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THE MOST COMMON MEDICAL DIAGNOSES, NURSING DIAGNOSES, AND DIAGNOSTIC AND SCREENING TESTS REPORTED BY STUDENTS IN AN ADVANCED PRACTICE NURSE GRADUATE PROGRAM IN THE PRIMARY CARE SETTING

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ABSTRACT

THE MOST COMMON MEDICAL DIAGNOSES, NURSING DIAGNOSES, AND DIAGNOSTIC AND SCREENING TESTS REPORTED BY STUDENTS IN AN ADVANCED PRACTICE NURSE GRADUATE PROGRAM IN THE PRIMARY CARE SETTING

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The purpose of this study was to explore and describe the most common medical diagnoses, nursing diagnoses, and diagnostic and screening tests reported by the Advanced Practice Nurse graduate student in the primary care setting. A total of 5,457 encounters were included in this study. The three most common medical diagnoses included prenatal and postnatal care, general medical exam, and acute upper respiratory infection. The three most common nursing diagnoses included: health maintenance, appropriate; altered comfort; and health seeking behaviors. The three most common medical and diagnostic screening tests included; urinalysis/culture, pap smear, and CBC/hemoglobin/ hematocrit. The findings in this study provides information that can be used to develop or revise curriculum, develop future research to identify the complexities involved in the provision of care of common problems (needs) in primary care, and develop future research to continue to expand nursing knowledge of patterns of practice in the primary care setting.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

Statement of the Problem

The current health care environment is demanding that health care providers deliver quality care while reducing costs (Nugent, 1992). Primary health care services are used by over 80% of the population in the United States and are generally service the user's point of entry into the health care system (Michigan Primary Care Association, 1991). Therefore, efforts made to reduce cost while delivering quality care in primary health care could make a substantial impact on improving the health care environment as a whole.

The advanced practice nurse (APN) in the primary health care setting is becoming an increasingly popular provider (Sparacino, Cooper, & Minarik, 1990). The APN offers a means for meeting the demand of delivering quality care while reducing costs in the primary care setting (McGrath, 1990; Nichols, 1992; U.S. Congress Office of Technology Assessment, 1986). However, it is important for the APN to have a clear understanding of role responsibility and function of the APN for the client group that the APN serves (Ball, 1990).

The APN who is a Clinical Nurse Specialist (CNS) obtains knowledge of the role responsibilities and functions through the formal educational process while obtaining a masters degree in nursing. Currently, most nursing education programs are preparing nurse practitioners (NP) at the master's level or post-master's level (Sparacino et al.,

1990). The roles of the CNS and NP are merging in the primary care setting.

The Family Clinical Nurse Specialist graduate program at Michigan State University (MSU) is one program that also qualifies graduates to take an examination which provides certification as a Family Nurse Practitioner. This study focused on client encounters reported by APN graduate students at MSU. Therefore, for the purposes of this study, the APN referred to CNS and NP.

The preparation for the APN role occurs at the graduate level and incorporates the primary components of theory, clinical practice, consultation, education, and research (Sparacino et al., 1990). Therefore, it is important for the educators of APN programs to have data grounded in practice research which describe the types of clients seen by the APN graduate student in clinical practice. Gordon (1984) described practice research being essential for "critical evaluation of practice, for understanding what is optimal nursing care, and for learning how best to provide it" (Benner, 1984, p.225).

The Pew Health Professions Commission (1991) recommends that nursing schools develop specific missions that are responsive to the changing needs of the health care system. This implies a necessity to know what the needs of the APN graduate student are in order to develop educational programs that properly prepare the APN to provide primary health care. Primary health care addresses the most common

health care problems in the community (Starfield, 1992). Thus, in order to provide relevant education to the APN who will be delivering care in the primary health care setting, educators need to know the common medical and nursing diagnoses seen in the primary care setting, as well as, common diagnostic and screening tests.

Identifying the most common medical diagnoses, nursing diagnoses, and diagnostic and screening tests may provide information to assist in the development of clinical guidelines for the most commonly seen problems in primary care or direct educators to guidelines already established. Guidelines could then be used as a means for educating APNs in the primary health care setting. Guidelines for care may also be used to evaluate the outcome of care.

The Agency for Health Care Policy and Research is focusing on the effectiveness and outcomes of health services (Bulechek & McCloskey, 1992). There are several national projects developing outcome indicators by which all health care will be measured (Lang & Marek, 1990). The evaluation of the outcomes of the process of care offers a means for the evaluation of the APN (Naylor, Munro, & Brooten, 1991). In order to educate the APN to meet the pressures of providing quality care that results in positive client outcomes in the primary care setting, the educator of the APN must first know the common medical and nursing diagnoses and commonly ordered diagnostic and screening services in the primary care setting.

Therefore, the purpose of this study was to investigate client encounters reported by APN graduate students. The aspects of the provision of care to be identified and described include the most common medical diagnoses, nursing diagnoses, and diagnostic and screening services of clients who are seen by students in a APN graduate program in the primary health care setting. This approach allowed the investigator to obtain information that may be used to assure appropriate knowledge, clinical experience, and competency necessary for the delivery of primary health care upon completion of the educational program.

Based on the review of the literature and the theoretical framework to be presented, the following research questions were formulated:

1. What are the three most common medical diagnoses of clients, 18-64 years of age, reported by APN graduate students in the primary care setting?
2. What are the three most common nursing diagnoses of clients, 18-64 years of age, reported by APN graduate students in the primary care setting?
3. What are the three most common diagnostic and screening tests ordered for clients, 18-64 years of age, by APN graduate students in the primary care setting?

Definition of Concepts

The concepts of this study include: primary care, medical diagnosis, nursing diagnosis, diagnostic and

screening tests, and APN. Each concept is described and a definition relevant to this study is presented.

Primary Care

In the 1970's a series of discussions at the Assembly of the World Health Organization (WHO) resulted in an international conference on primary care at Alma Ata, USSR in 1979 (Norton, Stewart, Tudiver, Bass, & Dunn, 1991). Primary care was defined as:

> Essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible individuals through their full participation and at a cost that the community can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination. It forms an integral part of the country's health system, which it is the central function and main focus, and of the overall social and economic development of the community. It is the first level of contact of individuals, the family and community with the national health system, bringing health care as close as possible to where people live and work, and constitutes the first element in a continuing health care process.

By this definition, primary care is an integral part of a country's health system and the specifics of primary care will differ from one country to another (Norton et al., 1991).

Rosenblatt, Hart, Gamiel, Goldstein, and McClendon (1995) identify primary care specialty as one that has a broad diagnostic repertoire and has the capability of addressing the full spectrum of diagnostic presentations for a large, defined segment of the population. Primary care is widely accepted as being the assumption of longitudinal

responsibility for the patient (that is, regardless of the presence or absence of disease); the delivery of first-contact medicine; and the integration of physical, psychological, and social aspects of health to the limits of the capability of the personnel (Norton et al., 1991).

Michigan State University, College of Nursing (1994) defines primary care as the care the client receives at the "first point of contact with the health care system that leads to a decision regarding what must be done to help resolve the presenting problem. It is continuous and comprehensive care, including all the services necessary for health promotion, prevention of disease and disability, health maintenance, and, in some cases, rehabilitation" (MSU Graduate Student Handbook, p.8).

The American Nurses Association (ANA) (1987) defines primary health care as the "care the client receives within the health care system at the first point of contact to resolve a presenting problem" (p.2). The ANA goes on to further define primary health care as continuous and comprehensive care and includes all services necessary for the promotion of health, the prevention of disease, and the early detection and treatment of illness.

The Institute of Medicine (IOM) (1994) defines primary care as "the provision of intergraded accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs developing a

sustained partnership with patients and practicing in the context of family and community" (p.16).

Starfield (1992) defines primary care as the point of entry into the health service system and the locus of responsibility for organizing care for patients and populations over time. Primary care deals with more common and less well-defined problems, generally in community settings such as offices, health centers, schools, and homes.

Starfield identifies first contact, longitudinality, comprehensiveness, and coordination as elements of primary care. Access is the structural element necessary for first care whereas utilization is the process component of first care (Starfield, 1992). Inherent in access is availability, accessibility, accommodation, affordability, and acceptability.

Longitudinality is a personal relationship over time, regardless of the type of health problems or even the presence of a health problem, between patients and a physician or a team of physicians and nonphysician personnel (Starfield, 1992). Starfield identifies the structural feature of longitudinality as the ability of individuals to identify their source of care and facilities should be able to identify their eligible population. The process feature of longitudinality consists of individuals utilizing the regular source for care for all problems except those for which the primary care provider refers them elsewhere.

Comprehensiveness implies a broad range of services and recognition of the need to apply them directly or arrange for their provision when needed (Starfield, 1992). Starfield identified structural and process elements of coordination. The structural element essential to coordination is continuity of care; there must be a mechanism that makes the practitioner aware of problems wherever they arise, so that possible interrelationships can be detected and managed. The process element in coordination is the process of problem recognition or recognition of information about the care of problems.

Starfield's definition is current and reflects the general content of most definitions of primary care. Starfield defines the concepts within her definition. First contact, longitudinality, comprehensiveness, and coordination are concepts that are incorporated into the definitions discussed which Starfield particularly identifies as unique features of primary care and incorporates the concepts into the definition of primary care. Starfield defines the concepts within the definition and provides a conceptual framework for primary care. Starfield also incorporates the concept of common diagnoses in the definition of primary care which is a concept in this study. Starfield's definition of primary care was the most referred to definition in the literature at the time of this study. Therefore, for the purposes of this study, Starfield's definition of primary care was used.

Medical Diagnosis

DeGowin (1994) defined medical diagnosis as the name of the patient's disease, but also described it as the process of discovering the cause of the patient's complaint. Souhami and Moxham (1990) also described medical diagnosis in terms of a process. The process includes: (a) establishing a data base, by history taking, and physical exam; (b) synthesis or interpretation, of the data base into either a problem list or differential diagnosis; © investigations, which will add to the data base, may then be undertaken to confirm or refute a diagnosis, or document the effects of a known disease (Souhami & Moxham, 1990).

Rakel (1990) defines medical diagnosis as the assignment of a patient's illness to a category that links the symptom with a pathological process, a known outcome, and whenever possible, a cause. Goroll, May, and Mulley (1995) define medical diagnosis as a process- a constellation of symptoms, signs, and test results is given a label, and the patient who presents with those characteristics is implicitly grouped with other patients who have presented with similar findings.

After reviewing definitions of medical diagnosis, several key elements were identified. The key elements include process, classify or label, collection, group, and patient. Several definitions included process as part of the definition (DeGowin, 1994; Goroll, May, & Mulley, 1995; Souhami & Moxham, 1990). However, this study did not focus

on the process that led to the identification of the medical diagnosis, but did focus on the medical diagnosis as a label. Considering the key elements identified and the purpose of this study, this author formulated a definition of medical diagnosis. For the purposes of this study, medical diagnosis was defined as a label that represented the process of obtaining information from the client's data base and/or test results.

Nursing Diagnosis

The North American Nursing Diagnosis Association (NANDA) classification of nursing diagnoses is endorsed by the American Nurses' Association as the official nursing diagnosis taxonomy (Warren & Hoskins, 1990). NANDAs nursing diagnoses has two origins: consensual and research.

After the 11th NANDA Conference, the framework for the development of nursing diagnoses was redesigned to promote the development of nursing diagnoses. The stages include: a) diagnostic review committee (DRC) consultation; b) authentication/substantion; c) validation and testing; and d) refinement. (NANDA, 1994).

The purpose of the DRC consultation is to consult with and educate potential developers. Completion of the authentication/substantion stage results in the diagnosis to being "accepted for development" if successful. Validation and testing involves testing for clinical existence, testing for clinical usefulness, and classification in the taxonomic structure. Refinement involves reexamination of the

diagnosis in order to reflect any changes that may have taken place in the practice field.

NANDA approved an operational definition of nursing diagnosis at the Ninth Conference. NANDA (1990) defines nursing diagnosis as a clinical judgement about individual, family, or community responses to actual or potential health problems/life processes. Nursing diagnosis provides the basis for selection of nursing intervention to achieve outcomes for which the nurse is accountable (NANDA, 1990).

Carpenito (1988) defined nursing diagnosis as a "statement that describes the human response (health state or actual/potential altered interaction pattern) of an individual or group, which the nurse can legally identify and for which the nurse can order the definitive interventions to maintain the health state or to reduce, eliminate, or prevent alterations" (p.3).

Gordon (1982) defined nursing diagnosis as actual or potential health problems that nurses, by virtue of their education and experience, are able and licensed to treat.

After reviewing definitions of nursing diagnosis, several key elements were identified. The key elements include: statement, health problem, judgement, person, actual, potential, group, and nurse. Each of the definitions of nursing diagnosis presented included "actual or potential health problem" in the definition (Carpenito, 1988; Gordon, 1982; NANDA, 1990). This study focused on the nursing diagnosis as a label rather than, the process or

concepts that were involved in the identification of the nursing diagnosis. Considering the key elements identified and the purpose of this study, this author formulated a definition of nursing diagnosis.

For the purposes of this paper, nursing diagnosis was defined as a label representing clinical judgement which describes individual, family, or community responses to actual or potential health problems/life processes.

Diagnostic and Screening Tests

Diagnostic testing is most often performed to confirm or rule out a tentative diagnosis, or to screen for or to monitor disease (Lundberg, Pavola, Sostrin, & Wentman, 1980).

Leitch and Tinker (1978) define screening as the application of fairly simple and routine procedures for the probable detection of unrecognized disease in apparently well persons. Leitch and Tinker point out that screening tests are not in themselves diagnostic. Goroll et al. (1995) identified screening tests as those tests that are performed to identify asymptomatic disease.

Although, there is a difference in purpose between diagnostic testing and screening tests, the National Ambulatory Medical Care Survey (NAMCS), which is the primary source for identifying common diagnostic and screening tests, groups diagnostic and screening tests together. The Summary Encounter Instrument utilized by the College of Nursing at Michigan State University for data

collection on diagnostic and screening tests, also groups diagnostic and screening tests together (Appendix A).

Therefore, for the purposes of this study, diagnostic and screening services were not differentiated and were defined as tests ordered to confirm or rule out a diagnoses, to monitor disease, or to identify asymptomatic disease. Diagnostic and screening tests include laboratory studies, radiologic studies (including ultrasound), visual and hearing tests, and other procedures (MSU, 1994; NAMCS, 1992).

Advanced Practice Nurse

Advanced practice is defined by the National Council of State Boards of Nursing (NCSBN, 1992) as:

> the advanced practice of nursing by nurse practitioners, nurse anesthetists, nurse midwives, and clinical nurse specialists. The advanced practice is based on the following: knowledge and skills required in basic nursing education; licensure as a registered nurse; graduate degrees and experience in the designated area of practice which includes advanced nursing theory; substantial knowledge of physical and psychological assessment; appropriate interventions and management of health care status (p. 4).

