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Effects of gerontological clinical nurse specialist on patient outcomes

Barbara Ann Cunningham
San Jose State University

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EFFECTS OF GERONTOLOGICAL CLINICAL
NURSE SPECIALIST ON PATIENT OUTCOMES

A Thesis

Presented to

The Faculty of the Department of Nursing
San Jose State University

In Partial Fulfillment
of the Requirements for the Degree
Master of Science

By

Barbara Ann Cunningham

December, 1991

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ABSTRACT

EFFECTS OF GERONTOLOGICAL CLINICAL NURSE SPECIALIST ON PATIENT OUTCOMES

by Barbara Ann Cunningham

This study was conducted at an acute care district community hospital staffed for approximately 300 beds. The purpose of this research was to investigate the ability of a gerontological clinical nurse specialist (GCNS) to provide efficient and effective health care to elderly patients. Retrospective data were used to compare patient outcomes for two groups of subjects. Forty-two patients received interventions from the GCNS. The control group consisted of 31 patients paired to experimental subjects according to diagnostic related groups, number of comorbid conditions, and age.

There was no statistically significant difference between groups in length of stay. The treatment group, however, remained in the hospital an average of 3 1/2 days longer. Readmission rates were also similar and relatively low. Fifty percent of the GCNS group and 33% of the control group were discharged to a higher level of care. Although the findings of this study failed to demonstrate benefits of the GCNS intervention, several factors may have confounded the results, namely, the complex nature of the GCNS patients, and other limitations inherent in the design.

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gerontological clinical nurse specialist.

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Chapter 1

INTRODUCTION

Background

An estimated 44% of all hospital admissions are for patients 65 years or older (California Association of Hospitals and Health Systems, [CAHHS], 1988). In some rural areas, and areas with large retirement communities, the percentage of elderly inpatients already exceeds 70% (Solovy, 1988). America's aged population continues to grow at a rate faster than any other age group, particularly the over-85 cohort which is expected to increase three to four times faster than the general population (CAHHS, 1988). Because survival into old age is often accompanied by multiple, interacting physical and psychosocial impairments that are exacerbated with acute illness, the need for extensive health and social services will increase commensurately. Already, a small percentage of chronically ill elderly persons account for a majority of the nation's health care expenditures (Garfinkel, Riley, & Iannacchione, 1988; Roos, Shapiro, & Tate, 1989). An analysis of hospital resource consumption for Medicare patients shows that older medically ill patients, those 75 to 80 years old, have higher total hospital costs, longer hospital lengths of stays (LOS), greater losses under Medicare's diagnostic related grouping (DRG) payment system, more diagnoses per

patient, a higher percentage of outliers, and a greater mortality than younger patients with the same diagnoses (Munoz et al., 1988).

Prolonged LOS and repeated hospitalizations are two factors that greatly impact the cost of health care for elderly patients. Medicare outliers were created to insure hospitals against excessive revenue losses resulting from LOS's extending beyond the DRG threshold. Only 75% of the difference between hospital costs and outlier thresholds, however, is actually reimbursed (Grimaldi, 1988). Anderson and Steinberg (1984) found that a high percentage (22%) of hospitalizations among Medicare patients were followed by a readmission within 60 days of discharge. In a study examining the cost characteristics of hospital patients, Zook and Moore (1980) found that repeated hospitalizations cost more than single cost-intensive stays, intensive care, or prolonged single hospitalizations. Hospital readmissions within 30 days of discharge are also held suspect by Medicare review coordinators as potentially premature discharges. Factors that could result in prolonged LOS and repeated hospitalizations are (a) early discharge of patients to keep costs within the DRG threshold, (b) an inadequate system of identifying patients at risk for experiencing iatrogenic complications, and/or (c) patients who are in need of special discharge planning.

The specific body of knowledge needed to effectively treat the aging patient population regarding the aging process and its effect on illness and recovery is often lacking among physicians, nurses, and other professional caregivers. This paucity of knowledge is evidenced by (a) the diversity of attitudes held by nurses and other workers about aging, (b) care plans emphasizing physiologic needs rather than higher level psychosocial needs, (c) inadequate patient assessments, (d) low scores on instruments testing knowledge about aging, and (e) limited training in geriatrics (Floyd & Buckle, 1987; Harris, 1981; Huckstadt, 1983; Department of Health and Human Services, 1985; Rousseau & Clifton, 1990; Wells, 1985).

Health care facilities that have shifted focus from the traditional "cure" oriented approach to treating acute self-limiting diseases to a more comprehensive health and social model of managing patient care have been successful at decreasing hospital costs (Besdine, 1988). Hospital-based geriatric services that utilize systematic, multidimensional methods for evaluating the physical, social, emotional, and rehabilitative needs of older patients have shown a positive impact on patient outcomes. Geriatric evaluation units and assessment teams, for example, have positively affected functional status, diagnostic accuracy, use of medications, discharge placement, and coordination of community services

(Bourret, 1986; Saltz, McVey, Becker, Feussner, & Cohen, 1988).

The potential negative impact that DRG's have on quality of care, LOS, and discharge disposition has also challenged the profession of nursing to adopt more effective and efficient methods of delivering nursing care to high-risk frail, elderly inpatients. Gerontological clinical nurse specialists (GCNS), in particular, have created and implemented geriatric services that facilitate the provision of coordinated care. Such care includes comprehensive functional assessments, discharge planning protocols (Neidlinger, Scroggins, & Kennedy, 1987), geriatric resource groups (Castle, 1988; Trella, 1989), intensive gerontological evaluation units (Lee, 1981; Mummah, 1981), unit-based geriatric resource nurses (Fulmer, 1991), and hospital-based nurse case management programs (Bair, Griswold, & Head, 1989; Ethridge, 1989; Stillwaggon, 1989).

Problem Area

Demographic shifts and a reimbursement system to hospitals that emphasize an early discharge of patients normally requiring longer LOS's and more extensive care have forced health care institutions to consider alternative, cost-effective methods of providing care to elderly patients. While hospitals are beginning to recognize the utility of hiring GCNS's who are highly skilled and knowledgeable about the complex health care needs of older

adults, budgetary constraints often prevent this role from being developed in the acute care setting (Heine, 1988).

This study was conducted at a facility where approximately 39% of inpatient revenue was generated from Medicare patients during the fiscal year 1988-1989. Patient health care costs exceeded reimbursement by \$622,719, and the loss of potential revenue exceeded \$15 million (Medicare Specialist, personal communication, September 12, 1990). Consequently, the GCNS position was eliminated due to financial cutbacks. The Continuing Care Department, however, believed this position was an asset to the health care team and hired one of their own discharge planners with advanced education in gerontological nursing at the master's level, as a Geriatric Resource Nurse. This new position was created for a 6-month pilot program in an attempt to demonstrate the value of the GCNS role to hospital administrators.

Feasibility studies, consultation logs, staff concerns, direct interactions with patients, and personal observations by the investigator suggested that LOS was often prolonged at the study facility for varied reasons. Among these were:

- (a) hospital-related complications such as confusion, incontinence, falls, and decreased functional status;
- (b) inappropriate and uncoordinated care as evidenced by a low utilization of nursing care plans on most medical units, and nursing care plans reflecting the medical diagnoses

rather than level of functioning; (c) multiple care providers due to the part-time status of many nurses; (d) complicated discharge planning needs due to problems associated with chronic illness, inadequate social support, and insufficient financial resources; and (e) failure to achieve an early identification of patients requiring special discharge disposition.

The emphasis on cost-containment and revenue generation at the study facility led the researcher to believe that maintenance of a GCNS position was dependent upon demonstration of a GCNS's ability to provide cost-effective health care specifically related to prolonged LOS and repeated hospitalizations.

Purpose of this Study

The purpose of this study was to explore the potential for an expert nurse to provide cost-effective nursing care to hospitalized elderly patients. To accomplish this goal, two subpurposes were selected: (a) to investigate the relationship between the role of the GCNS and patient outcomes, and (b) to develop a profile of patients who are likely to need GCNS services.

Research Questions

This research was designed to study the following questions:

1. What is the difference in LOS between medically ill hospitalized elderly patients who receive the nursing

services of a GCNS compared to a similar group of patients who do not?

2. What is the difference in readmission rates between the experimental and control group?

3. What is the difference in discharge disposition between the two groups?

4. What are the characteristics of patients most likely to need GCNS services?

Definition of Terms

For the purpose of this study, the following definitions apply:

1. Gerontological clinical nurse specialist is a nurse who is master's prepared in gerontological nursing; has substantial clinical experience with individuals, families, and groups; is an expert at formulating health and social policy; and is proficient at planning, implementing, and evaluating health programs (American Nurses Association, 1988).

2. Patient outcomes are changes in a patient's health status which may result from the GCNS intervention, and is measured by LOS, readmission to the hospital within 30 days, and discharge disposition.

3. Medically ill hospitalized elderly patients include patients 65 years or older with one or more diagnoses, including but not limited to chronic and disabling illness, cerebrovascular accident, cognitive impairments, depression,

sensory deficits, functional impairments, incontinence, immobility, malnutrition, falls, and the use of chemical or physical restraints which place them at risk for prolonged LOS and multiple admissions to the hospital.

