1979

ACTIVITIES OF NURSE PRACTITIONERS AS IDENTIFIED BY MEDICAL DIRECTORS OF UNIVERSITY STUDENT HEALTH SERVICES

Candace Beaman Moore

Miriam Lee Gottlieb

School of Nursing
Virginia Commonwealth University

This is to certify that the thesis prepared by Miriam Gottlieb and Candace Moore entitled "Activities of Nurse Practitioners as Identified by Medical Directors of Student Health Services" has been approved by their committee as satisfactory completion of the thesis requirement for the degree of Master of Science.

[redacted]

Director of Thesis

[redacted]

Committee Member

[redacted]

Committee Member

[redacted]

Committee Member of School
Director of Graduate Study

[redacted]

Department Chairman or Representative

[redacted]

School Dean

August 20 - 1979

Date

ACTIVITIES OF NURSE PRACTITIONERS AS IDENTIFIED BY MEDICAL DIRECTORS OF UNIVERSITY STUDENT HEALTH SERVICES

A thesis submitted in partial fulfillment of the requirements
for the degree of Master of Science at
Virginia Commonwealth University

By

Candace Beaman Moore
B.S., University of Virginia, 1975

Miriam Lee Gottlieb
B.S., Cornell University, 1975

Director: Dr. Roberta L. Clegg
Associate Professor
of Nursing

Virginia Commonwealth University

Richmond, Virginia

August, 1979

ACKNOWLEDGEMENTS

The authors would like to express their appreciation to the following people for their guidance and support:

Roberta L. Clegg, R.N., Ph.D., Associate Professor
Department of Community Health
School of Nursing
Medical College of Virginia
Virginia Commonwealth University

Elizabeth C. McCord, R.N., F.N.P., M.S., Instructor
Department of Community Health
Family Nurse Practitioner Program
School of Nursing
Medical College of Virginia
Virginia Commonwealth University

Eleanor Repp, R.N., Ed.D., Professor
Assistant Dean for Graduate Program
School of Nursing
Medical College of Virginia
Virginia Commonwealth University

TABLE OF CONTENTS

LIST OF TABLES

Table | Page

Chapter 1

DEFINITION AND SCOPE OF THE PROBLEM

Introduction

University health services play a very important role in the general health, performance, and well-being of the students, the university itself, and the community. As stated by the American College Health Association, the goal of a university health service is to "promote and maintain those conditions which will permit and encourage each individual to realize optimum physical, emotional, intellectual, and social well-being."[1]

University students have special health care needs such as drug and alcohol abuses, emotional problems, and gynecological, sexual, and contraceptive problems. It is the goal of the health professionals involved with students to meet those needs. Because of these special health care needs, the increasing number of university students, and the present problems associated with medical care and medical distribution,[2] nurse practitioners have become involved in some university health service settings. There are between eight and twelve thousand nurse practitioners in the United States. Eight and eight-tenths

---

[1] American College Health Association, "Recommendations, Standards, and Practices for a College Health Program," Journal of the American College Health Association, 18:41, October, 1969.

[2] Wilbur Cohen, "Current Problems in Health Care," The New England Journal of Medicine, 281:193, July 24, 1969.

percent of these nurse practitioners are in college health services.[3] It was believed by the investigators of this study that nurse practitioners could play a special role in this area of health care.

As student health medical directors are key persons in defining nurse practitioner activities, the purpose of this study was to determine the activities the directors identified as appropriate for nurse practitioners to perform in a university health care setting. The type of activities identified by them may be crucial in the decision to utilize nurse practitioners in the university student health setting.

Statement of the Problem

The research question of this investigation was: what activities do medical directors of university student health services identify as appropriate for nurse practitioners to perform in the university student health setting. In addition, answers were sought to the following questions:

1. What portion of student health services employed nurse practitioners?

2. If the student health service did not employ nurse practitioners, what reasons did the medical director give for not doing so?

3. What were the differences between the activities identified by medical directors of student health services that employed nurse practitioners in comparison to the activities identified by the

---

[3]Mary Lou Johnson, "Nurse Practitioner as Primary Care Provider in 2000," Journal of the American College Health Association, 27:220, February, 1979.

medical directors of student health services that did not employ nurse practitioners, but considered the role as appropriate for the setting?

Rationale

The general effectiveness of nurse practitioners had been well documented and demonstrated by numerous authors. Studies have shown that productivity within a health care system could increase with the use of registered nurses with expanded role skills while the quality of health care was not adversely affected.[4] It has also been shown that the medical outcomes were similar between nurse practitioners and physicians.[5]

The attitudes toward and acceptance of nurse practitioners by students, nurses, and physicians were inconsistent. Some investigations demonstrated that nurse practitioners were well accepted by both nurses and physicians while other studies showed variable opinions regarding the functions of nurse practitioners. The majority of studies done with university students concluded that nurse practitioners were well accepted by students and that the students were satisfied with their care.

There was little agreement in the literature concerning the role functions of nurse practitioners. Various factors including the setting, the attitudes of others in the setting, and expectations of the

---

[4] Joel H. Merenstein, Harvey Wolfe, and Kathleen M. Barker, "The Use of Nurse Practitioners in General Practice," Medical Care, 12:452, May, 1977.

[5] David L. Sackett and others, "The Burlington Randomized Trial of the Nurse Practitioner: Health Outcomes of Patients," Annals of Internal Medicine, 80:137-42, February, 1974.

role all contributed to the role function. The role functions of nurse practitioners in various settings was an area identified in which further research was necessary.[6] In order for a nurse practitioner to be utilized to his fullest potential in a particular setting, these role functions had to be identified for the setting.

This investigation enabled the investigators to determine the range of activities considered appropriate for nurse practitioners to perform in the student health setting. It will benefit those nurses and physicians in the university student health setting by defining the scope of nurse practitioner practice as viewed by the medical directors of the setting. The results of this investigation will be shared with those medical directors and universities who are interested. If the results demonstrate that the activities identified are consistent with expanded role skills, the university student health setting could be considered an appropriate setting for nurse practitioners to practice expanded role skills.

Basic Assumptions

The basic assumptions of this study were:

1. Preventive health care could contribute to the students' optimal level of functioning.

2. Students who had adequate health care could perform better scholastically.

3. The nurse practitioner prepared academically for an

---

[6]Betty E. Theiss, "Investigation of the Perceived Role Functions of the Nurse Practitioner Role in a Primary Care Clinic," Military Medicine, 141:85-89, February, 1976.

expanded role could perform functions which required evaluation, judgment, and technical skills which include preventive health care.

4. The medical directors completing the questionnaire were familiar with the concept of a nurse practitioner.

Definition of Terms

Activities. Activities consisted of specific data collection, decision making, and/or intervention strategies utilized to assess or manage health care problems.

Nurse Practitioner. A nurse practitioner was a registered nurse who had completed an academic program which prepared him to deliver primary health care which included the ability to: (1) assess the health status of individuals through history taking, physical examination, and diagnostic procedures, and (2) initiate therapeutic regimens independently, within protocols, or with physician confirmation. Within the generic grouping of nurse practitioners, the titles of primary care nurse, nurse clinician, nurse associate, or nurse specialist were included as well as the generic term nurse practitioner.

University Student Health Service. University student health service was the organized system of health care established by the university to provide assessment, resolution, or minimization of health problems for enrolled students.

Student Health Medical Directors. The student health medical director was the physician who had primary responsibility for and was in charge of student medical services.

Delimitations

The delimitations of this study were:

1. Only universities with nurse practitioner programs, as defined by the Department of Health, Education, and Welfare were included in this investigation. Nurse practitioner programs listed in this publication that were not university based were excluded from this investigation.[7]

2. The investigation did not determine current, individual nurse practitioner activities, but only determined the activities considered appropriate by medical directors.

Limitations

The limitations of this investigation were:

1. The experience and contact of the medical directors with nurse practitioners were variables that were not controlled.

2. The medical directors selected for this study were not representative of all university student health medical directors in the United States.

3. A nurse practitioner as defined for this investigation did not differentiate registered nurses according to educational background (i.e., associate's degree, diploma, bachelor's degree, or master's degree).

4. Reliability and validity coefficients for the questionnaire were not determined.

---

[7] United States, Department of Health, Education, and Welfare, A Directory of Expanded Role Programs for Registered Nurses, Publication No. HRA 7910 (Washington: Government Printing Office, 1979).

Methodology

A questionnaire was developed to determine the activities that medical directors in university student health settings considered as appropriate for nurse practitioners to perform. There were four parts to the questionnaire. In Part I, descriptive data concerning the employment of nurse practitioners were obtained. Information about activities such as data collection, diagnostic and treatment procedures, and teaching and counseling was collected in Part II. Parts III and IV obtained more specific information relative to the diagnosis and treatment of health problems specific to the student health setting by nurse practitioners.

Medical directors of university student health services completed the questionnaires. The universities included in the study were listed in the Department of Health, Education, and Welfare's publication A Directory of Expanded Role Programs for Registered Nurses.[8] These universities had nurse practitioner programs and met the criteria for the investigation. All ninety-nine universities were included in the study.

Analysis of Data

The data collected in this investigation were descriptive data. The data in Part I were tallied and used to describe the universities in the population. The data in Parts II, III, and IV were tallied and arranged into rank-order when appropriate, and then described and compared.

---

[8] Ibid.

Chapter 2

REVIEW OF THE LITERATURE

This chapter was divided into five sections. The first two sections reviewed the development of role theory and described role theory in relation to occupational tasks and activities. The third section reviewed investigations regarding the ability of the nurse practitioner to handle health care needs effectively in various settings. The fourth section outlined the pertinent investigations on the perceptions of consumers and health professionals toward nurse practitioners. The fifth section described the activities of nurse practitioners which had previously been identified in a variety of settings.

The theoretical basis for this investigation was role theory. A general survey of role theory provided a background for the concept of role that was utilized in the investigation. A more specific review of occupational role theory identified activities and reference group as two of the determining factors of a specific role.

The Development of Role Theory

Role theory emerged as an area of study in the 1930's. Biddle and Thomas surveyed the development of role theory and identified forerunners who gave perspective to role theory. Some of these men were Durkheim (1893) who described the division of labor; Sumner (1906) who differentiated mores from folkways; James (1890), Baldwin (1897), and

Cooley (1902) who wrote about the self; and Piaget (1932) who studied rules and rule-complying behavior.[1]

Various disciplines such as anthropology, sociology, and psychology have contributed to the development of role theory. A variety of definitions of role have evolved from these disciplines which were not always consistent or unifying. Some of these definitions were described below.

Linton (1936), an anthropologist, differentiated status, or position, from role. He viewed status as a separate entity from the person that occupied the status. He defined status as a "collection of rights and duties." A role is the individual implementing the rights and duties of the status that he occupies. However, Linton also stated that status and role cannot be separated. "There are no roles without statuses or statuses without roles."[2]

Sarbin (1943), a psychologist, defined role as a reciprocal relationship between the individuals involved. The behavior of one person stimulates a response in the other. The response then becomes a stimulus for the other person. Two persons must be involved in order to have a role. He stated that the concept of role expectation consists of "the rights and privileges, the duties and obligations, of any occupant of a social position in relation to persons occupying other positions in the social structure." The units of measurement for role

---

[1]Bruce Biddle and Edwin Thomas, Role Theory: Concepts and Research (New York: John Wiley and Sons, Inc., 1966), pp. 4-5.

[2]Ralph Linton, The Study of Man (New York: Appleton-Century, 1936), pp. 113-14.

expectations include actions and expected qualities of the person who occupies a certain position at a given time.[3]

Bates (1956) and Turner (1956), both sociologists, differentiated role, position, and norms similarily. Their definitions of these concepts were based upon Linton. A position is a station within a social structure which has defined norms. Norms are expected behaviors. Role is the enactment of the norms for the specific position.[4,5]

Gross, Mason, and McEachern (1958) defined role simply as "a set of expectations." Expectations are standards which can be applied to a particular position and can also be evaluated. They did not specify the definer of the expectations so that their definitions of role and expectations could be applied to various situations, structures, and systems.[6]

Wolfe and Snoek (1962) differentiated position and role as Linton had previously done but they applied these definitions more specifically to organizations. A position defines the relationship of the person with the system or organization. They identified role pressures as one of the determinants of a person's role. Role pressures are "prescriptive expectations and demands of other members of an organization." The people who exert role pressures are termed role senders and

---

[3]Theodore Sarbin, "Role Theory," Handbook of Social Psychology, ed. Gardner Lidzey (Cambridge: Addison-Wesley, 1954), pp. 488-560.

[4]Frederick L. Bates, "Position, Role, and Status: A Reformulation of Concepts," Social Forces, 34:314, May, 1956.

[5]Ralph Turner, "Role-Taking, Role Standpoint, and Reference-Group Behavior," The American Journal of Sociology, 61:316-18, November, 1956.

[6]Neal Gross, John Mason, and Robert McEachern, Exploration in Role Analysis: Studies of the School Superintendency Role (New York: John Wiley and Sons, Inc., 1958), pp. 58-61.

can be superiors or subordinates. Role pressures from superiors are directed towards accomplishing the expectations of the role.[7]

This brief summary of role theorists has exemplified some of the various definitions of roles and related concepts. The survey provided a background for the concept of role that was utilized for this study rather than providing a specific definition. The concept of role within an organizational structure was the basis for this research. The theoretical basis was developed below.

Determinants of Occupational Role

Arnold described role as "the things a person does when he occupies a particular social position."[8] She also stated that a professional role within an organization consists of activities that a person is expected, both by himself and by others, to carry out.[9] In other words, the expectations of the performance of certain activities is one way in which roles are described. Gross described expectations as "an evaluative standard applied to an incumbent of a position."[10] The person in a specified role learns that certain actions can be expected from other persons and that others have certain expectations of him.[11]

---

[7]Donald Wolfe and J. Diedrick Snoek, "A Study of Tensions and Adjustment Under Role Conflict," The Journal of Social Issues, 18:102-105, July, 1962.

[8]Mary F. Arnold, "Perception of Professional Role Activities in the Local Health Department," Public Health Reports, 77:80, January, 1962.

[9]Ibid.

[10]Gross, Mason, and McEachern, pp. 58-60.

[11]J. Eugene Haas, Role Conception and Group Consensus, Bureau of Business Research Monograph No. 117 (Columbus: Ohio State University, 1964), pp. 25-30.