The ANA (1993) defines the APN as a registered nurse (RN) who has met advanced educational and clinical practice requirements beyond the 2-4 years of basic nursing education required of all RNs. The ANA (1993) defines the CNS as nurses with advanced degrees--master's or doctoral--who are experts in a specialized area of clinical practice.

MSU defines the CNS as a practitioner who utilizes advanced nursing skills and knowledge to provide care to clients. The nurse in advanced practice functions as a member of an interdisciplinary team and accepts responsibility for the client's total health care (MSU, 1984).

After reviewing the definitions of APN, several key elements were identified. RN, advanced knowledge, and advanced skills were elements included in each of the definitions of the APN presented (ANA, 1993; MSU, 1994; NCSBN, 1992). The ANA definition of APN includes both the CNS and NP and also specifically identifies advanced education in the definition of the APN. Incorporating both the CNS and NP within the definition is appropriate in this study since MSU provides the graduate with a CNS and qualifies the graduate to take the NP exam. Considering the key elements identified and the purpose of this study, the ANA definition of APN was used in this study.

APN in Primary Care

The literature review revealed several articles regarding the APN practicing in the primary care setting. The literature review also identifies types of APNs, as well as, services provided. The literature demonstrates the ability of the APN to practice in the primary care setting, but as previously discussed, identification of the content of the practice in the literature is lacking.

Examples of APNs who are successfully serving as primary health care providers include: nurse practitioner (NP), certified nurse midwife (CNM), and the CNS (NP, 1993). Since the CNS is expanding out into primary care, much literature supports the merging of the CNS and NP roles in order to enhance opportunities for APNs in primary care (Elder & Bullough, 1990; Fenton & Brykczynski, 1993; Hockenberry-Eaton & Powell, 1991; Soehren & Schumann, 1994; Williams & Valdivieso, 1994).

Advanced practice nurses have been found to provide as much as 50%-90% of the activities of primary care physicians (Lancaster, 1993). APNs are providing the same diagnostic and management services that most primary care physicians are providing, and refer to physicians when the client problems are outside of the nurses' scope of practice (NP, 1993).

Some of the specific services that the APN are educated to provide in the primary care setting include: delivering individualized care focusing not only on health problems but also on the effects that health problems have on individuals and their families; obtaining medical histories, performing physical examinations and ordering and interpreting diagnostic studies such as laboratory findings and radiographs; diagnosing and treating common and chronic health problems; providing prenatal and family planning services; providing health maintenance care, including well-child services; and collaborating with physicians and other

health care providers (Lancaster, 1993). The role of the APN in the primary care setting includes managing and directing a variety of primary care activities required for the total management of care for a primary care patient (American Academy of Nursing, 1993).

The literature supports the use of APNs managing primary care centers (Callan, 1992; Capan, Beard, & Mashburn, 1993; Lenz & Edwards, 1992). Capan, Beard, and Mashburn (1993) reported a reduction in low-birth weight infants, pregnancy induced hypertension, and reduction in emergency room visits since the opening of prenatal nurse-managed clinic. The clinic's staff includes; certified nurse midwives, pediatric nurse practitioners, bilingual CNS, and a bilingual social worker.

In summary, the APN offers a means as a health care provider for meeting the primary care needs of the public. The American Nurses Associations agenda for health care reform supports the provision of primary care by the APN in order to increase equitable access to care for all (Mittelstadt, 1993).

Conceptual framework

Starfield (1992) developed a framework for primary care which involves three elements: structural, process, and outcome (Figure 1). Starfield acknowledges that the individual characteristics within each element differ among the various health service sites, but "each health service system has a structure consisting of characteristics that

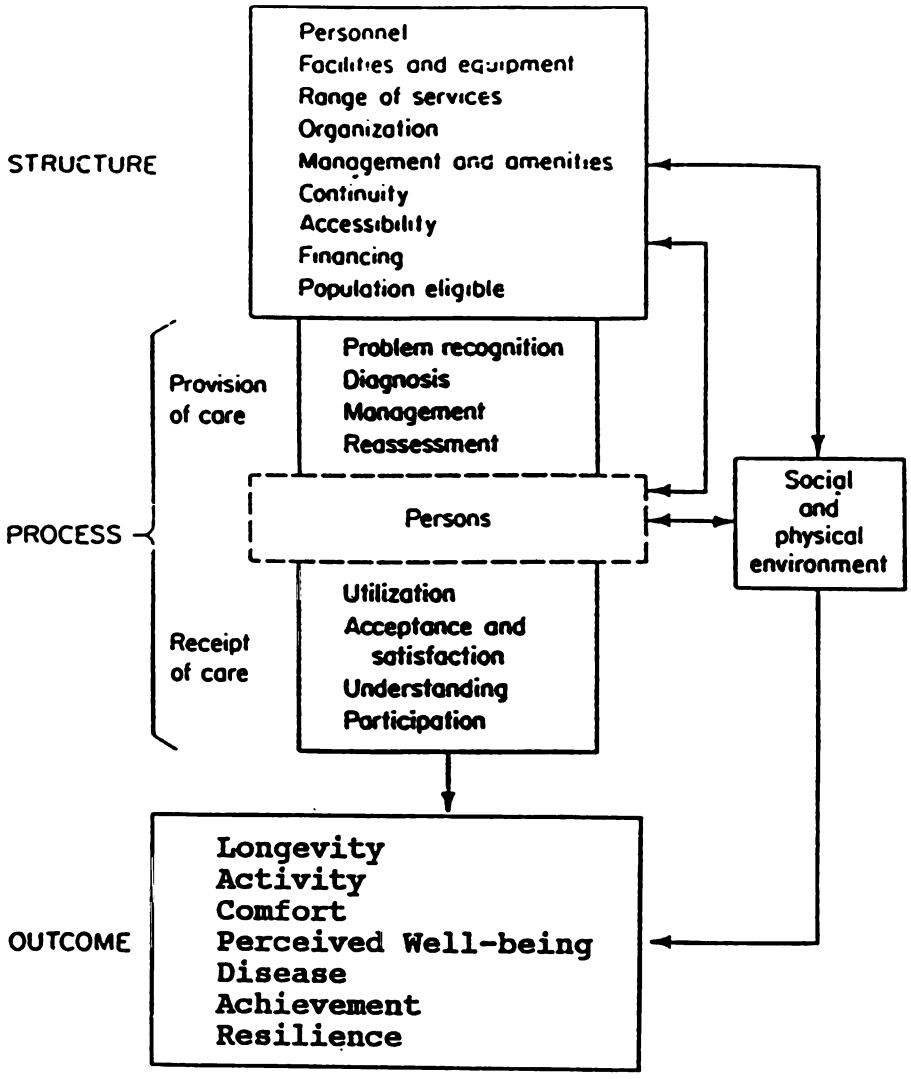


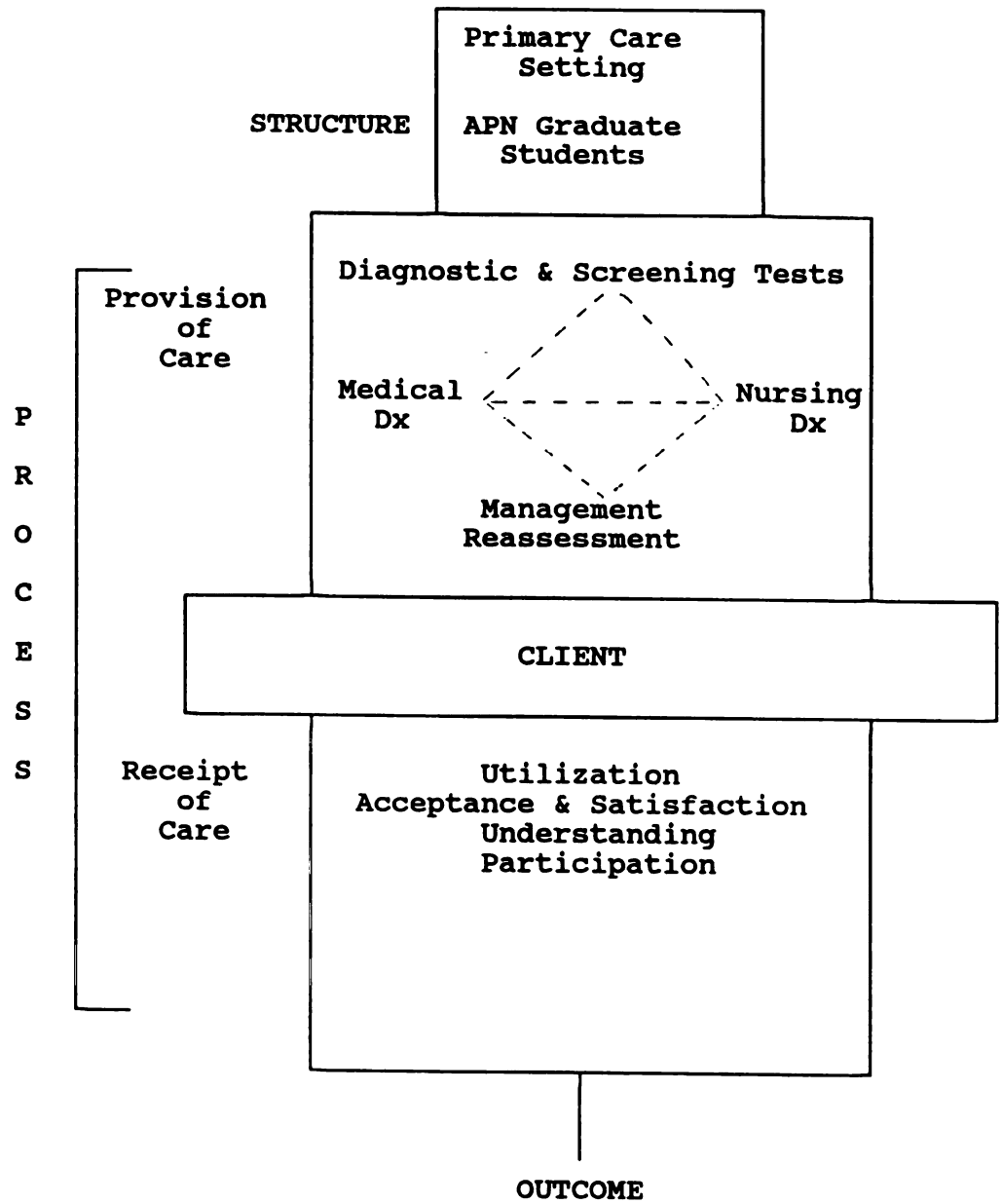
Figure 1. From: Primary Care, by B. Starfield, 1992. New York: Oxford University Press.

enable it to provide services, the processes involving actions by practitioners in the system as well as the actions of the populations and patients, and the outcome as reflected in various aspects of health status" (p. 11). Specific components of Starfield's framework was the basis from which this study operated. The framework that includes the specific components is shown in Figure 2. In comparing Figure 1 and Figure 2, Figure 2 provides more detail (highlighted) in terms of components of the provision of care.

For the purposes of this study, a distinction between the nursing diagnosis and the medical diagnosis is made, since both were used by the APN graduate students. Also, the framework in Figure 2 proposes that there may be a connection among the medical diagnosis, the nursing diagnosis, and the diagnostic and screening tests. Although, this connection was not defined operationally in this study, it is discussed conceptually when reviewing the findings.

The structure element of Starfield's model for primary care consists of the resources needed to provide services. There are multiple components in the structure of a health service system. This study focused on two components of structure: personnel and facilities. For the purposes of this paper, personnel was limited to the APN graduate students and facilities were primary care facilities in which graduate students in the APN program at Michigan State

Figure 2. Framework for APN Graduate Students in Primary Care



Adapted from Starfield (1992) by C. Barrett (1995).

Abbreviations:
Dx=Diagnosis

University (MSU) worked to obtain clinical experience in the primary care setting (see structure component in Figure 2).

The process of a primary care health service system has two components: those that represent activities of the providers of care and those that represent the activities of the population (Starfield, 1992). Activities of the provider of care includes: problem (needs) recognition, diagnosis, management, and reassessment. This study primarily focused on the process aspect, specifically the problem (need) recognition and diagnosis.

Problem (or needs) recognition may include a sign, a symptom, an abnormal laboratory test, previous but relevant item in the history of the patient or the community, or a need for an indicated preventive procedure (Starfield, 1992). For the purposes of this study, problem (or needs) recognition was limited to diagnostic and screening tests (excluding vital signs) ordered by the APN graduate student in the primary health care setting.

The APN formulates a diagnosis based on the findings of the problem recognition component. APN graduate students in this study were required to use nursing diagnoses. Medical diagnoses were also used. Identification of a diagnosis takes place and then the health care provider proceeds to managing or treating the problem (or need). The reassessment component involves determining if the original recognition of the problem, the diagnosis, and the therapy were adequate (Starfield, 1992).

Those activities by the recipient of health care represent how people interact with the health care system (Starfield, 1992). For the purposes of this study, such activities were limited to the mere fact that health care was sought.

Outcome is the final feature of Starfield's primary care framework. The structure of the health system and its translation into the processes of care has an impact on health status, an effect known as outcome of care (Starfield, 1992). Outcome will be explored only in terms of possibilities based on the findings of this study.

In summary, it is not the purpose of this study to measure the attainment of any of the elements of primary care identified by Starfield (first contact, longitudinality, comprehensiveness, and coordination), but to obtain information that may be used to do so. The information obtained primarily involves the process component, but also involves the structure component. For the purposes of this study, the process component consisted of medical diagnoses, nursing diagnoses, and diagnostic and screening tests. The structural component consisted of the APN graduate student and the primary care settings that the APN students obtained clinical practice.

LITERATURE REVIEW

The literature review addressed the following areas: common medical diagnoses seen in primary care, common

nursing diagnoses, common diagnostic and screening services in primary care.

Common Medical Diagnoses

Literature that reflects common medical diagnoses in primary care by the APN is lacking. Although there are a few studies regarding the content of the APN practice, research related to the most common medical diagnoses made by physicians rather than APNs is much more prevalent in the literature.

The primary source for common medical diagnoses is the National Ambulatory Medical Care Survey (NAMCS). Few studies were found that identify the content of primary care that did not utilize the NAMCS data. Because literature on common medical diagnoses in primary care mostly consists of studies that reviewed the NAMCS data, the literature review included a few articles that had a purpose other than identifying content of primary care practice. However, the content of primary care practice was discussed.

The NAMCS data is collected by the U.S. Bureau of the Census, Housing Surveys Branch. The NAMCS collects demographic data which includes age, sex, and race. Data on sources of payment, smoking, injury related, symptoms, physician diagnoses, visit characteristics, diagnostic and screening, ambulatory surgery procedures, therapeutic services, medication, disposition of visit, and duration of visit are also collected. The NAMCS is the most longitudinal data base available for outpatient medical

practice (Bryant & Shimizu, 1988). Both medical doctors and doctors of osteopathy are surveyed in NAMCS. Characteristics of the physician's practice are obtained from the physicians during an induction interview.