4. Length of stay is the number of days a patient remains in the hospital, beginning the hour of the first day on which care was administered and concluding the hour of the day on which care was terminated.

5. Readmission rate is the percentage of elderly patients readmitted to the study facility within 30 days of discharge for the same diagnosis as their initial admissions.

6. Discharge disposition is the patient's place of discharge and is measured by comparing preadmission with postdischarge living arrangements.

Summary

The number of chronically ill, aged persons in this country is increasing dramatically. Because elderly inpatients are at risk for prolonged LOS and repeated hospitalizations, the cost of providing care often exceeds reimbursement. Current demographic trends, at a time when financial resources are limited, have caused hospital administrators to consider alternative methods for providing cost-effective, quality care to an aging population. Geriatric services such as interdisciplinary care teams, evaluation units, and case-management programs are

strategies which have been successfully implemented in the hospital setting to manage the care needs of elderly inpatients. The GCNS is also a viable option for ensuring quality patient care and preventing excess costs through early identification or prevention of iatrogenic complications, as well as timely and effective discharge planning. Research examining the effects of the GCNS on patient outcomes, however, is urgently needed to increase the health care community's understanding and acceptance of the need to develop this role in the acute care setting.

Chapter 2

CONCEPTUAL FRAMEWORK AND REVIEW OF RELATED LITERATURE

This study was guided by Hamric's (1989a) defining characteristics of the clinical nurse specialist's (CNS) role and Donabedian's (1966) conceptualization of evaluating health care quality based on patient outcomes. Although patient outcomes were not analyzed in terms of process, the inclusion of intervention strategies utilized by gerontological clinical nurse specialists (GCNS) to enhance patient care and affect changes in patient outcomes is highlighted in the review of literature, as well as structural variables facilitating or impeding full implementation of the GCNS role.

Conceptual Framework

The American Nurses' Association ([ANA], 1980) declares, "A specialist in nursing practice is a nurse who, through study and supervised practice at the graduate level (master's or doctorate), has become expert in a defined area of knowledge and practice in a selected area of nursing" (p. 23). The profession of nursing has responded to current demographic trends, advances in medical technology, and the expansion of nursing knowledge and practice. This response has been directed at providing nursing care for a population at risk for a variety of complex health needs

and by offering post-basic education and certifications for specialization in gerontological nursing (ANA, 1988).

The GCNS in the acute care setting is a relatively new phenomenon and role ambiguity still exists. Therefore, it is necessary to establish an understanding of the varied activities associated with this role, prior to evaluating the possible effects a GCNS has on enhancing the health status of hospitalized elderly patients. An examination of Hamric's (1989a) conceptual model of the CNS will help accomplish this task.

The Role of the CNS

In addition to graduate study and certification, Hamric (1989a) states that CNS practice must not only be directed at improving patient care, but nursing practice as well. These goals are met as the following subroles are carried out: (a) expert practitioner, providing highly skilled nursing care to patients with complex problems; (b) consultant, to professionals from all disciplines; (c) educator, utilizing formal and informal teaching strategies to educate nurses, and students in nursing and other disciplines; and (d) researcher, initiating clinical studies and applying findings to practice. Hamric (1989a) believes the requisite skills or competencies needed to carry out these subroles include (a) change agent, with a creative approach implementing new ideas; (b) collaborator, requiring communication skills and an

ability to maintain effective interpersonal relationships; (c) clinical leader, with associated management skills such as priority setting and problem solving; (d) role model, by demonstrating desirable practice behaviors; and (e) patient advocate, requiring self-confidence and assertiveness stemming from expertise.

Hamric (1989a) also identifies variables influencing how the CNS role is implemented such as: (a) the responsibilities a CNS has within the organization, (b) client characteristics, (c) characteristics of the CNS, (d) the organizational structure within which the CNS practices, (e) the nature and characteristics of the nursing personnel at the bedside, and (f) role development that changes over time. Staff level of understanding of the need for specialized care of the elderly patient and the degree of staff acceptance of the GCNS role are also factors that might impact the ability of the GCNS to improve nursing care and patient outcomes. These variables not only determine the degree to which each subrole is implemented, but also serve to identify strengths and limitations of research methodologies and findings. For example, studies conducted in hospitals with well-established geriatric evaluation units, or on medical units staffed by nurses possessing advanced education in geriatric nursing, could confound results when attempting to evaluate GCNS effectiveness.

Hamric (1985) states, "Outcome evaluation represents

the most important measure of the quality of nursing care" (p. 64). The effects of the GCNS on improving the quality of patient care of hospitalized elders must be identified and documented to validate the role of the GCNS in the acute care setting as a valuable member of the health care team.

Patient Outcomes

Outcome measures have been defined as "any measurement system used to uncover or identify the health outcome of treatment for the patient" (Geigle & Jones, 1990, p.8). Donabedian's (1966) model for evaluating medical care has been adopted by Bloch (1975). This model evaluates nursing care by examining what the caregiver does as well as the results of care, and has also been shown to serve as a useful paradigm to organize and critique the variety of methods used to evaluate the CNS (Hamric, 1985).

Two approaches to evaluating quality of care include assessing the process by which care is rendered and the setting in which care is provided (Donabedian, 1966). Donabedian (1966) states that evaluating a practitioner's behavior such as technical competence and the appropriateness of prescribed treatments, can be useful in determining if medicine is properly practiced, but adds that process measurements are more tenuous than measurements obtained from outcome evaluation. According to Hamric (1983), "Simply influencing a staff's perception of quality nursing care (a classic process measure) does not

automatically raise the level of care that staff provides" (p. 196).

Structural evaluation which focuses on the setting in which the clinician practices and the means by which care is delivered is not a direct method for evaluating quality of care. However, it can be useful to identify factors that hinder or promote the provision of good medical practice (Donabedian, 1966). Data regarding variables such as administrative processes, staff qualifications, and the existence of support services and personnel are usually concrete and easily obtained. Donabedian (1966) states, however, that it is often difficult to correlate these variables with process and outcome measures.

According to Donabedian (1966), patient outcomes such as recovery, restoration, and survival are the most appropriate validators of the quality of medical care because the values of positive outcomes remain stable and valid in most situations, and are usually tractable to exact measurements. Bloch (1975) refers to patient outcomes as changes in health states that can be measured by disease status, symptoms, and function and include cognitive, psychosocial, and behavioral variables. The use of outcomes as indicators of quality of care, however, must be used judiciously for the following reasons: (a) the outcome measured may not be the relevant measure of the care provided; (b) factors other than the care provided may influence the outcome;

(c) some outcomes, such as patient attitudes and satisfactions, are difficult to measure; and (d) outcomes used as criteria for success or failure may not be generalizable to all populations and settings (Donabedian, 1966). Outcome measures such as gross mortality or morbidity should be adjusted to reflect differences in case mix and severity of illness in the populations studied (Friedman, 1990; Marek, 1989).

According to Bloch (1971), changes in the care recipient must be evaluated in relation to the care provider's actions so that a relationship between the two can be established. Hamric (1989b) contends that evaluating process in relation to outcome is the most thorough method for evaluating the effects of the CNS role and stresses the importance of including or controlling for structural variables. Only a few such studies evaluating the impact of the GCNS in a primary care setting have been described in the literature.

Review of Literature

The GCNS in a Hospital Setting

As with any new field of inquiry, much of the literature regarding the GCNS role in a hospital setting is limited to case studies reported by GCNS's describing what they do and their experiences with role implementation (Harris, 1981; Mumma, 1981; Sullivan, 1981; Trella, 1989). Data presented in these reports are useful to define and clarify role

components, as well as the population targeted by a nurse whose expertise is geriatric nursing.

According to Bevil (1990), the focus of gerontological nursing is maximizing functional abilities, preventing or minimizing responses to acute and chronic illness, and promoting the quality of life of older persons. There are a variety of titles for expert practitioners who work with the elderly. Among them are GCNS, geriatric nurse clinician, continuing care coordinator, program director, and nursing administrator. However, the focus as well as role components remain consistent (Harris, 1981; Hewes, 1981; Lee, 1981; Mumma, 1981; Trella, 1989). As with any CNS, the GCNS assumes the following subroles to provide nursing care to a select population of elderly patients.

Expert Practitioner. The GCNS possesses the knowledge and skills necessary to (a) conduct comprehensive assessments emphasizing the biological, psychosocial, and spiritual needs of elderly patients; (b) distinguish between normal aging changes and differences in disease presentation affecting an elderly patient's response to care; (c) identify patients at risk for complications related to hospitalization that could result in a longer than average length of stay (LOS) such as falls, decreased functional status, and skin breakdown; and (d) develop and implement nursing care plans that reflect the heterogeneity of elderly persons and include therapeutic interventions such

as listening, touching, and understanding, as well as action-oriented activities directed at meeting physical needs (Harris, 1981; Mumma, 1981; Sullivan, 1981). In addition to direct patient care, the GCNS enhances a patient's health status indirectly by effecting behavioral changes in nursing staff and other health care professionals (Hamric, 1985).