According to organizational theory, separation of role and activities is not easy. Activities involve manipulation of the environment, an actual meaningful performance. Hughs suggested that occupational activities could be further classified into interpersonal activities and technical activities. Interpersonal activities were defined as "those in which there is interchange and interaction between persons."[12] Technical activities were defined as:

> . . . those items in which the objective situation is manipulated, which deal with ideas, objects, resources, and information. If persons are involved, they are considered as objects and are not involved in the interaction situation.[13]

Haas did much work on role conception and group consensus. A member of a group or organization develops role conceptions based on social norms. These norms come from various sources: the group members, community, professional associations, educational institutions, and the various cultures and subcultures. He stated that the concept of role is dyadic; that is, at least two persons must be involved to fully enact a role. Each member of an organization is dependent on some other member for role performance. Although one person may appear to understand what his role is, if his "role partner" has a different definition of that role, conflict arises.[14] Therefore, Haas, like Arnold and Gross, stated that the formation of the role depended on the standards and opinions of those people who are important to that person. These people were called "significant others." The significant others

---

[12] E. C. Hughs, Sociology Today: Problems and Prospects (New York: Basic Books, Inc., 1959), pp. 442-58.

[13] Ibid.

[14] Haas, p. 5.

who guide the conduct and behavior of the person by upholding the standards were called "reference groups."[15] For example, persons in a reference group may include peers, supervisors, and subordinates. He stated that "the self is concerned basically as an integration of the expectations derived from norms of the social structure which serve as a frame of reference for expectations of the self as well as others."[16] Therefore, the study of expectations of "reference groups" can lead to a better understanding of roles and human conduct within the occupational setting.

Haas stated further that there are four dimensions to a role: activity or task, authority, deference, and affect. Tasks or activities are the things that someone does in that particular role. The performance of activities and tasks makes up a major part of the role characteristics in a particular work group. Authority relates to the rules that determine how the decisions are made and how much authority the person in the role should have. The dimension of deference refers to how much and what kind of respect and prestige should be given to a person. Finally, affect refers to how persons in various roles should feel toward each other, for example, love, hate, admiration.[17]

In a system or organization, such as a university student health care system, various professionals make up the health care team. Each professional has an occupational role in that system. The purpose of the collective team of professionals in the organization is assumed to

---

[15]Haas, p. 7.

[16]Haas, p. 26.

[17]Haas, pp. 25-30.

be the same, that is, to provide quality health care to students. However, their individual roles in pursuing this goal may be and usually are different.

The role of a nurse practitioner in a university student health service is based on Haas's four dimensions: activities, authority, deference, and affect. The activities that he performs are, for the most part, based on what he expects to perform in the role and what others expect him to perform. The medical directors of the university student health care service are members of the nurse practitioner's reference group; therefore, their opinions and perceptions help to form the role of nurse practitioners in that setting.

Effectiveness of Nurse Practitioners

The ability of a nurse practitioner to handle certain tasks is essential before he occupies an occupational role. Although there are no direct standards to evaluate "effectiveness," there were many investigations which demonstrated general effectiveness through indirect measures.

One of the first evaluations of nurse practitioner effectiveness was done in 1966 at the University of Kansas by Lewis and Resnick. The sample of clients was divided into two groups which were similar in their attitudes towards health professionals. The control group received traditional medical care, while the experimental group received care by nurses trained for an expanded role. After one year the experimental group had fewer complaints, fewer missed appointments, and a shift in the preference for nurses to perform certain activities. The

average cost per patient was less in the experimental group in comparison to the control group.[18]

In a more recent study, Sackett and others, like Lewis and Resnick, used an experimental design whereby patients were randomly assigned to either a nurse practitioner or to a physician. They used four measures to evaluate their effectiveness: mortality, physical function, emotional function, and social function. The results of this study showed no significant differences in the medical outcomes of patient care by either provider.[19]

Flynn, also employing an experimental design, used a variety of techniques to measure effectiveness of nurse clinicians. She found that nurse clinicians, when compared to physicians, provided a greater quantity of health services, i.e., lab tests, medications, clinic visits. However, the cost effectiveness in relation to this increased quantity of services was not determined.[20] A major limitation of the three investigations cited above was that there were no "no treatment" groups because of ethical reasons.

In 1970, Duncan, Smith, and Silver reported the results of an evaluation of the pediatric nurse practitioner's ability to perform accurate physical assessments by comparing the nurse practitioner's appraisal with the pediatrician's appraisal in 182 pediatric cases.

---

[18]Charles E. Lewis and Barbara A. Resnick, "Nurse Clinics and Progressive Ambulatory Care," New England Journal of Medicine, 277:1241, December 7, 1967.

[19]David L. Sackett and others, "The Burlington Randomized Trial of Nurse Practitioners: Health Outcomes of Patients," Annals of Internal Medicine, 80:137-42, February, 1974.

[20]Beverly C. Flynn, "The Effectiveness of Nurse Clinician's Service Delivery," American Journal of Public Health, 64:604-11, June, 1974.

Eighty-six percent of the assessments were in total agreement. Fourteen percent had different findings; however, in only two of those cases, .7 percent, was there a significant difference in the assessment of a health problem.[21]

These investigations determined general effectiveness of nurse practitioners to handle expanded aspects of patient care. There were no studies found in the literature review which found nurse practitioners clinically ineffective.

Perceptions of Consumers and Health Professionals Towards Nurse Practitioners

Perceptions of the nurse practitioner's reference group affects his entire role, including the activities he performs. Studies indicated that perceptions of nurse practitioners by consumers and health professionals were inconsistent.

Lewis and Resnick demonstrated acceptance of nurse practitioners by patients by documenting fewer broken appointments, less criticism of their care, and less frequent use of other medical resources.[22] Merenstein concluded there was a generally good community response to nurse practitioners in his study.[23] Conversely, Kubala and Clever demonstrated that although patients were receptive to nurse practitioners, they did not accept them as their primary health care source.

---

[21]Burris Duncan, Ann N. Smith, and Henry K. Silver, "Comparison of the Physical Assessment by Pediatric Nurse Practitioners and Pediatricians," American Journal of Public Health, 61:1176, June, 1971.

[22]Lewis and Resnick, p. 1241.

[23]Joel Merenstein, Harvey Wolfe, and Kathleen M. Barker, "The Use of Nurse Practitioners in General Practice," Medical Care, 12:452, May, 1974.

They found that patients were concerned with the title of the person giving the care, the change in the routine treatment regimen, and the continuity of their care.[24]

Research on nurse acceptance of nurse practitioners was not as abundant. Theiss found that nurses generally accepted the role, but disagreed on their functions.[25] In 1971 Reed and Roghmann presented results of a survey on physician and nurse acceptance of the nurse's expanded role. Questionnaires were administered to 218 people (ninety-three nurses, eighty-six house staff physicians, and thirty-nine senior medical students) in Rochester, New York. It was found that more nurses accepted the expanded role than medical students. The physicians accepted the role least of all. Direct clinical experience did not affect the acceptance level; however, the younger personnel were more accepting of the role change.[26]

Physician acceptance of nurse practitioners was also variable. Williamson contended that the physicians, more often than the nurses, supported the role.[27] The studies of Radke,[28] Burchell,[29] and Dunn and

---

[24]Stephanie Kubala and Linda H. Clever, "Acceptance of the Nurse Practitioner," American Journal of Nursing, 74:451-52, March, 1974.

[25]Betty E. Theiss, "Investigation of the Perceived Role Functions and Attitudes of the Nurse Practitioner Role in a Primary Care Clinic," Military Medicine, 141:85-89, February, 1976.

[26]David E. Reed and Klaus J. Roghmann, "Acceptability of an Expanded Nurse Role to Nurses and Physicians," Medical Care, 9:372-77, July-August, 1971.

[27]Janet A. Williamson, "Surveys of Attitudes of Directors of Campus Health Centers Toward Potential College Nurse Practitioners," Journal of the American College Health Association, 22:199, February, 1974.

[28]Karen J. Radke, "Physician Perceptions of Family Nurse Practitioners," Nurse Practitioner, 2:35, March-April, 1975.

[29]Richard C. Burchell, "Behavioral Attitudes Among Professionals," Journal of Obstetric and Gynecologic Nursing, 23:68-70, January, 1972.

Von Ruden[30] demonstrated general acceptance of the nurse practitioner concept by physicians. Coye reported that 61 percent of his sample of Wisconsin physicians believed that "doctor's assistants" were needed and 42 percent would use these assistants in their practice. However, his definition of "doctor's assistants" was extremely broad and included surgical technicians, midwives, corpsmen, nurse clinicians and public health nurses in child care.[31] Lawrence and others surveyed North Carolina physicians' receptivity to nurse practitioners in 1973. They found that 34 percent of the physicians would hire a nurse practitioner and that 52 percent approved of the nurse practitioner concept, but would not hire one. The physicians who had worked with a nurse practitioner previously were more willing to employ one.[32] In 1976 Little surveyed 140 family practice physicians in northern California regarding their attitudes toward employment of nurse practitioners. With a 63 percent response rate, 8 percent employed a nurse practitioner at that time, 19.3 percent would be willing to hire one in the future, 48.9 percent had decided never to employ a nurse practitioner, and 23.9 percent had made no decision.[33]

In a study of health care administrators of hospitals, nursing homes, and health departments in western New York, 59 percent saw nurse

---

[30]Marianne Dunn and Joan Von Ruden, "A Study of Physicians' Attitudes Toward the Utilization of Nurse Practitioners in Primary Care Settings," Military Medicine, 143:417-20, June, 1978.

[31]Robert D. Coye and Marc F. Hansen, "The Doctor's Assistant," Journal of the American Medical Association, 209:529-33, July 28, 1969.

[32]Robert S. Lawrence and others, "Physician Receptivity to Nurse Practitioners: A Study of the Correlates of the Delegation of Clinical Responsibility," Medical Care, 15:302, April, 1977.

[33]Marilyn Little, "Physicians' Attitudes Toward Employment of Nurse Practitioners," Nurse Practitioner, 3:27-30, July-August, 1978.

practitioners as an asset in relation to their potential utilization. However, only 26 percent were willing to employ a nurse practitioner within their particular institution.[34]

In the realm of university health, a study by Scott found that university students were receptive to, and satisfied with, nurse practitioners in university health settings.[35] The Oregon State University student health service evaluated the level of satisfaction of students using gynecological services provided by nurse practitioners. Through questionnaires, the investigators also found that the use of nurse practitioners was well accepted by 100 percent of the students surveyed.[36] A study by Williamson found that 81 percent of university student health medical directors would hire a nurse practitioner in their setting.[37]

Activities of Nurse Practitioners

The activities and tasks that nurse practitioners "should" perform have been investigated and debated in the literature to a great extent, but there was still much disagreement among health professionals. The setting, the perceptions held by others, and the role expectations help determine these activities in various settings.

---

[34]Myron D. Fottler and Diane N. Pinchoff, "Acceptance of the Nurse Practitioner: Attitudes of Health Care Administrators," Inquiry, 13:262-73, September, 1976.

[35]Samual R. Scott, "Patient Acceptance of the Nurse Practitioner: Experience in a University Health Setting," Journal of the American College Health Association, 23:364, June, 1975.

[36]J. Mark Wagener and Glenna Carter, "Patients' Evaluations of Gynecologic Services Provided by Nurse Practitioners," Journal of the American College Health Association, 27:98-100, October, 1978.

[37]Williamson, p. 199.

Heiman used case studies to evaluate what physicians and nurses in Arizona perceived as nurse practitioner activities. He found that the nature of the task was perceived as more significant in determining attitudes towards nurse practitioners rather than the nature of the health problem. For example, both groups were more inclined to think a nurse practitioner could take a history on a severe case rather than perform a traditional medical task, i.e., physical examination, on a healthy individual.[38]

Investigations by Burkett and others, O'Dell, Radke, Dunn and Von Ruden, and Theiss all found high levels of disapproval by physicians and nurses of nurse practitioners performing traditional medical activities. Burkett and others, in an attempt to define the role of the nurse practitioner by his activities, questioned 1,018 physicians and one thousand registered nurses in southeastern Pennsylvania concerning eighty-six potential nurse practitioner tasks. The lowest index of agreement between the two groups was in diagnosing illnesses, prescribing medication, examining the ear, interpreting throat cultures, suturing minor lacerations, and auscultating heart sounds.[39]

O'Dell found that physicians disapproved of nurse practitioners performing physical examinations and interpreting diagnostic findings to patients.[40] Radke also found that physicians preferred not to allow

---

[38]Elliott M. Heiman and Mary K. Demsey, "Independent Behaviors of Nurse Practitioners: A Survey of Physician and Nurse Attitudes," American Journal of Public Health, 66:587-89, June, 1976.

[39]Gary L. Burkett and others, "A Comparitive Study of Physicians' and Nurses' Conceptions of the Role of the Nurse Practitioner," American Journal of Public Health, 68:1090-95, November, 1978.

[40]Margaret L. O'Dell, "Physicians' Perceptions of an Extended Role for the Nurse," Nursing Research, 23:348-51, July-August, 1974.

nurse practitioners to insert intrauterine devices and to perform physical examinations.[41] Both investigators determined that tasks such as health teaching, history-taking, counseling, home visits, managing routine health care and participating in the evaluation of patient care were acceptable activities for nurse practitioners.[42,43]

Dunn and Von Ruden also found that physicians agreed that nurse practitioners should be teaching, counseling, taking histories, interviewing, and managing the psychosocial components of patient care, all of which were already basic parts of nursing practice.[44] Theiss evaluated registered nurses to find out what they believed nurse practitioners should be doing. The highest level of agreement was on functions that, again, were already traditional nursing functions, i.e., history taking, interviewing, charting, and health teaching. The degree of least agreement was with functions concerning the assessment and evaluation of the patient and interpretation of electrocardiograms and x-rays.[45]

Unlike the other investigators, Lawrence and others reported more willingness of physicians to delegate certain traditional medical tasks. Over 50 percent of the physicians were willing to delegate the tasks of managing patients with chronic disorders according to standing orders, providing routine prenatal care, examining ears with otoscope,

---

[41] Radke, p. 35.

[42] O'Dell, p. 351.

[43] Radke, p. 35.

[44] Dunn and Von Ruden, p. 420.

[45] Theiss, p. 87.

dilating pupils, and performing physical examinations with the physician confirming heart and lung findings.[46]

Farrand and Cobb assessed the type of activities that family nurse practitioners actually performed. Although the results still showed an emphasis on nursing functions, these functions were expanded and used to their fullest potential. The functions they "always" or "often" performed included taking a health history, performing a partial physical examination based on presenting signs and symptoms, developing and recording a care plan, health teaching, taking vital signs, and carrying out therapeutic measures independently.[47]

Just as perceptions of nurse practitioner activities varied in the literature, activities which were seen as acceptable for nurse practitioners by educational institutions also varied from program to program. An example was taken from the Medical College of Virginia Family Nurse Practitioner Program. The functions which the nurse practitioner students were prepared to perform were:

1. Routine assessment of health status of individuals and families.
2. Health surveillance of pregnant and post-partum women.
3. Provision of family planning.
4. Supervision of health care of normal children.
5. Patient management in chronic disorders, i.e. hypertension, diabetes, arthritis, etc.
6. Screening of patients requiring differential medical diagnosis and/or therapy.
7. Interpretation of selected laboratory findings.
8. Evaluation of deviations from the normal in patients who present themselves for treatment.