Family medical practice, internal medicine, and pediatrics constituted nearly 45% of the ambulatory setting visits in the 1992 NAMCS, which is a slight increase when compared to previous NAMCS data. The NAMCS excluded physicians who are hospital based; who specialize in anesthesiology, pathology, or radiology; who are federally employed; who treat only institutionalized patients; or who are employed full time by an institution and spend no time seeing ambulatory patients.

The top 10 principal diagnoses that were identified by the NAMCS (1992) can be seen in Table 1. The three most common diagnoses identified included; essential hypertension, normal pregnancy, and upper respiratory infections of multiple or unspecified sites.

Table 2 lists the three most common medical diagnoses identified by the studies discussed in the literature review that pertain to primary care. Also, included in Table 2 are various NAMCS results to show similarities and/or differences. Similarities in common diagnoses exist among the earlier studies (Barkauskas et al., 1981; Given et al., 1981; Marsland et al., 1976; Rosenblatt et al., 1983; Shear & Wall, 1985), more recent studies (Cave, 1994; Green et al., 1993; Rosenblatt, 1995), and the NAMCS. For example,

Table 1

Number and Percent Distribution of Office Visits by the 10 Principal Diagnoses Most Frequently Rendered by Physicians Reported in NAMCS 1992

Principal Diagnosis	Number of Visits	Percent
All visits	762,045	100.0
Essential Hypertension	29,844	3.9
Normal Pregnancy	29,358	3.9
Acute Upper Respiratory Infection of Multiple or Unspecified Sites	22,444	2.9
Suppurative and Unspecified Otitis Media	21,814	2.9
General Medical Exam	21,116	2.8
Health Supervision of infant or child	17,749	2.3
Chronic Sinusitis	14,547	1.9
Diabetes Mellitus	14,254	1.9
Acute Pharyngitis	13,671	1.8
Bronchitis, not specified as acute or chronic	12,257	1.6

Note. From: National Ambulatory Medical Survey: 1992 Summary. (DHHS Publication No. (PHS) 94-1254). Washington DC: U.S. Government Printing Office. Diagnoses are based on the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) (7).

general medical exam and upper respiratory infection were identified as common diagnoses in nearly all the studies.

Similarities of medical diagnoses among the NP studies exists, particularly with hypertension, upper respiratory

infection, and physical exams. Also, similarities exist between the NP and the physician studies. The three most frequently occurring medical diagnoses in the literature include; general medical exam, upper respiratory tract infection, and hypertension. Although, many similarities exist, there are also differences that can be seen in Table 2. These differences may be attributed to the specific population served.

Schneeweiss, Rosenblatt, Cherkin, Kirkwood, and Hart (1983) developed diagnostic clusters in order to reduce the large number of discrete diagnostic labels used in clinical practice to manageable proportions. Schneeweiss and co-authors (1983) defined diagnostic clusters as groupings of diagnoses that bring together conditions that have essentially similar pathophysiologic characteristics of that call for similar clinical responses on the part of the physicians. The clusters were developed utilizing the NAMCS data from 1977 and 1978. Diagnoses were coded using the International Classification of Diagnoses, eighth edition (ICD-8) and then placed in clinically homogeneous groups. Most studies presented in the literature review identified common diagnoses in terms of diagnostic clusters identified by Schneeweiss et al. Marsland, Wood, and Mayo (1976) published content of family practice. The study was conducted in Virginia and is well known in the literature as "The Virginia Study". The three most common diagnoses identified included; general medical exam, upper respiratory

Table 2

Series of Studies of Common Medical Diagnoses

Study	Provider Type	Encounters	Age	Common Diagnoses		
Virginia Study Marsland et al., 1976	Family Practice Physicians Family Practice Residents	88,000	NR	1. GME	2. URI	3. Htn
Given et al., 1981	Family Practice Resident	730	NR	1. Antepartum	2. GME	3. URI
USC-MAMP Rosenblatt et al., 1982	Family Practice Physicians General Practice Physicians	38,466	NR	1. GME	2. URI	3. Htn
SBCMC Shear & Wall, 1985	Family Practice Physicians	10,733	NR	1. GME	2. Htn	3. Prenatal Postnatal
ASPN Green et al., 1993	Family Practice Physicians	2,589	NR	1. Htn	2. OM	3. Pregnancy
ARMY Blount et al., 1993	Family Practice Physicians	17,241	NR	1. GME	2. Pregnancy	3. URI
Cave, 1994	Ambulatory Care Physicians	92,600	0-64	1. URI	2. GME	3. Htn
NAMCS, 1977-1978	Ambulatory Care Physicians	9,164	NR	1. GME	2. URI	3. Htn
NAMCS, 1985	" "	17,241	NR	1. GME	2. URI	3. Htn
NAMCS, 1992	" "	762,045	NR	1. HTN	2. Prenantal	3. URI
Draye & Pesznecker 1979	Family Nurse Practitioner	8,905	NR	1. Htn	2. GME	3. Acute Nasopharyngitis
Repickey et al, 1980	Nurse Practitioners	8,000	NR	1. Respiratory. Well Person		3. Circulatory
GP, 1983	Nurse Practitioners	1,409	NR	1. URI	2. Htn	3. Vaginitis
Pickwell, 1993	Family Nurse Practitioner	-Not reported-		1. Skin	2. Well Woman	3. Ear Disease

Note. From: Journal of American Board of Family Practice, 6 (2), 143-152, by Blount et al., 1994. Journal of Ambulatory Care Manager, 17 (3), 15-36, by D. Cave, 1994. Nurse Practitioner, 4 (1), 42-43, by M.A. Draye & B. Pesznecker, 1979. Journal of Family Practice, 12 (2), 293-302, by Given et al., 1981. Archives of Family Medicine, 2 (9), 939-949, by Green et al., 1993. Journal of Family Practice, 3 (1), 37-41, by Marsland et al., 1976. Nursing Diagnosis, 6 (1), 9-15, by K. Martin, 1995. Nurse Practitioner, 8 (2), 41-42, 1983. Journal of the Academy of Nurse Practitioners, 5 (1), 6-10, by S. Pickwell, 1993. Nurse Practitioner, 5 (2), 31-34, by Repickey et al., 1980. Journal of Family Practice, 15 (4), 681-722, by Rosenblatt et al., 1982. NAMCS: DHHS publication no. (PHS)80-1795, 88-1754, & 94-1250. Western Journal of Medicine, 142 (6), 854-857, by Shear & Wall, 1985. Abbreviations: GME=General Medical Exam, URI=Upper Respiratory Infection, Htn=Hypertension, OM=Otitis Media, NR=Not Restricted by age.

infection, and hypertension (see Table 2). Given, Browne, Sprafka, and Breck (1981) discussed content of primary care in relation to the use of health information systems in screening resident performances, which included one resident's experience in family practice. Given et al. identified antepartum visit, general medical exam, and acute upper respiratory infection as the three most common diagnoses utilizing a health information system (see Table 2).

Barkauskas, Chen, Chen, and Ohlson (1981) studied the contributions of obstetric-gynecologic nurse practitioners and obstetrician-gynecologists in providing health care for women seen in ambulatory care clinics. Contraceptive management, normal pregnancy, and special examinations (e.g., pregnancy tests) were the three most frequently reported health problems reported by both the NPs and the physicians. This study is limited to women's health provided in the obstetrical-gynecological setting.

Rosenblatt, Cherkin, Schneeweiss, Hart, Greenwald, Kirkwood, and Perkoff (1982) analyzed the University of Southern California-Medical Activities and Manpower Project data (USC-MAMP). Family (N=683) and general practitioners (N=469) were surveyed in 1977.

The three most common medical diagnoses identified included; general medical exam, upper respiratory tract infection, and hypertension (Rosenblatt et al., 1982). Additional information on this study can be seen in Table 2.

The common diagnoses were also looked at according to the region of the United States. The ranking of the most common diagnoses in the west and south was the same as the overall ranking in the United States. The three most frequent medical diagnoses for the north central and north east included (in descending order): general medical exam, hypertension, and upper respiratory tract infection.

Rosenblatt, Cherkin, Schneeweiss, and Hart (1983) described the content of ambulatory medical care. Rosenblatt et al. utilized the NAMCS data from 1977 and 1978 to describe the most frequent problems in primary care. The three most frequent diagnoses identified included (in descending order): acute upper respiratory infection, general medical exam, and hypertension (see Table 2). Rosenblatt and co-authors also noted that the family and general practice physicians dealt with a much broader segment of the population and a wider variety of diagnostic entities.

Shear and Wall (1985) compared the content of a community based family practice residency program in San Bernardino County Medical Center (SBCMC), California with large ambulatory data sets. Those large data sets included: NAMCS (1977-1978), The Medical Activities and Manpower Project at the University of Southern California (USC-MAMP, western region only), and The Virginia Study.

General medical exam, hypertension, and prenatal and postnatal care were the three most frequently encountered

diagnoses identified at the community based family practice residency program (Shear & Wall, 1985). The top three diagnoses identified were in the top four most common diagnoses in all three of the larger data sets. Comparison of the diagnoses is seen in Table 2. Green, Miller, Reed, Iverson, and Barley (1993) replicated the NAMCS study utilizing primary care practices within The Ambulatory Sentinel Network Inc. (ASPN). Family physicians from across the United States and Canada documented client encounters utilizing the NAMCS data collection form. The three most common medical diagnoses identified included (descending order): hypertension, otitis media, and normal pregnancy (see Table 2).

Blount, Hart, and Ehreth (1994) compared the content of army family practice with nonfederal family practice. The Army's Ambulatory Care Data Base (1986 & 1987) and the NAMCS (1985) were compared. General medical exam, pregnancy care and abortion, and acute upper respiratory tract infection were the three most common medical diagnoses identified in the Army's data base. While general medical exam and upper respiratory infection were also in the top three in the NAMCS (hypertension was third and pregnancy care was seventh in NAMCS), the authors point out significant differences in the portions of clients seen in each category. For example, 22.8% of the visits for the Army were for general medical exams, but only 6.6% of the visits in the NAMCS were for general medical exams. The authors attributed the

differences primarily to the population served. Both studies included ages across the life span. However, the average age in the Army's population was 26 while the average age in the NAMCS was 40.

Cave (1994) analyzed the content of physicians' medical practices. Cave found that top five ambulatory-specific diagnoses in primary care were (in descending order): acute upper respiratory infections, general medical exam, hypertension, lacerations and contusions, and sprains and strains (see Table 2).

Rosenblatt, Hart, Gamliel, Goldstein, and McClendon (1995) examined the 1980-81 and 1989-90 NAMCS data in order to draw some distinction between disciplines that are predominately involved with the delivery of primary care services and those for whom primary care is subservient to a more specialized focus. Rosenblatt et al. (1995) found that family medicine, general internal medicine, and general pediatrics dealt with a spectrum of diagnostic problems characteristic of primary care practices.

Draye and Pesznecker (1979) analyzed common diagnoses seen by family nurse practitioners (FNP). FNPs were randomly selected from around the United States. Benign hypertension, general medical exam, and acute nasopharyngitis were the three most common medical diagnoses of clients seen by 356 FNPs.

Repicky, Mendenhall, and Neville (1980) analyzed the Physician Extender Reimbursement Study data that was

conducted by the Division of Research in Medical Education at the University of Southern California, School of Medicine, under a contract with the Health Care Financing Administration. The study was based on client encounters of 341 NPs in general practice, family practice, or general internal medicine practice from across the United States. The data was collected during 1976 and 1977. The age range was not identified in the article. However, the authors noted that 52% of the clients were under 30 years of age and 16% were over 65.

The three most common foci of problems identified by Repicky et al. (1980) included (in descending order): respiratory, well person care, and circulatory. Repicky did not use diagnostic clusters that are commonly used in the medical literature (Schneeweiss, 1983). Although, Repicky's diagnostic cluster labels are not exactly the same when compared with other studies, they are similar. For example, respiratory would include upper respiratory tract infection, well person care would include general medical exam, and circulatory would include hypertension.

Nurse Practitioner (1983) conducted a survey of NPs who were a part of their readership. The NPs (n=1,409) surveyed, practiced in a wide variety of settings which included; pediatrics, family, geriatrics, psychiatric, midwife, adult, women's health, college, school, industrial/occupational, oncology, and others. Although

ages of the clients were not discussed, the settings imply that clients were of all ages.

The three most common diagnoses included (in descending order): upper respiratory tract infections, hypertension, and vaginitis. Diagnoses were not discussed specific to each setting. Approximately one third of the respondents practiced as family nurse practitioners. The results were not specific to family or general practice, which probably explains the variation in common diagnoses identified (e.g., vaginitis) when compared to results of other studies.

Pickwell (1993) compared three large surveys of family physician practices to three smaller studies of NP practice and the 15-year experience of Pickwell's FNP practice. The NAMCS (1989), USC-MAMP, and The Virginia Study were the surveys of family physician practices utilized in the comparison done by Pickwell. Pickwell utilized her own 15-year experience of client encounters as a FNP (family nurse practitioner) in the comparison. The three studies of NPs included the studies done by: Draye and Pesznecker (1979); Repicky, Mendenhall, and Neville (1980); and Nurse Practitioner (1983). Table 2 includes a comparison of the studies discussed in this study, as well as, other studies.

Skin disorders, well woman care, and ear disease were the three most common medical diagnoses seen by Pickwell. The content of Pickwell's practice did vary when compared to the other studies identified in her article. However, none of the other studies complied information from a 15 year

period. Differences based on time cannot be distinguished in Pickwell's data.

In summary, many similarities in findings are identified in Table 2 regardless of dates of the studies. However, there are some differences that may be related to site and provider. NAMCS is the most discussed survey in the literature as it pertains to the most common medical diagnoses. The findings from this study was compared primarily with the NAMCS data to explore similarities and differences.

Common Nursing Diagnoses

There are several studies on specific nursing diagnoses and nursing diagnoses of patients with particular health problems presented to NANDA, but none on the most common nursing diagnoses in primary care (Kim, 1989). The review of the literature revealed few studies identifying the most commonly used nursing diagnoses in the primary care setting by the APN. Although, pediatrics and obstetric-gynecology were not included in this study, these areas were discussed in order to explore how APNs in other areas of clinical specialty have attempted to identify common nursing diagnoses. Because there is such a limited number of articles about common nursing diagnoses made by APNs, the studies reviewed were expanded to include RNs (Bugle, Frisch, & Woods, 1990; Swehla, 1988). However, the need for literature reflecting the content of the APN practice in the primary care setting exists.