Consultant. The GCNS collaborates with members of the health care team to identify and manage patients with complex health problems and discharge planning needs. The GCNS actively seeks referrals from staff members on patients who exhibit potentially reversible dysfunctions such as confusion, incontinence, and immobility. In addition, the GCNS makes recommendations and supports staff nurses as needed changes in care are implemented. One GCNS working in a large teaching hospital found the consultative and teaching aspects of her role to be the best strategies for improving patient care, with her consultative practice having the most immediate effects on patient care as well as staff attitudes and behaviors (Sullivan, 1981). In addition, Harris (1981) found that the consultative role enabled her to role model a holistic approach to caring for elderly patients, rather than a task-oriented approach which was employed by the majority of nurses at her facility.

Educator. The GCNS in an acute care setting responds to identified knowledge deficits among nursing staff and other

care providers by offering inservices and workshops on related aging topics (e.g., use of restraints, the effects of sensory deprivation, drug reactions, managing the confused patient). This education increases knowledge regarding aging changes, and increases staff sensitivity to the unique needs of the elderly (Harris, 1981; Trella, 1989). Health promotion programs for seniors in the community have also been developed by GCNS's. These programs attracted seniors to utilize other hospital services and demonstrated a public interest in aging issues to administrators (Trella, 1989). The role of educator is also implemented by the GCNS through multidisciplinary care conferences and by role modeling behaviors, attitudes, and interactions with elderly patients through direct patient care and consultation (Sullivan, 1981). Mummah (1981) found role modeling to be an important influence in changing staff attitudes towards the elderly.

Researcher. In addition to role evaluation, the GCNS is committed to critiquing current research and disseminating relevant findings directly through practice and indirectly through education and consultation. Identifying researchable ideas regarding the physical and nonphysical care of hospitalized elderly patients is also a necessary function of the GCNS. Attitudinal change tests, LOS studies, and environmental assessments promoting safety and restoration are examples of research projects already

completed in hospitals by GCNS's (Mumma, 1981; Environmental Assessment, 1989).

Several attempts have been made to quantify CNS work activities by role components. Between 47% and 58% of CNS performance behaviors have been attributed to patient-centered activities providing direct care to patients and families, and indirectly coordinating and guiding staff in the provision of quality nursing care (Beyerman, 1989; Burge, Crigler, Hurt, Kelly, & Sanborn, 1989; Robichaud & Hamric, 1986). The percentage of time a CNS spends implementing each role component has also been shown to be dependent upon the experience of the CNS. CNS's in a newly developed role spend most of their time conducting direct patient care (Burge et al., 1989).

Patient Outcomes

Escalating health care costs, the rapid introduction of new technology and scientific information, and new data revealing high levels of inappropriate care, have led purchasers of health care, health care institutions, and third-party payors to evaluate quality of care according to changes in the care recipient (Nash, 1990). Quality assurance programs and professional review organizations have typically relied on structural characteristics of an institution and the techniques used by physicians to deliver care, to evaluate whether services were necessary, provided in a professional manner, and delivered in the appropriate

setting (Berman, Kohke, & Ballard, 1990). This type of quality assessment, however, does not identify whether interventions used were effective in producing the desired changes in a patient's condition. It is believed by Berman et al. (1990) that identifying which treatments are effective and necessary will not only benefit the patient, but ultimately reduce health care costs.

Numerous medical societies, state hospital associations, organizations such as the Joint Commission on Accreditation of Health Care, the Academic Medical Center Consortium, and the Department of Health and Human Services, are currently involved in the process of researching and developing practice guidelines in an attempt to ensure quality medical care (Berman et al., 1990; Nash, 1990). The Medical Treatment Effectiveness Program, for example, is the federal government's attempt to improve the efficacy and appropriateness of health care services through an increased understanding of the effects of health care practices on patient outcomes, while controlling expenditures through Medicare's prospective payment system (Agency for Health Care Policy and Research, 1989).

Insurance companies are beginning to examine the utility of outcome measures to indicate the quality and appropriateness of care. Prudential Insurance Company is one of many health insurance companies incorporating patient outcomes such as post-operative infection rates,

complications, and mortality rates into hospital selection policies for contracts (Friedman, 1990). Purchasers of health care are starting to demand value for their health dollars (e.g., improved health status of the employee), by using data such as mortality and morbidity rates to select providers based on performance (Geigle & Jones, 1990). Efforts are currently underway to develop and test reliable and valid outcome measures such as patient surveys on function and well-being (Burke, 1991). The most commonly used outcome indicators are mortality, morbidity measured by complication and infection rates, unnecessary hospital procedures, LOS, readmission rates, and patient satisfaction. These measures are straightforward and use data that are available and easily accessed for all patient populations.

According to Marek (1989), any attempt to measure national health care quality without the inclusion of clinical nursing data is invalid because nurses' actions make a difference on patient outcomes. There are numerous research studies documented in the nursing literature measuring patient outcomes such as health and function, knowledge levels, symptom control, and patient satisfaction and well-being. However, research is limited regarding the impact of the GCNS in the hospital setting.

Length of Stay

Length of stay (LOS) has been shown to be a significant

predictor of costs per hospital admission (Sorrentino, 1989). Researchers use LOS as a proxy for patient costs (Pawlson, 1988) as well as an indicator for the quality of care a patient receives while hospitalized. Pawlson (1988) found that hospitalized elderly patients cared for by geriatricians had significantly shorter LOS's than a control group of patients matched according to age intervals and admission and discharge status who were cared for by general internists. These findings were parallel for patients discharged to nursing homes. Although factors that may have improved the outcome of care for the intervention group were not examined, the researcher attributed the results to the physicians' specialized knowledge and skill in treating geriatric patients, and a possible closer nursing home liaison by the geriatric group.

It is thought that identifying patients in need of special discharge planning (e.g., discharge to a nursing home or other special care setting) early in the course of hospitalization may reduce hospital costs by preventing prolonged LOS's due to delays in placement. Geriatric consultation teams (GCT) which provide comprehensive functional assessments and recommendations to floor staff have also been shown to impact LOS. Barker et al. (1985) studied the effects of geriatric teams in 6 hospitals. Results showed significant declines in the number of patients awaiting alternative care placement after

acute care was determined to be no longer necessary. This reduction in the number of acute hospital days was attributed to improved patient management which focused on the maintenance or restoration of patient functioning and discharge planning. A controlled trial of a geriatric consultative service which also assessed the long-term care needs of elderly patients admitted to a medical unit at a large teaching hospital failed to demonstrate a positive impact on LOS (Campion, Jette, & Beckman, 1983). The use of rehabilitative services tripled for patients receiving the GCT intervention yet, there was no significant increase in mean LOS for the experimental group.

The relationship between discharge planning, an important aspect of the GCNS role, and LOS has also been studied. Using a double blind quasi-experimental research design Kennedy, Neidlinger, and Scroggins (1987) demonstrated a significant reduction in LOS of almost 2 days for elderly patients who received a comprehensive discharge planning protocol implemented by a GCNS as compared to a control group of patients who were similar in regard to sociodemographic data and functional status. The use of the discharge protocol which included an assessment of patient needs and the coordination and evaluation of services was also found to be cost-effective by comparing hospital costs for both groups (Neidlinger et al., 1987). The reduction in LOS for the treatment group reduced hospital costs an

average of \$60 per day and increased gross excess revenues an average of \$911 per patient. Implementing the intervention resulted in a net savings during the 4-week study period amounting to more than the annual salary for the GCNS.

Naylor (1990), however, found no significant difference in LOS or patient costs when comparing a similar discharge planning protocol with the study facility's general discharge planning procedure. Two reasons for the discrepancy are cited by the researcher. There was a smaller sample size ($n = 40$) in the Naylor study compared to a larger sample size ($n = 80$) in the Kennedy study. Also, discharge disposition was restricted to the home setting only rather than including subjects discharged to nursing homes.

Beyerman (1989) studied the expanded role of a GCNS working in an urban teaching hospital. Patient outcome logs maintained over a 6-month period were examined using manifest content analysis. Findings revealed that over half (57.9%) of the GCNS activities were associated with the prevention of prolonged LOS's. Interventions were directed at increasing self-care abilities, preventing complications, coordinating multidisciplinary care for patients with complex health and discharge planning needs, and promoting the safety of patients at risk for injury. Beyerman believes strategies used by the GCNS to prevent premature

discharges may have prevented hospital readmissions as well.

Hospital Readmissions

In addition to impacting health care costs, the length of time a patient remains out of the hospital is a measure often used by researchers to determine the long-term status of a patient's health. Rumph (1988) cites findings of a 1987 report to Congress indicating that Medicare patients readmitted to a hospital within 15 days of discharge are sometimes admitted because of premature discharges or mismanaged care (e.g., needing services that could have been provided during the first admission). Using data from 150 hospitals in three states, Kosecoff et al. (1990) demonstrated that 15% of Medicare inpatients discharged to home, leave the hospital with problems such as new confusion or incontinence that should have been corrected prior to discharge. These problems if not corrected or monitored postdischarge could result in poor patient outcomes. Maintaining a patient's functional status during hospitalization and effective discharge planning that optimizes the use of community resources may reduce the likelihood of rehospitalization.