---

[46] Lawrence and others, p. 302.

[47] Linda L. Farrand and Marguerite Cobb, "Perceptions of Activities Performed in Ambulatory Settings," Nurse Practitioner, 1:69-72, November-December, 1975.

9. Assessment of the response of patients to illness and of their compliance with and response to prescribed treatment.
10. Health surveillance of the elderly.
11. Emergency treatment as appropriate for cardiac arrest, shock, hemorrhage, and respiratory distress.
12. Assessment of family relationships and home/school/work/environmental effects on psychic and physical disease.
13. Eliciting and recording health history.[48]

The activities that physicians, nurses, and educators considered appropriate for nurse practitioners to perform are a major component in determining the role of the nurse practitioner in that setting. Utilizing medical directors from university student health services as a member of the nurse practitioner's "reference group," the investigators assessed what they perceived as appropriate functions, tasks, and activities for the nurse practitioner in the student health setting. The methodology of this investigation was explained in the following chapter.

---

[48]Virginia Commonwealth University, Medical College of Virginia, Curriculum Description for the Family Nurse Practitioner Program, 1977 (Mimeographed).

Chapter 3

METHODOLOGY

This chapter consisted of descriptions of the setting and the subjects which were studied for this investigation. A description of the instrument which was developed and utilized for the study and the procedure employed for the collection of data were also described in this chapter.

Subjects and Setting

The population studied in this investigation was the medical directors of university student health services. These university student health services comprised the setting for the investigation. The universities included in the investigation had nurse practitioner programs and were listed in the Department of Health, Education, and Welfare's publication, A Directory of Expanded Role Programs for Registered Nurses.[1] It was assumed that the presence of a nurse practitioner program at the university would increase the likelihood of the medical director being familiar with the nurse practitioner concept.

Many of the expanded role programs listed in the Department of Health, Education, and Welfare's publication[2] were titled primary care

[1] United States, Department of Health, Education, and Welfare. A Directory of Expanded Role Programs for Registered Nurses, Publication No. HRA 7910 (Washington: Government Printing Office, 1979).

[2] Ibid.

nurse, nurse associate, nurse clinician, or nurse specialist rather than nurse practitioner programs. However, all of these programs did meet the criteria of nurse practitioner programs as defined by the Department of Health, Education, and Welfare. Questionnaires were sent to all campuses of the universities offering expanded role programs including those located in different cities. The total number of universities that met these criteria was ninety-nine.

Instrument

A questionnaire was developed by the investigators to determine the activities that medical directors in university student health settings considered as appropriate for nurse practitioners to perform. The questionnaire consisted of four parts. Part I related to whether nurse practitioners were employed in the particular student health setting, and if not, the medical director's opinion as to whether he considered nurse practitioners as appropriate health professionals in that setting. If the medical director did not consider nurse practitioners as appropriate health professionals in the setting, he was requested to complete Part I and to return the questionnaire without completing Parts II, III, and IV. Part II elicited general information about the activities, i.e., data collection, diagnostic and treatment procedures, and teaching and counseling, that the medical director thought nurse practitioners could perform in the student health setting. Parts III and IV elicited specific information about how medical directors viewed nurse practitioners handling selected health problems (Appendix A).

The items in the tool were selected and organized after reviewing several studies regarding nurse practitioner activities. The

activities selected for Part II were compiled from three areas of information. The first source was from the results of various investigations seeking the range of nurse practitioner activities. Investigations by Burkett,[3] O'Dell,[4] and Lawrence,[5] provided technical functions and tasks for the nurse practitioner role. Williamson,[6] Theiss,[7] and Wright[8] listed more traditional nursing functions to be included in the range of nurse practitioner activities. The second source was from selected definitions of nurse practitioner activities in the literature: (1) a joint statement of the American Nurses' Association and the American School Health Association,[9] (2) the regulations governing the certification of nurse practitioners as stated by the Virginia State

---

[3]Gary Burkett and others, "A Comparison Study of Physicians' and Nurses' Conceptions of the Role of the Nurse Practitioner," American Journal of Public Health, 68:1094, November, 1978.

[4]Margaret O'Dell, "Physicians' Perceptions of the Extended Role for the Nurse," Nursing Research, 23:348-51, July-August, 1974.

[5]Robert S. Lawrence and others, "Physician Receptivity to Nurse Practitioners: A Study of the Correlates of the Delegation of Clinical Responsibility," Medical Care, 15:302, April, 1977.

[6]Janet A. Williamson, "Survey of Attitudes of Directors of Campus Health Centers Towards Potential College Nurse Practitioners," Journal of the American College Health Association, 22:199, February, 1974.

[7]Betty E. Theiss, "Investigation of the Perceived Role Functions of the Nurse Practitioner Role in a Primary Care Clinic," Military Medicine, 141:85-89, February, 1976.

[8]Edith Wright, "Family Nurse Clinicians: Physician Perspective," Nursing Outlook, 23:771, December, 1975.

[9]A Joint Statement of the American Nurses' Association and the American School Health Association, "Recommendations on Educational Preparation and Definitions of the Expanded Role and Functions of the School Nurse Practitioner," The Journal of School Health, 43:594, November, 1973.

Boards of Medicine and Nursing,[10] and (3) a report to the Secretary of Health, Education, and Welfare from the Secretary's Committee to Study Extended Roles for Nurses.[11] A third source was from the curriculum description of the Family Nurse Practitioner Program at the Medical College of Virginia.[12] The health problems in Parts III and IV were compiled from investigations in the literature describing common student health problems[13,14,15] and from the United States Public Health vital statistics summary.[16]

The type of questions in the questionnaire varied from one part to the next. Two of the questions in Part I, questions 1a and 2a, were yes-no questions. Question 1a ascertained if the university employed nurse practitioners. Question 2a ascertained if the medical directors of universities that did not employ nurse practitioners considered nurse

---

[10]The Virginia State Board of Medicine and the Virginia State Board of Nursing, Regulations Governing the Certification of Nurse Practitioners, December 30, 1974.

[11]Secretary's Committee to Study Extended Roles for Nurses, "Extending the Scope of Nursing Practice," Nursing Outlook, 20:46-52, January, 1972.

[12]Virginia Commonwealth University, Medical College of Virginia, Curriculum Description for the Family Nurse Practitioner Program, 1977 (Mimeographed).

[13]Donald D. Nichols, "Some Recent Data on Community College Health Service Programs," Journal of the American College Health Association, 22:63, October, 1973.

[14]Lloyd K. Comstock and Cecil Slome, "A Health Survey of Students: Prevalence of Perceived Problems," Journal of the American College Health Association, 22:152, December, 1973.

[15]William K. Hoffman and Mary K. Madsen, "College Student Health Care Needs at the University of Wisconsin-Milwaukee," Journal of the American College Health Association, 25:297, June, 1977.

[16]United States, Department of Health, Education, and Welfare, Current Estimates from the Health Interview Survey, Publication No. PHS 78-1547 (Washington: Government Printing Office, 1976).

practitioners as appropriate health professionals in that setting. Question 1b had multiple choices and determined the different types of nurse practitioners employed by the universities. Question 2b was a short, open-ended question to be completed only by the medical directors of universities that did not employ nurse practitioners and the medical director did not consider nurse practitioners to be appropriate health professionals for the setting. Those medical directors explained their reasons for not considering nurse practitioners as appropriate for the setting. Part II listed activities of nurse practitioners which the medical directors rated according to a Likert scale. The Likert scale was rated from those activities performed most frequently to those activities which were never performed. A category of not appropriate for the setting was also included to differentiate activities not appropriate for the setting from those not performed by nurse practitioners. Part III listed health problems which could be diagnosed by nurse practitioners. The medical directors had three choices in Part III concerning how the nurse practitioner could diagnose the health problem: (1) not diagnosing at all, (2) diagnosing with physician confirmation only, or (3) diagnosing independently. Part IV listed the same health problems as Part III. Each health problem was subdivided into three levels of treatment: (1) the initiation of treatment, (2) the monitoring of treatment, and (3) the modification of treatment. The medical director had four choices concerning how the nurse practitioner could manage each level of treatment: (1) not treating at all, (2) treating with physician confirmation only, (3) treating according to written protocols, or (4) treating independently.

Before the questionnaires were mailed to the universities, it was administered to two physicians not included in the population. The approximate time needed to complete the questionnaire was ascertained and the clarity of the instructions was determined.

Procedure

The questionnaires were mailed with stamped, return envelopes to each university in the study. The addresses of the universities were obtained from The College Blue Book[17] and the Yearbook of Higher Education.[18] The envelopes were addressed to the student health service, attention medical director. The questionnaires were mailed in the middle of April, 1979. Letters were sent with the questionnaires which included the credentials of the investigators and the purpose of the study (Appendix B). The letter also addressed the confidentiality of the information, the understanding that the return of the completed questionnaire implied consent to participate in the study, the option to withdraw from the study at any time, and the opportunity to obtain the results of the investigation. It was requested that the questionnaire be returned within two weeks. Each questionnaire was numbered according to a list of all of the universities in the study so that a tally could be kept of the returned questionnaires. If the completed questionnaire was not received within three weeks of the original mailing date, another questionnaire and a follow-up letter were sent. The

[17] The College Blue Book, Tabular Data (New York: MacMillian Information, 1977).

[18] Yearbook of Higher Education 1977-78 (Chicago: Marquis Academic Media, 1977).

follow-up letter was the same as the original letter except that the medical directors were requested to complete the questionnaires within one week instead of two weeks. It was also requested that if the medical directors felt that they were unable to complete the questionnaires that they explain their reasons at the bottom of the letter. An analysis of the data and a discussion of the findings were included in the following chapter.

Chapter 4

DATA ANALYSIS, RESULTS, AND DISCUSSION

The purpose of this study was to determine the activities that medical directors identified as appropriate for nurse practitioners to perform in university student health settings. In addition, answers were sought to the following research questions:

1. What portion of student health services employed nurse practitioners?

2. If the student health service did not employ nurse practitioners, what reasons did the medical directors give for not doing so?

3. What were the differences between the activities identified by medical directors of student health services that employed nurse practitioners in comparison to the activities identified by the medical directors of student health services that did not employ nurse practitioners, but considered the role as appropriate for the setting?

Data Analysis and Results

The type of data gathered in this study were descriptive. The study was classified as current, where the information was collected at only one point in time.[1] The data were nominal and ordinal.

[1] S. James Kilpatrick and Maurice Wood, "Analysis and Interpretation of Data," The Journal of Family Practice, 7:101, January, 1978.

Descriptive Analysis of the Total Population

The data of this investigation were tabulated. The results described below answer the research question regarding the entire population of medical directors of university student health services.

Fifty-nine questionnaires were returned from the ninety-nine originally mailed. Forty follow-up letters with questionnaires were mailed. Twenty-one questionnaires were returned from the follow-up letters. The total response rate was eighty of the original ninety-nine in the population, yielding an 81 percent response rate.

Of the eighty returned questionnaires, four were not completed. One university did not have a student health service. One questionnaire was not completed by the medical director of student health services as it was forwarded to the nurse practitioner program at the university. The two other questionnaires were returned with letters stating that the health services did not employ nurse practitioners. Those medical directors apparently had not understood the directions for completing the questionnaire. Therefore, seventy-six questionnaires, or 77 percent, were complete and used in the analysis of the data.

Employment of nurse practitioners in university student health services. The data from Part I questions 1a, 1b, and 2a were tabulated and used to describe the employment of nurse practitioners in the student health setting. The information from questions 1a and 2a was also used to divide the data into two groups for comparison: (1) those health services that employed nurse practitioners, and (2) those health services that did not employ nurse practitioners and the medical directors considered nurse practitioners as appropriate health professionals

for the setting. Question 2b was an open-ended question requesting an explanation from the medical directors that did not consider nurse practitioners as appropriate health professionals. These responses were analyzed by content analysis.

Of the seventy-six usable questionnaires, seven of the medical directors or 9 percent did not consider nurse practitioners as appropriate for the university student health setting. There were six different reasons for not employing nurse practitioners given by the medical directors. Two medical directors believed that a nurse practitioner would not be accepted by the students as they were predominantly medical and dental students. Two medical directors stated that it was a physician's responsibility to assess and treat patients. Other reasons stated by individual medical directors were: (1) the physician did not have enough time to supervise a nurse practitioner, (2) a nurse practitioner was not qualified for the position, (3) nurse practitioners were not legally identified in the state and the liability responsibility was not clear, and (4) nurse practitioners did not have standardized teaching programs and, therefore, the medical director would have preferred a physician's assistant.

Twenty of the seventy-six universities or 26 percent did not employ nurse practitioners in the university student health service but the medical directors considered nurse practitioners as appropriate for the setting. The remaining forty-nine health services or 64 percent of the population employed nurse practitioners. Many of the health services employed more than one nurse practitioner of varying types. The largest number of nurse practitioners employed by any one health service was fourteen. The most common type of nurse practitioner employed

was the college health nurse practitioner of which there were 66.5 employed, including part time employment. It was of interest to note that there were only three college health nurse practitioner programs listed in the Department of Health, Education, and Welfare's publication titled A Directory of Expanded Role Programs for Registered Nurses.[2] Therefore, it was possible that the medical directors identified the job title of the nurse practitioner rather than identifying the actual educational program that the nurse practitioner completed. There were twenty-four adult nurse practitioners employed, 21.5 primary care, nineteen family planning, fourteen obstetrical-gynecological, twelve family, two pediatric, one allergy, one public health, one orthopedic, one occupational health, and one who was listed as a "vaginitis" nurse practitioner. A total of 164 nurse practitioners were employed in the forty-nine health services. There was an average of 3.35 nurse practitioners per health service. Tables 1 and 2 displayed these data.

The seven medical directors who did not consider nurse practitioners as appropriate health professionals for the setting did not complete the questionnaires as instructed. Therefore, there were sixty-nine medical directors who completed the entire questionnaire. The data from these sixty-nine questionnaires were utilized to describe the population of medical directors of health services that either employed nurse practitioners or did not employ nurse practitioners but the medical directors considered them as appropriate for the setting.

---

[2]United States, Department of Health, Education, and Welfare, A Directory of Expanded Role Programs for Registered Nurses, Publication No. HRA 7910 (Washington: Government Printing Office, 1979).

