The Effects of A Geriatric Nurse Practitioner on Rates of Hospital Admission and Length of Stay among Residents of Long Term Care Facilities in Oregon

by

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CHAPTER I

STATEMENT OF THE PROBLEM

Introduction

The problem of providing health care to the increasing number of older Americans is as complex as it is challenging. It involves more than phenomenal demographic shifts and changes in national economic trends. It encompasses more than increased numbers of older people and limited resources. It also involves the conceptual framework in which health care policy is determined. And it involves the agents and agencies which are created to implement the policies.

The solution to the dilemma of providing adequate and appropriate care for a booming geriatric population may not be in creation of either more facilities or services. Nor will the development of more humanitarian attitudes toward aging alone result in the needed changes in health and social policies. The real need may be for a systematic approach to the planning and delivery of health care.

Increased needs in the long term care sector due to more older people and limitations of federal spending make it imperative to examine alternative methods of providing services and to incorporate cost-effective measures into public policy. An important development on the long term care scene in relation to the needs of the elderly is the geriatric nurse practitioner (GNP). As a nurse focusing on care of the elderly with the additional medically oriented skills of a nurse practitioner, the GNP is a health care provider able to meet the specific need of the older population. Existing state and federal

regulations and reimbursement methods, however, require and allow for physician services, particularly in nursing homes. These rules and regulations prohibit effective demonstration of the cost-saving potential of the GNP.

Demographic Trends

The full impact of what has been termed "the graying of America" can be appreciated by an examination of census data and projections of current trends. There has been rapid growth of the older segment of the population; in 1900, four per cent of the total population (or a little more than three million people) were 65 years of age and older. At present there are nearly 25 million people aged 65 and over in the United States. This figure represents about eleven per cent of the total population. The rate of growth for the older age group is almost twice that of those under 65. Looking ahead, by the year 2000 the median age will have increased from the present age of thirty to fifty years of age. The number of those 65 and over in the year 2030 is projected to be fifty-five million, a doubling of the present population of the same age. The year 2020 will mark the "geriatric boom" as the post-war birth cohort reaches retirement age. The 65 and over population will then account for over eighteen per cent of the total. The trend will continue with increasing numbers of older people, and simultaneously, the phenomenal growth in the proportion of the "old-old", those 75 years or older. The signifcance of the last statement is twofold. First, it introduces the principle of a changing definition of aging: that as a population as a whole has a greater percentage

of older people, the category of those considered "old" shifts upward. Secondly, the over 75 age group deserves special consideration because they are the most frail of the elderly and most vulnerable to health problems (Shanas, 1974, p. 263).

The national trend is reflected on a state level. In 1978 the Joint Legislative Interim Task Force on Nursing Homes reported over 370,000 people over the age of 60 residing in Oregon. Of these, 14% or 70,000 individuals were considered to be at high risk of institutionalization in a long term care facility due to their age or other factors.

Utilization of Health Care Services by the Elderly

Although comprising only eleven per cent of the population, older individuals consume a large part of the health care services in this country. They account for about thirty per cent of all hospitalizations, most of the nursing home admissions and a disproportionate amount of services delivered by physicians. Much of their higher utlization can be attributed to the higher incidence of chronic and degenerative diseases in older individuals. These disorders, although not life-threatening, impact the affected individual on a daily and prolonged basis. As Brody says:

> Since those people in advanced old age are most vulnerable to the social and functional disabilities requiring long term support, by the year 2000 the target population in need of services may well be more than 11 million people (1979, p. 34).

The nursing home or long term care facility has been the physical embodiment of the health care delivery system's response to the need

for health care provided for extended periods of time. The health and life circumstances of the individuals requiring nursing home care is a major concern to government agencies as well as to family members and providers involved in care of elderly individuals. Recognition of the need for long term care has resulted in an expansion of the definition beyond the institutional setting. Innovate and creative plans are being studied and developed to solve the problems in caring for the elderly. Community support to keep older persons in their homes, improved education programs in the fields of geriatrics and gerontology and continual review of services and regulations are all components of a comprehensive approach toward improving health and social services to the elderly.

Geriatric Nurse Practitioners

The role of nursing in relation to the health care delivery system and to the problems involved in long term care is changing. One expression of the changing role is the GNP who brings a unique blend of nursing and medical skills to the clinical area. A nurse practitioner has expertise in management of nursing problems and basic abilities in diagnosis and treatment of most minor medical problems (Appendix A). Of greatest importance though, in providing care to the elderly is the fact that the GNP chooses to specialize in geriatrics. This commitment to care of the elderly distinguishes the GNP from most other caregivers. The enthusiams of the GNP for care of the aged and appreciation for the older person's needs and abilities may be as significant as the GNP's clinical skills.

New providers of primary care such as nurse practitioners and physician assistants (PAs) have been introduced into the health care delivery system in the past decade to provide improved services and help contain costs. By providing additional services at the same cost as physicians or by delivering equivalent care at lower costs, these new health professionals may increase the cost-effectiveness of a delivery system. The benefit of their services, however, is dependent on reimbursement. In Oregon, Medicaid recognizes the services of NPs and pays them at a rate of 80% of physicians' usual charges. Services for individuals over 65 years of age, however, are paid for by Medicare. With the exception of NP services provided in rural health care clinics, Medicare does not recognize independent NP services as reimbursable. Moreover, in a nursing home setting, the determination at the federal level that NP services provided to Medicare and Medicaid patients cannot replace those which are required to be provided by physicians, reduces the potential for cost-effective use of the GNP. Although the care provided by the GNP may reduce unnecessary or inappropriate use of services within the system as a whole, the existing Medicare and Medicaid policies prohibit demonstration of the cost-saving benefit of a GNP in a nursing home setting (Laubacher, 1979). Because of the lack of appropriate reimbursement methods, the GNP represents additional, non-retrievable costs to the operators of long term care facilities.

Conceptual Framework: Needs, Services and Costs

A conceptual framework useful for examining the problem of providing care for older people in nursing homes is a systems approach.

In this framework, the health care delivery system is viewed as a set of subsystems existing within the greater socio-politico-economic system of society. The health care delivery system can be seen as a creation of public policy, which is conceived of as the response of a political system to environmental forces (Dye, 1978, p. 37). In the case of public policy vis a vis health care for the elderly, inputs to the system, environmental forces, include the number and characteristics of the aging population, economic factors of escalating health care costs, limited financial resources, social values reflected in the definition of health, and attitudes toward the aging process. Using systems terminology to describe the response made by the political system to these inputs, public policy is an output of the system (Dye, p. 37). For the issues related to aging, outputs can be seen as retirement benefit programs and the development of long term care and home health services and optimally functioning older people. On a practical level, policies in the public context are "whatever governments choose to do or not to do" (Dye, p. 3).

If both the needs of the elderly for specific services and the availability of health care monies are defined as inputs into the health care system, then health care outcomes and cost become outputs. The agents (physicians, nurses, nurse practitioners and others) and agencies (hospitals, nursing homes, home health programs) comprise the process whereby inputs are translated into outputs. A reduction in costs on the output side could result in an increase in funds on the

input side. Or, as in the current cut-back economy, a reduction in funding could result in a decrease in costs by limiting the services provided.