Frail elderly veterans randomly assigned to a geriatric evaluation unit (GEU) designed to improve diagnostic accuracy, treatment, rehabilitation, and discharge placement had substantially fewer hospitalizations than controls within 1 year of discharge: 34.9% versus 50.0%

(Rubenstein et al., 1984). When comparing control subjects with patients who received the services of a GCT, Campion et al. (1983) found little difference in readmission rates at 10.5 months. The intervention group, however, was less likely to be readmitted within the first month. This finding is similar to the study reported by Kennedy et al. (1987). Although readmission rates for patients receiving comprehensive discharge planning implemented by a GCNS were similar to the control group (29% and 35%), the treatment group remained out of the hospital an average of 11 days longer. Naylor (1990), on the other hand, found the discharge planning protocol to significantly impact readmission with 16.7% of the experimental group readmitted within 12 weeks of discharge, compared to 64.7% of the control group.

Discharge Disposition

Patient care provided by special geriatric services directed at improving function and formal support services may also enhance a patient's readiness to be discharged back into the community. Rubenstein et al. (1984) found that initial discharge placement differed significantly between GEU and control patients. More unit patients (70.0%) than controls (53.3%) were discharged home or to board and care, with more than twice as many controls discharged to nursing homes.

However, Campion et al. (1983) found that fewer patients (41%) receiving geriatric consultation services were discharged to their homes compared to concurrent control groups (69% and 80%). Discharge placement to higher levels of care (e.g., rehabilitation facilities or nursing homes) was more frequent for the GCT patients than the controls (46% versus 22% and 15% respectively). In a randomized control trial of hospitalized veterans, Saltz et al. (1988) found no significant difference regarding discharge placement between patients receiving GCT services and a control group. The proportion of patients discharged to a nursing home, however, doubled for both groups. Kennedy et al. (1987) analyzed discharge disposition to determine the appropriateness of placement as measured by no change in original placement, or change to a less dependent level of care at follow-up. The majority of patients who received comprehensive discharge planning, as well as the controls, remained at their original placement when assessed 4 weeks later.

Summary

Hamric's (1989a) defining characteristics of the CNS role and Donabedian's (1966) conceptualization of evaluating health care quality guided this research. As can be noted in Figure 1, Hamric's four functional categories were utilized as an organizing framework for identifying what the GCNS does to affect positive changes in a patient's health

Figure 1. Model for Study of Effects of Gerontological Clinical Nurse Specialist Role on Patient Outcomes.

status. Although GCNS's practice under a variety of position titles, the focus of their practice as well as the elements of their role are consistent with Hamric's conceptual model of the CNS. As illustrated in Figure 1, the GCNS may affect patient outcomes directly through practice or indirectly by influencing the setting in which the GCNS practices.

Donabedian's model for evaluating patient care served as a basis for selecting appropriate and valid measures of change in a patient's health status. LOS, readmission rates, and discharge disposition were the outcomes used in this study to indicate recovery, restoration, and survival. These outcomes are according to Donabedian the most appropriate validators of the quality of health care.

In addition, both Hamric and Donabedian have identified variables other than clinicians' behaviors that could influence the provision of quality health care. Variables such as GCNS responsibilities, staff acceptance of the GCNS role, and the existence of unit-based discharge planners comprise the setting in which patient care is provided and fall under the categories administrative processes, staff characteristics, and support services and personnel. As can be seen in Figure 1, these structural variables can affect patient outcomes either extraneously to the GCNS process or by directly impacting the extent to which the GCNS role is implemented. Examining structural variables at the study

facility assisted the investigator in identifying factors other than the GCNS intervention which may have impacted the study findings. Patient characteristics such as diagnosis and severity of illness are also factors that can directly impact the health status of patients. These variables should be controlled for when studying the effects of the GCNS role on patient outcomes.

GCNS practice is based on a foundation of advanced study and experience in the field of geriatric nursing. GCNS's who are experts in providing and directing nursing care to older adults, strive to maximize functional abilities, prevent or minimize responses to illness, and increase the quality of life of their patients. Although research is limited regarding the role of the GCNS in the acute care setting, GCNS's have demonstrated a positive impact on LOS and readmission rates through comprehensive assessment and discharge planning. The effects of various other treatment modalities on patient outcomes is discussed in the review of literature as well. Like the GCNS, geriatricians and geriatric consultation teams and evaluation units utilize systematic geriatric functional assessments that evaluate the physical, social, emotional, and rehabilitative needs of older adults to plan patient care.

Efforts to control health care expenditures have resulted in an increased concern that the type of care a patient receives is actually necessary and beneficial. This concern

has led purchasers of health care and third-party payors to request providers to demonstrate that what they do produces desired changes in a patient's condition. As hospital administrators consider the utility of the GCNS as an alternative method for providing effective and efficient care for the hospitalized elderly patient, GCNS's will be increasingly called upon to clarify and justify their roles. Continued research regarding the role of the GCNS is clearly indicated.

Chapter 3

METHODOLOGY

Design

The role of the gerontological clinical nurse specialist (GCNS) in the acute care setting is a recent phenomenon. Prior research is limited to a few case studies describing strategies implemented by GCNS's to affect nursing care to older adults and a few studies investigating the relationship between GCNS interventions and patient outcomes. These studies, however, are either limited to examining only one aspect of patient care provided by the GCNS, that of discharge planning, or the findings are based on the subjective impressions of the GCNS.

The intent of this study, therefore, was to further identify interrelationships between GCNS practice and the health status of patients. A descriptive retrospective research design provided the format to answer the following questions: (a) What is the difference in length of stay (LOS) between medically ill hospitalized elderly patients who receive the nursing services of a GCNS compared to a similar group of patients who do not? (b) What is the difference in readmission rates between the experimental and control group? (c) What is the difference in discharge disposition between the two groups? and

(d) what are the characteristics of patients most likely to need GCNS services?

A comparison group was used to allow the investigator to establish whether there was a differential effect of the GCNS intervention on patient outcomes. Efforts were made to control for differences in case-mix and severity of illness by matching the two groups by diagnostic related groups (DRG), age, and number of comorbid conditions.

LOS and readmission rates are patient outcomes that have been investigated previously in studies evaluating geriatric care modalities, including GCNS services. LOS and readmission rates were used in this study as a proxy for recovery, restoration, and survival. The decision to limit readmissions to within 30 days of discharge was based on the time period during which Medicare reimbursement is most likely to be denied.

Patient health care costs have also been used to measure the effectiveness of GCNS services. An original attempt was made in this study to answer the question: What is the difference in patient charges between the experimental and control group? However, after a preliminary review of data by the investigator, it was determined that comparisons could not be made because of a wide variability of the dependent measure. Discharge disposition was selected instead as the third variable for investigation. This variable was selected because it has been used to measure

quality of health care in studies examining geriatric care modalities, however, the effects of GCNS on discharge disposition has not been studied. It was assumed by the researcher that patients whose health status had been restored would be discharged to their preadmission place of residence rather than to a higher level of care.

In addition to examining the effects of the GCNS role on LOS, readmission rates, and discharge disposition, several patient characteristics were examined by the investigator in an attempt to develop a profile of patients in need of GCNS services. The characteristics included DRG, age, number of comorbid conditions, sex, Medi-Cal enrollment, prior admissions within 12 months of the study period, and preadmission living arrangement. These variables have been shown to affect patient outcomes such as LOS, hospital readmission, and discharge disposition in previous studies examining the hospitalized elderly (Anderson & Steinberg, 1984; Fethke, Smith, & Johnson, 1986; Jencks & Kay, 1987; Munoz et al., 1988; Narain et al., 1988). The selection of patient characteristics was limited to those which could be identified from the data sources available.

Procedure

The protocol for this research was presented to the Institutional Review Board (IRB) at the study facility prior to the data collection period. Subjects did

not actively participate in this study. Therefore, patient consent was not obtained. Although data were to be collected in such a way that caution and the protection of patient records could be guaranteed, the IRB concluded that allowing the investigator access to patient charts would violate a patient's right to confidentiality. After revising the research proposal to confine the collection of data to computer printouts and continuing care worksheets, protocol approval was granted from the participating institution (see Appendix A). After subsequent review of the revised protocol by the IRB at San Jose State University, permission was also obtained to commence research (see Appendix B).

All data were collected in such a way that patient names and medical record numbers could not be identified. The medical record numbers used to identify the appropriate sources of data were assigned code numbers by the investigator. The code numbers were used to transfer information to a data collection sheet. The key containing the medical record numbers and the assigned code numbers was kept at the study facility and destroyed following the data collection period which lasted from January 21, 1991 to March 1, 1991. All data retrieved were kept in a locked file at the investigator's home and were accessed only by the investigator.

Data Collection

Funding was made available at the study facility to extend the GCNS position beyond an original 6-month trial period. The outcomes of patients seen by the GCNS over a 3-month period following the trial were examined. It was assumed by the investigator that any major problems with role development and implementation had been identified and resolved prior to this time period. A list of the patients seen by the GCNS between March 15 and June 15, 1990 was provided by the GCNS. The control group was developed by the investigator using data provided by the Quality Assurance Department. This information included a list of all patients 65 years or older admitted to the study facility between March 15 and June 15, 1990, as well as patient ages, DRG numbers, and coexisting conditions.