Martin (1995) sought to describe the use of nursing diagnosis in current NP practice and to identify advantages and barriers to the use of nursing diagnosis by the NP. Self-care deficit, alteration in nutrition, alteration in mobility, and impaired coping were among the most frequently used nursing diagnoses by adult and family NPs.

Martin's study was limited in terms of purpose and size. Martin's purpose was to describe the use of nursing diagnoses by NPs. Only 15% of 181 surveyed utilized nursing diagnoses in their practice, resulting in a small sample to draw conclusions from in regards to commonly used nursing diagnoses. It should be noted that 50.2% of the NPs surveyed, graduated from a nonmasters' NP program, which may represent a lack of education related to nursing diagnoses in nonmasters' NP programs.

Bugle, Frisch, and Woods, (1990) identified 79 nursing diagnoses used by registered nurses (RN) in a nurse-managed college health service center. Alteration in skin integrity and alteration in comfort related to nasal/sinus congestion accounted for 54% of the total nursing diagnoses made. The Bugle et al. study is limited in terms of the type of population and provider. The study included only college students and it does not pertain specifically to the practice of APNs.

Swehla (1988) studied the development and validation of nursing diagnoses in a gynecological setting. Although this study focused on methodology, the study did identify in

general terms, commonly used nursing diagnoses. The three most frequently used diagnoses in this study were associated with preventative behaviors, health maintenance behaviors and anxiety behaviors. Swehla did not provide specific nursing diagnoses. This study included registered nurses and a APN and therefore, not specific to APNs.

Burns (1991) has done extensive work on the development of a conceptual framework for a classification system for the diagnoses made by pediatric nurse practitioners (PNP). Burns and Thompson (1984) first identified commonly used nursing and medical diagnoses used by PNP in the public health setting, health maintenance organization, and private practices in which the conceptual framework for the classification of diagnoses system is based on.

Burns and Thompson (1984) identified the most commonly used nursing diagnoses within five domains; environmental, psychological, physiological, health behaviors, and medical. The most common nursing diagnoses identified by Burns and Thompson were in the health behaviors domain which included knowledge deficit related to nutrition, immunization need, and screening procedure needed. The three most common diagnoses within the medical domain included otitis media, upper respiratory infection, and rashes.

In summary, the literature review revealed few articles pertaining to the frequently used nursing diagnoses in primary care. Utilizing nursing diagnosis as a key conceptual criteria around which standards or guidelines are

developed is one method to ensure a level of quality of work (Swehla, 1988). However, nursing diagnoses commonly seen in primary care must first be identified.

Common Diagnostic and Screening Tests

Surveys in the literature that explored the APN's practice did not included commonly ordered diagnostic and screening tests. Only a few articles that explored the content of the physician's practice included common diagnostic and screening tests. The literature review does include one study that had a purpose other than identifying the most common diagnostic and screening tests (Given et al., 1981). The author feels that due to the lack of literature, it is important to include the study since it does discuss common diagnostic and screening tests specific to primary care. The NAMCS was the most frequently used source in the literature in regards to discussing common diagnostic and screening tests.

Given et al. (1981) identified the most commonly order diagnostic and screening tests order by family practice residents. The three most common diagnostic and screening tests included; CBC, PAP test, and urinalysis.

Rosenblatt et al. (1982) identified common diagnostic and screening tests in the USC-MAMP study. The five most common diagnostic and screening tests included; routine laboratory (CBC & U/A), blood chemistry, x-ray-other, pap smear, and chest x-ray.

Green et al. (1993) identified that 40.6% of the client encounters in ASPN Study received diagnostic and screening tests. The diagnostic services included such tests as urinalysis, electrocardiography, mammography, roentgenography, and blood tests. However, the diagnostic and screening tests were not ranked in order of most frequent service provided.

The most commonly ordered diagnostic and screening tests identified in the NAMCS (1992) can be seen in Table 3. Blood pressure was number one, accounting for 43.5% of the diagnostic and screening tests ordered (NAMCS, 1992). Urinalysis, EKG, and x-rays accounted for the next three most commonly ordered diagnostic and screening tests.

In summary, the literature review identifies literature regarding common diagnostic and screening tests that is primarily based on the NAMCS data. CBC, urinalysis, and x-ray are frequent diagnostic and screening tests identified in the literature.

Summary of Literature Review

There is little demonstration in the literature of agreement on common medical diagnoses, common nursing diagnoses, and common diagnostic and screening tests as they relate to the APN in primary care. The studies involving common medical diagnoses in primary care are nearly exclusively related to the physician.

Studies on commonly reported medical and nursing diagnoses by APN have limits. Sample size (Martin, 1995)

Table 3

Number and Percent Distribution of Office Visits by Diagnostic and Screening Tests Ordered or Provided as Reported in NAMCS 1992

Diagnostic & Screening Tests	Frequency	Percent
Blood Pressure	331,792	43.5
Urinalysis	106,196	13.9
EKG-resting	23,990	3.1
EKG-exercise	3,525	0.5
Mammogram	13,617	1.8
Chest X-ray	20,592	2.7
Other Radiology	40,972	5.4
Allergy Testing	1,711	0.2
Spirometry	2,813	0.4
Pap Test	30,373	4.0
Strep Throat Test	16,380	2.1
HIV serology	2,556	0.3
Cholesterol Measure	23,872	3.1
Other Lab Test	127,642	16.7
Hearing Test	11,110	1.5
Visual Acuity	42,133	5.5
Mental Status Exam	8,816	1.2
Other	55,255	7.3

Note. From: National Ambulatory Medical Care Survey: 1992 Summary. (DHHS Publication No. (PHS) 94-1254). Washington DC: U.S. Government Printing Office.

and clustering of specialties (Nurse Practitioner, 1983) were problems. Pickwell (1993) discussed the need to identify common medical diagnoses seen by the APN in order to develop curricula for educating the APN. However, the studies done on the subject of common medical diagnoses seen by APNs are over ten years old.

Primary care APNs have not adopted the use of NANDA-approved diagnoses (Ridenour, 1994). There is a need for

research in this area since nursing organizations, with health care reform in mind, are striving to meet the needs of primary care by supporting and utilizing APNs as providers (Mittelstadt, 1993).

METHODS

Research Design

An exploratory descriptive design was used in this study in order to gain knowledge about common medical diagnoses, nursing diagnoses, and diagnostic and screening services experienced by graduate students in the APN program in the primary care setting. This approach is appropriate to the purpose of this study since very little is known about the types of clients seen by APNs (Brink & Wood, 1988). The data utilized in this study was collected prior to this study. Therefore, a secondary analysis approach was used.

Sample Selection

The sample consisted of 5,457 summary records of client encounters completed by graduate students in the APN program at Michigan State University from September, 1992 through August, 1994. Clients who were seen more than once by the APN graduate student had a separate record completed for each encounter. Therefore, the 5,457 encounters does not necessarily reflect 5,457 clients. The client encounters took place in the State of Michigan. For the purposes of this study the age group included clients who were 18-64 years of age.

Specialty practices (e.g., pediatric and obstetrics-gynecology) were not included in this study in order to focus specifically on primary care. Visit settings included office/clinic settings of public and private family practice and general medicine only. A listing of each site was available. Each site was reviewed to make certain that it was a primary care site. Therefore, encounters with clients who were 18-64 years of age and seen in a family practice or general medicine setting were included in this study.

Instrument

The graduate students in the APN program at MSU were required to complete a Summary Encounter Instrument (SEI) on each visit with a client. The information from the SEI was entered onto a computer program. The SEI collects data related to demographics, medical and nursing diagnoses, type of exam, special assessments, diagnostic and screening service, interventions, medications, physical care activities, future visits, and referrals (See Appendix A). This study focused on medical diagnosis, nursing diagnoses, and diagnostic and screening tests, as well as, demographics of the client.

Reliability and Validity

The SEI was developed by faculty at MSU. The data had been already been collected utilizing the SEI. The SEI has face validity in that the data collected appears that it elicited the information asked for. The SEI specifically asks for the priority medical and nursing diagnoses for the

encounter and diagnostic and screening tests ordered. The SEI has content validity as it arises from the literature that is available on collection of information on medical and nursing diagnoses and diagnostic and screening services (Brink & Wood, 1988). Despite being developed several years ago with revisions being made as deemed necessary by faculty, the SEI has never been tested for reliability.

Definition of Terms

Medical diagnosis. The medical diagnosis reported on the SEI by the APN graduate student was obtained from a select list of International Classification of Diseases (ICD-9) was provided to each student. The list includes ICD-9 codes and diagnoses that were selected by the MSU faculty. The list of medical diagnoses utilized is included in Appendix B.

The medical diagnoses were coded and entered onto the SEI by the APN graduate student. Codes obtained from the SEI were entered onto a computer data base.

In cases of more than one medical diagnosis per client encounter, only the priority medical diagnosis for the visit was used in the data analysis. The priority medical diagnosis for the visit was identified by the APN graduate student.

The medical diagnoses were placed in clusters using the method of Schneeweiss and coworkers (1983) to allow the data to be reduced to a manageable size and to reflect common terminology in the literature.

Nursing diagnosis. The nursing diagnosis reported on the SEI by the APN graduate student was obtained from a select list of nursing diagnoses that was provided to each student. The list of nursing diagnoses was complied by the MSU faculty and doesn't include all NANDA approved diagnoses and it also includes diagnoses that are not NANDA approved. The list of nursing diagnoses utilized is included in Appendix C. Each nursing diagnosis on the SEI has a code number. The code number was entered onto the SEI by the APN graduate students. Codes obtained from the SEI were entered onto a computer data base.

In cases of more than one nursing diagnosis per client encounter, only the priority nursing diagnosis for the visit was used in the data analysis. The priority nursing diagnosis for the visit was identified on the SEI by the APN graduate student.

Diagnostic and screening tests. The diagnostic and screening tests were tests reported by the APN graduate student on the SEI. The list of diagnostic and screening tests that could be selected is listed on the SEI. The SEI is included in Appendix A. Diagnostic and screening tests reported by the APN graduate student were checked off from a list that is on the SEI and was entered onto the computer data base. In cases of more than one diagnostic and screening test per client encounter, all diagnostic and screening tests were utilized in the data analysis.

Data Analysis

The data analysis for this study involved descriptive analysis. Descriptive statistics, including utilizing measures of central tendency and variation were used to describe sample characteristics which were derived from the collected demographic data of the client and the client's visit (Brink & Wood, 1988). Such measurements included primarily percentages, but also, ranges, means, and standard deviations.

Demographic data. The demographic data of the client included age, sex, and race/ethnicity.

Medical diagnosis. A frequency distribution of the medical diagnoses was developed that included a count of the number of times each medical diagnosis was obtained. The three most frequently occurring medical diagnoses were then specifically identified and ranked numerically (1, 2, & 3) in order of most frequently occurring.

Nursing diagnosis. A frequency distribution of the nursing diagnoses was developed that included a count of the number of times each nursing diagnosis was obtained. The three most frequently occurring nursing diagnoses were then specifically identified and ranked numerically (1, 2, & 3) in order of most frequently occurring.

Diagnostic and Screening Tests

A frequency distribution of the diagnostic and screening tests was developed that included a count of the number of times each diagnostic and screening test was

obtained. The three most frequently occurring diagnostic and screening tests were then specifically identified and ranked numerically (1, 2, & 3) in order of most frequently occurring.

Human Subjects

The protection of human subjects was employed in this study. The proposal for this study received approval from the University Committee on Research Involving Human Subjects (UCRIHS).

Subjects were assigned an identification number by the APN graduate student who saw the subject. The APN graduate student is also identified by a code instead of a name. Names of clients and students were not used in any part of this study.

Practice settings were also identified by a code number. The names of the practice settings were not be used in the reporting of any part of the data.

Assumptions

The following assumptions were made in this study:

1. It was assumed that the SEI was accurately completed by the APN graduate students.
2. It was assumed that the information from the SEI was accurately entered into the computer.
3. It was assumed that the APN identified the correct medical and nursing diagnoses and ordered appropriate diagnostic and screening tests.

Limitations

The following limitations were acknowledged in this study:

1. The settings from which the sample was taken may not be representative of all primary care clients seen by APN graduate students. The findings are specific to the sample studied and may not be applicable to the rest of the population.
2. The SEI may not have reflected the full range of diagnoses and diagnostic and screening services provided (e.g., miscellaneous and other category). Medical diagnoses, nursing diagnoses, and diagnostic and screening were selected from a limited list that was developed by the MSU faculty and does not include all the possible diagnoses and diagnostic and screening tests.
3. The sample may not be representative of what is seen in primary care. The APN graduate student is required to see certain types of client during clinical experience. Therefore, the APN graduate student at times needs to purposefully select the type of client seen in order to meet the requirements of the course.
4. The computer codes identify very specific information (e.g., diagnosis) which provides no information on the complexity of the care provided by the APN graduate student or cost.

5. This study was restricted to the identification of the three most frequently reported medical diagnoses, nursing diagnoses, and diagnostic and screening tests.

RESULTS

Demographics

A total of 5,457 encounters were included in this study. The ages of the clients ranged from 18 to 64 years with a mean of 36.7 years (SD=13.15). The client encounters reported by the APN graduate student were primarily female (n=4,189; 76.8%). In this study, the clients were primarily white (n=3,612; 66.2%). Additional demographic information can be seen in Table 4.

Findings

Frequency tabulations were done to obtain information to answer each of the three research questions for this study. The three most common medical diagnoses of clients, 18-64 years of age, reported by APN graduate students in the primary care setting include: 1) prenatal and postnatal care; 2) general medical exam; and 3) acute upper respiratory infection.

The three most common nursing diagnoses of clients, 18-64 years of age, reported by APN graduate students in the primary care setting include: 1) health maintenance, appropriate; 2) altered comfort; and 3) health seeking behaviors. The three most common diagnostic and screening test ordered by the APN graduate student for clients 18-64

Table 4

Client Description by Age, Race, and Sex

Encounters (n=5,457)		
Age Range	Mean	SD
18-64 years	36.7 years	13.15
Race	**Frequency**	**Percentage**
Asian	37	0.7
Black	340	6.2
Hispanic	96	1.8
Native American	33	0.6
White (non-Hispanic)	3,612	66.2
Other	18	0.3
Missing	1,321	24.2
	5,457	100.0
Sex	**Frequency**	**Percentage**
Female	4,189	76.8
Male	1,244	22.9
Missing	24	0.4
	5,457	100.0

years of age include: 1) urinalysis/culture; 2) pap smear; and 3) CBC/hemoglobin/hematocrit.

The most common medical diagnoses, nursing diagnoses, and diagnostic and screening tests are presented in the following tables. Table 5 presents the findings related to the three most common medical diagnoses reported by APN graduate students in the primary care setting. The most commonly reported medical diagnoses include (in descending order): prenatal and postnatal care (n=748; 13.7%), general medical exam (n=577; 10.6%), and acute upper respiratory infection (n=321; 5.9%).