Table 1

Universities Which Employed Nurse Practitioners
According to Frequency and Percent
(N=76)

Universities	Frequency	Percent
Employ Nurse Practitioners	49	64
Do Not Employ Nurse Practitioners		
1. Nurse Practitioners Considered as Appropriate Health Professionals for Setting	20	26
2. Nurse Practitioners Not Considered as Appropriate Health Professionals for Setting	7	9
Total	76	99*

*Total percentage does not equal 100 percent as the individual percentages were rounded to the nearest whole digit.

Table 2

Type of Nurse Practitioners Employed at Student Health Services
According to Frequency and Percent
(N=164)

Type of Nurse Practitioner	Frequency	Percent
College Health	66.5	40
Adult	24	15
Primary Care	21.5	13
Family Planning	19	12
Obstetrical-Gynecological	14	9
Family	12	7
Other	7	4
Total	164	100

Activities identified by medical directors for nurse practitioners to perform in university student health services. Part II of the questionnaire utilized a Likert scale to elicit general information concerning the activities of nurse practitioners. Numerical values were assigned to the items in the questionnaire so that a mean could be derived for each activity. The category of activities never performed was rated one, the category of seldom performed was two, occasionally performed was three, frequently performed was four, and almost always performed was rated five. A mean was calculated for each activity and the activities were ranked from those performed almost always to those never performed. The category of activities not appropriate for the setting was not included in calculating the mean for each activity. The frequency of responses in this category was tabulated separately.

The three activities cited for nurse practitioners to perform most frequently were: obtain a throat culture, elicit and record a health history, and teach individual health practices and prevention. These three activities were considered more traditional nursing activities.[3,4] The fourth, fifth, and seventh activities namely, obtain a vaginal smear, a Papanicolaou smear, and a gonococcal smear were technical functions usually included in the expanded role of the nurse practitioner.[5] The last five activities in the rank order, remove a foreign

[3]Marianne Dunn and Joan Von Ruden, "A Study of Physicians' Attitudes Toward the Utilization of Nurse Practitioners in Primary Care Settings," Military Medicine, 143:417-20, June, 1978.

[4]Gary L. Burkett and others, "A Comparative Study of Physicians' and Nurses' Conceptions of the Role of the Nurse Practitioner," American Journal of Public Health, 68:1094, November, 1978.

[5]Margaret O'Dell, "Physicians' Perceptions of an Extended Role for the Nurse," Nursing Research, 23:348-51, July-August, 1974.

body from the eye, suture a minor laceration (surface other than face), incise and drain an abcess, and apply a cast for a simple fracture were technical skills which were considered more traditional medical activities.[6,7] The nineteen activities of the rank order had means ranging from 4.12 to 4.81, placing them in the frequently performed range; therefore, there were fractional differences between the means of these nineteen activities. The means of three of the remaining six activities were in the occasionally performed range. The other three means were in the seldom performed range. This rank order was displayed in Table 3.

Activities which were identified as not appropriate for the student health setting were not included in the tabulation of the means. These activities were tabulated separately and described below. Twenty-seven of the sixty-nine medical directors, or 39 percent, considered the application of a cast for a simple fracture as inappropriate for the setting. Twenty-eight percent of the medical directors, a total of nineteen, identified the removal of a cast as not appropriate for the setting. Nine medical directors or 13 percent considered the incision and drainage of an abcess as inappropriate. Seventeen medical directors or 25 percent considered the suturing of a minor laceration (surface other than face) as inappropriate. Venipuncture for a blood sample was identified by five medical directors or 7 percent of the population as inappropriate. Many of these medical directors commented that either a laboratory technician performed the venipuncture or that it was not done at all in the setting. Other activities which were identified as inappropriate had four medical directors or less indicating them as such.

[6]Robert D. Coye and Marc F. Hansen, "The Doctor's Assistant," Journal of the American Medical Association, 209:530, July 28, 1969.

[7]Robert S. Lawrence and others, "Physician Receptivity to Nurse Practitioners: A Study of the Correlates of the Delegation of Clinical Responsibility," Medical Care, 15:302, April, 1977.

Table 3

Rank Order of the Activities of Nurse Practitioners as Identified by Sixty-Nine Medical Directors of University Student Health Services

Rank Order	Activity	Mean
1	Obtain a throat culture	4.81
2	Elicit and record a health history	4.80
3	Teach individual health practices and prevention	4.70
4	Obtain a vaginal smear for microscopic examination	4.69
5	Obtain a Papanicolaou smear	4.63
6	Obtain a gonococcal culture	4.58
7	Provide for follow-up care (either by nurse practitioner or other health professional)	4.58
8	Counsel students regarding family planning	4.52
9	Order appropriate laboratory procedures with physician confirmation	4.51
10	Counsel students regarding weight reduction	4.48
11	Perform a complete physical exam with physician confirming positive findings	4.44
12	Remove sutures	4.39
13	Interpret treatment regimen to students	4.34
14	Counsel students with minor emotional problems	4.27
15	Order appropriate laboratory procedures independently	4.17
16	Interpret diagnostic findings to students	4.15
17	Perform a complete physical exam independently	4.13
18	Perform venipuncture for a blood sample	4.13
19	Organize health education programs for students	4.12
20	Remove a cast	3.59
21	Remove a foreign body from the ear	3.41
22	Remove a foreign body from the eye	3.20
23	Suture a minor laceration (surface other than face)	2.73
24	Incise and drain an abcess	2.58
25	Apply a cast for a simple fracture	2.40

Assigned Numerical Values:
1 = Never performed
2 = Seldom performed
3 = Occasionally performed
4 = Frequently performed
5 = Almost always performed

The diagnosis of health problems by nurse practitioners. The data in Part III were divided into three categories: (1) health problems that could not be diagnosed at all by the nurse practitioner, (2) health problems that could be diagnosed with physician confirmation only, and (3) health problems that could be diagnosed independently. The health problems were described according to the frequency within the three categories.

The majority of the responses of medical directors concerning the diagnosis of health problems were in the categories titled "with physician confirmation only" and "independently." Ninety-seven percent of the total responses were within these two categories. For any specific health problem at least 93 percent of the medical directors determined that the health problem could be diagnosed independently or with physician confirmation only.

For any particular health problem, a range of 25 to 90 percent of the medical directors identified the nurse practitioner as diagnosing the health problem independently. For fourteen of the eighteen health problems, a majority of the medical directors identified the independent mode of diagnosis.

Between 9 and 72 percent of the medical directors identified the nurse practitioner as diagnosing any one health problem with physician confirmation only. A majority of the medical directors identified four health problems as being diagnosed with physician confirmation only. These health problems were chronic drug abuse, depression, diabetes mellitus, and migraine headache.

Thirty-five responses or 3 percent of the total responses were in the category of health problems that could not be diagnosed at all by

the nurse practitioner. The health problem with the most responses in this category was chronic drug abuse which had five responses. Six of the health problems had two responses for each health problem and eight health problems had one response for each health problem. The few responses in this category made this category noninformative.

As there were so few responses in the category titled "not at all," most of the responses were in the categories titled "with physician confirmation only" and "independently." The health problem with the highest percentage of responses in the category titled "with physician confirmation only" had the lowest percentage of responses in the category titled "independently." For example, diabetes mellitus had 72 percent of the responses in the category titled "with physician confirmation only" and 25 percent of the responses in the category titled "independently." Conversely, the health problem with the highest percentage of responses in the category titled "independently" had the lowest percentage of responses in the category titled "with physician confirmation only." For example, upper respiratory infection had 90 percent of the responses in the category titled "independently" and 9 percent of the responses in the category titled "with physician confirmation only." A statistical correlation between these two categories was not necessary as the percentage of responses in one category was predictive of the percentage of responses in the other category. Table 4 presented the eighteen health problems to be diagnosed with physician confirmation only and independently by the nurse practitioner.

The treatment of health problems by nurse practitioners. In Part IV of the questionnaire, each health problem was analyzed in

Table 4

Health Problems to be Diagnosed With Physician Confirmation Only and Independently by Nurse Practitioners as Identified by Sixty-Nine Medical Directors

Health Problem	Diagnosing With Physician Confirmation Only	Diagnosing Independently
	Percent	Percent
Acne	13	84
Acute alcohol abuse	48	49
Acute gastroenteritis	41	58
Chronic drug abuse	59	33
Cystitis	17	81
Depression	61	35
Dermatitis	45	54
Diabetes mellitus	72	25
Dysmenorrhea	20	78
Hypertension	46	54
Migraine headache	71	25
Pharyngitis	17	81
Respiratory allergies (hay fever)	20	77
Tension headache	43	54
Uncomplicated pregnancy	34	60
Upper respiratory infection	9	90
Vaginitis	12	87
Venereal disease	30	67

relation to (1) the initiation of treatment, (2) the monitoring of treatment, and (3) the modification of treatment. These divisions of the health problems were analyzed in relation to (1) the nurse practitioner not treating the health problem at all, (2) treating with physician confirmation only, (3) treating according to written protocols, and (4) treating independently. The health problems were compared for similarities with regard to the approach identified most frequently by medical directors for nurse practitioners to initiate, monitor, and modify treatment.

The data from Part IV were displayed in Table 5. The six health problems of acne, cystitis, dermatitis, dysmenorrhea, tension headache, and vaginitis were all identified by the medical directors to be treated with similar approaches by nurse practitioners. Responses indicated that the preferred approaches to the treatment of the six health problems were: (1) initiating treatment according to written protocols, (2) monitoring treatment independently, and (3) modifying treatment with physician confirmation only. Venereal disease was similar to these health problems except that the most frequently identified approach to monitoring treatment was according to written protocols. Respiratory allergies (hay fever) was also similar to the six health problems except that modifying treatment was according to written protocols.

The health problems of chronic drug abuse and depression were identified by the medical directors to be treated with similar approaches. The most frequently identified approach to initiating, monitoring, and modifying treatment was with physician confirmation only. The approaches to treatment of migraine headache were similar except that the most frequently identified approach to monitoring

Table 5

The Approaches to Treatment by Nurse Practitioners for the Eighteen Health Problems as Identified by Sixty-Nine Medical Directors

Approaches to Treatment	Health Problems																	
	Acne	Cystitis	Dermatitis	Dysmenorrhea	Tension headache	Vaginitis	Venereal disease	Respiratory allergies (hay fever)	Chronic drug abuse	Depression	Migraine headache	Acute alcohol abuse	Diabetes mellitus	Hypertension	Acute gastroenteritis	Uncomplicated pregnancy	Pharyngitis	Upper respiratory infection
	Percent																	
Initiate Treatment																		
Not at all	3	1	6	3	3	1	6	3	22	28	16	13	34	19	1	19	1	1
With physician confirmation	27	19	34	12	30	13	26	9	61	44	44	55	50	52	24	28	6	6
According to written protocols	45	46	36	43	36	44	43	45	10	13	25	19	9	16	34	24	46	44
Independently	24	34	24	42	31	41	25	42	6	15	15	12	7	12	40	29	47	49
Total	99*	100	100	100	100	99*	100	99*	99*	100	100	99*	100	99*	99*	100	100	100
Monitor Treatment																		
Not at all	1	0	3	0	0	1	0	0	13	15	3	8	6	2	0	18	0	0
With physician confirmation	9	6	17	8	9	4	16	3	36	39	22	30	34	20	14	9	3	3
According to written protocols	39	45	38	39	38	39	43	39	27	21	30	36	34	41	41	35	36	36
Independently	51	49	42	53	53	55	40	58	24	25	45	26	25	38	45	39	61	61
Total	100	100	100	100	100	99*	99*	100	100	100	100	100	99*	101*	100	101*	100	100
Modify Treatment																		
Not at all	6	1	5	2	2	3	4	1	19	24	9	12	18	8	1	19	1	1
With physician confirmation	40	46	56	35	48	36	52	36	63	57	67	65	57	61	44	47	31	34
According to written protocols	28	30	27	33	23	33	30	37	13	13	15	11	16	26	29	16	36	28
Independently	27	22	11	30	27	28	13	25	4	6	9	12	9	6	26	18	31	36
Total	101*	99*	99*	100	100	100	99*	99*	99*	100	100	100	100	101*	100	99*	99*	99*

*Total percentage does not equal 100 percent as the individual percentages were rounded to the nearest whole digit.

treatment was independently. The approaches to treatment of acute alcohol abuse were also similar to that of chronic drug abuse and depression except that the most frequently identified approach to monitoring treatment was according to written protocols.

The health problems of diabetes mellitus and hypertension were identified to be treated with similar approaches. The most frequently identified approach to the initiation and modification of treatment was with physician confirmation only. The most frequently identified approach to monitoring treatment was according to written protocols.

The health problems of acute gastroenteritis and uncomplicated pregnancy were also identified to be treated with similar approaches. The most frequently identified approach to initiating and monitoring treatment was independently. The most frequently identified approach to modifying treatment was with physician confirmation only. The approaches to treatment for pharyngitis were similar except that the modifying of treatment was according to written protocols. The approaches to treatment of upper respiratory infection were also similar to acute gastroenteritis and uncomplicated pregnancy except that the modifying of treatment was independently.

The data from Part IV were also analyzed with regard to the most frequently identified approach to initiating, monitoring, and modifying treatment according to the categories of (1) not treating at all, (2) treating with physician confirmation only, (3) treating according to written protocols, and (4) treating independently. The most frequently identified approach by which nurse practitioners could initiate treatment was according to written protocols. Nine of the eighteen health problems were identified for nurse practitioners to

initiate treatment according to written protocols. Six health problems were identified for nurse practitioners to initiate treatment with physician confirmation only and three health problems were identified for nurse practitioners to initiate treatment independently.

The medical directors determined that the most frequent approach by which nurse practitioners could monitor treatment was independently. Twelve of the eighteen health problems were identified for nurse practitioners to monitor treatment independently. Four health problems were identified for nurse practitioners to monitor treatment according to written protocols and two health problems were identified for nurse practitioners to monitor treatment with physician confirmation only.

The approach identified most frequently by the medical directors by which nurse practitioners could modify treatment was with physician confirmation only. Fifteen of the eighteen health problems were identified for nurse practitioners to modify treatment with physician confirmation only. Two health problems were identified for nurse practitioners to modify treatment according to written protocols and one health problem was identified for nurse practitioners to modify treatment independently.

The data in Part IV were also analyzed with regard to the nurse practitioner independently initiating, monitoring, and modifying treatment for the health problems. Each approach to the treatment, i.e., initiating, monitoring, and modifying, was analyzed separately. The health problems were ranked within the three approaches and the ranks were compared for similarities.