All data were collected at the participating institution using a data collection tool developed by the investigator (see Appendix C). The data collection tool was reviewed by an expert in geriatric nursing to establish face validity. Retrospective data regarding LOS, readmission rates, discharge disposition, and patient characteristics were obtained from a variety of sources. Patient abstracts available from case-mix and case-history computer data bases were retrieved for the investigator by a staff person in the Quality Assurance Department. Additional demographic data were obtained by the investigator from continuing care

worksheets. Data regarding the reason for referral to the GCNS were also obtained from the worksheets. The investigator believed this information might be an important descriptor when determining which patients are most likely to need GCNS services.

Sample

A retrospective review of data was conducted on a total of 73 patients. The experimental group consisted of all patients seen by the GCNS during the study period (n=42). The GCNS most often assessed patients who were referred by members of the health care team including nurses, physicians, continuing care coordinators, and human support personnel. According to the GCNS, patients were usually referred because of management problems, ethical issues, impaired mental status, decreased motivation, a change in functioning, inadequate pain control, incontinence, anorexia, need for caregiver support, safety issues, and complicated discharge planning needs. In addition to patient referrals, the GCNS acquired her caseload by screening daily printouts of new admissions for evidences of frailty and other factors placing patients at risk for experiencing a longer than average LOS (e.g., type of admission, age, and diagnosis). Priority was given to patients who were confused, had fallen, or who were being physically or chemically restrained.

Because the GCNS worked only 20 hours a week during the

study period, a large number of elderly patients who had complex health care needs or who were at risk for experiencing iatrogenic complications were not able to receive GCNS services. The control group was selected from this patient population. Efforts were made to control for several patient characteristics so that the experimental and control groups would be comparable in outcome. Only 31 patients, however, could be matched to the experimental group according to DRG. Paired subjects were also matched to within 5 years of age, and as closely as possible to the number of comorbid conditions.

The GCNS Intervention

The GCNS was a registered nurse with advanced education at the master's level in gerontological nursing, competence, and experience in geriatric nursing. The GCNS's main goal was to prevent hospital-related complications for the elderly patient. To accomplish this goal, the GCNS carried out Hamric's four functional categories of the clinical nurse specialist role by (a) providing direct patient care to selected patients 65 years or older; (b) serving as a resource and role model to the health care team in the assessment, planning, implementation, and evaluation of elderly inpatients with complex problems; and (c) identifying staff needs and providing appropriate educational experiences regarding the care of geriatric patients. In addition, the GCNS evaluated her performance

by soliciting feedback from nurses and physicians through informal discussions and evaluative surveys and by reviewing patient records to see if her recommendations had been followed.

The GCNS position was newly created. Therefore, the majority of GCNS time was spent implementing patient-centered activities through the provision of direct patient care, and the guidance and support of nursing staff in carrying out her recommendations. Comprehensive functional assessments were conducted on all patients receiving the GCNS intervention. These assessments included physical, social support, and cognitive status evaluations using one or more of the following assessment tools: (a) Folstein's Mini Mental State Exam (Folstein, 1975), (b) the Short Geriatric Depression Scale (Sheikh & Yesavage, 1986), and (c) a functional screen developed by the Rehabilitation, Research, and Training Center on Aging at Rancho Los Amigos Hospital, University of Southern California (no date). Patient logs were kept by the GCNS using a geriatric assessment form developed by the Continuing Care Department at the study facility. In addition, baseline data were obtained from patient charts such as medication histories and laboratory values and from the patient's primary caregivers including physicians, nurses, and family.

The patient's premorbid functional level was then documented in the progress notes by the GCNS noting

potential problems, especially known risks for the hospitalized elderly (e.g., history of falls, urinary tract infection, proteinuria, low serum albumin, increased white blood cell count, diminished functional status). In addition, the GCNS provided staff on medical, surgical, orthopedic, and transitional care units with the patient's usual level of functioning. Recommendations regarding patient care were made by the GCNS both verbally to the primary caregivers and in writing as part of the patient care plan. Patient care issues included but were not limited to improving the patient's in-hospital functional abilities, altering medication regimes, teaching approaches for patients with sensory deficits, and management of the confused or incontinent patient. The GCNS was also available for further consultation if subsequent problems arose in the course of hospitalization. The coordination of services required by the patient after discharge was a function of the primary nurse and unit-based continuing care coordinators.

Setting

This study was conducted at an acute care district community hospital staffed for approximately 300 beds. The study facility was located in northern California. By the year 2000, the over-65 cohort is projected to comprise 14.5% of the total population in the county in which this research was conducted (Santa Clara County, 1988). Although only 21%

of the patient population was over 65 years old, the percentage of elderly patients admitted to the medical, surgical, and orthopedic units often exceeded 50%. A commitment to aging issues was demonstrated by the administrators at the study facility through their support of a variety of geriatric services offered to staff and to seniors living in the community. These services included: (a) a task-force on aging who examined future directions for senior services, (b) transportation for seniors to and from medical appointments, (c) the installation of emergency response systems for seniors living at home, (d) volunteer in-home support following discharge, and (e) a geriatric resource group whose mission was to increase the sensitivity of staff hospital-wide to the unique needs of the hospitalized elderly.

Data Analysis

Retrospective data were used to analyze the relationship between the independent variable, GCNS service, and the dependent variables LOS, readmission rates, and discharge disposition. In addition, several patient characteristics were analyzed in an attempt to develop a profile of patients most likely to need GCNS services.

LOS represents the number of days a patient remained in the hospital beginning the hour of the day on which care was first administered and concluding the hour of the day on which care was terminated. Means and standard deviations of

LOS for the experimental and control groups were computed; differences between means were calculated using a t-test for independent samples.

Frequency distributions and percentages were used to measure readmission rates. Readmission rates were calculated by determining the percentage of elderly patients readmitted to the study facility within 30 days of discharge for a similar diagnosis as their initial admission. Because only a small percentage of the population studied were readmitted, no further analyses were computed on data for this group.

Discharge disposition represents the patient's place of discharge and was measured by comparing preadmission with postdischarge living arrangements. Frequency distributions and percentages were calculated on patients who survived hospitalization and who were either discharged to their preadmission living location or to a higher, more dependent level of care. The percentages of patients discharged to a higher level of care for both groups were then compared.

Frequency distributions and percentages were calculated on the patient characteristics which included primary discharge diagnostic category, age by 10-year age groupings, sex, Medi-Cal enrollment, number of prior admissions, and preadmission living arrangement. In addition, means, standard deviations, and ranges were used to compare patient ages, number of comorbid conditions, and patient charges.

Data regarding the reason for referral to the GCNS were also analyzed and measured using descriptive statistics including frequency distributions and percentages.

Chapter 4

ANALYSIS AND INTERPRETATION OF DATA

Results

This study was conducted to explore the potential for an expert nurse to provide cost-effective nursing care to elderly inpatients. Retrospective data were collected and analyzed in order to identify interrelationships between gerontological clinical nurse specialist (GCNS) practice and the health status of patients by answering the following questions:

1. What is the difference in length of stay (LOS) between medically ill hospitalized elderly patients who receive the nursing services of a GCNS compared to a similar group of patients who do not?
2. What is the difference in readmission rates between the experimental and control group?
3. What is the difference in discharge disposition between the two groups?
4. What are the characteristics of patients most likely to need GCNS services?

Description of the Sample

A total of 42 patients were seen by the GCNS between March 15 and June 15, 1990. Efforts were made to control for several patient characteristics so that the experimental and control group would be comparable in outcome. Only 31

patients could be matched according to diagnostic related grouping (DRG). The DRG codes were too numerous to report. Therefore, a more general categorization of DRG's into primary discharge diagnoses is presented in Table 1. Most of the sample's diagnoses fell into two categories which are reflective of chronic conditions: cardiovascular and neoplastic diseases and disorders.

Table 1

Primary Discharge Diagnostic Categories for Experimental Group (n=42) and Control Group (n=31)

Diagnostic category	Experimental		Control	
	Group (n=42)		Group (n=31)	
	<u>n</u>	(%)	<u>n</u>	(%)
Cardiovascular Disorders	13	(31)	10	(32)
Neoplastic Diseases	7	(17)	7	(23)
Orthopedic Disorders	4	(9)	3	(10)
Respiratory Disorders	3	(7)	3	(10)
Psychiatric Disorders	3	(7)	-	---
Gastrointestinal Diseases	2	(5)	2	(6)
Renal Disorders	2	(5)	2	(6)
Other Conditions	8	(19)	4	(13)
		(100)		(100)

Note. Percentages were rounded to the nearest whole number

In an attempt to control for severity of illness, the subjects were also matched within 5 years of age and by the number of comorbid conditions. The mean age of the GCNS group was 80.6 years compared to 80.1 years for the control group, with ages ranging from 65 to 97 years compared to 67 to 96 years. In addition, the intervention group averaged 4.5 secondary diagnoses compared to 4.2.