Table 5

Most Common Medical Diagnoses

Diagnosis	Frequency	Percent
1. Prenatal & postnatal care	748	13.7%
2. General medical exam	577	10.6%
3. Acute upper respiratory infection	321	5.9%
4. Hypertension	271	5.0%
5. Acute lower respiratory	169	3.1%
6. Sinusitis; acute and chronic	147	2.7%
7. Diabetes Mellitus	144	2.6%
8. Complication of medical care	120	2.2%
9. Contraception	110	2.0%
10. Vaginitis/vulvitis	100	1.8%
Total	2707	49.6%

Note. There were 200 (3.7%) encounters that did not have an diagnosis included on the list of diagnoses provided to the students. The remaining 2,550 diagnoses (45.7%) represents 1.7% or less for each diagnosis.

The most common medical diagnoses represent 30.2% of the encounters. The remainder of Table 5 identifies the most common medical diagnoses up to the tenth most common medical diagnosis for the purposes of comparing the findings of this study with other studies.

The three most commonly reported nursing diagnoses by the APN graduate student in the primary care setting are presented in Table 6. The three most commonly reported nursing diagnoses include (in descending order): appropriate health maintenance (n=866; 15.9%), altered comfort (n=796; 14.6%), and health seeking behaviors (n=509; 9.3%). The three most common nursing diagnoses represented

Table 6

Most Common Nursing Diagnoses

Nursing Diagnosis	Frequency	Percentages
1. **Health maintenance, appropriate**	**866**	**15.9%**
2. **Altered comfort**	**796**	**14.6%**
3. **Health seeking behaviors**	**509**	**9.3%**
4. Pain	339	6.2%
5. Knowledge deficit	253	4.5%
6. Health maintenance, altered	168	3.1%
7. Nutrition, altered	100	1.8%
8. Effective coping, individual	82	1.5%
9. Activity intolerance	80	1.5%
10. Effective coping, family	74	1.4%
Total	3267	59.8%

Note. There were 445 encounters that did not have a diagnosis included on the list provided to the students. The remaining 1,745 nursing diagnoses represented 1.3% or less for each diagnosis.

39.8% of the total encounters. The list of nursing diagnoses provided to the students included "not applicable" as an option if the list did not include the diagnosis of the client. There were 445 (8.2%) encounters that did not have an applicable nursing diagnosis which was the highest percentage of the remaining encounters after the top three nursing diagnoses.

The most common diagnostic and screening tests ordered by the APN graduate student in the primary care setting are listed in Table 7. A total of 4,963 diagnostic and screening tests were ordered in this study. An average of 0.91 diagnostic and screening tests were ordered per client

Table 7

Common Diagnostic and Screening Tests

	Frequency	Percentage
1. **Urinalysis/culture**	**631**	**12.7%**
2. **Pap smear**	**623**	**12.6%**
3. **CBC/hemoglobin/hematocrit**	**522**	**10.5%**
4. Chemistry profile	492	9.9%
5. Glucose	250	5.0%
6. X-ray	229	4.6%
7. Mammogram	226	4.5%
8. Vaginal culture	199	4.0%
9. Wet prep	159	3.2%
10. Cholesterol	139	2.8%
Total	3470	69.8%

Note. There were a total of 4,963 diagnostic and screening tests ordered for 5,457 encounters. There were 611 diagnostic and screening tests indicated as "other", meaning that the diagnostic and screening test(s) ordered was/were not listed on the SEI. The remaining 23 diagnostic and screening tests represented 2.7% or less for each diagnostic and screening test.

encounter. Urinalysis/culture was the most commonly ordered diagnostic screening test (n=631, 12.7%). Pap smear was the second most commonly ordered diagnostic and screening test ordered (n=623, 12.6%). CBC, hemoglobin, and hematocrit was the third most frequently ordered diagnostic and screening test (n=522, 10.5%). The three most common diagnostic and screening tests represented 35.8% of all tests ordered.

Discussion

Instrument

This study may be limited in terms of the SEI utilized. The SEI has not been used in a study before and therefore, may be limited in terms of reliability and validity.

The findings in this study are based on data obtained from primary care sites. However, it is uncertain if the encounters are truly reflective of primary care as defined by Starfield. The SEI collects data relevant to common problems which, partially reflects Starfield's definition of primary care. However, the SEI does not collect data that determines if the setting has the locus of responsibility for organizing care for the client over time. For example, the SEI does not identify whether the health care provider is the client's primary care giver or if the client was referred from another provider.

Preceptor for the APN Graduate Student

There may be differences between APN preceptors and physician preceptors that were not identified in this study. The age and sex of the preceptor may influence the types of clients seen. For example, more established practices may have older clients who may have different problems (needs). Also, female providers may be more apt to see particular problems (needs) when compared to male providers.

The extent of preceptor assistance in the identification of diagnoses was not studied in this research project. Some students had physicians for preceptors, so

assistance in formulating the nursing diagnosis may have been lacking. Therefore, the findings may not be entirely accurate due to the level of experience of the APN graduate student in formulating medical and nursing diagnoses and ordering of diagnostic and screening tests.

Demographics

A convenience sample was used in this study and therefore, may not be representative of all primary care clients seen by the APN graduate student. This study included primarily females, which is not unusual in comparing demographics of other studies (Marsland et al., 1976; NAMCS, 1992; Rosenblatt et al., 1982; Shear & Wall, 1985). Explanation for the larger percentage of females may be due to the higher percentage of females in society. The higher percentage of females could also be due to females seeking health care more often than males and/or the APN graduate students being required to see certain types of clients.

This study included mostly whites which is a similar finding in other studies (Marsland et al., 1976; NAMCS, 1992; Rosenblatt et al., 1982; Shear & Wall, 1985). Explanation for the higher percentage of whites may reflect the higher percentage of whites in society. The higher percentage of whites may also indicate poor access for those of other races. The APN graduate students may be practicing in areas that serve primarily whites due to lack of

preceptors who practice in areas that serve races other than white.

Medical Diagnoses

The findings of this study included two of the three most common medical diagnoses identified in the most recent NAMCS (1992). Prenatal care and upper respiratory infection were the second and third most common medical diagnoses, identified in the NAMCS, whereas, prenatal and postnatal care and upper respiratory infection were the most common and the second most common medical diagnoses identified in this study. Hypertension was the most common medical diagnosis in the NAMCS (1992), whereas, it was the fourth most common diagnosis in this study.

At least two of the three most common medical diagnoses reported in this study are also within the three most common medical diagnoses reported in all other literature presented regarding common medical diagnoses with the provider as physician (see Tables 2 and 5). In comparing the most common medical diagnoses reported in this study with those reported in other studies in which the provider was an APN, there are fewer similarities (see Tables 2 and 5). After considering method and sample size problems of APN studies listed in Table 2 and the similarities with the larger physician studies, the findings in this study may be more indicative of what the APN sees in the primary care setting.

The three most common medical diagnoses represent nearly a third of the encounters, which is unusual when

compared to the NAMCS (1992). The top three medical diagnoses in NAMCS (1992) represented 9.7% of the total encounters. The difference may be due to: a) the fact that the NAMCS data includes clients of all ages, allowing for a larger variety of diagnoses; b) the APN graduate student being required to see certain type of clients during clinical experience, which may also account for large percentages of certain types of clients; c) the clinical sites may not be providing a wide array of clients that are typically seen in the primary care setting. The findings indicate that the APN graduate student is seeing common problems which is reflected in Starfield's definition of primary care, but the scope of diagnoses reported by the APN graduate students in this study is not as broad.

The NAMCS does not specifically focus on primary care as defined in this study. The NAMCS includes physicians in other specialties besides family practice and general medicine. This study may be more representative of primary care.

There were 200 (3.7%) encounters that did not have a medical diagnosis included on the list of medical diagnoses provided to the APN graduate students. This indicates that the list of medical diagnoses may not be complete and that the findings may not be completely accurate in describing the encounters of the APN graduate student in the primary care setting. However, the findings may indicate that the clients were not presenting due to medical problems, but

rather, nursing problems which would be appropriate for the APN student.

Nursing Diagnoses

Studies related to common nursing diagnoses is limited. Martin's (1995) study was the only study that explored the use of nursing diagnoses by NPs. In comparing Martin's findings with this study, there were no common nursing diagnoses among the top three most common nursing diagnoses identified in each of the studies.

The top three nursing diagnoses represented 38.8% of the total encounters. This high percentage may be do to: a) the focus of the MSU graduate program is on health promotion and health maintenance which requires that APN graduate student to see certain types of clients; b) the clinical setting may not be providing an array of clients; and c) the APN graduate student may not be fully knowledgeable in regards to all of the nursing diagnoses on the list provided.

The MSU graduate programs requires the APN graduate student to see clients (adult and pediatric) with single acute problems, as well as, complex and chronic problems. The student also must perform both adult and pediatric physical, provide prenatal and postnatal care, provide services to clients/families concerning well care, health maintenance and promotion, and apply care with a coping and/or loss perspective. Therefore, the nursing diagnoses

in this study may reflect the purposeful selection of clients by the APN graduate student.

Houldin, Saltstein, and Ganley (1987) published a text book that describes nursing diagnoses with a wellness focus which is a required text book in the APN graduate program at MSU. However, the level of the APN graduate student's understanding of nursing diagnoses or criteria for selection of nursing diagnoses was not measured in this study. Therefore, it is uncertain how the APN determined the nursing diagnoses identified in this study. It can only be assumed that the students utilized the required text on nursing diagnoses.

It is not clear how health maintenance; appropriate (most common nursing diagnosis) was distinguished from health seeking behaviors (third most common nursing diagnosis). Health seeking behaviors is a NANDA approved diagnosis, but health maintenance; appropriate, is not (NANDA, 1990).

Houldin et al. (1987) identify health maintenance; appropriate as a nursing diagnosis and define it as "a state in which an individual experiences or has the potential to experience a state of wellness because of adequate preventive measures or a healthy life-style". Houldin et al. did not identify health seeking behaviors as a nursing diagnosis. Health seeking behaviors was approved by NANDA after the publication of the book by Houldin et al.

Therefore, it is uncertain how the students determined which diagnosis to use.

Altered comfort was the second most frequently reported nursing diagnosis. However, altered comfort is not a NANDA approved diagnosis. Houldin et al. identify comfort; adequate and potential for comfort as nursing diagnoses. The fourth most frequently reported nursing diagnosis was pain, which is a NANDA approved diagnosis. Pain is not a wellness diagnosis, so Houldin et al. do not define it. It is not clear how altered comfort and pain were distinguished by the APN graduate student.

Effective coping, individual and effective coping, family are included in the top ten most frequently reported nursing diagnoses, but are not NANDA approved. However, individual and family effective coping are defined by Houldin et al. as nursing diagnoses.

There are several sources other than Houldin et al. that do utilize the non-NANDA approved diagnoses utilized in this study (Carpenito, 1988; Crist, 1992; Scandrett-Hibdon & Uecker, 1992), but those diagnoses have a problem focus. Text books and/or references that describe nursing diagnoses with a problem focus are not listed in the course syllabus for the APN graduate student in the MSU program. Therefore, it is uncertain what source the APN graduate student used if the nursing diagnosis was not included in Houldin et al.

Diagnostic and Screening Tests

Blood pressure was the most common diagnostic and screening test identified in the most current NAMCS (1992). Blood pressure was not listed as a diagnostic and screening test in this study because it was not listed on the SEI as an option under diagnostic and screening tests. However, of the next three most common diagnostic and screening tests in the NAMCS, urinalysis was the only diagnostic and screening test identified in the top three common diagnostic and screening tests in this study. There may be several reasons for the differences, including the type of practitioner who ordered the test. The NAMCS includes only physicians, whereas, this study only included APNs.

The NAMCS included all diagnoses and diagnostic and screening tests for each encounter. All diagnostic and screening tests for an encounter were included in this study, but only the priority diagnosis for the encounter was included. Therefore, the findings may reflect diagnostic and screening tests for diagnoses other than the priority diagnosis if the client had more than one medical or nursing diagnosis. Thus, the diagnostic and screening tests ordered may be related to medical and nursing diagnoses that are not common medical and nursing diagnoses seen in primary care. There was no attempt in this study to link diagnostic and screening tests to individual medical and nursing diagnoses.

The three most commonly reported diagnostic and screening tests identified in Table 7 have a primarily

wellness focus (e.g. pap smear), whereas, the most common diagnostic and screening tests reported in the NAMCS (1992) are primarily problem focused (e.g. x-ray). The findings may indicate that the content of the APN's practice deals with primary care issues in terms of wellness and less commonly, problem focused. Also, the findings may be due to the wellness focus of APN curriculum.

There were 611 (12.3%) diagnostic and screening tests identified as "other" which indicates that the diagnostic and screening test ordered was not included on the SEI. Therefore, the findings related to diagnostic and screening tests may not be truly representative of diagnostic and screening tests ordered by the APN graduate student in the primary care site.

Advanced Nursing Practice

Benner (1984) identified seven domains of nursing practice. Benner used situation-based interpretive approach to "identifying and describing knowledge embedded in clinical practice--that hybrid of theory and experience". The seven domains were identified by Benner after exemplars from nurses were interpreted as representative of a particular competency. Within each domain are competencies, which are not intended by Benner as being an exhaustive or comprehensive list. The seven domains include: the helping role, the teaching-coaching function, the diagnostic and patient monitoring function, effective management of rapidly changing situations, administering and monitoring

therapeutic interventions and regimens, monitoring and ensuring the quality of health care practices, and organizational and work-role competencies.

The competencies identified by Benner reflect a synthetic or holistic description rather than elemental and procedural. A situation based-based interpretive approach to describing nursing practice overcomes some of the problems of reductionism inherent in task analysis approach where tasks are listed with no content or goals (Benner, 1984).

The three most common medical diagnoses, nursing diagnoses, and diagnostic and screening tests presented in Tables 5, 6, and 7 reflect tasks or labels rather than a description of the content. The intentions and understanding of the APN graduate student cannot be described based on the findings from this study. Benner points out that nursing is "relational and therefore cannot be adequately described by strategies that leave out content, context, and function" (p. 42). However, identification of the three most common medical diagnoses, nursing diagnoses, and diagnostic and screening tests is valuable in that it could be a focus point to determine content, context, and function.

Benner (1984) identifies five stages of development of a nurse from novice to expert. Novice is the first stage in which the nurse has no experience of the situations in which they are expected to perform. Benner points out that any

nursing (including a APN) "entering into a clinical setting where she or he has no experience with the patient population may be limited to the novice level of performance if the goals and tools of patient care are unfamiliar". The novice nurse operates based on rules.

Advanced beginner is the second stage identified by Benner. Benner defines the advanced beginners as those who can "demonstrate marginally acceptable performance, ones who have coped with enough real situations to note (or to have pointed out to them by a mentor) the recurring meaningful situational components. Advanced beginners need assistance in the clinical setting since they operate on general guidelines and cannot determine what has the highest priority (Benner, 1984).