Table 6 displayed a comparison of the rank orders of the three approaches to treatment. Four health problems appeared within the first

Table 6

Rank Orders of the Independent Approaches to Treatment as Identified by Sixty-Nine Medical Directors

Health Problem	Initiate Treatment Independently	Monitor Treatment Independently	Modify Treatment Independently
Acne	11	7	5
Acute alcohol abuse	15	15	12
Acute gastroenteritis	6	9	7
Chronic drug abuse	18	18	18
Cystitis	7	8	9
Depression	13	16	17
Dermatitis	12	11	13
Diabetes mellitus	17	17	14
Dysmenorrhea	3	5	3
Hypertension	16	14	16
Migraine headache	14	10	15
Pharyngitis	2	1	2
Respiratory allergies (hay fever)	4	3	8
Tension headache	8	6	6
Uncomplicated pregnancy	9	13	10
Upper respiratory infection	1	2	1
Vaginitis	5	4	4
Venereal disease	10	12	11

five health problems in all three rank orders. These four health problems were upper respiratory infection, pharyngitis, dysmenorrhea, and vaginitis. With regard to the last five health problems in the rank orders, three health problems appeared in all three rank orders. These health problems were hypertension, diabetes mellitus, and chronic drug abuse.

The independent approach to initiating, monitoring, and modifying treatment was not usually the most frequent approach identified by the medical directors. However, the health problems of upper respiratory infection, pharyngitis, dysmenorrhea, and vaginitis were more likely to be treated independently by the nurse practitioner than the other health problems.

The most frequently identified approaches to the treatment of each specific health problem by nurse practitioners as determined by the medical directors were listed. For example, 63 percent of the medical directors responded that the treatment of chronic drug abuse could be modified by a nurse practitioner with physician confirmation only. This percentage was the highest in comparison to the other approaches for that particular health problem. Table 7 presented evidence that the most frequently identified approaches to treatment for all of the health problems were in one of two categories, i.e., either (1) monitor treatment independently or (2) modify treatment with physician confirmation only. This data indicated that although there was a wide range of preferences for the approach to treatment of health problems, the medical directors most frequently considered the nurse practitioner able to treat health problems within those two categories.

Table 7

Most Frequently Identified Approach to the Treatment of Health Problems by Nurse Practitioners as Identified by the Sixty-Nine Medical Directors

Health Problem	Most Frequently Identified Approach to Treatment
Acne	Monitor treatment independently
Acute alcohol abuse	Modify treatment with physician confirmation only
Acute gastroenteritis	Monitor treatment independently
Chronic drug abuse	Modify treatment with physician confirmation only
Cystitis	Monitor treatment independently
Depression	Modify treatment with physician confirmation only
Dermatitis	Modify treatment with physician confirmation only
Diabetes mellitus	Modify treatment with physician confirmation only
Dysmenorrhea	Monitor treatment independently
Hypertension	Modify treatment with physician confirmation only
Migraine headache	Modify treatment with physician confirmation only
Pharyngitis	Monitor treatment independently
Respiratory allergies (hay fever)	Monitor treatment independently
Tension headache	Monitor treatment independently
Uncomplicated pregnancy	Modify treatment with physician confirmation only
Upper respiratory infection	Monitor treatment independently
Vaginitis	Monitor treatment independently
Venereal disease	Modify treatment with physician confirmation only

Comparison of the Two Groups of Medical Directors

The data were divided into two groups for comparison: (1) those health services that employed nurse practitioners and (2) those health services that did not employ nurse practitioners and the medical directors considered nurse practitioners as appropriate health professionals for the setting. The data from Parts II, III, and IV of the questionnaire were divided into these two groups. The data in each part were analyzed and the two groups were compared.

Description of the groups. There were forty-nine university student health services that employed nurse practitioners. There were twenty university student health services that did not employ nurse practitioners; however, the medical directors at those health services considered nurse practitioners as appropriate health professionals for the setting.

Activities identified for nurse practitioners. The two rank orders of nurse practitioner activities as selected by the medical directors were compared using the Spearman r_{rho} correlation. The formula for this correlation was: $r_{rho} = 1 - \frac{6\Sigma D^2}{N(N^2-1)}$ where r_{rho} was the rank order correlation coefficient, Σ was the sum of, D was the difference between ranks, and N was the number of paired ranks. A perfect positive correlation had a value of one and a perfect negative correlation had a value of negative one. A correlation coefficient of zero indicated no relation.[8,9]

---

[8]Eleanor W. Treece and James W. Treece, Elements of Research in Nursing (St. Louis: C. V. Mosby Co., 1977), pp. 278-79.

[9]Richard P. Runyan and Audrey Haber, Fundamentals of Behavioral Statistics, 2nd ed. (London: Addison-Wesley Publishing Co., 1971), pp. 95-96.

A Spearman r_{rho} correlation coefficient of .72 was obtained demonstrating a positive correlation between the two rank orders. The first seventeen activities in the rank order of the medical directors of health services that employed nurse practitioners had means between 4.23 and 4.90, i.e., the frequently performed range. The activities with the rank values of one through sixteen in the rank order of the medical directors of health services that did not employ nurse practitioners also had means in the frequently performed range, from 4.30 to 4.70. Each group had three activities with means in the seldom performed range. The last five activities in the rank orders were the same for both groups, i.e., removing a foreign body from the ear, removing a foreign body from the eye, suturing a minor laceration (surface other than face), incising and draining an abcess, and applying a cast for a simple fracture. These findings indicated a similarity between the two groups when comparing the degree of acceptance the medical directors demonstrated for nurse practitioners performing selected activities. Table 8 demonstrated the rank orders of activities with the means for the two groups of medical directors.

The diagnosis of health problems by nurse practitioners. The medical directors had three choices concerning how the nurse practitioner could diagnose the selected health problems: (1) not diagnosing the health problems at all, (2) diagnosing with physician confirmation only, or (3) diagnosing the health problems independently. The two groups were compared.

A Spearman r_{rho} correlation coefficient of .80 was found between the rank orders of health problems that could be diagnosed by the nurse

Table 8

Comparison of Nurse Practitioner Activities as Identified by Two Groups of Medical Directors

Medical Directors at Health Services That Employed Nurse Practitioners			Medical Directors at Health Services That Did Not Employ Nurse Practitioners But Considered Them as Appropriate		
Rank Order	Activity	Mean	Rank Order	Activity	Mean
1	Elicit and record a health history	4.90	8	Elicit and record a health history	4.55
2	Obtain a throat culture	4.86	1	Obtain a throat culture	4.70
3	Obtain a vaginal smear for microscopic examination	4.77	10	Obtain a vaginal smear for microscopic examination	4.50
4	Teach individual health practices and prevention	4.73	6	Teach individual health practices and prevention	4.60
5	Provide for follow-up care	4.66	13	Provide for follow-up care	4.45
6	Obtain a Papanicolaou smear	4.64	7	Obtain a Papanicolaou smear	4.59
7	Obtain a gonococcal culture	4.60	9	Obtain a gonococcal culture	4.50
8	Counsel students regarding weight reduction	4.53	14	Counsel students regarding weight reduction	4.35
9	Counsel students regarding family planning	4.49	4	Counsel students regarding family planning	4.60
10	Order laboratory procedures with physician consultation	4.47	2	Order laboratory procedures with physician consultation	4.63
11	Perform a complete physical exam with physician confirming positive findings	4.42	12	Perform a complete physical exam with physician confirming positive findings	4.50
12	Interpret treatment regimen to students	4.36	16	Interpret treatment regimen to students	4.30

Table 8 (continued)

Medical Directors at Health Services That Employed Nurse Practitioners			Medical Directors at Health Services That Did Not Employ Nurse Practitioners But Considered Them as Appropriate		
Rank Order	Activity	Mean	Rank Order	Activity	Mean
13	Order laboratory procedures independently	4.30	18	Order laboratory procedures independently	3.90
14	Remove sutures	4.29	5	Remove sutures	4.60
15	Perform a complete physical exam independently	4.27	20	Perform a complete physical exam independently	3.79
16	Counsel students with minor emotional problems	4.25	15	Counsel students with minor emotional problems	4.33
17	Interpret diagnostic findings to students	4.23	17	Interpret diagnostic findings to students	3.95
18	Perform venipuncture for a blood sample	3.98	3	Perform venipuncture for a blood sample	4.63
19	Organize health education programs for students	3.96	11	Organize health education programs for students	4.50
20	Remove a cast	3.47	19	Remove a cast	3.82
21	Remove a foreign body from the ear	3.37	21	Remove a foreign body from the ear	3.63
22	Remove a foreign body from the eye	3.22	22	Remove a foreign body from the eye	3.26
23	Suture a minor laceration	2.68	23	Suture a minor laceration	2.68
24	Incise and drain an abcess	2.49	24	Incise and drain an abcess	2.82
25	Apply a cast for a simple fracture	2.24	25	Apply a cast for a simple fracture	2.67

Spearman r_{rho} correlation coefficient of the two rank orders = .72.

Assigned Numerical Values: 1 = Never performed
2 = Seldom performed
3 = Occasionally performed
4 = Frequently performed
5 = Almost always performed

practitioner with physician confirmation only. Table 9 presented evidence that the two rank orders were similar. Three of the same health problems were in the top five of each rank order, i.e., diabetes mellitus, migraine headache, and depression. Vaginitis was at the same rank in both groups.

A Spearman r_{rho} correlation coefficient of .83 was found between the rank orders of health problems that could be diagnosed independently by the nurse practitioner. Table 10 demonstrated that four of the same health problems were in the top five of each rank order. These health problems were upper respiratory infection, vaginitis, acne, and pharyngitis. Respiratory allergies (hay fever), venereal disease, and acute alcohol abuse were at the same ranks in both groups.

This comparison demonstrated that the medical directors of health services that employed nurse practitioners and the medical directors of health services that did not employ nurse practitioners had similar views as to what health problems they thought nurse practitioners could diagnose with physician confirmation only and the health problems they thought nurse practitioners could diagnose independently.

The Spearman r_{rho} correlation coefficient for the rank orders of health problems that could not be diagnosed at all by nurse practitioners was .14. This low coefficient was possibly the result of so few responses in that category, 3 percent of the total number of responses.

Table 11 compared the most frequently identified mode of diagnosis for each health problem as determined by the two groups of medical directors. The category titled "not at all" was never determined by the medical directors as the most frequently identified mode of diagnosis for any of the health problems. The two groups were in general

Table 9

Rank Orders of Health Problems That Could be Diagnosed By Nurse Practitioners With Physician Confirmation Only as Identified by Two Groups of Medical Directors

Medical Directors at Health Services That Employed Nurse Practitioners				Medical Directors at Health Services That Did Not Employ Nurse Practitioners But Considered Them as Appropriate			
Rank Order	Health Problem	Frequency	Percent	Rank Order	Health Problem	Frequency	Percent
1	Diabetes mellitus	37	76	4	Diabetes mellitus	13	65
2	Migraine headache	34	70	1	Migraine headache	15	75
3	Chronic drug abuse	29	59	6	Chronic drug abuse	12	60
4	Depression	29	59	3	Depression	13	65
5	Hypertension	25	51	10	Hypertension	7	35
6	Dermatitis*	22	46	8	Dermatitis*	8	42
7	Acute alcohol abuse	21	43	5	Acute alcohol abuse	12	60
8	Tension headache	19	39	7	Tension headache	11	55
9	Uncomplicated pregnancy*	16	33	11	Uncomplicated pregnancy	7	35
10	Acute gastro-enteritis	14	29	2	Acute gastro-enteritis	14	70
11	Venereal disease	14	29	12	Venereal disease	7	35
12	Dysmenorrhea	10	20	14	Dysmenorrhea	4	20
13	Pharyngitis	8	16	15	Pharyngitis	4	20
14	Respiratory allergies (hay fever)	8	16	13	Respiratory allergies (hay fever)	6	30
15	Acne	7	14	18	Acne	2	10
16	Cystitis	5	10	9	Cystitis	7	35
17	Vaginitis	4	8	17	Vaginitis	4	20
18	Upper respira-tory infection	2	4	16	Upper respira-tory infection	4	20

Spearman r_{rho} correlation coefficient for the two rank orders = .80.

*One medical director did not respond to this item.

Table 10

Rank Orders of Health Problems That Could be Diagnosed Independently by Nurse Practitioners as Identified by Two Groups of Medical Directors

Medical Directors at Health Services That Employed Nurse Practitioners				Medical Directors at Health Services That Did Not Employ Nurse Practitioners But Considered Them as Appropriate			
Rank Order	Health Problem	Frequency	Percent	Rank Order	Health Problem	Frequency	Percent
1	Upper respiratory infection	46	94	4	Upper respiratory infection	16	80
2	Vaginitis	44	90	5	Vaginitis	16	80
3	Cystitis	43	88	7	Cystitis	13	65
4	Acne	40	82	1	Acne	18	90
5	Pharyngitis	40	82	3	Pharyngitis	16	80
6	Respiratory allergies (hay fever)	39	80	6	Respiratory allergies (hay fever)	14	70
7	Dysmenorrhea	38	78	2	Dysmenorrhea	16	80
8	Acute gastro-enteritis	34	69	15	Acute gastro-enteritis	6	30
9	Venereal disease	33	67	9	Venereal disease	13	65
10	Tension headache	29	59	13	Tension headache	8	40
11	Uncomplicated pregnancy	28	58	8	Uncomplicated pregnancy	13	65
12	Acute alcohol abuse	26	53	12	Acute alcohol abuse	8	40
13	Dermatitis	25	52	11	Dermatitis*	11	58
14	Hypertension	24	49	10	Hypertension	12	60
15	Depression	18	37	16	Depression	6	30
16	Chronic drug abuse	16	33	14	Chronic drug abuse	7	35
17	Migraine headache	14	29	18	Migraine headache	3	15
18	Diabetes mellitus	11	22	17	Diabetes mellitus	6	30

Spearman r_{rho} correlation coefficient of the two rank orders = .83.

*One medical director did not respond to this item.

agreement as to the mode of diagnosis for fourteen of the eighteen health problems, or 77 percent. There were four areas of disagreement. The medical directors of health services that employed nurse practitioners indicated that nurse practitioners could independently diagnose acute alcohol abuse, acute gastroenteritis, and tension headache. The medical directors of health services that did not employ nurse practitioners identified the same health problems as being diagnosed with physician confirmation only. Parenthetically, the medical directors of health services that employed nurse practitioners identified hypertension as a health problem which could be diagnosed by the nurse practitioner with physician confirmation only and the medical directors of health services that did not employ nurse practitioners identified hypertension as being diagnosed independently by the nurse practitioner. These findings demonstrated a slight difference in what the two groups of medical directors determined as an acceptable mode of diagnosis by the nurse practitioner for selected health problems.