The framework for this study posited a system (long term care) with relative costs in various subsystems and sectors (e.g., nursing home, home care, hospital, physicians), a fixed total cost possibility and the idea that cost saving in one subsystem might be used to justify increased costs in another subsystem. Higher costs per unit of service and greater utilization of high cost services may lead to higher cost per individual in need and result in greater total cost to the system.

Cost-effectiveness has been an argument for the utilization of nurse practitioners. Since acute care facilities have extremely high unit costs, control of acute care unit costs and control of utilization of these services are central to overall cost-containment. In fact, "the hospitalization patterns associated with (New Health Professionals) provide an indirect measure of their economic impact and are based on the assumption that decreased hospitalization is associated with reduced costs and vice versa" (Freund and Overstreet, 1981, p. 29). The lack of effective reimbursement methods for nurse practitioners in long term care facilities reflects inconsistency in public policy.

> Public policy on the one hand has encouraged the preparation of nurses for expanded roles and yet, on the other hand, lawmakers, planners, and providers have not reckoned how to pay for their services (Sullivan, Dachelet, Sultz, Henry, and Carrol, 1978, p. 1099).

Definition of Terms

Acute care hospital admission (transfer): Any transfer of a resident from the long term care facility to a hospital resulting in the resident's admission to the hospital (does not include residents seen in the emergency room who were not admitted to the hospital).

Length of stay: The number of days a resident was hospitalized.

Long term care facility (LTCF): Nursing homes providing skilled and intermediate levels of care (as defined by state regulations).

Geriatric Nurse Practitioner (GNP): A Registered Nurse (R.N.) certified by the Oregon State Board of Nursing as a Nurse Practitioner with a specialty in geriatrics (See Appendix A).

Source of payment (Third party or individual): Includes Medicare, Medicaid, private individuals and insurance companies.

Employed on staff: The GNP was a full time member of the health team in the facility and did not see residents on a fee-for-service basis or enter the facility from outside on a consultative or part-time basis.

Hypothesis and Research Question

Data from this study addressed one hypothesis, one null hypothesis, and one research question.

Hypothesis. Rates of admission to acute care hospitals for residents from a LTCF employing a GNP on staff are lower than the rates of admission to hospitals from a LTCF without a GNP.

Null hypothesis. Rates of admission to acute care hospitals for residents from a LTCF employing a GNP on staff are no different than the rates of admission to hospitals from a LTCF without a GNP.

Research question. Is the length of stay in hospitals for residents transferred from a LTCF with a GNP on staff less than the length of stay in hospitals for residents transferred from a LTCF without a GNP?

Assumptions

Assumptions of this study relate to both the variables of the study and to its methodology. These are:

1. The elderly have unique health care needs which are best served by providers specially educated to care for older individuals.

2. Rates of hospital admissions and length of stay are valid indicators of the cost of acute care.

3. There is a random distribution of the severity and nature of illness in the geriatric population, including those in long term care setting.

4. There are no external factors operating to influence transfer policies between LTCFs and hospitals (such as hospital census or administrative desire in the LTCF to alter patient mix).

Limitations

1. The LTCFs were selected for the study on the basis of convenience.

2. Neither the facilities, the residents nor the staff of the LTCFs are representative samples.

3. Current institutional record systems were used as the source of data.

Significance of the Study

Further research on the use of GNPs in the LTCF is needed to evaluate the impact of their services on the geriatric population and on the cost of long term care. Examination of the utilization patterns of services, such as acute hospital beds, is necessary for objective planning of a service delivery system designed to meet the needs of the elderly without increasing expenditures.

CHAPTER II

REVIEW OF THE LITERATURE

The literature reviewed for this study examined several areas: (1) the nature of the health problems of the elderly, (2) the cost of providing care for the elderly, (3) difficulties in evaluating research on nurse practitioners, (4) the cost-effectiveness of nurse practitioners, (5) quality of care provided by nurse practitioners, (6) development of the expanded role of the nurse in geriatrics, and (7) studies specifically involving NPs in nursing homes.

Health Problems of the Elderly

The Surgeon General's report, Healthy People, (1979) indicated the distinct needs of the elderly for health care. Although goals for younger groups focus on a reduction in mortality, goals for the elderly focus on quality of life.

> To improve the health and quality of life for older adults and, by 1990 to reduce the average annual number of days of restricted activity due to acute and chronic conditions by 20 per cent, to fewer than 30 days per year for people aged 65 and older (p. 71, 1979).

Most older individuals, as a result of the aging process, have more health problems than do younger persons and are subject to a much higher incidence of chronic and degenerative disease. Most prevalent are diseases of the cardiovascular system: heart disease, hypertension, arteriosclerosis and probably most devastating, stroke. Cancer, diabetes, arthritis, respiratory disorders (not only chronic obstructive pulmonary disease but influenza and pneumonias), renal

disease, neurologic and mental problems all have a high incidence in the elderly. Moreover, it is the rule rather than the exception for these to occur in combination in the older person who is struggling to adjust to the normal, non-pathologic changes related to the aging process. Chronic disease, persistent in nature, is often difficult or unresponsive to treatment and requires on-going monitoring rather than curative treatment.

The seriousness of the problem of chronic illness has long been recognized. In 1956, L. Mayo, chairman of the Commission on Chronic Illness, spoke to the priority of focusing on chronic disease in this country:

> In essence chronic illness is THE challenge of this era to hospital and public health officials, and to the medical, nursing, and other professions concerned with sickness and disability . . . It is America's No. 1 health problem. (Strauss and Glaser, 1975, p. 1).

A two year study conducted by the Public Health Service revealed that fifty per cent or 94.9 million non-instutionalized Americans had at least one chronic condition between 1965 and 1967. Four million of these, representing 2% of the total population were unable to carry on major activities. The average number of chronic conditions was 2.2 per person, verifying the existence of multiple health problems in most chronically ill individuals (Strauss, p. 1). The high incidence of chronicity in the older population was reported by the Surgeon General: 80% of those over 65 have at least one chronic disease or condition (Healthy People, p. 71).

Cost of Providing Care

The initiation of the Medicare system 15 years ago was an attempt to provide medical care to all older Americans. In recognition of the high costs of health care, the program represented a form of national health insurance for the elderly. Through Medicare, hospital expenses, physicians' fees and limited long term care services were reimbursed. During the early years of the program the costs of health care rose impressively. In the first five years, physicians' charges increased by 38.9% and hospital charges were up 110% (Butler, 1975, p. 210). The corresponding Consumer Price Index was only 27% for the same period. Recently there has been some stabilization and the rates of increase in health care costs is closer to the rate of inflation. However, the program continues to operate beyond its budget each year as does the health care system overall.

Neither has the program met its main objective: covering health expenses for the elderly. Despite the current $30+ billion annually spent on Medicare, only 40-44% of the older person's medical expenses are paid for from that source. Medicaid (state level) funds pick up a large part of the remainder but the absolute out-of-pocket expenditures for the older group have doubled since 1966 to more than $600 average per person per year (Gibson, 1979, p. 15). During 1976 the per capita expense of health care for the elderly was $1,524 compared to $446 for those under 65 (Pegels, 1981, p. 5). That older people have more health problems and utilize services more than younger individuals may account for some of the difference. However, the fact

that Medicare specifically covers the most expensive services, i.e., hospitalization and physician services, must be taken into consideration when examining the figures. Brewster (1972) summarized the economic impact of the government programs on health care for the elderly:

> Medicare and Medicaid have helped to create inflationary pressures by raising new demands for medical services that were unavailable or in short supply. Thus, deficiencies in the delivery system for health care services have played a direct role in creating the dollars and cents problems that elderly people who need medical care encounter (p. 177).

