potential for adverse outcomes in this population and their families

are all factors contributing to the need for future studies. Continued nursing research in ED utilization by elderly cancer patients can make a difference in both primary health care and ED practices and patient/family outcomes.

Summary

This descriptive study of elderly cancer patients identified predisposing, enabling, and need factors of significance with ED/UCC use. The predisposing factor of educational level found having a high school diploma decreased ED use. Higher and lower educational levels were associated with an increased use of ED/UCC services. The enabling factors of Medicaid and number of hospital admissions showed statistical significance with ED use. The need factors of count of symptoms and pain severity demonstrated significance with ED/UCC use. The interaction effect of symptoms and comorbid disease showed significance in predicting ED use. Also identified were specific symptoms, physical limitations, and comorbid disease of statistical or near statistical significance. These included: fever, diarrhea, diabetes, and limitations in climbing several stairs/walking several blocks three months previous and current limitations in bending, kneeling, stooping. All of these identified factors are important findings upon which both nursing research and advanced nursing practice can continue to improve patient care/outcomes in elderly patients with newly diagnosed cancer.

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APPENDIX A

Questionnaire

Questionnaire

1. In the past three months or since the patient was first diagnosed with cancer, how many **different emergency departments** or **urgent care centers** did he/she visit?

2. In the past three months or since the patient was first diagnosed with cancer, on **how many different occasion** did he/she visit this ED/UCC?

3. For what reasons did the patient visit this ED/UCC?
   __Cancer related problems
   __General checkup
   __Treatment for other health problems
   __NA/Refused

Other questions of the Wave I questionnaire will be used to determine reason factors of: number of symptoms, physical pain severity, limitations in physical functioning/immobility, comorbid disease and hospital admissions which may influence ED/UCC utilization.

Questions on the existence of comorbid disease listing current illnesses diagnosed by a health care professional will be used from pages 7-9 of Wave I questionnaire for comorbid disease need factor.

1. Has a health care professional ever told the patient that he/she has high blood pressure or hypertension?
   __Yes (1)
   __No (2)
   __DK/NA/Refused (9)

Further questions read as above listing: diabetes; previous cancer or malignant tumor; chronic lung disease such as chronic bronchitis or emphysema; heart attack, coronary heart disease, angina, congestive heart failure, or other heart problems; stroke; emotional, nervous, or psychiatric problems; arthritis or rheumatism; fractured hip.

The need factor of pain severity will be examined with the question on page 11. How much overall physical pain has the patient had during the past four weeks? None, very mild, mild, moderate, severe, very severe with a rating of 1 to 6.

Symptom recognition from symptoms complained of in the past two weeks answered Yes or No on pages 35-36 of Wave I Caregiver Assistance will be used listing: nausea, pain, trouble sleeping, fatigue, difficulty breathing/shortness of breath, diarrhea, coordination problems, vomiting, poor appetite, weight loss, fever, cough, dry mouth, constipation, and frequent urination.

Limitations in physical functioning/immobility status will be examined from instrumental activities on page 10 including: moderate activities such as moving a table, bowling, or playing golf; vigorous activities such as lifting heavy objects, participating in strenuous sports; lifting or carrying groceries; climbing several flights of stairs; climbing one flight of stairs; bending, kneeling, or stooping; walking more than one mile; walking several blocks; walking one block. These activities will be rated limited a lot (3), limited a little (2), and not limited at all (1) three months prior or before cancer diagnosis and at the current time.

Data on insurance coverage will be obtained from page 89, questions 7a., 8 and 9. Does the patient personally have health and medical insurance or is he/she covered through another person such as a spouse, parent or other?

__Personal coverage (1)
__Covered through other (2)
__Both (3)
__Refused (9)

Is the patient a member of a Health Maintenance Organization (HMO) or any other prepaid health plan?