The treatment of health problems by nurse practitioners. The two groups of medical directors identified similar approaches to the initiation of treatment for nine of the eighteen health problems. The approaches to the initiation of treatment were either with physician confirmation only or according to written protocols. The health problems for which there was not agreement between the two groups were acute gastroenteritis, dermatitis, dysmenorrhea, pharyngitis, respiratory allergies (hay fever), tension headache, uncomplicated pregnancy, upper respiratory infection, and vaginitis. The medical directors of health services that employed nurse practitioners identified the

Table 11

Comparison of the Most Frequently Identified Mode of Diagnosis for Each Health Problem as Determined by Two Groups of Medical Directors

Health Problem	Mode of Diagnosis Identified by Medical Directors of Health Services That Employed Nurse Practitioners	Mode of Diagnosis Identified by Medical Directors of Health Services That Did Not Employ Nurse Practitioners But Considered Them Appropriate
Acne	Independently	Independently
Acute alcohol abuse	Independently	With physician confirmation only
Acute gastroenteritis	Independently	With physician confirmation only
Chronic drug abuse	With physician confirmation only	With physician confirmation only
Cystitis	Independently	Independently
Depression	With physician confirmation only	With physician confirmation only
Dermatitis	Independently	Independently
Diabetes mellitus	With physician confirmation only	With physician confirmation only
Dysmenorrhea	Independently	Independently
Hypertension	With physician confirmation only	Independently
Migraine headache	With physician confirmation only	With physician confirmation only
Pharyngitis	Independently	Independently
Respiratory allergies (hay fever)	Independently	Independently
Tension headache	Independently	With physician confirmation only
Uncomplicated pregnancy	Independently	Independently
Upper respiratory infection	Independently	Independently
Vaginitis	Independently	Independently
Venereal disease	Independently	Independently

independent approach most frequently for the initiation of treatment for a majority of the health problems listed above. The most frequently identified approach to the initiation of treatment for these health problems determined by the medical directors of health services that did not employ nurse practitioners was according to written protocols.

Similar approaches for the monitoring of treatment were identified by the medical directors for twelve of the eighteen health problems. With regard to these twelve health problems, a majority had the independent approach to treatment as the most frequent approach identified by the medical directors. The health problems for which the two groups were dissimilar were acne, acute alcohol abuse, cystitis, dermatitis, diabetes mellitus, and hypertension. Monitoring treatment according to written protocols was determined by the medical directors of health services that employed nurse practitioners as the most frequently identified approach to the monitoring of treatment for these six health problems. The medical directors of health services that did not employ nurse practitioners identified the independent approach most frequently for the monitoring of treatment for these six health problems.

With regard to the modifying of treatment, the two groups of medical directors identified the same approaches to treatment for thirteen of the eighteen health problems. For all thirteen of these health problems, the most frequently identified approach to the modification of treatment was with physician confirmation only. The five health problems for which these two groups were dissimilar were dysmenorrhea, pharyngitis, respiratory allergies (hay fever), upper

respiratory infection, and vaginitis. Modifying treatment with physician confirmation only was determined by the medical directors of health services which did not employ nurse practitioners as the most frequently identified approach to treatment for all five of these health problems. The medical directors of health services that employed nurse practitioners identified the independent approach most frequently for the modifying of treatment for these five health problems.

Consequently, these two groups of medical directors had similar approaches to treatment for a majority of the health problems with regard to the initiating, monitoring, and modifying of treatment. However, in the occasional differences, the medical directors of health services that employed nurse practitioners most frequently identified the independent approach to treatment for the initiation and modification of treatment; whereas, the other group of medical directors most frequently identified the independent approach only for the monitoring of treatment. Table 12 displayed these data.

Discussion

The high response rate of the questionnaire, 81 percent, may be due to one or more of the following factors:

1. There was an interest in nurse practitioner activities by medical directors of student health services.

2. The setting of medical universities is more research oriented and those medical directors are more willing to complete a questionnaire.

3. Follow-up letters from the investigators contributed to the total response rate.

Table 12

Comparison of the Approaches to Treatment by the Nurse Practitioner for the Eighteen Health Problems as Identified by the Two Groups of Medical Directors (I and II)+

Approaches to Treatment	Health Problems																	
	Acne		Acute alcohol abuse		Acute gastroenteritis		Chronic drug abuse		Cystitis		Depression		Dermatitis		Diabetes mellitus		Dysmenorrhea	
	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II
	PERCENT																	
Initiate Treatment																		
Not at all	2	6	12	16	0	5	22	22	0	5	31	21	6	6	35	32	0	11
With physician confirmation	25	33	58	47	12	53	63	55	16	26	41	53	35	33	53	42	10	16
According to written protocols	48	39	17	26	40	21	8	17	47	42	12	16	33	44	4	21	41	47
Independently	25	22	12	11	48	21	6	6	37	26	16	11	26	17	8	5	48	26
Total	100	100	99*	100	100	100	99*	100	100	99*	100	101*	100	100	100	100	99*	100
Monitor Treatment																		
Not at all	2	0	11	0	0	0	17	5	0	0	17	11	4	0	8	0	0	0
With physician confirmation	10	6	26	42	8	26	33	42	2	16	40	37	15	22	33	37	4	16
According to written protocols	47	17	40	26	45	32	31	16	50	32	21	21	41	28	38	26	40	37
Independently	41	78	23	32	47	42	19	37	48	53	23	32	40	50	21	37	55	47
Total	100	101*	100	100	100	100	100	100	100	101*	101*	101*	100	100	100	100	99*	100
Modify Treatment																		
Not at all	6	5	11	16	0	5	19	21	0	5	25	21	4	6	15	26	0	5
With physician confirmation	35	53	68	58	38	58	62	63	41	59	54	63	58	55	60	47	30	47
According to written protocols	28	26	8	16	30	26	15	11	35	16	15	11	25	33	17	16	34	32
Independently	31	16	13	11	32	11	4	5	23	21	6	5	12	6	8	11	36	16
Total	100	100	100	101*	100	100	100	100	99*	101*	100	100	99*	100	100	100	100	100

Table 12 (continued)

Approaches to Treatment	Health Problems																	
	Hypertension		Migraine headache		Pharyngitis		Respiratory allergies (hay fever)		Tension headache		Uncomplicated pregnancy		Upper respiratory infection		Vaginitis		Venereal disease	
	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II
	PERCENT																	
Initiate Treatment																		
Not at all	19	21	16	16	0	5	2	5	0	11	20	17	0	5	0	5	6	5
With physician confirmation	54	47	47	37	4	11	8	11	31	26	30	21	2	16	14	11	28	21
According to written protocols	15	21	22	32	43	53	43	53	33	42	20	33	45	42	41	53	37	58
Independently	12	11	14	16	53	32	47	32	35	21	30	28	53	37	45	32	28	16
Total	100	100	99*	101*	100	101*	100	101*	99*	100	100	99*	100	100	100	101*	99*	100
Monitor Treatment																		
Not at all	0	5	2	5	0	0	0	0	0	0	20	11	0	0	2	0	0	0
With physician confirmation	26	5	27	11	0	11	0	11	8	11	8	11	0	11	2	11	17	16
According to written protocols	45	32	33	21	41	21	46	21	43	26	36	33	40	26	38	42	42	47
Independently	30	58	38	63	58	68	54	68	49	63	36	44	60	63	58	47	42	37
Total	101*	100	100	100	99*	100	100	100	100	100	100	99*	100	100	100	100	101*	100
Modify Treatment																		
Not at all	6	11	6	16	0	5	0	5	0	5	20	17	0	5	2	5	4	5
With physician confirmation	55	74	67	68	27	42	31	47	47	53	44	55	31	42	31	47	46	68
According to written protocols	32	11	17	11	38	32	38	37	21	26	15	17	29	26	31	37	33	21
Independently	6	5	10	5	35	21	31	11	32	16	20	11	40	26	35	11	16	5
Total	99*	101*	100	100	100	100	100	100	100	100	99*	100	100	99*	99*	100	99*	99*

Key: +Group I includes the medical directors of health services that employed nurse practitioners. Group II includes the medical directors of health services that did not employ nurse practitioners, but considered them appropriate for the setting.
*Total percentage does not equal 100 percent as the individual percentages were rounded to the nearest whole digit.
#The underlined numbers are the highest percentage in each category.

4. As there were nurse practitioner programs offered at the universities in the population, the medical directors completing the questionnaire were more familiar with the concept of a nurse practitioner.

Ninety percent of the sample either employed a nurse practitioner or considered their role as appropriate for the university student health setting. This corresponded with the study by Williamson in which 81 percent of the student health medical directors indicated they would employ a nurse practitioner in their setting, thus indicating acceptance of that role.[10]

In determining the activities that medical directors identified as appropriate for nurse practitioners, the investigators found some areas of agreement with other investigations in the literature. The studies of O'Dell,[11] Radke,[12] Dunn and Von Ruden,[13] Theiss,[14] and Farrand and Cobb,[15] reported that health history taking, health teaching, and counseling were appropriate activities for nurse practitioners.

---

[10]Janet A. Williamson, "Surveys of Attitudes of Directors of Campus Health Centers Toward Potential College Nurse Practitioners," Journal of the American College Health Association, 22:199, February, 1974.

[11]O'Dell, p. 351.

[12]Karen J. Radke, "Physician Perceptions of Family Nurse Practitioners," Nurse Practitioner, 2:35, March-April, 1975.

[13]Dunn and Von Ruden, p. 418.

[14]Betty E. Theiss, "Investigation of the Perceived Role Functions and Attitudes of the Nurse Practitioner Role in a Primary Care Clinic," Military Medicine, 141:85-89, February, 1976.

[15]Linda L. Farrand and Marguerite Cobb, "Perceptions of Activities Performed in Ambulatory Settings," Nurse Practitioner, 1:69-72, November-December, 1975.

These activities were also found high in the rank order of the results of this investigation; therefore, the idea that nurse practitioners continue to provide traditional nursing activities to patient care was reinforced.

O'Dell[16] reported that the activities of performing physical examinations and interpreting diagnostic findings to patients had low acceptance by physicians as appropriate nurse practitioner activities. Burkett[17] reported suturing to have low acceptance with physicians and nurses. Radke[18] reported that physicians preferred not to allow nurse practitioners to perform physical examinations. Each of these activities was also found to be lower on the rank order in this study.

The results of a study by Lawrence[19] disagreed with the results of this investigation. He demonstrated that physicians were more willing to delegate traditional medical responsibilities, whereas many of the traditional medical activities were listed at the lower part of the rank order of this study, i.e., suturing a minor laceration (surface other than face), applying a cast for a simple fracture, and performing a complete physical examination independently.

Nineteen of the twenty-five activities had means in the frequently performed range. Three of the twenty-five had means in the occasionally performed range, and the remaining three activities were in the seldom performed range. Therefore, it was assumed that the medical

---

[16] O'Dell, pp. 348-51.

[17] Burkett, pp. 1090-95.

[18] Radke, p. 35.

[19] Lawrence, p. 302.

directors generally accepted nurse practitioners performing the majority of the selected activities.

Ninety-seven percent of the medical directors determined that the health problems could be diagnosed by the nurse practitioner either with physician confirmation only or independently. In addition, the medical directors identified fourteen of the eighteen health problems that could be most frequently diagnosed independently by the nurse practitioner. This high percentage gave support to the nurse practitioner's ability to assess health problems in the university student health setting.

Of the eighteen health problems, only four could not be diagnosed independently by the nurse practitioner. Chronic drug abuse, depression, diabetes mellitus, and migraine headache were identified by the majority of medical directors as being diagnosed with physician confirmation only.

Although the medical directors determined that nurse practitioners could independently diagnose a majority of the health problems, they were more conservative with regard to the approaches to treatment of those same health problems. The data demonstrated that medical directors identified specific approaches to treatment. Some of the approaches to treatment were similar among the health problems. These data were also analyzed with regard to the most frequently identified approach to initiating, monitoring, and modifying treatment according to the categories of (1) not treating the health problem at all, (2) treating with physician confirmation only, (3) treating according to written protocols, and (4) treating the health problem independently. Certain patterns became evident:

1. The nurse practitioner could initiate treatment most frequently according to written protocols.

2. The nurse practitioner could independently monitor treatment most frequently.

3. The nurse practitioner could modify treatment most frequently with physician confirmation only.

These patterns suggested that the medical directors did, in fact, consider the approach to treatment, i.e., initiate, monitor, and modify, as a factor in determining how the nurse practitioner could treat the particular health problem.

When the data were analyzed with regard to the nurse practitioner independently initiating, monitoring and modifying treatment for the health problems, it was demonstrated that upper respiratory infection, pharyngitis, dysmenorrhea, and vaginitis were more likely to be treated independently by the nurse practitioner than the other health problems. A final analysis of the data in this part concluded that the most frequently identified approaches to treatment of each particular health problem by nurse practitioners were in the two categories of (1) monitoring treatment independently or (2) modifying treatment with physician confirmation only.

The comparison of the forty-nine medical directors of health services that employed nurse practitioners to the twenty medical directors of health services that did not employ nurse practitioners, but considered the role as appropriate for the setting, demonstrated similarities between the two groups. All of the comparisons between the activities of nurse practitioners and the modes of diagnosis between the two groups were positively correlated.

There was a positive correlation between the rank orders of activities. The differences had no significant patterning. For example, neither group had more traditional medical activities at the top of the rank orders. The comparison of the two groups demonstrated a similarity in the views of the medical directors regarding nurse practitioners performing selected activities.

There were also highly positive correlations between the two groups in what the medical directors thought the nurse practitioner could diagnose independently as well as diagnose with physician confirmation only. However, the medical directors of health services that employed nurse practitioners considered nurse practitioners to be able to diagnose more health problems independently than the medical directors of health services that did not employ nurse practitioners.

The comparison of the treatment of the health problems also demonstrated similarities between the two groups of medical directors. When differences did occur between the two groups, the medical directors of health services that employed nurse practitioners determined that nurse practitioners could treat the health problem more independently than the medical directors of health services that did not employ nurse practitioners. The explanation for this finding may be that the medical directors of health services that employed nurse practitioners were more familiar with nurse practitioners since they worked with them; therefore, they may be less conservative in their selection of appropriate functions.

In conclusion, the results of the investigation determined the activities that medical directors identified as appropriate for nurse practitioners to perform in university student health settings. These

were activities that nurse practitioners were expected to perform by their reference group member, the medical director. These activities may differ from those actually performed by the nurse practitioner.

Chapter 5

SUMMARY, CONCLUSIONS, IMPLICATIONS FOR NURSING, AND RECOMMENDATIONS

Summary and Conclusions

Haas stated that there were four dimensions to the formation of a role: activities, authority, deference, and affect. He also stated that the formation of a role required the involvement of at least two persons, those who assume the role and those who comprise the "reference group" for that role.[1] In an attempt to define one of these role dimensions, i.e., activities, in a particular setting, that of university student health services, the investigators determined those activities that medical directors of university student health services identified as appropriate for nurse practitioners to perform in that setting. The medical directors were considered part of the nurse practitioners' reference group, therefore, they were important in determining the activities that the nurse practitioner should perform.