Length of Stay

Differences in mean LOS between the experimental and control group were analyzed in order to answer the question: What is the difference in LOS between medically ill hospitalized elderly patients who receive the nursing services of a GCNS compared to a similar group of patients who do not? The two groups did not differ significantly in the number of actual days hospitalized. The patients cared for by the GCNS, however, remained in the hospital an average of nearly 3.5 days longer than the control group. Days of hospitalization ranged from 1.7 to 32.4 days for the intervention group, and 0.7 to 42.9 for the control group. An attempt was made to compare patient charges to determine if the increase in LOS for the intervention group might have resulted in higher costs of care. Although mean charges for both groups were similar, comparisons could not be made because of the wide variability of the dependent measure.

Hospital Readmissions

The percentage of elderly patients readmitted to the

study facility within 30 days of discharge was compared between the groups in order to answer the question: What is the difference in readmission rates between the experimental and control group? Of the patients surviving at discharge ($n=67$), 13% ($n=5$) of the GCNS group, and 15% ($n=4$) of the control group were readmitted within 30 days. Only 3 patients in each group (GCNS, 8% and control, 11%) were readmitted for a diagnosis related to their initial discharge diagnosis. Patients in the treatment group averaged 10 days out of the hospital before returning compared to 25 days for the control group. This difference was primarily due to two readmissions in the GCNS group occurring on day 5. The third patient was readmitted on day 22. In comparison, patients in the control group were readmitted on days 16, 29, and 30.

Discharge Disposition

The percentages of patients in the experimental group and the control group who were discharged to a higher level of care were compared in order to answer the question: What is the difference in discharge disposition between the two groups? Two patients in the GCNS group and 4 patients in the control group expired during their initial hospitalization. Of the remaining subjects, 50% of the GCNS patients were discharged back into the community, either to their home or residential care facility, compared to 67% of the control group patients. Of the patients discharged to

their preadmission living location, 38% of the experimental group and 23% of the control group required temporary home care nursing services. In addition, 50% of the GCNS patients compared to 33% of the control group patients were transferred to a nursing home. When comparing living arrangements prior to admission with discharge placement, the difference in discharge disposition between the two groups appears to be rather comparable in absolute values. Forty-five percent of the GCNS group was discharged to a higher level of care (from home or residential care facility to a nursing home), compared to 33% of the control group. Table 2 compares living location at admission and discharge for both groups.

Patient Characteristics

Patient characteristics were compared between the experimental and control group to determine which patients are most likely to need GCNS services. In addition to primary discharge diagnostic categories, age, and number of comorbid conditions, the two groups were similar when compared by sex and other selected variables presented in Table 3. The GCNS group (64%) and comparison group (65%) consisted primarily of patients who were female, 75 years or older (79% and 74%), and lived in the community prior to admission either with someone who provided care (48% and 55%), or alone (26% and 26%). In addition,

Table 2

Comparison of Living Location of Study Groups atAdmission and Discharge

Location	GCNS Group (n=42)		Control Group (n=31)	
	At Admission n (%)	At Discharge n (%)	At Admission n (%)	At Discharge n (%)
Home ^a	32 (76)	16 (38)	25 (81)	14 (45)
Residential care facility	8 (19)	4 (9)	6 (19)	4 (13)
Nursing home	2 (5)	20 (48)	- ---	9 (29)
Expired	- --- (100)	2 (5) (100)	- --- (100)	4 (13) (100)

Note. Percentages are rounded to nearest whole number

^a Category, Home, includes patients who live alone, with a spouse, or other caregiver

Table 3

Sample Profile for Selected Demographics

Variable	Experimental Group (<u>n</u> =42)	Control Group (<u>n</u> =31)
	<u>n</u> (%)	<u>n</u> (%)
Age		
65-74	9 (22)	8 (26)
75-84	20 (48)	13 (42)
85-94	12 (29)	8 (26)
<u>≥</u> 95	1 (2)	2 (6)
Sex		
Male	15 (36)	11 (35)
Female	27 (64)	20 (65)
Number of prior admissions ^a		
0	26 (62)	22 (71)
1-3	11 (26)	8 (26)
4-6	4 (10)	1 (3)
<u>≥</u> 6	1 (2)	- ---

Note. Percentages were rounded to nearest whole number

^a Within 12 months of admission

Table 3 continued

Variable	Experimental	Control
	Group (<u>n</u> =42)	Group (<u>n</u> =31)
	<u>n</u> (%)	<u>n</u> (%)
Medi-Cal Enrollment		
	7 (17)	5 (16)
Preadmission living arrangement		
Home (or apartment)		
Alone	11 (26)	8 (26)
With spouse	14 (33)	8 (26)
With relative or paid attendant	6 (14)	9 (29)
Provides care to other	1 (2)	- ---
Residential care		
facility ^b	8 (19)	6 (19)
Nursing home	2 (5)	- ---

Note. Percentages were rounded to nearest whole number

^a Within 12 months of admission

^b Includes retirement communities and board and care homes

more than half of the patients in both groups had no previous hospitalizations at the study facility within 12 months of their admission (62% and 71%).

Reason for GCNS Referral

Eighty-six percent of the 42 patients who received GCNS services during the study period were referred to the GCNS by staff members. The primary reason for referral was altered mental status. Twenty-two of the 36 patients referred were referred because of acute confusion, hallucinations, depression, and somnolence. Six of these referrals were because of associated physical and chemical restraint issues as well. Other reasons for referral to the GCNS include (a) decreased functional status (n=5), (b) difficult placement related to possible elder abuse by caregivers or a lack of social support (n=5), (c) other management issues including caring for a newly diagnosed Alzheimer's patient (n=2), and (d) undocumented reasons (n=2).

Interpretation of Results

Length of Stay

Although there was no statistically significant difference in LOS between patients cared for by the GCNS and control group patients, the intervention group did remain in the hospital nearly 3 1/2 days longer. This finding is similar to the work of Campion et al. (1983) who demonstrated a slight, but not significant, increase in LOS

for patients who received the services of a geriatric consultation team (GCT). Campion's group also found that care provided by an interdisciplinary team of specialists in geriatrics resulted in a dramatic increase in use of rehabilitative services, as recommendations to the patient's primary caregivers regarding medical and psychiatric management, rehabilitative needs, and discharge planning were carried out.

The results of the present study are not consistent with the findings of Pawlson (1988), who found that patients cared for by geriatricians had a significant reduction in LOS compared to patients cared for by general internists (8.8 vs. 15.8 days). Unlike general internists, geriatricians also use a comprehensive geriatric functional assessment to evaluate the multidimensional care needs of older adults. Studies by Barker (1985), Kennedy et al. (1987), and Naylor (1990) examined other geriatric care modalities which focused on patient functioning and discharge planning. They demonstrated a positive impact on hospital LOS as well. Unlike the present study, however, comprehensive assessments of patients receiving GCT services and discharge planning by a GCNS, were initiated within 24 to 48 hours of admission, when risk factors could be identified and complications prevented.

Eighty-six percent of the patients seen by the GCNS in the current study were referred by staff members later in

the course of hospitalization because of problems resulting from the negative impact of hospitalization (altered mental status with associated physical and chemical restraint issues and decreased functional status), as well as difficult placement issues (possible elder abuse and inadequate social support). The complicated nature of the GCNS's caseload may explain the differences in LOS. Because process strategies were not analyzed, it is not known how many of these patients required additional treatments and supportive services, or special discharge considerations.

Readmission Rates

The total number of subjects readmitted to the study facility within 30 days of discharge was similar for both groups and relatively small compared to other studies. The findings reported in this study, however, do not reflect patients admitted to other hospitals, which may account for the low recidivism rate. The lack of difference between the 2 groups may be due to the effects of full-time unit-based continuing care coordinators responsible for screening and initiating discharge planning on all patients 75 years or older, patients with multiple diagnoses, or patients referred by nursing staff. The arrangement of adequate support after discharge by the continuing care coordinators may have delayed or prevented readmissions for a majority of the patients in the study groups.

The percentage of patients readmitted with a diagnosis

similar to their initial discharge diagnosis was too small to analyze statistically. Of this patient population, however, control group patients remained out of the hospital more than twice as long as the GCNS group. Kennedy et al. (1987) also found similar readmission rates for both experimental and control group patients; however, unlike this study, patients receiving the treatment remained out of the hospital an average of 11.2 days longer. In contrast, Naylor (1990) found the discharge planning protocol to have a significant positive impact on readmissions for the experimental group, with the 4- to 12-week postdischarge period accounting for the majority of differences in readmission rates. Higher readmission rates as well as a greater degree of difference may have become more evident had patient follow-up been extended to 12 weeks for the current study.

Discharge Disposition

The percentage of patients discharged to a higher level of care was greater for the experimental group than the control group. In addition, the percentage of patients transferred to nursing homes increased dramatically for both groups (from 5% to 45% for GCNS patients and 0% to 33% for control patients). These findings are not consistent with the work of Rubenstein et al. (1984), who found that more than twice as many controls as the geriatric evaluation unit (GEU) patients were discharged to a nursing home (30.0% vs.