Competent is the third stage identified by Benner. According to Benner "competence develops when the nurse begins to see his or her actions in terms of long-range goals or plans of which he or she is consciously aware". Proficient is the fourth stage identified by Benner. Benner describes proficient nurses as those who "understand a situation as a whole because they perceive its meaning in terms of long-term goals".

Expert is the last stage identified by Benner. Benner describes the expert as one who "no longer relies on an analytic principle to connect her or his understanding of the situation to an appropriate action". Benner points out that it is not possible to "recapture from the experts in

explicit, formal steps, the mental processes or all the elements that go into their expert recognitional capacity to make rapid patient assessments". However, Benner describes the interpretative approach as a better method to capture characteristics of expert nurse performance.

The ANA (1993) definition of the APN used in this study identifies the APN as experts in a specialized area of clinical practice. In accordance with Benner's five stages one could probably not define the newly graduated APN as expert. The graduate APN has advanced knowledge but lacks the clinical expertise that develops over time. The findings in this study can not be used to identify the stage of performance that the APN graduate student is operating.

The MSU graduate APN program identifies course objectives which specify the behaviors essential to effective implementation of the advanced practice role of the CNS. Family Clinical Nurse Specialist Practicum I and II are the courses which incorporate a clinical component. The objectives for the course are listed in Table 8. The objectives evolve around application of the nursing process, application of knowledge, and demonstration of clinical judgement. None of the objectives can be evaluated from the data derived from this study. The data presented in this study provides information on the commonly seen diagnoses and diagnostic and screening tests, but provides no information on how APN graduate students utilized the

Table 8

Course Objectives for Family Clinical Nurse Specialist

Practicum I & II

Practicum I

1. Make deliberate use of the assessment, diagnosis, and clinical judgement components of the nursing process to provide care to clients/families with health maintenance/promotion and single acute problems.
2. Formulate and implement an individual and comprehensive management plan for clients with health maintenance/promotion and single acute problems that incorporates self-care strategies.
3. Initiate strategies for interdisciplinary team functioning.
4. Assume leadership in promoting and utilization of client education strategies.
5. Utilize family theory/conceptual frameworks in the assessment and diagnosis phases of the nursing process.
6. Formulate a comprehensive management plan for the family utilizing family theory as a basis.
7. Evaluate the effectiveness and quality of care provided for the family by the CNS.

Practicum II

1. Demonstrate a synthesis of the nursing process through advanced utilization of assessment, diagnosis, and clinical judgement with clients.
2. Apply the nursing process to all clients with emphasis on evaluating loss theories and their relevance to the management of clients with multiple and/or chronic health problems within the context of the client's self-care abilities.
3. Provide nursing care within the context of interdisciplinary function.
4. Apply knowledge of selected dimensions of organizational systems in the delivery of primary care.
5. Utilize the nursing process, care standards, and expanded knowledge of theory to provide care over time.

Note. From: Michigan State University, College of Nursing, East Lansing, MI; Fall 1994 & Spring 1995.

the attainment of objectives by the APN graduate student. However, the information provided in Tables 5, 6, and 7 could be used in future research as areas to focus the development of a method to evaluate the attainment of objectives.

MSU graduate APN program identifies fourteen role characteristics of the APN graduate. The role characteristics include: assessor, change agent, client advocate, clinician, collaborator, consultant, coordinator, counselor, educator, evaluator, leader, planner, role model, and researcher/inquirer. The findings listed in Tables 5 and 6 do not describe whether the APN graduate student is acquiring the skills necessary to perform the role characteristics identified by MSU faculty. The findings do not describe which role characteristic that the APN graduate student is using when dealing with the most common medical and nursing diagnoses and diagnostic and screening tests. Additional research is needed to explore the use of the role characteristics by the APN graduate student in encounters of common medical and nursing diagnose and diagnostic and screening tests.

Implications

APN Practice

This study provides several implications for APN practice. This study has a significantly larger number of females rather than males. The difference may be a result of lack of health promotion and health maintenance emphasis

in the male population. The APN nurse should explore methods for involving the male with the primary care system in order to provide care that focuses on health promotion and health maintenance. The clients in this study were primarily white. Again, the APN needs to explore methods for including minority races in the primary care setting.

Prenatal and postnatal care and general medication exams and health have a wellness focus. Being that these two diagnoses represented nearly twenty-five percent of the encounters APNs should be skilled in; the management of pregnancy, performing complete physical, health promotion, health maintenance, and health prevention.

Diagnoses of the respiratory system were a common finding in this study. This common finding indicates a need not only for the APN to have an understanding of diagnoses and treatment of the respiratory system problems, but also, the findings indicate a need for the APN to provide prevention measures in the primary care setting.

Health maintenance; appropriate and health seeking behaviors were among the top three most commonly reported nursing diagnoses. The diagnoses of health maintenance; appropriate and health seeking behaviors support the wellness focus of the APN program at MSU. Therefore, the APN needs to be highly skilled in providing care for clients with wellness nursing diagnoses.

Altered comfort was the second most commonly reported nursing diagnosis which has a problem focus. Although, the

focus of care provided by the APN is wellness, there is also a need for the APN to be skilled in providing care with a problem focus. However, the need for skills related to wellness is greater when caring for the three most commonly reported nursing diagnoses in this study.

There were 0.91 diagnostic and screening tests ordered per client encounter in this study. If nearly every encounter is going to involve a diagnostic and screening test, the APN needs to understand the most commonly ordered diagnostic and screening tests and how to apply the results to the primary care setting.

Understanding the occurrence and the needs related to common medical and nursing diagnoses and common diagnostic and screening tests in the primary care setting can lead to more effective care. The health care system is focusing on managed care which requires care that is effective in terms of cost and outcome. The findings in this study providing a beginning for critically exploring the needs of clients in the primary care setting.

Education

Educational programs need to explore differences in the population served in order educate APN graduate students. Curriculum needs to be based on problems (needs) actually seen in the primary care setting by the APN. The findings from studies like this one may be used to revise or develop curriculum so that the APN graduate student can be ensured

exposure to common medical diagnoses, nursing diagnoses, and diagnostic and screening tests.

Being that the three most commonly reported medical and nursing diagnoses consisted of a large portion of the encounters, curriculum may need to focus on the common diagnoses rather than the broad content of practice or evaluate whether or not the APN graduate student is being guided toward seeing a broad content of practice. The three most common medical diagnoses in the NAMCS (1992) comprise a much smaller percent than the top three medical diagnoses in this study. This difference indicates that the APN graduate student at MSU is not obtaining the experience of the broader content of practice that is commonly seen.

Educators need to evaluate the nursing diagnoses utilized by the students prior to utilizing the data in Table 6 in curriculum development. Descriptions of diagnoses, particularly the NANDA diagnoses, needs to be explored, as well as, the APN graduate student's understanding of nursing diagnoses. The NANDA diagnoses have a problem focus which is parallel to medicine, but the curriculum established by MSU for the APN graduate student has a wellness focus.

Although several of the common nursing diagnoses identified in Table 6 have a wellness focus, some have a problem focus. Few medical diagnoses in Table 5 have a wellness focus. The medical and nursing diagnoses identified can be used by educators to determine if the APN

graduate students are seeing the types of clients that reflect the curriculum content. In this case, APN graduate students did report wellness diagnoses, but the wellness diagnoses are limited.

Several of the nursing diagnoses (e.g., pain vs. altered comfort) seem to overlap. References and/or texts with definitions are needed to allow for a clearer differentiation of the diagnoses if the diagnoses are going to be used. The encounters that do not have applicable diagnoses could be explored for possible development of future nursing diagnoses in the primary care setting.

Research

Future research is needed to explore the reason(s) for the lack of variety of medical and nursing diagnoses in this study. Although, the APN graduate student encountered common problems (needs), the practice of APNs may not be as broad as the practice of the physicians.

Research could be done that involves APNs rather than APN graduate students to see if there are any differences based on education and experience between the student and the graduate. Also, research could be done to determine the differences in populations served by APNs versus physicians as it pertains to most common medical diagnoses and most common diagnostic and screening tests. Future research could also incorporate the costs of the encounters and compare it to physicians and/or guidelines for care.

This study did not determine differences in practice patterns based on the type of preceptor that the APN graduate student worked with. Further studies need to be done to determine if a difference exists. Research on nursing diagnoses in the primary care site is needed. Development of valid and reliable nursing diagnoses will contribute to the advancement of nursing practice (Kim, 1989).

Additional research could be done to explore the link among medical diagnosis, nursing diagnosis, and diagnostic and screening tests. Such information may contribute to the development of guidelines for care, based on both medical and nursing diagnoses. Future research may also include the identification of nursing interventions and outcomes of the common nursing diagnoses in the primary care setting. Identification of interventions and outcomes would contribute to the nursing knowledge base for the development of guidelines for care and support of the APN role in primary care with managed care concepts in mind.

Future research involving the use of the SEI may provide better information if revised. It is not possible to determine the type of provider that serves as the preceptor from the current SEI. The current SEI does not provide any information on cost. Information regarding cost is particularly important in light of managed care.

A method of identifying the practice patterns of the APN graduate student other than the SEI, may provide more

relevant information. The APN graduate student as MSU participates in clinical conferences. Perhaps the information from clinical experiences of APN graduate students presented in the clinical conferences would best describe the practice patterns of the APN graduate student in the primary care setting rather than the SEI. Research describing the practice patterns from the clinical conferences would better describe the complexities involved in the experience as a whole. Benner (1984) wrote, "only as we see the whole can we begin to base nursing theory and nursing research on a well-charted background of clinical knowledge".

The setting is directly related to the APN's role (Kitzman, 1983). The role characteristics utilized in common medical diagnoses, common nursing diagnoses, and common diagnostic and screening tests were not identified in this study. Future studies are needed to explore these role characteristics in order to strengthen the role of the APN in primary care.

Summary

In summary, the findings of this study have identified the common medical diagnoses, nursing diagnoses, and diagnostic and screening tests seen by APN graduate students in the primary care setting which answers the three research questions in this study. The findings can be used to develop curriculum. The findings can also be used to develop research in regards to identifying the complexities

involved in the provision of care of the common medical diagnoses, nursing diagnoses, and diagnostic and screening tests. Further work is needed to continue to build the knowledge base related to client encounters by the APN in the primary care setting, particularly as it relates to description of the role characteristics of the APN.

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APPENDIX A

Summary Encounter Instrument

CASELOAD DATA WORKSHEET

_____ 1. Nurse identification number

_____ 2. Patient identification number

_____ 3. Family identification number

_____ 4. Visit date:

_____ Month
_____ Year (last two digits)

_____ 5. Visit status: 1=first visit 2=return visit

_____ 6. Clinic/office location (enter code from list)

_____ 7. Age of patient if ≥ 2 years
(in years)

_____ 8. Age of child if ≤ 2 years
(in months)

_____ 9. Sex of patient: 1=female 2=male

_____ 10. Race/ethnicity of pt:
1=Asian
2=Black/African American
3=Hispanic
4=Native American
5=White (non Hispanic)
6=Other

_____ 11. Time spent with patient:
1=00-20 min
2=21-40 min
3=41-60 min
4=61-90 min
5=91 + min

_____ 12. Client's primary reason for visit
1=acute problem
2=acute prob follow up
3=chronic problem
4=chronic prob follow up
5=health maintenance/promotion
6=prenatal--routine

_____ 13. Visit setting
1=office/clinic
2=home
3=phone call
4=hospital
5=nursing home

_____ 14. Type of visit:
1=individual
2=group
3=family

15. To answer the following, refer to lists: (*Do not enter letters or decimal points.
See Directions.

_____ (a) priority 1 medical dx(MDX1)
_____ (b) priority 2 medical dx(MDX2)
_____ (c) priority 3 medical dx(MDX3)
_____ (d) priority 4 medical dx(MDX4)

_____ (e) priority 1 nursing dx(NDX1)
_____ (f) priority 2 nursing dx(NDX2)
_____ (g) priority 3 nursing dx(NDX3)
_____ (h) priority 4 nursing dx(NDX4)

_____ 16. Type of exam:
1=complete hist. & physical
2=complete hist. & physical with pelvic
3=partial hist. & physical
4=partial hist.
5=complete hist. alone
6=partial hist & physical with pelvic exam
7=partial phys. alone
8=complete phys. alone
9=telephone assessment
0=special assessment done (see next question)

17 Were any of these special assessments done? These are specific in-depth assessments not part of a routine visit the number of the assessment on the line You can identify up to four assessments for any one visits

_____Special 1
_____Special 2
_____Special 3
_____Special 4

1=mental status
2=functional status
3=developmental
4=family
5=home
6=resources
7=risk appraisal
8=nutritional analysis

18. Were any of these screenings/tests done/ordered? You can identify up to 10 screens for one visit. Write '88' if not applicable.

_____Screen A	(1) chem profile	(15) rubella titer	(29) wet prep	
_____Screen B	(2) potassium	(16) blood type	(30) urethral culture	
_____Screen C	(3) other electrolytes	(17) coombs	(31) tympanogram	
_____Screen D	(4) serology-VD	(18) MSAFP	(32) pulmonary function	
_____Screen E	(5) x-ray	(19) CBC Hgb/Hct	(33) fetal non-stress test	
_____Screen F	(6) EKG	(20) sickle cell	(34) OGTT	
_____Screen G	(7) mammogram	(21) hepatitis	(35) Echo	
_____Screen H	(8) ultrasound	(22) cholesterol		
_____Screen I	(9) vaginal culture	(23) sigmoidoscopy		
_____Screen J	(10)glucose screen	(24) hearing		
	(11)urine/culture	(25) vision		
	(12)hemoccult	(26) HIV-1		
	(13)PAP smear	(27) throat culture		
	(14)TB skin test	(28) strep screen	(98) other (keep list)	

19. Were any of these interventions used? You can identify up to six interventions for one visit. Write '88' if not applicable.