Not only has Medicare failed to cover the costs of health care for older people but it has not provided the care they specifically require. Exclusion of payment for preventative or long term care has reinforced illness behaviors or denied accessibility to the system until the individual develops a condition severe enough to justify treatment. The issue of long term care is of particular relevance to the elderly as they account for 90% of the occupancy of the long term beds in the nation (Brody, 1977, p. 36). Medicare, designed to meet the needs of the elderly, financed only 3-5% of nursing home expenditures in 1976 and 1977; and, of the 55% of public monies which paid for nursing home care in 1976, 90% of the funds came from Medicaid (Scanlon, 1980, p. 620).

Summary

Thus far, the first two sections of the literature review have revealed a conflict between health care needs of the elderly and services provided in the system. Older people most often suffer from

chronic diseases or conditions which require long term care. However, the system provides acute medical care. The rapid rise in health care costs has been due, at least in part, to the provisions within the Medicare program which encourage the use of expensive hospital and medical services for the elderly in need of long term chronic care.

Difficulties in Evaluating Research on Nurse Practitioners

Despite the numerous studies on nurse practitioners (NPs) in the literature, it is difficult to find hard data on their impact on both quality and cost of care. The survival of NPs on the health care scene will depend on data supporting their positive impact on both process and outcome measures of care. Several difficulties exist, however, in drawing conclusions from research on NPs.

One common problem of many studies has been the mixing of data about and physician assistants (PAs) or extrapolation of results from studies on PAs to programs involving NPs. The validity of this type of analysis is questionable (Freund and Overstreet, 1981, p. 29).

A similar problem is present in examining the literature on nurse practitioners as a group because of the development of the NP role within diverse specialty areas. Since the NP movement began in pediatrics, many studies on the quality and cost impact of NPs have been in the pediatric field. Of twenty-nine studies comparing physicians and NPs listed by Prescott (1979, p. 726), thirteen could be identified by title as oriented to child care and an additional three studies related to women's health care. Generalizability of findings

from such studies to care of the elderly, particularly in the setting of the LTCF, is of limited benefit.

The difficulties in generalizing findings across various practice areas emerged from a study of 365 family NPs caring for 8,905 patients (Pesznecker and Dray, 1978). Although the number of individuals over 65 years of age seen by the FNPs in the study was much lower than the number of younger patients followed, the unique care needs of the older patients were recognized. The authors concluded: "The complexity and multiplicity of problems associated with degenerative, chronic illnesses of elderly individuals necessitates careful delineation of the FNP roles and functions with this age group" (p. 980).

Several other problems were discussed by Freund and Overstreet in their review of the literature concerning the cost impact of nurse practitioners (1981). One limitation in research on NPs has been the conduct of studies while the NP is still in preceptorship or in the first year of practice. The results of studies on NPs with brief practice histories may not be applicable to more experienced, established NPs (p. 29). Lack of experimental control and other methodological problems limit the usefulness of findings, especially regarding economic issues.

The reasons for inconsistency in results of research on the cost-effectiveness of NPs and their impact on cost of care were also addressed by Freund and Overstreet. Studies on cost-effectiveness are subject to suspicion because of a lack of common definition of the

term "cost-effectiveness". The widely variable findings of cost of care studies is attributed to the "variety of cost definitions . . . cost accounting systems and financial structures" (p. 32). In a thorough discussion of the techniques of cost-effectiveness analysis, Prescott (1979) noted that accurate measures of cost effectiveness are as difficult to develop as are measures of quality of care. Moreover, inflation must also be taken into consideration in evaluating cost analysis studies.

Cost-effectiveness of Nurse Practitioners

Despite the limitations noted above, some studies have demonstrated the cost-effectiveness of NPs for specific populations and practice settings. NPs have been shown to be cost-effective in pediatrics (Hauri, Morris and Klien, 1979), in obstetrics through the use of nurse midwives (Fagin, 1982, p. 57), and in geriatrics (Schultz and McGlone, 1977). Overall, "results taken in the aggregate appear to support a positive impact associated with NPs" (Fruend and Overstreet, p. 32).

Quality of Care Provided by Nurse Practitioners

Although the research on cost-effectiveness of nurse practitioners is not extensive, numerous studies have been conducted examining the quality of care delivered by NPs.

Nurse practitioners gained credibility through the "Burlington Randomized Trial of the Nurse Practitioner" (Spitzer, 1974; and Sacket, 1974) which is now considered the classic evaluation of NPs' ability

to provide care equal in quality to care delivered by physicians. The study compared care provided by two family practice doctors and two nurse practitioners. Families, defined as husband, wife and dependent children, having given informed consent to participate in the study, were assigned randomly to either the NPs or M.D.s. Physicians received twice the caseload of the NPs as a lesser number of families was considered manageable by the NPs. Outcome measures on physical, emotional and social health were established for the study. The conclusions were:

> Patients randomly assigned to receive first-contact primary care from a nurse practitioner enjoy favorable health outcomes, which are comparable to those of patients receiving conventional care (Sackett, 1974, p. 141).

Overall, the Burlington study demonstrated the positive effects and clinical safety of NPs and has led to their increased utilization. Qualifying considerations in regard to the positive findings from the study addressed by the authors concerned methodological issues. The lack of "no-treatment" control group and questions about the validity and sensitivity of the selected outcome measures may have contributed to the positive outcomes observed in the group treated by the NPs.

Similar findings of the clinical competence of NPs reflected by patient outcomes in other settings have been reported by Bessman (1974), Greenburg (1974) and Lewis (1976). Greater clinical success in the management of obesity and hypertension by NPs in contrast to physicians was recently reported (Ramsay, McKenzie and Fish, 1982).

Nurses in the Expanded Role in Geriatrics

Momentum for the development of the nurse practitioner role,

especially in relation to chronic health care problems so common in the elderly, was provided by the "Memphis Chronic Disease Program" (Runyan, 1971). The program originated in 1963 to develop and study the effects of changed roles for nurses. In the program, 1,0006 experimental patients received care in decentralized facilities staffed by specially prepared nurses. The outcomes for these patients were compared to 298 control patients who received care in hospital outpatient clinics by internists. The mean age for both groups was over 60 years. Although the program was not set up with the strength of experimental design that the Burlington study discussed above had, the findings on patient outcomes were similar, with positive changes observed in the group follwed by nurses. Of particular interest in relation to the present study were the findings on hospital utilization:

> In the two-year period after transfer [to the alternative care program], the study group, who were provided maintenance care in decentralized facilities, utilized approximately 50% fewer hospital days, while the control group showed an increase in hospital days (p. 266).

With other variables controlled for in the statistical analysis, age-adjusted changes in hospital utilization showed the decrease in hospital days per thousand patients in the study group to be significant compared to the control group. The study concluded that nurses functioning in an expanded role with appropriate protocols and medical backup can effectively manage a large part of the care of patients with chronic diseases.