12.7%), with both groups similarly matched with respect to living location prior to admission.

Saltz et al. (1988) were unable to demonstrate a significant difference in discharge disposition between control group patients and patients receiving the GCT intervention, with the percentage of patients transferred to extended care facilities doubling for both groups (from 10% to 20%). Factors significantly associated with nursing home placement included impaired functional and mental status. In addition, Saltz et al. (1988) found that only half of the patients experiencing a hospital-related complication went home, compared to 80% of the patients who had no complications.

Lefton, Bonstelle, and Frengley (1983) and Narain et al. (1988) also examined variables thought to influence discharge disposition. Lefton et al. (1983) found that not only were patients cared for on a medical unit designed specifically for the elderly significantly more likely to be discharged home, but they were also more independent in activities of daily living and ambulation than control patients. Similarly, Narain et al. (1988) found a significant association between a low functional or mental status and nursing home placement.

Of the 34 patients referred to the GCNS during the present study, 20 were referred because of a change in mental status, and 7 because of diminished functional

abilities. It may have been necessary to transfer many of these patients to a nursing home to stabilize their condition prior to returning them back to their preadmission living location. Therefore, initial discharge to a higher LOS may be a false indicator of the health status of patients. Although GEU's have been shown to have a significant positive impact on discharging patients back into the community, these units are considered intermediate care units for patients requiring hospitalization, but who no longer require acute care (Lefton et al., 1983; Rubenstein et al., 1984). Findings of the study conducted by Rubenstein et al. (1984) revealed an average LOS for GEU patients of 85.1 days, with most of the days spent on the intermediate-care wards (43 days) undergoing rehabilitation and preparation for discharge. Although initial LOS was nearly twice that of the comparison group, the GEU patients were not only more likely to be discharged home, but were significantly more likely to reap long-term benefits (e.g., increased survival and less use of acute-care and long-term institutional services) after one year follow-up. Without follow-up it is not possible to determine how many patients in the current study were able to return to the community after a short stay in a nursing home, or if there were differences between the two groups in the number of total days spent in a nursing home.

Patient Characteristics

The majority of patients studied were 75 years or older and suffered from multiple chronic illnesses which placed them at risk for iatrogenic complications and institutionalization postdischarge. A large percentage of the subjects had diagnoses related to cardiovascular disease which has been shown to impact immediate and postdischarge outcomes in hospitalized elderly patients as well (Kahn et al., 1990; Narain et al., 1988; Naylor, 1990). When comparing the experimental group with the control group on the selected patient characteristics, no trends were apparent that may have affected measurement of the outcomes. The lack of difference in patient characteristics between the two groups also makes it difficult to determine which patients are most likely to need GCNS services. An examination of the reasons for referral to the GCNS reveal that the majority of patients seen by the GCNS had experienced mental status changes or declines in functional abilities. No further attempt was made, however, to examine relationships between patient characteristics and the reason for referral.

Chapter 5

DISCUSSION

Summary of Study

This study examined the effects of one gerontological clinical nurse specialist (GCNS) on patient outcomes in a specific hospital setting. Length of stay (LOS), readmission rates, discharge disposition, and patient characteristics were compared for two groups of elderly subjects. These variables were easily defined and conducive to exact measurement using retrospective data. There were 42 subjects in the experimental group who received the GCNS intervention, and 31 subjects in the control group who did not.

The GCNS intervention included a minimum of one patient visit during which time a comprehensive functional assessment was conducted utilizing a variety of assessment tools. In addition, the GCNS communicated her findings and recommendations to the primary caregivers and was available for follow-up consultation and additional patient visits as needed.

Patients in the experimental group were paired with patients in the control group according to diagnostic related groups. They were also closely matched by age and by the number of comorbid conditions which minimized differences in case mix and severity of illness. Several

risk factors made the study population as a whole vulnerable to iatrogenic complications and other undesired outcomes including prolonged hospital stay, multiple hospital admissions, and discharge to a nursing home. The majority of patients studied were 75 years or older and suffered from multiple chronic illnesses related to cardiovascular and neoplastic diseases and disorders. Although cognitive function was not measured and compared between groups, impaired mental status was the primary reason for GCNS referral.

Descriptive statistics including means and standard deviations, frequency distributions, and percentages were used to measure the selected variables. Differences in mean LOS for the two groups were further analyzed using a t-test for independent samples. The experimental group remained in the hospital an average of 3 1/2 days longer than the control group. This difference, however, was not statistically significant. There was little observable difference in readmission rates between the two groups. Of the subjects readmitted, control group patients remained out of the hospital nearly twice as long as the experimental group. One finding of special interest to the investigator was the dramatic increase in numbers of patients discharged to a higher level of care for both groups, with the degree of difference being much greater for the experimental group.

Conclusions

This descriptive study sought to determine whether interrelationships existed between GCNS practice and the health status of patients. The data collected were not analyzed in terms of process. Although characteristics of the study facility, patient characteristics, and the varied activities of the GCNS were outlined in the report, process strategies utilized by the GCNS to provide nursing care to specific patients were not evaluated. The conceptual model presented in this study served as a basic structure for describing what the GCNS did to affect patient outcomes and for identifying factors that might have impeded or facilitated implementation of the GCNS role. Research studies seeking to correlate GCNS activities with the health status of patients must examine changes in the care recipient in relation to the interventions implemented by the GCNS to produce the desired change. In addition, the conceptual model should be expanded to include comparison of the GCNS with the nurse generalist. Identifying how the GCNS differs from the patient's primary nurse is necessary for determining why GCNS's are needed to manage the complex care needs of elderly patients. For example, Kennedy et al. (1987) contend that GCNS's are needed to manage the discharge planning needs of elderly patients. They fail to mention in their research report, however, why nurse generalists, a less expensive caregiver, could not be

trained to implement the discharge planning protocol.

Although this study does not provide specific explanations for the results, several factors may account for the difference in mean LOS between patients who received the GCNS intervention and those who did not. A few studies examining the effects of special geriatric care modalities which utilize process strategies similar to the GCNS intervention have demonstrated shortened LOS for experimental- versus control-group subjects (Barker et al., 1985; Kennedy et al., 1987; Naylor, 1990; Pawlson, 1988). Comprehensive assessments and treatment plans for patients receiving these services were initiated soon after admission. Therefore, an early identification of need may have facilitated timely discharges for study subjects. The majority of patients who received the intervention in the current study, however, were referred to the GCNS because of complications which had already occurred. These assaults on patient functioning may account for the increased LOS for the experimental group. Campion et al. (1983) also found that LOS was longer for patients receiving geriatric consultation services. The researchers ascribed their findings to a high prevalence of functional disabilities among experimental subjects which resulted in an increased use of rehabilitative services.

The difference in LOS between groups in the present study may also be related to staff compliance in carrying

out the GCNS recommendations. Unlike GCNS's who were successful in implementing their own discharge planning protocols (Kennedy et al., 1987; Naylor, 1990), the GCNS in this study relied on unit staff to act upon identified patient needs and suggestions regarding patient management issues and postdischarge care. Many GCNS's have found it difficult to implement a newly developed GCNS role in the acute care setting because of (a) role ambiguity, (b) an inability of many health professionals to see the need for specialized care of the elderly, (c) multiple care providers resulting in uncoordinated care, and (d) time pressures on the nursing personnel to implement task-oriented functions rather than meeting the psychosocial needs of their patients (Harris, 1981; Trella, 1989).

Geriatric consultation teams (GCT) also rely on house staff to implement patient recommendations. Researchers examining the utility of GCT's in previous studies found that GCT recommendations were highly likely to be followed (Barker et al., 1985; Campion et al., 1983; Saltz et al., 1988). The results of these studies, however, are conflicting in regard to the impact of GCT services on LOS. The part-time status of the GCNS in the present study prevented a comprehensive evaluation of staff compliance and the achievement of patient goals. Given the complex nature of the GCNS caseload, perhaps a full-time GCNS available for ongoing monitoring of patient needs and utilization of

services would have demonstrated more fully the impact of the GCNS role on LOS.

The findings of this study did not demonstrate an effect of the GCNS intervention on hospital readmissions. In fact, overall readmission rates for both groups of subjects were similar and relatively low (8% for the GCNS group and 11% for the control group). These figures may not be an accurate assessment of recidivism, however, because they do not include admissions to other hospitals or postdischarge mortality. In addition, these findings may be reflective of the study facility's routine discharge planning procedure which is initiated within 24 hours of admission on all high-risk Medicare patients. Naylor (1990) also found similar readmission rates for patients who received comprehensive discharge planning initiated early in the course of hospitalization (10.5% at 4 weeks). The majority of subjects readmitted in Naylor's study, however, were readmitted between 4 and 12 weeks postdischarge. The results of other studies examining patient outcomes at one year, also suggest that readmission rates are highest between 2 to 3 months of discharge (Anderson & Steinberg, 1984; Campion et al., 1983; Kennedy et al, 1987). Therefore, readmission within 30 days of discharge may not be an accurate reflection of the effects of the GCNS intervention on readmission to the hospital.