__ Yes
__ No
__ Refused

9. Which of the following health and medical insurance plans cover medical expenses for the patient?

a. Medicare A (hospital) __ Yes (1) __ No (2) __ NA/refused (9)
b. Medicare B (doctor) __ Yes (1) __ No (2) __ NA/refused (9)
c. (Private) Medigap insurance __ Yes (1) __ No (2) __ NA/refused
d. Medicaid __ Yes (1) __No (2) __ NA/Refused (9)
e. CHAMPUS or CHAMPVA __ Yes (1) __ No (2) __ NA/refused (9)
f. IHS (Indian Health Service) __ Yes (1) __ No (2) __ NA/refused
g. Blue Cross/Blue Shield __ Yes (1) __ No (2) __ NA/refused
h. Other Health Insurance __ Yes (1) __ No (2) __ NA/refused (9)

Questions on hospital admissions will be used.

In the past three months or since cancer diagnosis into how many **different hospitals** and on how many **different occasions** was the patient admitted to the hospital?

Sociodemographic information of age, gender, education and living arrangement/marital status will also be obtained on study participants to describe the sample characteristics and determine if these predisposing factors influence ED/UCC utilization.

1. Sex of patient: (check one)
   - __ Male (1)
   - __ Female (2)

2. What is your birthdate? (write in)
   ___/___/___
   Month/Day/Year

3. What is your highest level of education completed?
   - __ No formal education (1)
   - __ Completed grade school (2)
   - __ Completed some high school (3)
   - __ Completed high school (4)
   - __ Completed some college or technical school (5)
   - __ Completed college (6)
   - __ Completed graduate/professional degree (post baccalaureate degree) (7)
   - __ NA/Refused (9)

4. What is your marital status? (check one)
   - __ Never married (1)
   - __ Married (2)
   - __ Divorced/Separated (3)
   - __ Widowed (4)
   - __ NA/Refused

5. Who lives in your household with you?
   - __ No one - lives alone (1)
   - __ Spouse (2)
   - __ Your children or step-children (3)
   - __ Adult relatives other than your children (4)
   - __ Other <u>unrelated</u> adults (18 yrs. or older) (5)
   - __ NA/Refused (9)

APPENDIX B
CORRELATIONS AMONG THE SIX PREDICTOR VARIABLES
BIVARIATE CORRELATIONS

CORRELATIONS AMONG THE SIX PREDICTOR VARIABLES

	PEDUC	HP1NO	SYMPTOMS	PHYPAIN	PPHVAR	SFCUALL3
PEDUC	1.0000	-.0157	-.1304	-.0050	-.0326	-.0718
	(428)	(298)	(428)	(420)	(428)	(428)
	P= .	P= .787	P= .007	P= .918	P= .501	P= .138
HP1NO	-.0157	1.0000	.0565	-.0366	-.0846	.0768
	(298)	(302)	(302)	(298)	(302)	(302)
	P= .787	P= .	P= .328	P= .529	P= .142	P= .183
SYMPTOMS	-.1304	.0565	1.0000	.4019	.2109	.4268
	(428)	(302)	(445)	(428)	(445)	(445)
	P= .007	P= .328	P= .	P= .000	P= .000	P= .000
PHYPAIN	-.0050	-.0366	.4019	1.0000	.0866	.3652
	(420)	(298)	(428)	(428)	(428)	(428)
	P= .918	P= .529	P= .000	P= .	P= .073	P= .000
PPHVAR	-.0326	-.0846	.2109	.0866	1.0000	.1912
	(428)	(302)	(445)	(428)	(445)	(445)
	P= .501	P= .142	P= .000	P= .073	P= .	P= .000
SFCUALL3	-.0718	.0768	.4268	.3652	.1912	1.0000
	(428)	(302)	(445)	(428)	(445)	(445)
	P= .138	P= .183	P= .000	P= .000	P= .000	P= .