Similar success in utilizing nurses in expanded roles has been found in community based home care for the elderly. A review of

several international programs for home care concluded that a "Geriatric Visiting Nurse" with special preparation is an essential part of comprehensive geriatric care (Williams, 1977). Such positive reports have given support to the development of the expanded role of the nurse in geriatrics and provided a foundation for the emergence of the GNP. Many studies have been conducted on the role of the GNP in the nursing home or LTCF.

Studies on Nurse Practitioners in Nursing Homes

Studies on NPs in the nursing home setting have made comparisons on different parameters between the delivery of care involving NPs and care directed or provided by physicians. The studies reviewed in this section used variations of a common design comparing care provided by NPs with medical backup to more traditional care provided by physicians alone. Several studies used chart review as a method of data collection. Three studies included hospitalization of nursing home residents as a variable used to measure the impact of a nurse practitioner on care in the LTCF.

A nine month study compared care provided to 58 nursing home residents by five physicians to care provided to 60 residents by a team of two physicians and three GNPs. The study concluded that the care delivered by the M.D./NP team was superior to that provided by physicians alone (Brody, Cole, Storey and Wink, 1976). However, the positive findings may have been a result of the use of problem oriented medical records (POMR), a systematic method of documentation, in the home where

the team was utilized. This consideration raises the question of whether studies measure improvement in care or better documentation by providers.

The POMR system was a major focus in the "Nursing Home Demonstration Project" conducted by the University of Utah Medical Center. That study examined a variety of team approaches in thirteen intermediate care nursing homes. A decrease in the number and/or dosage of prescribed drugs was found in facilities where the team included a NP and clinical pharmacist as well as the traditional services of a physician and social worker. Mortality rates were no different between the homes that had NPs and homes that did not. Improved documentation and quality of care were not the only concerns of the Utah demonstration project.

> In addition, the project was concerned with the feasibility of an alternative system on the grounds of cost-effectiveness. Therefore, detailed cost records that included hospitalization . . . were developed for each project patient (Kane, Jorgensen, Teteberg and Kuwahara, 1976, p. 517).

The findings indicated that substantial savings related to reductions in hospitalization were associated with the presence of the NP (Kane, et al., 1976, p. 519).

The most specific findings using hospital costs as a measure of cost-effectiveness were reported in a project similar to the Utah project. The 167 elderly patients in the sample examined in a Colorado study were randomly assigned to either a control group receiving care from the traditional physician only model, or the experimental group treated by an Adult Health NP/M.D. team. The patients were classified

in subgroups of "ambulatory", "Homebound" or "Nursing Home" depending on their level of mobility in gaining access to the primary care clinic. Hospital costs defined for the project included "hospital days, services, procedures, therapies, emergency room and surgery incurred inside the hospital" (Schultz and McGlone, 1977, p. 444). The number of residents involved in transfers and the rates of transfer were not reported. The study revealed that hospital expenses were higher for ambulatory patients seen by the NP than for the ambulatory control group, but lower for hospital costs for both the Homebound and Nursing Home subgroups followed by the NP (p. 444-5).

"Improving Quality Care in the Skilled Nursing Facility in the Rural Mountain West" was the third study reporting data on hospitalization. The findings regarding utilization of hospital care were reported in numbers of transfers rather than cost per patient as the two previous studies. The direction of the influence of the GNP on transfers, as reported by Gerdes and Pratt (1979), was not uniform:

> We expected . . . a decrease in the number of transfers from nursing home to hospital. The assumption anticipated that with a GNP in residence, with physician backup, there would be less reason to transfer patients. Among the 20 homes only 11 showed an increase in the number of patients sent to hospitals with that increase ranging from one to 14 patients. At the same time seven SNFs [skilled nursing facilities] sent fewer patients ranging from 1 to 30 less (p. 16).

The relationship of the transfers to cost of care was not discussed. The variability in transfers per home was considered as indicative of higher quality of care delivered by the GNPs (see Discussion). Like

Brody et. al., this study showed improved documentation of care by the GNPs.

Various other findings have been reported on the effects on NPs in nursing homes. Benefits to nursing staff such as immediate assistance in evaluation of care and increased educational opportunities through inservice by the GNP were reported by both the Quality Improvement Project and The Utah Demonstration Project (Pepper, Kane, and Teteburg, 1979). Physicians have indicated improved assessment and more appropriate use of their services with a GNP in the facility (Gerdes and Pratt, p. 15). This concurs with findings on the time-saving potential of a GNP to physicians (Lowenthal and Breitenbucher, 1975, p. 91; and Loeb and Robinson, 1977).

Summary

Previous research such as "The Burlington Randomized Trial of the Nurse Practitioner" has demonstrated the clinical competence of NPs. The potential benefits of using NPs in geriatrics and chronic, long term care have been shown by "The Memphis Chronic Disease Program" and the "Quality Improvement Project" by Gerdes and Pratt. Kane et. al. and Schultz and McGlone have provided evidence of the cost-effectiveness of NPs in nursing homes by examining utilization of hospital services. However, the growing elderly population and restrictions on health care spending make further research on cost-related measures imperative for the growth and development of the nurse practitioner movement and autonomy of the nursing professional as well as for improvement of health care for older people.

CHAPTER III

METHODOLOGY

This study examined differences in rates of transfer to acute care hospitals or residents of two long term care facilities in Oregon. One facility employed a Geriatric Nurse Practitioner (GNP) on staff. The other had traditional staff and physician services. The latter is considered the comparison facility; the former the experimental facility.

Design: the study used an ex post facto, quasi-experimental research design. Measures of transfer rates were taken from both the experimental and comparison facilities for the two separate twelve month periods. For both facilities, the "pre-test" data were collected for 1978, one year prior to introduction of the independent variable (hiring of the GNP) and again for the "post-test" period, one year after the GNP had been employed in the experimental home.

Setting: the study used a sample of convenience from two nursing homes. The possible options for the "experimental" facility were limited to the three LTCFs in Oregon which employed a GNP full-time on staff in 1979 and 1980. All of these were not-for-profit homes. The following criteria were developed to select the comparison facility that would match the experimental facility:

1. Not-for-profit status
2. Similar size (number of beds)
3. Similar staffing patterns for R.N.s and L.P.N.s (hours of care per resident)

The best match between experimental and comparison facilities became the pair of facilities used for the study (See Table 1).

Table 1

Comparison of Long Term Care Facilities on

Selected Sampling Criteria: Test of the Match

Criterion	Comparison Facility		Experimental Facility	
Not-for-profit status	yes		yes	
Number of beds	123		100	
Staffing patterns: average hours of licensed nursing care per resident (R.N. and L.P.N.)	1978	1980	1978	1980
	0.53 hr/pt	0.67 hr/pt	0.77 hr/pt	0.67 hr/pt

Sample: the sample of 294 cases included all hospital transfers involving any resident from either of the two LTCFs during the two one-year periods examined. Transfers were said to occur when the resident involved was admitted to the hospital for more than 24 hours. For the comparison facility there were a total of 104 transfers; 52 during the period prior to hiring the GNP ("pre-test") and 52 during the follow-up year ("post-test"). In the experimental facility there were a total of 190 transfers; 86 during the "pre-test" year and 104 during the "post-test" year.

Variables:

Independent: The presence of a GNP employed full-time on staff was defined as the independent variable. The GNP in the experimental home was a diploma prepared R.N. who completed a one year continuing education course (NLN accredited) for Adult and Geriatric Nurse Practitioners in 1979.