A questionnaire was developed and mailed to the universities listed in the Department of Health, Education, and Welfare's publication A Directory of Expanded Role Programs for Registered Nurses.[2]

---

[1] J. Eugene Haas, Role Conception and Group Consensus, Bureau of Business Research Monograph No. 117 (Columbus: Ohio State University, 1964), pp. 25-30.

[2] United States, Department of Health, Education, and Welfare, A Directory of Expanded Role Programs for Registered Nurses, Publication No. HRA 7910 (Washington: Government Printing Office, 1979).

A total of ninety-nine universities met the criteria for the study. The data collected in this investigation were descriptive. The data in the first part of the questionnaire were used to describe the universities in the population. The data in the remaining parts of the questionnaire relating to the activities, modes of diagnosis, and approaches to treatment were tabulated, analyzed, and described.

Eighty-one percent of the medical directors returned their questionnaires. Seventy-seven percent were completed correctly and were, therefore, used in the investigation.

Seven medical directors did not consider nurse practitioners appropriate for the university student health setting. Twenty medical directors indicated that although their health services did not employ nurse practitioners, they considered them appropriate for the setting. Forty-nine medical directors indicated that their student health services employed nurse practitioners.

The medical directors were generally accepting of nurse practitioners performing a variety of activities. Nineteen of the twenty-five suggested activities were frequently performed. The activities which were occasionally performed and seldom performed were activities that were traditionally considered to be medical activities.[3,4]

The medical directors indicated that nurse practitioners could independently diagnose fourteen of the eighteen health problems. Only

---

[3]Robert D. Coye and Marc F. Hansen, "The Doctor's Assistant," Journal of the American Medical Association, 209:530, July 28, 1969.

[4]Robert D. Lawrence and others, "Physician Receptivity to Nurse Practitioners: A Study of the Correlates of the Delegation of Clinical Responsibility," Medical Care, 15:302, April, 1977.

four health problems required physician confirmation for diagnosis. The medical directors were supportive of the nurse practitioner diagnosing a majority of selected health problems either independently or with physician confirmation only, as 97 percent of the responses were in these two categories.

Medical directors were more conservative with regard to the approaches to treatment than to the modes of diagnosis. Analysis of the data indicated that the medical directors identified certain approaches to the treatment of specific health problems. The approaches to treatment were similar among some of the health problems. The approach to treatment, i.e., initiate, monitor, or modify, was a factor in the medical directors determining how the nurse practitioner could treat the particular health problem. Further analysis of the data indicated that certain health problems, i.e., upper respiratory infection, pharyngitis, dysmenorrhea, and vaginitis were more likely to be treated independently by the nurse practitioner.

A comparison between the responses of forty-nine medical directors of health services that employed nurse practitioners and the twenty responses of those that did not suggested similarities. All comparisons between the activities of nurse practitioners and the modes of diagnosis between the two groups were positively correlated. There were similarities between the rank orders of activities; the majority of means of the activities were in the frequently performed range for both groups. The medical directors of health services that employed nurse practitioners determined that nurse practitioners could diagnose more health problems independently. The treatment of the health problems by nurse practitioners also demonstrated similarities between the

two groups of medical directors. When differences did occur, the medical directors of health services that did not employ nurse practitioners most frequently identified the independent approach to the monitoring of treatment; however, the other group of medical directors identified the independent approach most frequently for both the initiation and modification of treatment.

These findings disclosed information about one perspective of the role of nurse practitioners in university student health settings. The expectations of the reference group, i.e., medical directors, with regard to activities, modes of diagnosis for health problems, and approaches to treatment for health problems were investigated.

Implications for Nursing

This investigation suggested that nurse practitioners appeared to be accepted by most of the medical directors of university student health services. A majority of the health services employed nurse practitioners. Various types of nurse practitioners were employed. This would substantiate that there are professional career opportunities in this setting which could be appropriate for most nurse practitioners.

The results of this investigation indicated that the activities identified most frequently for nurse practitioners in student health services were an extension of traditional nursing activities, i.e., counseling and teaching of students.[5,6] However, the results also

---

[5]Marianne Dunn and Joan Von Ruden, "A Study of Physicians' Attitudes Toward the Utilization of Nurse Practitioners in Primary Care Settings," Military Medicine, 143:417-20, June, 1978.

[6]Gary L. Burkett and others, "A Comparative Study of Physicians' and Nurses' Conceptions of the Role of the Nurse Practitioner," American Journal of Public Health, 68:1094, November, 1978.

demonstrated the acceptance of nurse practitioners independently diagnosing health problems and performing certain activities that have traditionally been medical activities, i.e., obtaining a vaginal smear and Papanicolaou smear. Nurse practitioners in the university student health setting may use these results to refine or broaden their role. Educators may use the findings to identify appropriate activities for inclusion in their programs. Faculty in nurse practitioner programs preparing nurse practitioners for the student health setting may find these results useful in curriculum planning.

Recommendations

The recommendations for further study were to:

1. Develop the methodology and determine the reliability and validity coefficients for this tool.

2. Compare the responses among medical directors, nursing supervisors, and nurse practitioners concerning the perceived role of the nurse practitioner and identify any role discrepancies.

3. Replicate the study in other university and college health settings to clarify the extent to which the findings may be generalized.

4. Investigate the effectiveness of nurse practitioner practice in the university student health setting.

5. Investigate the attitudes of students towards nurse practitioners in the university student health setting.

6. Investigate the activities and range of function of nurse practitioners in university student health services.

SELECTED BIBLIOGRAPHY

SELECTED BIBLIOGRAPHY

Books

Biddle, Bruce, and Edwin Thomas. Role Theory: Concepts and Research. New York: John Wiley and Sons, Inc., 1966.

Campbell, William G., and Stephen V. Ballou. Form and Style. 5th ed. Boston: Houghton Mifflin Company, 1978.

Gross, Neal, John Mason, and Robert McEachern. Exploration in Role Analysis: Studies in the School Superintendency Role. New York: John Wiley and Sons, Inc., 1958.

Haas, J. Eugene. Role Conception and Group Concensus. Bureau of Business Research Monograph Number 117. Columbus: Ohio State University, 1964.

Hughs, Edward C. Sociology Today: Problems and Prospects. New York: Basic Books, Inc., 1959.

Kerlinger, Fred N. Foundations of Behavioral Research. 2nd ed. New York: Holt, Rinehart, and Winston, Inc., 1964.

Lidzey, Gardner, ed. Handbook of Social Psychology. Cambridge: Addison-Wesley, 1954.

Linton, Ralph. The Study of Man. New York: Appleton-Century, 1936.

Runyon, Richard P., and Audrey Haber. Fundamentals of Behavioral Statistics. 2nd ed. London: Addison-Wesley Publishing Co., 1971.

The College Blue Book, Tabular Data. New York: MacMillian Information, 1977.

Treece, Eleanor W., and James W. Treece. Elements of Research in Nursing. St. Louis: C. V. Mosby Co., 1977.

Yearbook of Higher Education 1977-78. Chicago: Marquis Academic Media, 1977.

Periodicals

A Joint Statement of the American Nurses' Association and the American School Health Association. "Recommendations on Educational Preparation and Definitions of the Expanded Role and Functions of the School Nurse Practitioner." The Journal of School Health, 43:594-95. November, 1973.

American College Health Association. "Recommendations, Standards, and Practices for a College Health Program." Journal of the American College Health Association, 18:41-42. October, 1969.

Arnold, Mary F. "Perception of Professional Role Activities in the Local Health Department." Public Health Reports, 77:80-88. January, 1962.

Bates, Frederick L. "Position, Role, and Status: A Reformation of Concepts." Social Forces, 34:313-21. May, 1956.

Burchell, Richard C. "Behavioral Attitudes Among Professionals." Journal of Obstetrics and Gynecological Nursing, 23:67-71. January, 1972.

Burkett, Gary L., and others. "A Comparative Study of Physicians' and Nurses' Conceptions of the Role of the Nurse Practitioner." American Journal of Public Health, 68:1090-95. November, 1978.

Cohen, Wilbur. "Current Problems in Health Care." New England Journal of Medicine, 281:193-96. July 24, 1969.

Comstock, Lloyd K., and Cecil Slome. "A Health Survey of Students: Prevalence of Perceived Problems." Journal of the American College Health Association, 22:150-55. December, 1973.

Coye, Robert D., and Marc F. Hansen. "The Doctor's Assistant." Journal of the American Medical Association, 209:529-33. July 28, 1969.

Duncan, Burris, Ann N. Smith, and Henry K. Silver. "Comparison of the Physical Assessment of Children by Pediatric Nurse Practitioners and Pediatricians." American Journal of Public Health, 61:1170-75, June, 1971.

Dunn, Marianne, and Joan Von Ruden. "A Study of Physicians' Attitudes Toward the Utilization of Nurse Practitioners in Primary Care Settings." Military Medicine, 143:417-20. June, 1978.

Farrand, Linda L., and Marguerite Cobb. "Perceptions of Activities Performed in Ambulatory Settings." Nurse Practitioner, 1:69-72. November-December, 1975.

Flynn, Beverly. "The Effectiveness of Nurse Clinician's Service Delivery." American Journal of Public Health, 64:604-11. June, 1974.

Fottler, Myron D., and Diane N. Pinchoff. "Acceptance of the Nurse Practitioner: Attitudes of Health Care Administrators." Inquiry, 13:262-73. September, 1976.

Heiman, Elliott M., and Mary K. Dempsey. "Independent Behavior of Nurse Practitioners: A Survey of Physician and Nurse Attitudes." American Journal of Public Health, 66:587-89. June, 1976.

Hoffman, William K., and Mary K. Madsen. "College Student Health Care Needs at the University of Wisconsin-Milwaukee." Journal of the American College Health Association, 25:296-97. June, 1977.

Johnson, Mary Lou. "Nurse Practitioner as Primary Care Provider in 2000." Journal of the American College Health Association, 27:220-21. February, 1979.

Kilpatrick, S. James, and Maurice Wood. "Analysis and Interpretation of Data." The Journal of Family Practice, 7:101-11. January, 1978.

Kubala, Stephanie, and Linda H. Clever. "Acceptance of the Nurse Practitioner." American Journal of Nursing, 74:451-52. March, 1974.

Lawrence, Robert S., and others. "Physician Receptivity to Nurse Practitioners: A Study of the Correlates of the Delegation of Clinical Responsibility." Medical Care, 15:298-310. April, 1977.

Lewis, Charles E., and Barbara A. Resnick. "Nurse Clinics and Progressive Ambulatory Patient Care." New England Journal of Medicine, 277:1236-41. December 7, 1967.

Little, Marilyn. "Physicians' Attitudes Toward Employment of Nurse Practitioners." Nurse Practitioner, 3:27-30. July-August, 1978.

Merenstein, Joel H., Harvey Wolfe, and Kathleen M. Barker. "The Use of Nurse Practitioners in General Practice." Medical Care, 12:445-52. May, 1974.

Nickols, Donald D. "Some Recent Data on Community Health Service Programs." Journal of the American College Health Association, 22:61-64. October, 1973.

O'Dell, Margaret L. "Physicians' Perceptions of an Extended Role for the Nurse." Nursing Research, 23:348-51. July-August, 1974.

Radke, Karen J. "Physician Perceptions of Family Nurse Practitioners." Nurse Practitioner, 2:35. March-April, 1977.

Reed, David E., and Klaus J. Roghmann. "Acceptability of an Expanded Role to Nurses and Physicians." Medical Care, 9:372-77. July-August, 1971.

Sackett, David L., and others. "The Burlington Randomized Trial of Nurse Practitioners: Health Outcomes of Patients." Annals of Internal Medicine, 80:137-42. February, 1974.

Scott, Samuel. "Patient Acceptance of the Nurse Practitioner: Experience in a University Health Setting." Journal of the American College Health Association, 23:364. June, 1975.

Secretary's Committee to Study Extended Roles for Nurses. "Extending the Scope of Nursing Practice." Nursing Outlook, 20:46-52. January, 1972.

Theiss, Betty E. "Investigation of the Perceived Role Functions and Attitudes of the Nurse Practitioner in a Primary Care Clinic." Military Medicine, 141:85-89. February, 1976.

Turner, Ralph. "Role-Taking, Role Standpoint, and Reference Group Behavior." The American Journal of Sociology, 61:316-28. November, 1956.

Wagener, J. Mark, and Glenna Carter. "Patients' Evaluations of Gynecologic Services Provided by Nurse Practitioners." Journal of the American College Health Association, 27:98-100. October, 1978.

Williamson, Janet A. "Survey of Attitudes of Directors of Campus Health Centers Towards Potential College Nurse Practitioners." Journal of the American College Health Association, 22:197-99. February, 1974.

Wolfe, Donald M., and J. Diedrick Snoek. "A Study of Tensions and Adjustment Under Role Conflict." The Journal of Social Issues, 18:102-21. July, 1962.

Wright, Edith. "Family Nurse Clinicians: Physician Perspective." Nursing Outlook, 23:771-73. December, 1975.

Government Documents

Virginia, State Board of Medicine and The Virginia State Board of Nursing. Regulations Governing the Certification of Nurse Practitioners, March, 1975.

United States, Department of Health, Education, and Welfare. A Directory of Expanded Role Programs for Registered Nurses, Publication No. HRA 7910. Washington: Government Printing Office, 1979.

_____. Current Estimates From the Health Interview Survey, Publication No. PHS 78-1547. Washington: Government Printing Office, 1976.

Unpublished Material

Virginia Commonwealth University, Medical College of Virginia. Curriculum Description for the Family Nurse Practitioner Program, 1977 (Mimeographed).

APPENDIX A

QUESTIONNAIRE

QUESTIONNAIRE

Explanation: There are four parts to this questionnaire. Part I relates to whether nurse practitioners are employed in your health service; and if not, your opinion as to whether you see them as an appropriate health professional in that setting. Part II seeks to elicit general information about the activities (data collection, diagnostic and treatment procedures, and teaching and counseling) that you believe nurse practitioners could perform in the student health setting. Parts III and IV seek to elicit specific information about how you view nurse practitioners handling selected health problems.

The definition of a nurse practitioner to be used in completing this questionnaire is:

> A nurse practitioner is a registered nurse who has completed an academic program which prepares her to deliver primary health care which includes the ability to: (1) assess the health status of individuals through history taking, physical examination, and diagnostic procedures, and (2) initiate therapeutic regimens independently, according to protocols, or with physician consultation.

Part I Instructions: Please check the appropriate answer.

1. (a) Is there a nurse practitioner employed by your student health service?

yes___ no____

(b) If "yes," how many of each of the following types of nurse practitioners are employed by your health service?