BIVARIATE CORRELATIONS

	USE ED
USE ED	1.0000 (445) p= .
Medicaid	-.1276 (340) p= .019
No. Hospital Admissions	.1409 (302) p= .014
Diabetes	-.0851 (410) p= .085
Fever	-.1817 (435) p= .000
Diarrhea	-.0903 (435) p= .060
Walk several blocks-3	.0978 (431) p= .042
Climb several stairs-3	.0918 (423) p= .059

APPENDIX C
HUMAN SUBJECTS APPROVAL

MICHIGAN STATE
UNIVERSITY

November 30, 1995

TO: Christy Smolenski
2561 Westbrook Dr. NW
Grand Rapids, MI 49504-2376

RE: IRB#: **95-604**
TITLE: UTILIZATION OF EMERGENCY DEPARTMENTS AND URGENT CARE CENTERS BY ELDERLY PATIENTS WITH NEWLY DIAGNOSED CANCER
REVISION REQUESTED: N/A
CATEGORY: 1-E
APPROVAL DATE: 11/30/95

The University Committee on Research Involving Human Subjects' (UCRIHS) review of this project is complete. I am pleased to advise that the rights and welfare of the human subjects appear to be adequately protected and methods to obtain informed consent are appropriate. Therefore, the UCRIHS approved this project and any revisions listed above.

RENEWAL: UCRIHS approval is valid for one calendar year, beginning with the approval date shown above. Investigators planning to continue a project beyond one year must use the green renewal form (enclosed with the original approval letter or when a project is renewed) to seek updated certification. There is a maximum of four such expedited renewals possible. Investigators wishing to continue a project beyond that time need to submit it again for complete review.

REVISIONS: UCRIHS must review any changes in procedures involving human subjects, prior to initiation of the change. If this is done at the time of renewal, please use the green renewal form. To revise an approved protocol at any other time during the year, send your written request to the UCRIHS Chair, requesting revised approval and referencing the project's IRB # and title. Include in your request a description of the change and any revised instruments, consent forms or advertisements that are applicable.

PROBLEMS/ CHANGES: Should either of the following arise during the course of the work, investigators must notify UCRIHS promptly: (1) problems (unexpected side effects, complaints, etc.) involving human subjects or (2) changes in the research environment or new information indicating greater risk to the human subjects than existed when the protocol was previously reviewed and approved.

If we can be of any future help, please do not hesitate to contact us at (517)355-2180 or FAX (517)432-1171.

Sincerely,

David E. Wright, Ph.D.
UCRIHS Chair

DEW:bed

cc: Barbara A. Given

OFFICE OF
RESEARCH AND GRADUATE STUDIES

University Committee on Research Involving Human Subjects (UCRIHS)

Michigan State University
232 Administration Building
East Lansing, Michigan
48824-1046

517/355-2180
FAX: 517/432-1171

APPENDIX D
CONSENT

MSU FAMILY HOME CARE CANCER STUDY

PATIENT CONSENT FOR RESEARCH

Introduction

You are being asked to participate in a research project to study the costs associated with cancer and the effects of cancer on the lives of patients and their families. The purpose of this research study is to determine how age, preexisting health conditions, the site and extent of the cancer, and the type of treatment affects the patient's mental status and ability to perform usual daily activities. In addition, information concerning the involvement of and effect on patient's families and/or caregivers will be collected.

This study is being conducted by Drs. Barbara and Charles Given who are professors in the College of Nursing and the Department of Family Practice at Michigan State University. This study is being sponsored by Michigan State University and also involves other hospitals or medical centers. This study will involve 1235 patients 65 years of age and older who have breast, colon, lung or prostate cancer.

Description of Procedures

Should you decide to participate you will be contacted by telephone four times over the next 12 months; at approximately 4, 12, 24 and 52 weeks following your diagnosis. The trained interviewer who will call you will ask you a number of questions about your health and how you are feeling, the types of activities you are able to perform for yourself and those with which you need help, and about your current financial status. It will take about 45-60 minutes to complete each interview. In addition, a written questionnaire will be sent to you with a stamped return envelope. This questionnaire will ask questions regarding your physical functioning, use of services, and out of pocket and related costs for cancer care. The questionnaire will take about 15-20 minutes to complete.