Dependent: The dependent variable was the rate of transfer to hospital. The total number of transfers identified was 294. A total of 24 residents from the two facilities were transferred more than once in the one year periods examined. These were treated as separate cases of transfer for each hospital admission. The denominator used in calculating rates of transfer was the total number of cases at risk for transfer. Cases at risk for transfer included all residents in the LTCFs at the beginning of the year plus all new admissions and any re-admissions. The rate of hospital admission based on the number of

transfers involving residents was the variable observed in relation to the presence of the GNP. Individual residents were not the dependent variable influenced by the GNP in this study.

Measurement of variables: Measurement of the variables was through examination of the medical records of the nursing homes. The records were considered valid in that they are the legal documentation of transfer. Their reliability is subject to human error in the recording process.

Each home had a different medical record system; both required individual review of each admission and discharge record to locate the transfer cases. For the experimental facility identification of "pre" and "post-test" transfer cases was done by the investigator on the basis of information on the admission/discharge summary sheet (see Appendix B) which were filed alphabetically in the medical records office. For the comparison facility, transfer cases during the "pre-test" period were identified by the medical records clerk from a card file maintained by the facility. For the "post-test" period in the comparison facility, data on transfers were collected by the investigator from a log book, which post-dates the card file. "Pre" and "post-test" data on transfers from both facilities were recorded on data collection cards (See Appendix C).

Protection of human subjects: The study was approved by the School of Nursing Human Subjects Review Committee. The data collected did not describe individual resident attributes, but rather were data of an administrative nature. While accessing data involved review of

admission and discharge records and residents' charts in some cases, no other data from the charts were utilized by the investigator for any purpose. No individuals are identified in the analysis or presentation of the findings.

Approval for conduct of the study was obtained from the administration at both facilities (See Appendix D).

Procedure: A pilot test was conducted to ascertain the ease with which data on transfers and length of hospitalization could be collected. In addition to allowing refinement of data collection procedures, the pilot study indicated that comprehensive data, including length of stay for episodes of transfer to hospital, were available from the records of the LTCF. The study proceeded, with data collection occurring as described above (measurement of variables). However, plans for data collection on length of stay of transferred residents had to be abandoned when it became apparent that the record systems were not as complete in respect to these data as originally thought. Attempts to obtain data on length of stay from hospital records were determined too ambitious for the scope of the study.

As data collection proceeded, it was found that data were available on diagnosis relative to need for transfer to hospital. Data collection was enlarged to encompass this aspect of data for all "pre" and "post-test" cases in the comparison home.

Analysis: Experimental and comparison facilities were compared on pre-determined criteria. Frequency distributions were made for transfers during the "pre" and "post-test" periods for each LTCF.

Chi-square was used to determine statistical significance of differences in the proportion of transfers. The level of significance was set at $p < 0.05$ with one degree of freedom. Descriptive data on the conditions or diagnoses associated with the transfers were examined.

CHAPTER IV

FINDINGS

The findings from this study compare the rates of transfer to hospital for residents from two LTCFs in Oregon, one employing a geriatric nurse practitioner (GNP) and the other not. Rates of transfer for the year immediately before and one year after the introduction of the GNP in the one facility (experimental facility) were compared to rates of transfer for those same periods in a similar facility without a GNP (comparison facility). The 294 cases in the sample included any of the residents transferred to a hospital from the two LTCFs during the two one-year periods examined.

Test of the Hypothesis: Rates of Transfer

The hypothesis for this study was:

> Rates of admission to acute care hospitals for residents from a not-for-profit LTCF employing a GNP on staff are lower than the rates of admission to hospitals by a not-for-profit LTCF without a GNP.

Rates of transfer were calculated for the experimental and the comparison facilities for the "pre" and "post-test" periods (See Table 2). Comparison of "post-test" rates alone (23/100 in experimental; 15/100 in comparison facility) indicated that the hypothesis was not supported; in fact the direction of the relationship between rates of transfer and the presence of the GNP seemed to be the opposite of that predicted. The rate of transfer increased in the experimental facility after the GNP was hired. The difference of rates (null hypothesis)

Table 2

Comparison of Long Term Care Facilities Pre and Post Introduction of a GNP in Experimental LTCF: Census, Admissions, Cases at Risk for Transfer, Transfers and Rates of Transfer

	Comparison		Experimental	
	1978	1980	1978	1980
Census on January 1	118	119	93	92
Admissions for 12 month period	201	216	360	361
Cases at risk for hospital transfer*	319	335	453	453
Number of hospital transfers	52	52	86	104
Rate** of hospital transfers (per 100 patients)	15.98/ 100 pts	15.5/ 100 pts	18.98/ 100 pts	22.95/ 100 pts

*Cases include individuals re-admitted after a previous hospital transfer during the same one-year period

**Rate = $\frac{\text{Number of transfers}}{\text{Cases at risk for transfer (Starting census + all admissions + readmissions)}}$

between the experimental and comparison facilities for 1980 was significant as determined by chi-square; thus the null hypothesis, which predicted no difference between rates, was not supported. However, the inadequacy of the match of the two facilities (see Discussion) renders these findings suspect.

Because one possible difference between facilities was due to transfer patterns not associated with the independent variable (presence of the GNP), the two facilities were compared for the "pre-test" period with respect to rates of transfer. There was no statistically significant difference between the homes regarding rate of transfer in the experimental facility (19/100) and the comparison facility (16/100) in 1978.

Additional comparisons were made on the rates of hospital transfer for each of the two facilities over the two periods ("pre-test"; "post-test"). The difference in rates of transfer between 1978 and 1980 for the comparison facility (16/100 "pre-test"; 15/100 "post-test") was not statistically significant. Nor was the difference in rates of transfer for the experimental facility between 1978 and 1980 (19/100 "pre-test"; 23/100 "post-test") significant statistically.

In summary, the analysis of data on transfer rates showed there was no significant difference within either facility between the "pre" and "post-test" time periods. Neither was the difference in rates between the experimental and comparison facilities for the "pre-test" period significant. The difference in transfer rates between the two

facilities in the "post-test" period was statistically significant showing an increase in transfers in the experimental facility after the GNP was hired. Table 3 presents the chi-square values for the comparison of transfer rates described above.

Research Question

The research question addressed by this study supposed a reduction in the length of stay for residents transferred to hospitals from a LTCF with a GNP on staff in comparison with the lengths of stay for residents transferred from a LTCF without a GNP.

Data were not readily available on length of stay for the control facility. Data on length of hospital stay (see Table 4) were available on almost half of the experimental sample for both time periods measured. The average length of stay in 1978 was 14.17 days and 10.01 in 1980. The average length of stay for a randomly selected sample from the comparison facility during the "post-test" period was 7.8.

Descriptive Data

The transfers were described by main diagnosis or need for transfer; these data are summarized in Table 5. Respiratory conditions, falls and hip fractures, surgical procedures (excluding hip repair) and gastroabdominal problems accounted for half of the transfers. Transfers due to family request were noted in 6 cases (out of 200 for which information was available).