_____Intervent 1	(1) relaxation training	(11) support groups	(21) therapeutic touch
_____Intervent 2	(2) cognitive reappraisal	(12) exercise	
_____Intervent 3	(3) humor	(13) assertiveness training	
_____Intervent 4	(4) self-modification	(14) crisis intervention	
_____Intervent 5	(5) patient contracting	(15) sexual counseling	
_____Intervent 6	(6) counseling	(16) nutritional counseling	
	(7) reminiscence therapy	(17) anticipatory guidance	
	(8) role supplementation	(18) case management	
	(9) patient teaching	(19) smoking cessation	
	(10)values clarification	(20) ETOH/drug counseling	(98) other

20. See additional list for correct code for (a) pharmacological agents:

_____	(1a) pharmacologic agent	(b) Type of pharmacologic management:
_____	(1b) type of pharmacologic management	1=new order
_____	(2a) pharmacologic agent	2=renew existing order
_____	(2b) type of pharmacologic management	3=change dose/frequency
_____	(3a) pharmacologic agent	4=discontinue
_____	(3b) type of pharmacologic management	
_____	(4a) pharmacologic agent	
_____	(4b) type of pharmacologic management	

21. Which of the following physical care activities were done? Write '88' if not applicable.

_____Care 1	(1) foot care	(7) breathing retraining	(13) wart removal	
_____Care 2	(2) cerumen removal	(8) medication review		
_____Care 3	(3) dressings	(9) bladder retraining		
_____Care 4	(4) immunization injection	(10)heat/cold therapy		
_____Care 5	(5) massage/back rub	(11)gait training		
_____Care 6	(6) postural drain/percussion	(12)breathing treatment	(98) other	

_____22. Next visit:

1=≤1 wk	5=6 mos-1 yr
2=2-3 wk	6=> 1 yr
3=4-6 wk	7=prn
4=7 wk-5 mos	8=admit to hospital

23. Which of these referrals were made? You can identify up to six referrals for one visit.

_____Refer A	(1) support group	(7) podiatry	(13) diabetic class	
_____Refer B	(2) nurse	(8) dietician/nutritionist		
_____Refer C	(3) physician	(9) clergy		
_____Refer D	(4) mental health	(10)legal		
_____Refer E	(5) social worker	(11)dental		
_____Refer F	(6) CNS	(12)public health	(98) other	

a.caseload 93

APPENDIX B

Medical Diagnoses Used in This Study

11/92

Medical Codes

Entry codes	ICDA codes	Description
41400	414.0	ASHD/coronary
68290	682.9	Abscess
44190	441.9	Abdominal aneurysm
78900	789.0	Abdominal pain
78310	783.1	Abnormal weight gain
78320	783.2	Abnormal weight loss
64120	641.2	Abruptio placenta
27620	276.2	Acidosis (respiratory, metabolic, lactic)
97790	977.9	Adverse effect of other & unspecified drugs
04290	042.9	Aids-like disease
04390	043.9	Aids-like disease with HIV
30500	305.0	Alcohol abuse
30390	303.9	Alcoholism, chronic
47790	477.9	Allergic rhinitis
99530	995.3	Allergy, unspecified
33100	331.0	Alzheimer's disease
62600	626.0	Amenorrhea
30570	305.7	Amphetamine abuse
28590	285.9	Anemia, unspecified
41390	413.9	Angina pectoris; unspecified
78300	783.0	Anorexia
30710	307.1	Anorexia nervosa
30580	305.8	Antidepressant abuse
30000	300.0	Anxiety
42410	424.1	Aortic valve disease
77360	773.6	Aphasia
54000	540.0	Appendicitis, acute
42790	427.9	Arrhythmia: cardiac dysrhythmia
44090	440.9	Arteriosclerosis: generalized
71690	716.9	Arthritis or polyarthritis, rheumatoid
78950	789.5	Ascites
49390	493.9	Asthma: unspecified
42731	427.31	Atrial fibrillation
31400	314.0	Attention deficit disorder
87600	876.0	Back, uncomplicated
72450	724.5	Back pain
30540	305.4	Barbiturate, sedative, hypnotic abuse
35151	351.51	Bell's palsy
76890	768.9	Birth asphyxia: unspecified
61172	611.72	Breast mass or swelling
49400	494.0	Bronchiectasis
46600	466.0	Bronchitis, acute
49120	491.2	Bronchitis, chronic
30751	307.51	Bulimia
72710	727.1	Bunion

Entry codes	ICDA codes	Description
94900	949.0	Burns: unspecified
72790	727.9	Bursitis
87700	877.0	Buttock, uncomplicated
49600	496.0	COPD, chronic airway obstruction
43600	436.0	CVA without paralysis
17490	174.9	Cancer breast, malignancy neoplasm
19910	199.1	Cancer, carcinoma, malignancy, unspecified site
17390	173.9	Cancer, skin
11220	112.2	Candidiasis of urogenital sites
30520	305.2	Cannabis abuse
35400	354.0	Carpal tunnel syndrome
36690	366.9	Cataracts, unspecified
68290	682.9	Cellulitis
43700	437.0	Cerebral arteriosclerosis
33430	334.3	Cerebellar ataxia
34390	343.9	Cerebral palsy
38040	380.4	Cerumen, impacted of external ear
61600	616.0	Cervicitis, acute
87500	875.0	Chest, uncomplicated
41490	414.9	Chest pain
05200	052.0	Chickenpox
57500	575.0	Cholecystitis, acute
57510	575.1	Cholecystitis, chronic
57400	574.0	Cholelithiasis
41490	414.9	Chronic ischemic heart disease
45990	459.9	Circulattory diseases, unspecified
74920	749.2	Cleft palate
80820	808.2	Closed fracture of pelvis
30560	305.6	Cocaine abuse
46000	460.0	Cold
15400	154.0	Colon and large intestine, malignant neoplasm
5530	V55.3	Colostomy
64690	646.9	Complicated pregnancy: unspecified
99990	999.9	Complications of medical care
42690	426.9	Conduction disorder
42800	428.0	Congestive heart failure
37230	372.3	Conjunctivitis, unspecified
71090	710.9	Connective tissue disease
56400	564.0	Constipation
92490	924.9	Contusion of multiple sites: unspecified
78030	780.3	Convulsions
41500	415.0	Cor Pulmonale, acute
41690	416.9	Cor Pulmonale, chronic
41180	411.8	Coronary insufficiency, acute
73390	733.9	Costochondritis
78620	786.2	Cough
07920	079.2	Coxsackie viral disease
55590	555.9	Crohn's disease: regional enteritis

Entry codes	ICDA codes	DESCRIPTION
73740	737.40	Curvature of spine: unspecified
25500	255.0	Cushings syndrome
78250	782.5	Cyanosis
61620	616.2	Cyst of Bartholin's gland
61000	610.0	Cystic breast disease
27700	277.0	Cystic fibrosis
61800	618.0	Cystocele
34990	349.9	Degenerative disease of CNS: unspecified
52100	521.0	Dental caries
30040	300.4	Depression, neurotic
47000	470.0	Deviated nasal septum
25350	253.5	Diabetes insipidus
55890	558.9	Diarrhea
73303	733.03	Diffuse osteoporosis
70490	704.9	Diseases of hair and follicles
30400	304.0	Drug abuse (opium alkaloids)
56210	562.1	Diverticulosis-colon
53290	532.9	Duodenal ulcer
62530	625.3	Dysmenorrhea
62500	625.0	Dyspareunia, female
60880	608.8	Dyspareunia, male (seminal vasculitis)
78720	787.2	Dysphasia
78600	786.0	Dyspnea
53680	536.8	Dyspepsia
38890	388.9	Ear disorder: unspecified
87210	872.1	Ear external
78230	782.3	Edema
88100	881.0	Elbow, forearm, wrist: uncomplicated
27690	276.9	Electrolyte imbalance
78700	787.0	Emesis
30770	307.7	Encopresis
61700	617.0	Endometriosis
78830	788.3	Enuresis
49280	492.8	Emphysema
60490	604.9	Epididymitis
34590	345.9	Epilepsy
62200	622.0	Erosion, ulceration of cervix
53010	530.1	Esophagitis
53020	530.2	Esophagus ulcer
53000	530.0	Esophagus, Achalasia, and cardiospasm
64610	646.1	Excessive weight gain during pregnancy without hypertension
69290	692.9	Eczema: dermatitis: unspecified
05700	057.0	Erythema infectiosum (fifth dx)
87340	873.4	Face: uncomplicated
78340	783.4	Failure to thrive
6100	V61.0	Family disruption
2500	V25.0	Family planning

Entry codes	ICDA codes	DESCRIPTION
78070	780.7	Fatigue; malaise
78060	780.6	Fever
88300	883.0	Fingers: uncomplicated
6790	V67.9	Follow-up after treatment of disease
89200	892.0	Foot: uncomplicated
07840	078.4	Foot and mouth disease
81000	810.0	Fracture of clavicle
82100	821.0	Fracture of femur, closed
81240	812.4	Fracture of humerus, closed
80700	807.0	Fracture of rib(s), closed
82900	829.0	Fracture. general, closed
72740	727.40	Ganglion, joint or tendon
53190	531.9	Gastric ulcer: unspecified
53500	535.0	Gastritis, acute
00910	009.1	Gastroenteritis/colitis
57890	578.9	Gastroenteritis bleeding: unspecified
7090	V70.9	General medical examination/
36590	365.9	Glaucoma
09800	098.0	Gonorrhea
27490	274.9	Gout
24200	242.0	Graves disease
7230	V72.3	Gynecological exam
88200	882.0	Hand: uncomplicated
78400	784.0	Headache
30780	307.8	Headache:tension
38990	389.9	Hearing impaired: unspecified
78520	785.2	Heart murmur: benign
59970	599.7	Hematuria
34290	342.9	Hemiplegia: unspecified
32000	320.0	Hemophilus meningitis
78630	786.3	Hemoptysis
57330	573.3	Hepatitis (non-infectious)
33400	334.0	Hereditary spinal ataxia (Friedreich's ataxia)
05390	053.9	Herpes simplex
05390	053.9	Herpes zoster
55390	553.9	Hiatal hernia
2390	V23.9	High risk pregnancy
89000	890.0	Hip, thigh: uncomplicated
20190	201.9	Hodgkin
33140	331.4	Hydrocephalus: acquired
27200	272.0	Hyperlipoproteinimia
64230	642.3	Hypertension of pregnancy (transient)
40110	401.1	Hypertension, essential: benign
24290	242.9	Hyperthyroidism
27210	272.1	Hypertriglycerdemia
25120	251.2	Hypoglycemia: unspecified
27680	276.8	Hypokalemia
74850	748.5	Hypoplasia, lung

Entry codes	ICDA codes	DESCRIPTION
27680	276.8	Hyposmolality and/or hyponatremia
99160	991.6	Hypothermia
25001	250.01	IDDM
74681	746.81	IHSS
68400	684.0	Impetigo
11790	117.9	Infection, fungal (other and unspecified mycoses)
48710	487.1	Influenza (viral URI)
55090	550.9	Inguinal hernia
91300	913.0	Injury of elbow, forearm, and wrist (abrasion or friction burn)
95910	959.1	Injury;back
78052	780.52	Insomnia
56090	560.9	Intestine, obstruction: unspecified
2370	V23.7	Insufficient prenatal care
56410	564.1	Irritable bowel syndrome
78240	782.4	Jaundice
71940	719.4	Joint pain
89100	891.0	Knee, leg, thigh: uncomplicated
87980	879.8	Laceration: site unspecified
15390	153.9	Large intestine, malignant neoplasm
20890	208.9	Leukemia
52850	528.5	Lip disease
78220	782.2	Local superficial swelling, mass
16290	162.9	Lung and bronchus neoplasm
08881	088.81	Lyme disease
78560	785.6	Lymphadenopathy
20280	202.8	Lymphoma
36250	362.5	Macular degeneration
19900	199.0	Malignant neoplasm: general
65290	652.9	Malposition of fetus in utero
6110	V61.1	Marital conflict
76040	760.4	Maternal nutritional disorders
05500	055.0	Measles
78090	780.9	Memory loss
62620	626.2	Menorrhagia
34690	346.9	Migraine headache
31900	319.0	Mental retardation
62660	626.6	Metrorrhgia
74650	746.5	Mitral stenosis
42400	424.0	Mitral valve prolapse
39400	394.0	Mitral valve stenosis
62520	625.2	Mittelschmerz
07500	075.0	Mononucleosis
87360	873.6	Mouth: uncomplicated
87980	879.8	Multiple open wounds
34000	340.0	Multiple sclerosis
65100	651.0	Multiple gestation
07200	072.0	Mumps

Entry codes	ICDA codes	DESCRIPTION
72890	728.9	Muscle spasm
35910	359.1	Muscular dystrophy
84500	845.0	Musculoskeletal injuries of ankle and foot:sprain and strain
20300	203.0	Myeloma
41090	410.9	Myocardial infarction, acute
25000	250.00	NIDDM
47220	472.2	Nasopharyngitis, chronic
72310	723.1	Neck pain
59780	597.80	Nongonococcal urethritis
76070	760.7	Noxious influences affection fetus via placenta or breast milk
27800	278.0	Obesity
11200	112.0	Oral candidiasis (thrush)
30550	305.5	Opioid abuse
71590	715.9	Osteoarthritis: unspecified
73300	733.0	Osteoporosis: unspecified
38010	380.10	Otitis externa
38100	381.0	Otitis media: acute
38130	381.3	Otitis media: chronic
62020	620.2	Ovarian cyst (simple cystoma)
18300	183.0	Ovary, malignant neoplasm
61490	614.9	P.I.D.
62540	625.4	PMS
78260	782.6	Pallor, flushing
78510	785.1	Palpitations
57700	577.0	Pancreatitis, acute
57710	577.1	Pancreatitis, chronic
7620	V76.2	Pap smear (routine)
33200	332.0	Parkinson's disease
30100	301.0	Paranoid personality disorder
13200	132.0	Pediculosis
53300	533.0	Peptic ulcer
44390	443.9	Peripheral vascular disease
47500	475.0	Peritonsillar abscess
28100	281.0	Pernicious anemia: vitamin deficiency
46200	462.0	Pharyngitis, acute
45190	451.9	Phlebitis
64110	641.1	Placenta previa
51100	511.0	Pleurisy without effusion
48190	481.9	Pneumococcal: bronchopneumonia
48600	486.0	Pneumonia
51280	512.8	Pneumothorax: spontaneous
78360	783.6	Polyphagia
99850	998.5	Postoperative infection
2420	V24.2	Postpartum follow up (routine)
7240	V72.4	Pregnancy exam, pregnancy confirmed
42769	427.69	Premature ventricular contractions

Entry codes	ICDA codes	DESCRIPTION
2220	V22.2	Prenatal care, normal pregnancy
29010	290.1	Presenile dementia
60730	607.3	Priapism
60190	601.9	Prostatitis
69890	698.9	Pruritus
69610	696.1	Psoriasis
30690	306.9	Psychophysiologic dysfunction: unspecified
30270	302.7	Psychosexual dysfunction
29880	298.8	Psychosis (reactive)
29890	298.9	Psychosis: unspecified
78210	782.1	Rash on skin and subcutaneous tissue
58500	585.0	Renal failure, chronic
79910	799.1	Respiratory failure
36100	361.0	Retinal detachments and defects
36274	362.74	Retinitis pigmentosa
33181	331.81	Reyes syndrome
65610	656.1	Rh incompatibility
47200	472.0	Rhinitis
2020	V20.2	Routine infant and child health check
5600	056.0	Rubella
13300	133.0	Scabies
87300	873.0	Scalp: uncomplicated
29550	295.5	Schizophrenia
73739	737.39	Scoliosis
29000	290.0	Senile dementia: uncomplicated
33120	331.2	Senile organic brain disease
73301	733.01	Senile osteoporosis
28260	282.6	Sickle cell disease
24000	240.0	Simple goiter
47390	473.9	Sinusitis, chronic
72900	729.0	Soft tissue disorder: unspecified
63490	634.9	Spontaneous abortion
60690	606.9	Sterility of male
62890	628.9	Sterility of female
3400	034.0	Strep throat
78020	780.2	Syncopal episode
43590	435.9	TIA
75471	754.71	Talipes caves
72690	726.9	Tendinitis
23950	239.5	Testicular neoplasm (other genitourinary sites)
78410	784.1	Throat pain
24220	242.2	Thyrotoxicosis: multi-nodular sites
11000	110.0	Tinea capitis
11050	110.5	Tinea corpus
38830	388.3	Tinnitus
30510	305.1	Tobacco use
89300	893.0	Toes: uncomplicated
46300	463.0	Tonsillitis