During the interview, you will be asked for the name and telephone number of the person who assists most with your care. This person will be contacted by telephone and asked the same types of questions as described above and to fill out and return a similar written questionnaire. This person will be contacted at the same times as you; at approximately 4, 12, 24 and 52 weeks following your diagnosis.

In addition, a member of the research staff will review part of your current medical record to obtain a list of your medical diagnoses/problems, and treatment(s) you are receiving for your cancer or other health problems. Information will also be obtained from the Health Care Financing Administration and other health insurers. This information will include admissions to hospitals, nursing homes and/or home care agencies, how long you received care in each of these, and the amount of money paid by Medicare for these services.

Risks and Discomforts

It is not expected that you or your caregiver will be placed at any physical, financial or legal risk as a result of participation in this study. Regardless of whether or not you choose to participate in this study, you will continue to receive medical care under the direction of your personal physician(s). All information collected for this study including that obtained from your caregiver, your medical record, the Health Care Financing Administration, interviews and questionnaires will be kept strictly confidential.

It is recognized that the diagnosis and treatment of cancer is stressful. In over 400 cancer patients, the investigators have found no patient to date who experienced additional stress as a result of responding to similar interview questions or written questionnaires. All interviewers for this study will be trained by the investigators, and will be able to assist you if you should find any aspect of this study upsetting. In addition, you are free to withdraw from this study at any time for any reason without penalty or change in the quality of medical care which you receive. If you have any questions or wish to withdraw from the study you may call either the project coordinator or Charles W. Given, the Co-Principal Investigator, at the research office: (517) 353-3843 or toll free, 1-800-654-8219.

Benefits

It is not expected that you or your caregiver will experience any direct benefit from participation in this study. Information from this study may provide useful information concerning the personal and financial impact of the diagnosis and treatment of four common cancers among the elderly. Neither you nor your caregiver will be paid or receive any other form of compensation for participating in this study.

Alternatives

If you decide not to participate in this study you will continue to receive all medical care and other forms of support. Neither you nor your caregiver will be contacted for telephone interviews or asked to complete questionnaires. In addition, information will not be collected from your medical record or the Health Care Financing Administration.

Rights and Responsibilities

To take part in this study, you must choose to do so and sign this form on the line below. Only volunteers will be used in this study. If you choose to be in the study now, you may withdraw later on by calling Dr. Charles W. Given at (517) 353-3843 or toll free, 1-800-654-8219. If you choose not to take part in this study, or if you withdraw after you have started, you will not be penalized in any way, nor will the quality of care you receive be affected. The investigators will keep you informed of any new developments that may affect your willingness to continue taking part in this study.

A record of your progress while on the study will be kept in a confidential file at College of Nursing at Michigan State University. Only a few people who work on the study will have access to records that could directly or indirectly identify you. Information about your participation in this study will be combined with that of all other patients who participate in the study and may be shared with others in the research field, but no names will be used. There will be no names or other patient identification used in any study reports published later on

In the unlikely event of any injury from the research, no reimbursement, compensation or free medical treatment is offered by Michigan State University. Your hospital and/or medical care will continue under the direction of your physician, in accordance with your own particular financial arrangements.

Should you have any questions about your rights as a subject or should you sustain any injury related to the research, you may contact Dr. David Wright, Chair, University Committee on Research Involving Human Subjects, at (517) 355-2180.

I have had an opportunity to ask questions about the study and was given sufficient time to consider my participation. I have received a copy of this form and agree to participate.

Patient's Signature_____Date_____Time_____

Please print:

name _____

address_____

_____

phone (____)_____

Investigator's Signature_____Date_____Time_____

Witness' Signature_____Date_____Time_____

wp \PT-MSU

UCRIHS APPROVAL FOR THIS project EXPIRES:

NOV 30 1996

and must be renewed within

MSU FAMILY HOME CARE CANCER STUDY

CAREGIVER CONSENT FOR RESEARCH

Introduction

You are being asked to participate in a research project to study the costs associated with cancer and the effects of cancer on the lives of patients and their families or caregivers. The purpose of this research study is to determine how age, preexisting health conditions, the site and extent of the cancer, and the type of treatment affects the patient's mental status and ability to perform usual daily activities. In addition, information concerning the involvement of and effect on patient's families or caregivers will be collected.