Summary of Findings

The findings from this study were that an increase in transfer rates to acute care hospital was observed among residents from a LTCF

Table 3

Comparison of Rates of Transfer

to Acute Care Hospital for Residents from

Experimental and Comparison Facilities Using Chi-Square

Rates Compared	Chi-square value	Standard value for chi-square ($p < 0.01$; df=1)	Statistically significant
Rates for 1980 ("post-test"): Experimental vs Comparison Facility	6.706	3.841	yes*
Rates for 1978 ("pre-test"): Experimental vs Comparison Facility	0.074	3.841	no
Comparison of Rates for Experimental Facility: 1978 vs 1980	2.157	3.841	no
Comparison of Rates for Comparison Facility: 1978 vs 1980	0.918	3.841	no

*The difference in the rates for the two facilities in 1980 was also statistically significant at $p < 0.05$ with 1 degree of freedom; standard chi-square value = 6.635.

Table 4

Comparison of Length of Hospital Stay for Residents from Experimental LTCF Pre and Post Introduction of a GNP and Random Post Sample from Comparison LTCF

	Experimental 1978 (N = 42)	Experimental 1980 (N = 58)	Comparison 1980 (N = 5)
Mean Length of Stay/Resident	14.17 days	10.01 days	7.8 days
Range	1 - 40 days	1 - 29 days	1 - 23 days
Total number of days	595 days	581 days	39 days

Table 5

Comparison of Diagnostic Categories Associated with Transfer for Residents in Experimental LTCF Pre and Post Introduction of a GNP and Random Post Sample from Comparison LTCF

Category*	Experimental 1978 (N = 86)	Experimental 1980 (N = 104)	Comparison 1980 (N = 10)
Respiratory	14	22	2
Cardiac	2	9	3
CVA (stroke): actual or possible	5	1	0
Gastro-intestinal/ abdominal	9	10	0
Falls	6	3	1
Hip fracture secondary to fall	4	3	1
Surgery: Hip repair	4	7	0
Surgery: All other	7	13	1
Fever	7	4	0
Urinary tract	3	5	0
Behavioral problem	0	2	1
General decline/ deterioration of mental status	7	8	1
Increase in/ evaluation of rehabilitation potential	2	4	0
Family request	4	0	2
Other	7	7	0
Undetermined	5	4	0

*When multiple diagnoses were present, an attempt was made to assign one

employing a GNP in comparison to a LTCF without a GNP. Findings regarding length of stay for transferred residents in the acute setting were inconclusive.

CHAPTER V

DISCUSSION AND CONCLUSIONS

The purpose of this study was to examine the influence of a geriatric nurse practitioner (GNP) on the utilization of acute care hospital beds by residents of a long term care facility (LTCF) in Oregon. The findings did not support the hypothesis that a GNP would reduce the rate of transfer to acute care hospital among residents. Rather, the findings point to some factors in the present status of delivery of long term care to nursing home residents. The discussion in this section will focus on the data collected in relation to the hypothesis and will include consideration of issues relating to the process of administration of this study.

Hypothesis: Rates of Transfer

The unexpected finding of this study showed that there was an increase in the transfer rates in the LTCF after the GNP was hired. The reasons for such a finding are not overtly evident from the data collected. The increase in the number of residents transferred more than once from the experimental home with the GNP on staff may reflect variations in the characteristics of the population of the home between the two years observed. The increase in total transfers from the experimental facility in comparison to the facility without a GNP on staff may be due in part to more astute assessment by the GNP. Equivocal data on transfer rates was noted by Gerdes and Pratt: some facilities increased transfers to hospitals after hiring a GNP, and some decreased their number of transfers.

> On the basis of knowledge of those particular facilities it would appear that the large reductions in transfers are related to the presence of a GNP. Some of the reporting GNPs also have argued that by virtue of closer observation of patients and a more accurate assessment of condition it was appropriate to refer more patients to hospitals for more sophisticated diagnostic work and surgical care or correction of minor problems (pp. 16-17).

Before any comment could be made on the relationship of a GNP to transfer rates, a more through investigation of other variables in the home, including resident characteristics for the two separate years, would be necessary. Factors involving both the community and hospital environments would also require further scrutiny.

Inadequacy of the Match

The interpretation of findings from this study is hampered by its small scope. Moreover, it became apparent during data collection that the homes were not comparable.

The identification and matching of the facilities was based on interviews with experts in the area of long term care: nursing home administrators, physicians, nurses, agents from Adult and Family Services, and the local Professional Standards and Review Organization. Despite input from such knowledgeable individuals, the match of the two facilities selected for the study was not adequate for research purposes. The similarity between the two facilities was not enough to allow reliable comparison, thus, undoing the anticipated benefit of the quasi-experimental approach.

In the initial attempts to match facilities, two additional criteria were considered. Geographic access to acute care hospital was

originally thought to have some relation to admission of nursing home residents to the acute setting. However, later information revealed that the decision to transfer a resident to a specific hospital was based more on family or physician preference or on bed availability than on proximity. Data on the mix of skilled to intermediate level-of-care residents was also sought. It was thought that this additional criteria would control for differences in the rehabilitation potential of the populations of the two facilities. Although data on the mix of skilled to intermediate residents is supposedly available, it could not be located for the two facilities during the years examined. Since reimbursement rates are based on the determination of level-of-care, the difficulty in locating this data from within the facilities or from the State is an interesting observation on the record keeping within the system. The acceptance of these inadequate criteria by experts in the field of long term care supports the need for a systems approach by reflecting the lack of feedback mechanisms and program evaluation within the health care system.

Research Question: Length of Stay

Based on data available on almost half the cases of transfer to hospital from the experimental facility, the length of stay in hospital for residents from the LTCF with the GNP decreased in the post-test year. These findings must be considered in conjunction with the assumption regarding random distribution of illness among the geriatric population which was accepted for the study. The changes in financial resources in Oregon have resulted in a decline in utilization of

hospital beds and in a reduction in the number of hospital days reimbursed by Medicaid. These changes influence the transfer and admission of residents from LTCFs to hospitals. Such trends are supportive of the interrelatedness of subsystems considered in the conceptual framework of this study.

Additional Findings: Descriptive Data

Perhaps the richest findings from this study are in the recording of diagnosis and/or reasons associated with the event of hospital transfer. The major conditions resulting in transfer could indicate some diffferences in the populations of the two facilities. The category relating to rehabilitation could give some indication of possible differences in institutional focus or population characteristics in the experimental facility. Although the increase in rehabilitation cases between the two years was almost two-fold, the number of cases involved is too small to be indicative of trends. It is interesting to note that one of the cases in the pre-GNP period was transferred after 207 days in the LTCF, although no change in the resident's condition was noted in the medical record.

The higher incidence of surgical procedures in the post-GNP period in the experimental facility may have indicated a more rehabilitative or restorative approach in the facility involving a less debilitated population. One of the most commonly noted procedures was amputation of some part of the lower extremity. In these instances the residents often returned to the experimental facility for rehabilitation and were discharged to home or a lesser level of care. Other surgeries noted

were: elective eye surgery, prostatectomy, mastectomy and cholescytectomy. Hip repairs were identified as a separate surgical category because of their relative frequency in both time periods. Many of the cases transferred for surgery (excluding hip repairs secondary to falls sustained in the LTCF) had been treated in the LTCF or in a hospital for symptoms associated with the condition prior to surgical intervention. Some of these transfers were planned hospitalizations.