Another reason for the lack of difference in readmission

rates between the two groups may be related to the level of expertise existing among the continuing care coordinators regarding the special needs of elderly patients. Of the patients referred to the GCNS, only 5 patients were referred because of complicated discharge needs. Although the findings of this study may indicate that discharge planning was appropriate, the place of discharge may have further impacted the number of subjects readmitted. Discharge to a nursing home may have prolonged or prevented hospital readmissions for the study subjects.

The high percentage of subjects admitted from the community and discharged to nursing homes may reflect the complex nature of both groups, namely, the presence of chronic conditions, multiple diagnoses, and an average age of 80 years. Because the experimental and control group subjects were matched as closely as possible on these variables, the difference in discharge to a higher level of care may be indicative of some other factor such as lower levels of functioning among experimental subjects, in particular, impaired mental status. According to Campion et al. (1983), nursing home placement is not always a reliable indicator of health care quality, citing an example of a patient who was discharged to a nursing home to be with his wife. In addition, although the percentage of experimental-versus control-group patients was higher for the experimental group in the present study, this finding does

not (a) reveal the type of facility in which a patient was placed (rehabilitative focus versus convalescence) or (b) measure the long-term effects of the GCNS intervention on patient outcomes. Patients who receive rehabilitation and preparation for discharge on intermediate care wards show improved functioning, fewer readmissions, and lower costs over time (Lefton et al., 1983; Rubenstein et al., 1984). Again, the majority of experimental patients in the present study had experienced iatrogenic complications. This one factor alone may account for the differences in LOS and discharge to a higher level of care between the two groups. The assessment of long-term benefits rather than an examination of the immediate effects of the GCNS intervention may have been more accurate measures in determining the impact of the GCNS role on quality of life and health care costs.

Scope and Limitations

The effects of the GCNS intervention could be interpreted as serving to lengthen hospital stays as well as increase the numbers of elderly inpatients discharged to nursing homes. Several major factors, however, threaten the validity of the results of this research. The retrospective nature of this study did not permit random assignment of the subjects. However, an attempt was made to control for case mix and severity of illness by pairing experimental and control group subjects according to variables known to

affect patient outcomes. According to Schmitt, Farrell, and Heinemann (1988), this approach of controlling for extraneous variables may create a false impression that, in fact, two groups are equivalent when factors other than the independent variable may have exerted influence over the dependent variables. These influences include patient characteristics not controlled, such as the duration of chronic illnesses, functional status, iatrogenic complications, coping styles, quality and extent of social support, readmission to other hospitals, mortality, and type of nursing home placement. According to Donabedian (1966), structural variables can either hinder or promote the provision of quality health care. Therefore, the results may have been further confounded by characteristics of the floor staff such as level of knowledge regarding aging issues, acceptance or reluctance to implement recommendations by the GCNS, and differences in management styles between head nurses on the units studied that promoted or hindered the consultative component of the GCNS role.

Several external threats to validity limit the findings of this research to the population and setting studied. The experimental group consisted of all patients receiving GCNS services over a 3-month period. Since most of these patients were referred to the GCNS because of problems incurred while hospitalized, the findings may not be representative of the Medicare population as a whole. In

fact, it appears that GCNS benefits may be limited to a very select group of frail elderly inpatients, (e.g., patients suffering from cognitive changes and other functional impairments). Replicating this study would also be quite difficult in another setting. The process strategies used by the GCNS to affect changes in patient outcomes were inconsistent between patients. Although the GCNS relied on variety of assessment tools to measure functional capacity, the type of assessment performed was often dependent upon the patient's immediate problem.

Recommendations

Hamric (1985) states, "Identify the anxiety in your institution and respond to it" (p. 65). This descriptive study was conducted to investigate the ability of a GCNS to provide efficient and effective health care to elderly inpatients. The results are disappointing in that the GCNS intervention did not appear to benefit length of stay, readmission rates, or discharge disposition. There is good reason to believe, however, that this research did not adequately assess the true impact of the GCNS, given the complex nature of her population, and the limitations inherent in the design.

Several case studies have been identified in the current body of nursing literature describing process strategies used by GCNS's to enhance patient care, as well as experiences with role implementation. A few quasi-

experimental studies have also been conducted suggesting that GCNS's provide cost-effective care by preventing prolonged LOS and hospital readmissions. These studies, however, are limited to examining only one aspect of the GCNS role, that of discharge planning. The findings of the present study clearly support the need for continued descriptive research examining the wide range of services provided by the GCNS, before relationships between the role of the GCNS and patient outcomes can truly be established.

Determining which type of patient is most likely to benefit from GCNS intervention could ensure that geriatric expertise is utilized on patients who are most in need, as well as serve as a basis for future outcome assessment. Utilizing explicit criteria for identifying high-risk patients may also promote implementation of the GCNS intervention at a time when complications could be prevented or minimized. GCNS's must also identify which strategies are most effective in producing desired changes in a patient's health status. Developing standard protocols for treating specific patient problems (e.g., confusion) is one way to ensure that care is consistent between patients so that the results of care can be more accurately assessed.

Baseline functional abilities should also be identified on all patients who receive GCNS services, preferably early in the course of hospitalization. Assessment, however, must be systematic, consistent between patients, and based on

valid and reliable measures if the data are to be used to evaluate the effects of the provider. A patient's level of functioning could then be useful in controlling for variations between patients. In addition, Mehlman (1990) believes that comparing a patient's functional abilities at admission against the same variables at discharge would permit outcomes to be assessed independently of the severity of the patient's illness. This type of comparison would not only enable the GCNS to evaluate the degree to which functional status was maintained and complications prevented, but make outcome data more generalizable to other populations and settings.

The effects of acute illness on chronic conditions must also be considered when evaluating the effectiveness of health care practices. Patient follow-up should be extended to a minimum of 3-months postdischarge to be able to determine the full impact of the role of the GCNS on patient outcomes in a hospital setting. Finally, because much of what the GCNS does is considered indirect patient care, the outcomes measured in this study may not be the relevant measures of the care provided. Evaluating changes in nurses' attitudes and behaviors might explain more fully the relationship between processes of care and the outcomes demonstrated.

According to Krueger (1980), "Nursing research and its utilization in practice will be brought closer together as

nurses work toward the common goal of improving the health care they provide to society" (p. 118). Elderly patients often suffer from a variety of impairments, yet maintain a tremendous potential for rehabilitation and an ability to achieve an optimum level of functioning. Although research regarding the impact of the GCNS on nursing practice and patient outcomes is indeed problematic, the documentation of such effects is urgently needed to increase support and utilization of this valuable member of the health care team, as well as, improve the care nurses provide to a most vulnerable population.

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medical care. The New England Journal of Medicine, 302,
996-1002.

APPENDIX A
Protocol Approval from the
Participating Institution

December 11, 1990

Barbara Cunningham, R.N.
6 West

RE: The effects of gerontological nurse specialist on patient outcomes
in the hospital setting.

Dear Ms. Cunningham:

The revised research proposal has been reviewed. Your revisions do satisfy the recommendations of the Institutional Review Board that were expressed at its November 16, meeting. The Institutional Review Board can grant your protocol approval for institution at

Please be sure to present a review of your study either at its completion or within one year.

Sincerely,

Chairman
Institutional Review Board

MSG/kmb

APPENDIX B
Letter of Permission
to Conduct Research from
the Human Subjects Institutional Review Board

A campus of The California State University

Office of the Academic Vice President • Associate Academic Vice President • Graduate Studies and Research
One Washington Square • San Jose, California 95192-0025 • 408/924-2480

To: Barbara Cunningham, Nursing
939 Rose Blossom Drive
Cupertino, CA 95014

From: Charles R. Bolz
Office of Graduate Studies and Research

Date: January 9, 1991

Charles R. Bolz

The Human Subjects Institutional Review Board has reviewed and approved your request for exemption from Human Subjects Review for the proposed study entitled:

"The Effects of the Gerontological Nurse
Specialist on Patient Outcomes in a Hospital
Setting"

You may proceed with this study without further review by the Human Subjects Institutional Review Board.

I do caution you that Federal and State statutes and University policy require investigators conducting research under exempt categories to be knowledgeable of and comply with Federal and State regulations for the protection of human subjects in research. This includes providing necessary information to enable people to make an informed decision regarding participation in your study. Further, whenever people participate in your research as human subjects, they should be appropriately protected from risk. This includes the protection of the confidentiality of all data that may be collected from the subjects. If at any time a subject becomes injured or complains of injury, you must notify Dr. Serena Stanford immediately. Injury includes but is not limited to bodily harm, psychological trauma and release of potentially damaging personal information.

Please also be advised when people participate in your research as human subjects, each subject needs to be fully informed and aware that their participation in your research project is voluntary, and that he or she may withdraw from the project at any time. Further, a subject's participation, refusal to participate or withdrawal will not affect any services the subject is receiving or will receive at the institution in which the research is being conducted.

If you have any questions, please contact Dr. Stanford or me at (408) 924-2480.

cc: Bobbye Gorenberg, D.N.Sc., R.N., C.

APPENDIX C
Data Collection Tool

Data Collection Tool

[illegible]