Entry codes	ICDA codes	DESCRIPTION
62540	625.4	Toxemia of pregnancy
74830	748.3	Tracheomalacia, congenital
89620	896.2	Traumatic amputation, bilateral
89600	896.0	Traumatic amputation, unilateral: uncomplicated
7530	V75.3	Trypanosomiasis
1090	010.9	Tuberculosis
78730	787.3	Tympanism
46500	465.0	URI
59900	599.0	UTI, pyuria
55600	556.0	Ulcerative colitis
45400	454.0	Ulcers, stasis
55380	553.8	Umbilical hernia
9980	099.8	Unspecified venereal disease, chlamydia
78820	788.2	Urinary retention
61810	618.1	Uterine prolapse
62380	623.8	Vaginal bleeding
62350	623.5	Vaginal discharge, leukorrhea, not infective
62340	623.4	Vaginal laceration, old
61610	616.1	Vaginitis and vulvitis
45490	454.9	Varicose veins
78040	780.4	Vertigo
4990	049.9	Viral encephalitis
7390	V73.9	Viral infection
7810	078.1	zWart(viral-condyloma acuminata-verruel (plantaris), infect
24490	244.9	Hypothyroidism
99990	Other	(not listed above)

APPENDIX C

Nursing Diagnoses Used in This Study

Nursing Diagnosis Codes
1992-1993
1993-1994

dx	Description
1	Activity intolerance
2	Activity intolerance. potential
127	Activity tolerance
3	Adjustment, impaired
4	Airway clearance, ineffective
100	Altered protection
5	Anxiety
131	Anxiety, anticipatory
128	Anxiety, mild
129	Anxiety, moderate
130	Anxiety,sever
101	Aspiration: potential for
132	Attachment, weak mother (parent)/infant
6	Bladder elimination, adequate
7	Body image, positive
104	Body image, disturbance
133	Body image, realistic
8	Body temperature, potential altered
105	Bowel incontinence
9	Bowel elimination, adequate
102	Breastfeeding: effective
103	Breastfeeding: ineffective
13	Breathing pattern, ineffective
14	Cardiac functioning, effective
15	Cardiac output, decreased
135	Cognitive impairment, potential
134	Conflict, dependence/independence, unresolved
16	Comfort, adequate
997	Comfort, altered (<u>not</u> pain)
19	Communication, impaired: verbal
106	Constipation, colonic
107	Constipation, perceived
136	Constipation, intermittent pattern
108	Coping avoidance
109	Coping, defensive
20	Coping, effective family
21	Coping, effective individual
22	Coping, family: potential for growth
23	Coping, ineffective family: compromised
24	Coping, ineffective family: disabling
138	Coping, ineffective individual
26	Crisis resolution, effective
110	Decisional conflict
139	Decubitus ulcer

111 Denial, ineffective
140 Depression, reactive (situational)
27 Developmental progression, efficient
112 Diarrhea
113 Disuse syndrome, potential
28 Diversional activity, deficit
114 Dysreflexia
141 Exercise level appropriate
142 Family processes productive
143 Family functioning, satisfactory
29 Family process, altered
115 Fatigue
30 Fear
147 Fluid intake, adequate
146 Fluid volume, adequate
144 Fluid volume deficit, actual 1 (failure of regulatory mechanism)
145 Fluid volume deficit, actual 2 (active loss of body fluid)
33 Fluid volume deficit, potential
31 Fluid volume excess
34 Gas exchange, impaired
35 Grieving, anticipatory
36 Grieving, dysfunctional
37 Growth and development, altered
148 Growth and development altered: communication skills
149 Growth and development altered: self-care skills
150 Growth and development altered: social skills
38 Health maintenance, altered
39 Health maintenance, appropriate
151 Health management deficit: total
152 Health management deficit (specific)
153 Health seeking behaviors (specific)
40 Home maintenance management, effective
41 Home maintenance management, impaired
42 Hopelessness
43 Hyperthermia
44 Hypothermia
45 Immune response, effective
46 Incontinence, functional
47 Incontinence, reflex
48 Incontinence, stress
49 Incontinence, total
116 Incontinence, urge
50 Infection, potential for
51 Injury, potential for(poisoning: suffocation: trauma)
154 Joint contractures, potential
52 Knowledge deficit
155 Memory deficit, uncompensated short term
156 Mobility level adequate
53 Mobility, impaired physical
54 Noncompliance

157 Noncompliance, potential
55 Nutrition, alteration in: less than body requirement (or nutritional deficit)
56 Nutrition, alteration in: more than body requirement (or exogenous obesity)
57 Nutrition, alteration in: potential for more than body requirement (or potential obesity)
58 Nutritional status, optimal
117 Pain
118 Pain, chronic
119 Pain, self-management deficit
59 Oral mucous membrane, altered
120 Parental role conflict
60 Parenting, altered
61 Parenting, potential for altered
121 Personal identity disturbance
62 Physical fitness, optimal
63 Post trauma response
64 Potential for successful satisfaction of developmental needs
65 Powerlessness
66 Rape trauma syndrome
158 Rape trauma syndrome: compound reaction
159 Rape trauma syndrome: silent reaction
67 Respiratory function, effective
122 Role performance, disturbance
160 Self bathing-hygiene deficit
68 Self-care, independence
69 Self-care deficit, total
71 Self-concept, positive
161 Self dressing-grooming deficit
162 Self feeding deficit
163 Self toileting deficit
123 Self-esteem disturbance
124 Self-esteem, chronic low
125 Self-esteem, situational low
164 Self-esteem, positive
165 Sensory functioning adequate
166 Sensory deficit, uncompensated (specific)
167 Sensory-perceptual alteration: input deficit (or sensory deprivation)
168 Sensory-perceptual alteration: input excess (or sensory overload)
73 Sexual dysfunction
170 Sexual dysfunction adequate
171 Sexual expression appropriate
75 Sexuality patterns, altered
169 Skin integrity adequate to support body requirements
77 Skin integrity, impaired
78 Skin integrity, impaired: potential
79 Sleep pattern disturbance
80 Sleep pattern, adequate

81 Social interaction, impaired
82 Social interaction, satisfactory
83 Social isolation
84 Spiritual distress
85 Swallowing, impaired
126 Trauma, potential for
86 Thermoregulation, ineffective
87 Thought process, alterations in
88 Tissue integrity, impaired
89 Tissue perfusion, alteration in: cerebral, cardiopulmonary, renal
90 Unilateral neglect
91 Urinary elimination, altered patterns
92 Urinary retention
93 Violence, potential for

9/3/92 c:a:\caseload\ncodes92.alf

APPENDIX D

University Committee of Research Involving Human Subjects: Forms of Approval

MICHIGAN STATE
UNIVERSITY

June 1, 1995

TO: Catherine L. Barrett
36708 Dartmouth
Westland, MI 48185

RE: IRB#: 95-300
TITLE: ANALYSIS OF THE MOST COMMON MEDICAL DIAGNOSES, NURSING DIAGNOSES, AND DIAGNOSTIC AND SCREENING TESTS SEEN BY STUDENTS IN AN ADVANCED PRACTICE NURSE GRADUATE PROGRAM IN THE PRIMARY CARE SETTING
REVISION REQUESTED: N/A
CATEGORY: 1-E
APPROVAL DATE: 05/31/95

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

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

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

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

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

Sincerely,

David E. Wright, Ph.D.
UCRIHS Chair

DEW:kaa/lcp

cc: Barbara A. Given

OFFICE OF
RESEARCH AND GRADUATE STUDIES
University Committee on Research Involving Human Subjects (UCRIHS)
Michigan State University
232 Administration Building
East Lansing, Michigan
48824-1046
517/355-2180
FAX 517/432-1171

APPLICATION FOR APPROVAL OF A PROJECT INVOLVING HUMAN SUBJECTS - *INITIAL REVIEW*

UCRIHS - Michigan State University
David E. Wright, Ph.D., Chair
225 Administration Building
East Lansing, MI 48824-1046
(517) 355-2180 - Telephone . . . (517) 336-1171 - FAX
Office Hours: M-F (8:00 A.M.-Noon & 1:00-5:00 P.M.)

DIRECTIONS: Please complete questions on this application using the instructions and definitions found on the lavender sheets (revised May 1993).

1. **RESPONSIBLE PROJECT INVESTIGATOR(S)** (Faculty or staff supervisor)

Dr. Barbara Given

Faculty ID#: _____
(Social Security #)

I have read the enclosed proposal and am willing to supervise the student. Further, I believe the research can be safely completed without endangering human subjects.

_____
(Signature)

ADDITIONAL INVESTIGATOR(S)

Catherine L. Barrett

Fac./Stu. ID#: _____

Dr. Rachel Schiffman

Fac./Stu. ID#: _____

Brigid Warren, M.S.N.

Fac./Stu. ID#: _____

Fac./Stu. ID#: _____

2. **ADDRESS** (for comments/approval letter)

Cathy Barrett
36708 Dartmouth
Westland Michigan 48185

Phone #: (313)728-8819
FAX #: _____

ADDRESS (for comments/approval letter)

Phone #: _____
FAX #: _____

3. **TITLE OF PROPOSAL** Analysis of the Most Common Medical Diagnoses, Nursing Diagnoses, and Diagnostic and Screening Tests Seen By Students in an Advanced Practice Nurse Graduate Program in the Primary Care Setting

4. **PROPOSED FUNDING AGENCY** (if any) _____

5. **DOES THIS PROJECT UTILIZE AN INVESTIGATIONAL DRUG, DEVICE OR PROCEDURE?**
Yes [ ] No [X] If yes, is there an IND #? Yes [ ] _____ No [ ]

6. **DOES THIS PROJECT INVOLVE THE USE OF HUMAN BLOOD OR TISSUE?**
Yes [ ] No [X]

7. **DOES THIS PROPOSAL HAVE AN MSU ORD NUMBER?** Yes [ ] # _____ No [X]

8. **WHEN WOULD YOU PREFER TO BEGIN DATA COLLECTION?** June 1995
Please remember you may not begin data collection without prior UCRIHS approval.

9. **CATEGORY** (Circle A, B or C below. See instructions.)

a. This proposal requires review by a full sub-committee.
b. This proposal is eligible for expedited review Specify category or categories _____
(c) This proposal is exempted from full sub-committee review. Specify category or categories 1-E

FOR OFFICE USE ONLY
Subcommittee _____ Agenda _____

2

10. **PROJECT DESCRIPTION (ABSTRACT)**

For decisions about Advanced Practice Nurse (APN) graduate student curricula in the primary care setting, the faculty must know the practice content seen by the APN in the primary care setting. Little is known about the content of APN practice in the primary care setting. The purpose of this study is to explore and describe the most common medical diagnoses, nursing diagnoses, and diagnostic and screening tests seen by the APN graduate student in the primary care setting. Data has already been collected on client encounters of the APN graduate students in the APN program at Michigan State University. However, this data has not been analyzed. Demographics related to the client and the client's visit will also be explored and described. Primary care encounters will be limited to those that occurred in a family practice or general medicine practice. The age group of client encounters will be limited to those 18-64 years of age.

11. **PROCEDURES**

Summary records of client encounters by graduate students in the Advanced Practice Nurse graduate program at Michigan State University from September 1992 through August 1994 will be analyzed. Practice settings will be limited to family practice and general medicine. Data related to demographics of the client and the client's visit will be extracted. Code numbers will be used to identify clients, practice settings, and the students. Data from the summary records has been loaded onto a computer program utilizing the code numbers.

12. **SUBJECT POPULATION**

a. The study population may include (check each category where subjects may be included by design or incidentally):

Minors	[ ]
Pregnant Women	[x]
Women of Childbearing Age	[x]
Institutionalized Persons	[ ]
Students	[x]
Low Income Persons	[x]
Minorities	[x]
Incompetent Persons (or those with diminished capacity)	[x]

b. Number of subjects (including controls) _____

c. If you are associated with the subjects (e.g., they are your students, employees, patients), please explain the nature of the association. N/A

d. How will the subjects be recruited? N/A

e. If someone will receive payment for recruiting the subjects, please explain the amount of payment, who pays it and who receives it. N/A

f. Will the research subjects be compensated? [x] No [ ] Yes. If yes, details concerning payment, including the amount and schedule of payments, must be set forth in the informed consent.

h. Will the subjects incur additional financial costs, as a result of their participation in this study? [x] No [ ] Yes. If yes, please include an explanation in the informed consent.

g. Will you be advertising for research participants? [x] No [ ] Yes. If yes, attach a copy of the advertisement you will use. N/A

13. **ANONYMITY/CONFIDENTIALITY**

The protection of human subjects will be employed in this study by a couple of methods. Subjects have been assigned an identification number by the APN graduate student who saw the subject. The APN graduate student is also identified by a code number instead of a name. Therefore, names of clients and students will not be used in any part of this study. Practice settings are also identified by a code number. A list of the practice settings will be used to make certain that the practice setting is a family practice or general medicine setting. The names of the practice settings will not be used in the reporting of any part of the data. The data and list of practice settings is secured by the College of Nursing.

14. **RISK/BENEFIT RATIO**

No risks to the subjects are identified. The benefit of obtaining information on the most common medical diagnoses, nursing diagnoses, and diagnostic and screening tests seen by the APN graduate student would include: 1.) provide information to develop appropriate educational programs that will better qualify the APN graduate to meet the health care needs of clients in the primary care setting 2.) provide information to assist in the development of clinical guidelines for the most commonly seen problems in primary care or direct educators to guidelines already established as a means for educating APNs in the primary care setting.

15. **CONSENT PROCEDURES**

The data to be analyzed has already been collected. At the time of data collection it was not known that the data would be used for a thesis project.

UCRIHS APPROVAL FOR
THIS project EXPIRES:

MAY 31 1996

and must be renewed with
11 months to continue.

Is your application COMPLETE? Please SEE the CHECKLIST on page four of the UCRIHS Instructions.