The distribution of diagnosis seen in this study compares to data reported in literature. A high incidence of respiratory conditions in elderly patients has been reported by Pezanecker (1978, p. 980) and McGilloway (1979, p. 548). Kane et. al. found fewer respiratory than cardiac conditions in their population. The occurrence of strokes in the post-GNP experimental group was notably less than that observed elsewhere (Lowenthal and Breitenbucher, 1976; and McGilloway, p. 548). Some differences in the findings on reason for admission noted in this study, and others, is due to use of a variety of systems for categorization of diagnoses and conditions. In this study, the introduction of the Problem Oriented Medical Record System between the two time periods in the experimental facility made a significant difference in the ease with which data on diagnosis was retrieved. This finding was consistent with other studies (Brody et. al., 1976; and Kane et. al., 1976).

The difficulty in collection of data on transfers and length of stay indicates a need for improvement in medical records systems throughout the health care field. Even the determination of whether

sources of data were available, such as the problem of obtaining accurate ratios on patient level-of-care, points to the problems of communication of information within the system. From the perspective of quality assurance the need for records which clearly document the care given and the resident's course within the system is critical.

Conclusions

The findings from this study should be approached with great caution. With respect to assumptions, the descriptive data on diagnosis lend some doubt to the random distribution of patterns of disease in the long term care setting. Additional descriptive studies on distribution of illness and utilization of health care services by the elderly residents in LTCFs are needed. The policies and focus of a LTCF may result in a population with specific needs and characteristics.

The influence or lack of influence of a GNP on transfer rates and the costs represented by hospital days was not adequately examined by the methods and data available for this study. The findings from this study do not lead to any clear conclusions regarding the major variables examined. The design has limitation due to lack of randomization and utilization of existing medical records as a data source.

CHAPTER VI

SUMMARY AND RECOMMENDATIONS

Summary

The development of a system of health care that will appropriately meet the needs of growing numbers of older Americans is a major concern. A significant factor in the present service delivery system is the "nursing home" or long term care facility (LTCF). An innovative approach to provision of care to the elderly in the LTCF and community settings is the geriatric nurse practitioner. This study was designed to examine the effect of a GNP on the use of acute care hospitals as an indicator of cost of care for residents of a LTCF. Current federal regulations hinder the utilization of the GNP in the LTCF and impede examination of the potential for cost-effectiveness of using nursing in expanded roles in the nursing home setting.

The study used an ex post facto, quasi-experimental research design. Two LTCFs, one with a GNP and one without, were compared on the rates of transfer to acute care hospitals for two twelve month periods: one, the year before the GNP was hired by the experimental facility and the other, the year after completion of the internship phase of preparation. Rates of transfer from the two facilities showed a significant increase from the experimental facility after the GNP was hired in comparison to the other facility for the same time period when the chi-square statistical test was applied.

The procedural difficulties encountered in administration of the study testify to the problems involved in evaluative research on

programs and policies in the health care system. And, data collected on diagnoses associated with transfer to hospital support the need for descriptive studies prior to program planning and implementation.

The findings of this study are inconclusive in respect to the effects of a GNP on rates of hospital admissions among nursing home residents. These results are similar to previous studies on the cost-effectiveness of nurse practitioners. Like other studies, the findings indicate the difficulty in evaluating both cost and quality of care.

Recommendations

Recommendations for research:

1. The study should be replicated using a different set of matching criteria, ones that are more inclusive of nursing home characteristics and client characteristics. Additional indicators of cost such as length of stay in the nursing home should be considered.

2. Given the difficulties of matching LTCFs, the possibilities for comparisons within a single facility should be considered as new GNPs are introduced. One possible design would be to have a GNP employed part-time by two facilities and provide care to half the residents in each using the other half as a control group.

3. The impact of GNPs in LTCFs should be assessed using additional process measures such as use of medications, especially the prescription of psychotropic drugs.

4. The impact of GNPs in LTCFs should be assessed using patient outcome measures: functional status; enhanced support network of

individuals; positive family involvement in care; nutritional status.

5. Qualitative research should continue to identify more sensitive measures and designs for future quantitative studies.

Recommendations for practice:

1. In order to achieve systematic planning and analysis of quality/cost of care, data systems for long term care should be developed which include the following:

standard nomenclature
standarization of data set
standarization of review schedule

Such systematic data control would enhance research, planning and evaluation within the health care delivery system.

2. Given that clinical patient information seems more available where Problem Oriented Medical Records are used, more universal application of the system should be considered.

3. The descriptive findings of this study give implications for nursing practice and education. The high incidence of transfers related to falls, especially those resulting in hip fractures, indicate increased attention should be given to methods of preventing falls in the clinical setting. The proportion of cases of transfer associated with respiratory, cardiac and gastro-abdominal problems in this study indicates area of academic focus in preparing GNPs and other providers of health care for the elderly.

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APPENDIX A

NURSE PRACTITIONER SCOPE OF PRACTICE APPROVED BY THE OREGON STATE BOARD OF NURSING

Nurse Practitioner Scope of Practice

Definition

The Primary Care Nurse Practitioner is a registered nurse who has completed a Primary Care Nurse Practitioner Program. Primary Care has two dimensions: "(a) a person's first contact in any given episode of illness with the health care system that leads to a decision of what must be done to help resolve his problem; and (b) the responsibility for the continuum of care, i.e., maintenance of health, evaluation and management of symptoms, and appropriate referrals," in a collaborative effort with the physician. Refer to Oregon Administrative Rules and Regulations for the Board of Nursing 851-30-001 and 851-30-003.

Educational Qualifications

Refer to Oregon Administrative Rules and Regulations for the Board of Nursing 851-20-300 and 851-20-320. Refer to OARR for the Board of Nursing 851-30-217 covering continuing educational requirements for nurse practitioners.

Clinical Practice

For a listing of specialty areas, refer to OARR for the Board of Nursing 851-30-002.

1. Elicits and records a complete health and social history independent of supervision.

2. Performs a basic comprehensive physical assessment using the techniques of observation, inspection, palpation, percussion, and auscultation with physician validation of equivdcal findings.

3. Orders and interprets diagnostic procedures as indicated with consultation of the physician as needed, i.e., laboratory tests, E.K.G.'s, and X-rays.

4. Integrates information collected in the health history and physical examination into defined problem areas.

5. Orders, reviews, and provides patient instructions regarding diet and activities and their modifications as appropriate without the supervision of a physician.

6. Medications (HB 2806).

7. Manages certain common acute illnesses within the framework of standing protocols or with the consultation of the physician (i.e., acute cystitis or vaginal infections)

8. Manages clients with certain chronic illnesses within the framework of standing protocols or with the consultation of the physician (i.e., monitoring hypertension or diabetes).

9. Developes with the client and family a comprehensive health care plan and coordinates with the health care provided by the other professionals and agencies involved in providing services.

10. Provides health counseling and anticipatory guidance to the clients and families regarding the normal family cycle which includes: pregnancy, childbirth, child rearing and the normal maturational processes. This would include well infant and child care, common acute and chronic illnesses and safety and accident prevention.

11. Maintain complete and reliable records of client care in an easily auditable formate without physician supervision.

12. Assists in the development of health facility objectives and initiates action towards attaining these objectives.

13. Conducts and/or participates in individual and group conferences and inservice programs.

14. Interprets the role of the health facility to clients and the community.

15. Identifies teaching needs including group client needs; and implements programs to meet these. She/he may be involved in group client teaching.