___Adult ___Family Planning ___Other (please specify _____)

___College Health ___Ob-Gyn

___Family ___Primary Care ___Unknown

(c) If "yes," please go on to Part II on the following page.

2. (a) If your student health service does not employ a nurse practitioner, do you consider a nurse practitioner as being an appropriate health professional in the student health setting?

yes____ no____

(b) If "no," please explain your reasons below and then do not complete the remaining questions.

(c) If "yes," please go on to Part II.

Part II Instructions: Please indicate by a check the frequency with which you believe a nurse practitioner could perform these activities.

Activities	Almost Always	Frequently	Occasionally	Seldom	Never	Not Appropriate for Setting
Apply a cast for a simple fracture						
Counsel students regarding family planning						
Counsel students regarding weight reduction						
Counsel students with minor emotional problems						
Elicit and record a health history						
Incise and drain an abcess						
Interpret diagnostic findings to students						
Interpret treatment regimen to students						
Obtain a gonococcal culture						
Obtain a Papanicolaou smear						

Part II (Continued)

Activities	Almost Always	Frequently	Occasionally	Seldom	Never	Not Appropriate for Setting
Obtain a throat culture						
Obtain a vaginal smear for microscopic examination						
Order appropriate laboratory procedures independently						
Order appropriate laboratory procedures with physician consultation						
Organize health education programs for students						
Perform a complete physical exam independently						
Perform a complete physical exam with physician confirming positive findings						
Perform venipuncture for a blood sample						
Provide for follow-up care (either by nurse practitioner or other health professional)						
Remove a cast						

Part II (Continued)

Activities	Almost Always	Frequently	Occasionally	Seldom	Never	Not Appropriate for Setting
Remove a foreign body from the ear						
Remove a foreign body from the eye						
Remove sutures						
Suture a minor laceration (surface other than face)						
Teach individual health practices and prevention						

Part III This part relates only to the identification and diagnosis of the health problems.
Instructions: In relation to each health problem identified below, please indicate by a check whether a nurse practitioner could identify and diagnose the health problem (1) not at all, (2) with physician confirmation only, or (3) independently. (Please check only one category for each health problem.)

Health Problems	Not At All	With Physician Confirmation Only	Independently
Acne			
Acute alcohol abuse			
Acute gastroenteritis			
Chronic drug abuse			
Cystitis			
Depression			
Dermatitis			
Diabetes mellitus			

Part III (Continued)

Health Problems	Not At All	With Physician Confirmation Only	Independently
Dysmenorrhea			
Hypertension			
Migraine headache			
Pharyngitis			
Respiratory allergies (hay fever)			
Tension headache			
Uncomplicated pregnancy			
Upper respiratory infection			
Vaginitis			
Venereal disease			

Part IV This part relates only to the treatment of an already identified or diagnosed health problem.
Instructions: In relation to each health problem identified below, please indicate by a check under what circumstance a nurse practitioner could (a) initiate treatment, (b) monitor treatment, and (c) modify treatment. (Please check only one circumstance (1) not at all, (2) with physician confirmation only, (3) according to written protocols, or (4) independently for each level of treatment, i.e., (a), (b), and (c).

Health Problems	Not at All	With Physician Confirmation Only	According to Written Protocols	Independently
Acne				
(a) initiate treatment				
(b) monitor treatment				
(c) modify treatment				
Acute alcohol abuse				
(a) initiate treatment				
(b) monitor treatment				
(c) modify treatment				

Part IV (Continued)

Health Problems	Not at All	With Physician Confirmation Only	According to Written Protocols	Independently
Acute gastroenteritis				
(a) initiate treatment				
(b) monitor treatment				
(c) modify treatment				
Chronic drug abuse				
(a) initiate treatment				
(b) monitor treatment				
(c) modify treatment				
Cystitis				
(a) initiate treatment				
(b) monitor treatment				
(c) modify treatment				
Depression				
(a) initiate treatment				
(b) monitor treatment				
(c) modify treatment				
Dermatitis				
(a) initiate treatment				
(b) monitor treatment				
(c) modify treatment				
Diabetes mellitus				
(a) initiate treatment				
(b) monitor treatment				
(c) modify treatment				
Dysmenorrhea				
(a) initiate treatment				
(b) monitor treatment				
(c) modify treatment				
Hypertension				
(a) initiate treatment				
(b) monitor treatment				
(c) modify treatment				
Migraine headache				
(a) initiate treatment				
(b) monitor treatment				
(c) modify treatment				
Pharyngitis				
(a) initiate treatment				
(b) monitor treatment				
(c) modify treatment				

Part IV (Continued)

Health Problems	Not at All	With Physician Confirmation Only	According to Written Protocols	Independently
Respiratory allergies (hay fever)				
(a) initiate treatment				
(b) monitor treatment				
(c) modify treatment				
Tension headache				
(a) initiate treatment				
(b) monitor treatment				
(c) modify treatment				
Uncomplicated pregnancy				
(a) initiate treatment				
(b) monitor treatment				
(c) modify treatment				
Upper respiratory infection				
(a) initiate treatment				
(b) monitor treatment				
(c) modify treatment				
Vaginitis				
(a) initiate treatment				
(b) monitor treatment				
(c) modify treatment				
Venereal disease				
(a) initiate treatment				
(b) monitor treatment				
(c) modify treatment				

APPENDIX B

Cover Letter

[redacted]

Dear Medical Director of Student Health Services:

The enclosed questionnaire is part of a study which we have undertaken to fulfill the requirements for our Master's of Science Degree in Community Health Nursing. Since we are cognizant of the need to obtain a high level of input from physicians about the role and functions of nurse practitioners, we are seeking your assistance in gaining additional information about the role of nurse practitioners in student health services. We have selected you as a source of such information for two reasons: (1) you have responsibility for university student health service, and (2) your university offers an educational program preparing a type of nurse practitioner. We are going to evaluate the results and determine the range of activities considered appropriate for a nurse practitioner in student health settings. This will benefit those interested in university health settings by defining the scope of nursing practice in the setting. The results of this study will be shared with the nursing and medical faculty at the Medical College of Virginia as well as with the respondents.

The definition of a nurse practitioner which we are using for the study is as follows: a nurse practitioner is a registered nurse who has completed an academic program which prepares him/her to deliver primary health care which includes the ability to: (1) assess the health status of individuals through history-taking, physical examination, and diagnostic procedures, (2) initiate therapeutic regimens independently, within protocols, or with physician consultation. The registered nurse may not be formally titled a nurse practitioner. Other titles may include primary care nurse, nurse clinician, nurse associate, or nurse specialist.

The information which you provide will be kept confidential and the name of the university will not be cited in the study. The return of the completed questionnaire will indicate your consent to participate in the study. You are free to withdraw from participation in the study at any time. If you wish to have a copy of the findings, please inform us.

We have tested the questionnaire and have found that it takes no longer than fifteen minutes to complete. We appreciate the time you

have taken to assist us in our study. While we assume that your daily activities are extensive, it is necessary that we ask you to complete and return the questionnaire within two weeks.

Sincerely,

Miriam Gottlieb, R.N., B.S.

Candace Moore, R.N., B.S.

APPENDIX C

Follow-Up Letter

[redacted]

Dear Medical Director of Student Health Services:

A questionnaire was sent to you about three weeks ago concerning the activities of nurse practitioners in student health services. As of this mailing, we have not received your completed questionnaire.

If you did not receive the first questionnaire, we have enclosed another copy. The questionnaire is part of a study which we have undertaken to fulfill the requirements for our Master's of Science Degree in Community Health Nursing. Since we are cognizant of the need to obtain a high level of input from physicians about the role and functions of nurse practitioners, we are seeking your assistance in gaining additional information about the role of nurse practitioners in student health services. We have selected you as a source of such information for two reasons: (1) you have responsibility for university student health service, and (2) your university offers an educational program preparing a type of nurse practitioner. We are going to evaluate the results and determine the range of activities considered appropriate for a nurse practitioner in student health settings. This will benefit those interested in university health settings by defining the scope of nursing practice in the setting. The results of this study will be shared with the nursing and medical faculty at the Medical College of Virginia as well as with the respondents.

The definition of a nurse practitioner which we are using for the study is as follows: a nurse practitioner is a registered nurse who has completed an academic program which prepares him/her to deliver primary health care which includes the ability to: (1) assess the health status of individuals through history-taking, physical examination, and diagnostic procedures, (2) initiate therapeutic regimens independently, within protocols, or with physician consultation. The registered nurse may not be formally titled a nurse practitioner. Other titles may include primary care nurse, nurse clinician, nurse associate, or nurse specialist.

The information which you provide will be kept confidential and the name of the university will not be cited in the study. The return of the completed questionnaire will indicate your consent to participate in the study. You are free to withdraw from participating in the study at any time. If you wish to have a copy of the findings, please inform us.

We have tested the questionnaire and have found that it takes no longer than fifteen minutes to complete. We appreciate the time you have taken to assist us in our study. While we assume that your daily activities are extensive, it is necessary that we ask you to complete the questionnaire within one week. If you are unable to complete the questionnaire, please give a short explanation below.

Sincerely yours,

Miriam Gottlieb, R.N., B.S.

Candace Moore, R.N., B.S.

APPENDIX D

Approval Form

OMMITTEE ON THE CONDUCT OF HUMAN RESEARCH APPROVAL FORMS

90

o: Ms. Miriam Gottlieb & Ms. Candace Moore (Roberta R. Clegg, Advisor) Principal Investigator

Dr.Eleanor C. Repp Chairman of Department Concerned

Dr. Martha B. Conway Administrator of Research Grants & Contracts

TLE OF INVESTIGATION: Response of Medical Directors of Student Health Services to Nurse Practitioners Activities.

CU ASSIGNED NUMBER: 3/31/79

e Committee on the Conduct of Human Research of Virginia Commonwealth University
et on March 28, 1979, and the above investigation was reviewed and approved.

ou are cautioned to note that:

1. Informed, written consent is required of each human subject or his legally qualified guardian or next-of-kin, unless specifically excluded.

2. Any deviation from the above named protocol, or the identification of unanticipated problems which may involve risk to subjects, must be reported to this committee for review and approval.

3. Your study is subject to continued surveillance by this committee, and it will be reviewed periodically. The next review is scheduled for March 1980. At that time you must make available to the committee a roster of all subjects, a file of the completed permission slips and a summary of the results obtained, especially any adverse or unexpected effects.

4. All requests for information related to this investigation must include the exact title, the investigator, and the VCU Study Number as noted above.

5. This investigation has been indentified as being submitted to the Department of Health, Education and Welfare, and will be certified to H. E. W.
Yes _____ NO X

6. In some instances approval is contingent upon compliance with changes designated by the committee. If such are imposed, they are listed on an attached sheet, one copy of which must be signed and returned to the committee to indicate the investigator's acceptance of the changes. Where there is no attachment, the study was accepted.

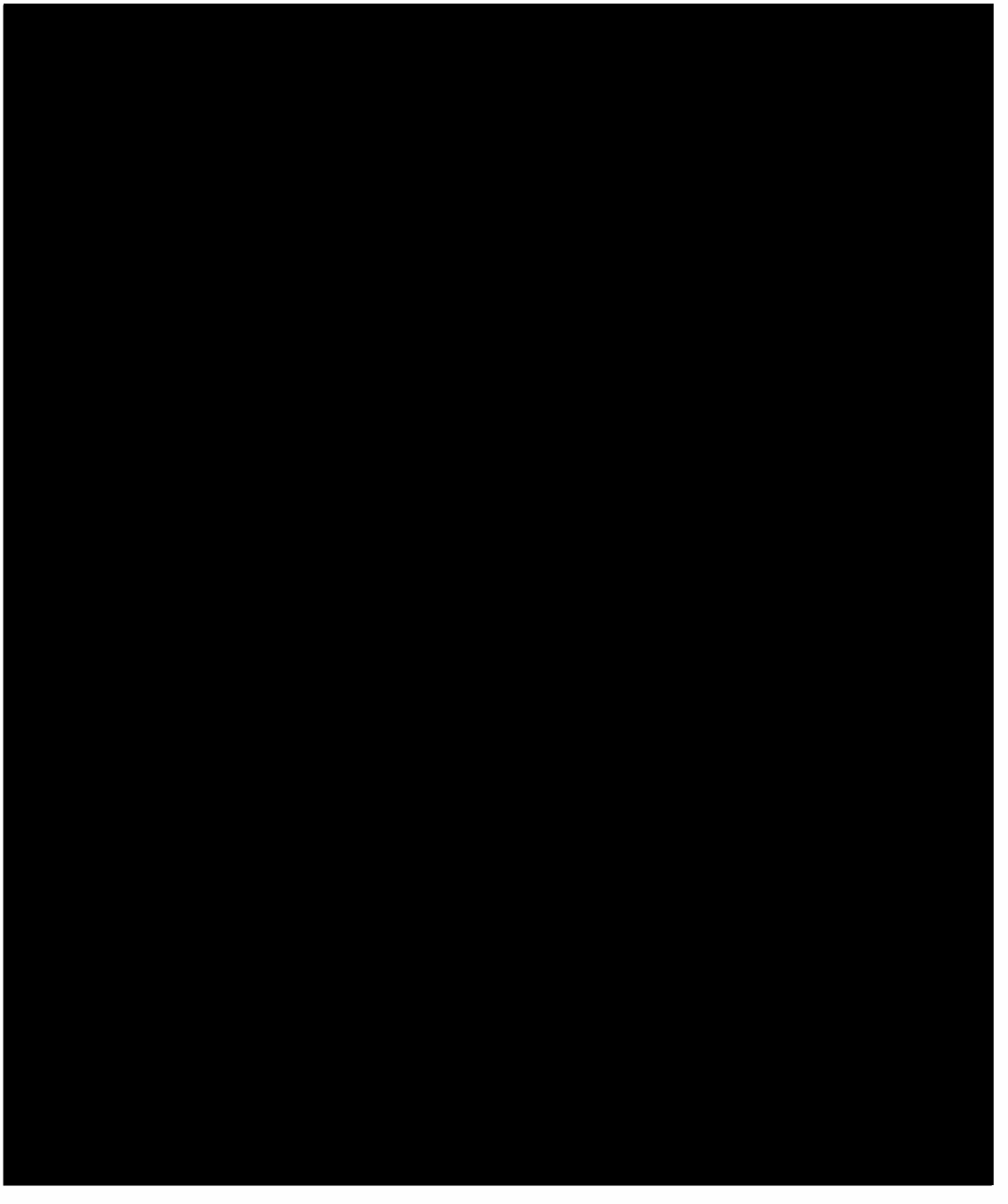
[redacted]

Donald L. Brummer, M.D., Chairman,
Committee On The Conduct of Human Research

3/ad

evised Form Dated 5/1/76)

VITA



VITA