This study is being conducted by Drs. Barbara and Charles Given who are professors in the College of Nursing and the Department of Family Practice at Michigan State University. This research study is being sponsored by Michigan State University and also involves other hospitals or medical center. This study will involve 1,235 patients 65 years of age and older who have breast, colon, lung or prostate cancer.

Description of Procedures

Should you decide to participate you will be contacted by telephone four times over the next 12 months; at approximately 4, 12, 24 and 52 weeks following your friend or family member's diagnosis. The trained interviewer who will call you will ask a number of questions about your health, how you are feeling, the types of activities you help your friend or family member perform, and the amount of time and money you spend in caring for this person. It will take about 45-60 minutes to complete each interview. In addition, a written questionnaire will be sent to you with a stamped return envelope. This questionnaire will ask questions regarding the assistance you provide to your friend or relative and will take about 15 minutes to complete.

Risks and Discomforts

It is not expected that you or your friend or family member will be placed at any physical, financial or legal risk as a result of participation in this study. Regardless of whether or not you choose to participate in this study, you and your friend or family member will continue to receive medical care under the direction of his/her personal physician(s). All information collected for this study including that obtained from your friend or family member will be kept strictly confidential.

It is recognized that the diagnosis and treatment of cancer is stressful. In over 400 cancer patients, the

investigators have found no patient to date who experienced additional stress as a result of responding to similar interview questions or written questionnaires. All interviewers for this study will be trained by the investigators, and will be able to assist you if you should find any aspect of this study upsetting. In addition, you are free to withdraw from this study at any time for any reason without penalty or change in the quality of medical care which you receive. If you have any questions or wish to withdraw from the study you may call either the project coordinator or Charles W. Given, the Co-Principal Investigator, at the research office: (517) 353-3843 or toll free, 1-800-654-8219.

Benefits

It is not expected that you or your friend or family member will experience any direct benefit from participation in this study. Information from this study may provide useful information concerning the personal and financial impact of the diagnosis and treatment of four common cancers among the elderly. Neither you nor your friend or family member will be paid or receive any other form of compensation for participating in this study.

Alternatives

If you decide not to participate in this study your friend or family member will continue to receive all medical care and other standard forms of support. Neither you nor your friend or family member will be contacted for telephone interviews or asked to complete questionnaires.

Rights and Responsibilities

To take part in this study, you must choose to do so and sign this form on the line below. Only volunteers will be used in this study. If you choose to be in the study now, you may withdraw later on by calling Dr. Charles W. Given at (517) 353-3843 or toll free, 1-800-654-8219. If you choose not to take part in this study, or if you withdraw after you have started, you will not be penalized in any way.

A record of your progress while on the study will be kept in a confidential file at College of Nursing at Michigan State University. Only a few people who work on the study will have access to records that could directly or indirectly identify you. Information about your participation in this study will be combined with that of all other patients who participate in the study and may be shared with others in the research field, but no names will be used. There will be no names or other patient identification used in any study reports published later on.

In the unlikely event of any injury from the research, no reimbursement, compensation or free medical treatment is offered by Michigan State University.

Should you have any questions about your rights as a subject or should you sustain any injury related to the research, you may contact Dr. David Wright, Chair, University Committee on Research Involving Human Subjects, at (517) 355-2180.

I have had an opportunity to ask questions about the study and was given sufficient time to consider my participation. I have received a copy of this form and agree to participate.

Caregiver's Signature_____Date_____

Please print:

name _____

address_____

_____

phone (____)_____

Name of patient _____

Investigator's Signature_____Date_____

Witness' Signature_____Date_____

wp: VCG-MSU

UCRIHS APPROVAL FOR THIS project EXPIRES:

NOV 30 1996

and must be renewed within