16. Performs minor surgeries as delineated under specialty areas (i.e., episiotomy).

17. Performs and teaches physical therapy modalities as related to Activities of Daily Living.

18. Administers subcutaneous and topical anesthetic only.

19. Provides mental health assessment and therapy for individuals, families, and/or groups.

20. Provides low-risk prenatal, delivery, and post-partum care.

21. Provides immediate emergency treatment as appropriate.

22. Provides uncomplicated fracture care (i.e., those not requiring a circular case).

Those activities not performed by nurse practitioners:

Major surgery
Acupuncture
General anesthesia
Complicated fracture care
Management of complicated acute and chronic illnesses requiring indepth medical treatment modalities
Psychoanalysis
Management of major trauma
Needle biopies

Administrative Rules and Regulations Approved by the Oregon State Board of Nursing 1979

APPENDIX B

ADMISSSION/DISCHARGE SUMMARY SHEET

Friendship Health Center

ADMISSION and DISCHARGE SUMMARY

Status _____ Admission date _____

Lodge Affiliation _____ Room no. _____

Laundry _____ Admission no. _____

Name _____ Occupation _____

Address _____ Phone No. _____

Admitted from _____ Via _____ Adm. _____ Disch. _____

Age ___ Birth date _____ Birth place _____ Medicare # _____

Sex: M ___ F ___ Marital status: M W S D Welf. # _____ S.S. # _____

Religion _____ Mortician _____

Responsible party _____ Relationship _____

Address _____ Phone _____

Next of kin _____ Relationship _____

Address _____ Phone _____

Physician _____ Address _____ Phone _____

Alternate Physician _____ Address _____ Phone _____

Dentist _____ Address _____ Phone _____

Kaiser: Class _____ Membership # _____ Med. Rec. # _____

Diagnosis _____

THE FOLLOWING INFORMATION TO BE SUPPLIED BY ATTENDING PHYSICIAN

Admitting diagnosis _____

Final diagnosis _____

Cause of death _____

Summary notes _____

Prognosis _____

Date _____ _____ M.D.

Signature of attending physician

Date of discharge _____ Time ___ am/pm

Condition on discharge:

Recovered _____ Improved _____

Address to which discharged _____

No. of days in S.N.F. _____ Date expired _____ Time _____ am/pm

APPENDIX C

SAMPLE DATA COLLECTION CARD

Sample Data Collection Card

Case Code Number indicating year and control or experimental home	Hospital Code	Date of transfer
		Descriptive or diagnostic data
Age		
Sex		
Length of stay		
Facility reference number (patient identification)		

APPENDIX D

CORRESPONDENCE FROM NURSING HOME ADMINISTRATORS

3457 N.E. Division • Gresham, OR 97030
Telephone (503) 667-2140

August 30, 1981

Mary Ann Laubacker R.N. G.N.P.
6545 S.W. 34th Avenue
Portland, Oregon 97201

Dear Mary Ann,

We look forward to assisting you in every way possible with your thesis. We have no reservations in regards to the direct information you will need concerning patients in our facility, as it cannot be traced back to the patient.

We are very supportive of the Geriatric Nurse Practitioner position as it applies to our facility needs in providing better patient care and can be cost effective. The results of your study will be a strong step forward in this direction.

I authorize you to have access to the medical files of our patient.

[redacted]
Administrator

ODD FELLOWS
HOLGATE CENTER
· ODD FELLOWS HOME OF OREGON · FRIENDSHIP HEALTH CENTER

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June 30, 1981

Mary Ann Laubacher R.N., G.N.P.
6545 S.W. 34th Ave.
Portland, OR 97201

Dear Mary Ann:

I eagerly look forward to assisting in every way possible with your thesis. Please be assured that all reservations I might have, have been alleviated as no direct information concerning a patient will be traced back to that patient.

As you know full well I support the use of a Geriatric Nurse Practitioner on staff as I believe there are significant increases in patient care as well as cost savings. It would be in everybody's interest to see this model replecated in other long term care facilities. The results of your study will be a strong forward step in this direction.

I authorize you to have access to the medical files of our patients.

Because of the type of rehabilitative service and restorative nursing program we have, we admit to and receive patients from all major hospitals in the Portland area.

[redacted]
Administrator

TD:gk

3320 SE HOLGATE · PORTLAND, OREGON 97202 · [503] 231-1411

ODD FELLOWS
HOLGATE CENTER
· ODD FELLOWS HOME OF OREGON · FRIENDSHIP HEALTH CENTER

September 15, 1981

Mary Ann Laubacher, R.N./N.P.
2144 N. Willamette Blvd.
Portland, OR 97217

Dear Mary Ann:

Please be assured of my continuing interest in your research on the use of Geriatric Nurse Practitioner in extended care facilities. To that end I would be more than willing to contact hospitals to allow you access on selected patients records for you to acquire the needed information.

The records of course would be those of our patients who were transferred to hospitals for acute care.

My letter or phone call to the respective administrators and medical records personnel of hospitals will be sufficient to let them know of my commitment to your research.

Please let me know if I can be of further assistance.

Kindest regards.

[redacted]
Administrator

TD:gk

3320 SE HOLGATE · PORTLAND, OREGON 97202 · (503) 231-1411

AN ABSTRACT OF THE

THESIS BY

Mary Ann Laubacher

For the Master of Nursing

Date of receiving this degree: June 10, 1983

Title: THE EFFECTS OF A GERIATRIC NURSE PRACTITIONER ON RATES OF HOSPITAL ADMISSION AND LENGTH OF STAY AMONG RESIDENTS OF LONG TERM CARE FACILITIES IN OREGON

Approved: _____

Caroline M. White, Dr.P.H. Thesis Advisor

The development of a system of health care that will appropriately meet the needs of growing numbers of older Americans is a major concern. A significant factor in the present service delivery system is the "nursing home" or long term care facility (LTCF). An innovative approach to the provision of care to the elderly in the LTCF is the use of a geriatric nurse practitioner (GNP). Current federal regulations hinder the utilization of GNPs in the LTCF because of restrictions regarding reimbursement for services. This study was designed to examine the effect of a GNP on the use of acute care hospitals by residents of a LTCF. The utilization of hospital care represents a significant cost within the system. A reduction in hospital days and/or more appropriate transfers to hospital of residents from the LTCF associated with the presence of the GNP could indicate cost-effectiveness of the use of the GNP.

The study used an ex post facto, quasi-experimental research design. Two LTCFs, one with a GNP and one without, were compared on the rates of transfer to acute care hospitals for two twelve month periods: one, the year before the GNP was hired by the experimental facility and the other, the year after completion of the GNP's internship. Rates of transfer from the two facilities showed a significant increase from the experimental facility after the GNP was hired compared to the facility without a GNP. Chi-square statistical test was applied to determine significance of the difference in rates of transfer.

The procedural difficulties encountered in administration of the study testify to the problems involved in evaluative research on programs and policies in the health care system. And, data collection on diagnoses associated with transfer to hospital support the need for descriptive studies prior to program planning and implementation.

The findings of this study with respect to the effects of a GNP on rates of hospital admissions among nursing home residents are inconclusive. Implications for further research on the delivery of long term care in the nursing home, the health care needs of the elderly and the impact of GNPs on quality and cost of care are suggested. Recommendations for practice are discussed.