

DETERMINING THE LEVEL OF CARE PROVIDED BY THE FAMILY
NURSE PRACTITIONER DURING A DEPLOYMENT

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LARINO

DETERMINING THE LEVEL OF CARE PROVIDED BY A FAMILY NURSE
PRACTITIONER DURING A DEPLOYMENT SITUATION

Elizabeth A. Larino, Capt, USAF, NC

APPROVED:

Marilyn W. Edmunds 4-3-97
Chair Date

Patricia C. McKeel 4/3/97
Member Date

Eugene Lemie 4/3/97
Member Date

Virginia K. Saba 4/3/97
Member Date

APPROVED:

F.G. Abdallah 4/35/97
F.G. Abdallah, Ed.D., Sc.D., R.N., F.A.A.N. Date
Dean

CIRRICULUM VITAE

Name: Elizabeth Ann Larino

Address: 8804 Rustburg Circle
Gaithersburg, Maryland 20879

Degree and date to be conferred: Master of Science in Nursing, 1997

Date of Birth: October 13, 1961

Place of Birth: Brooklyn, New York

Secondary education: Longwood High School
Middle Island, New York
June 24, 1979

Collegiate institutions attended:

Uniformed Services University of the Health Sciences,
August 1995 to May 1997
Degree: Master of Science in Nursing
Conferred: May 1997.

University of Washington, September 1983 to June 1985
Degree: Bachelor of Science in Nursing
Conferred: June 1985.

Major: Family Nurse Practitioner.

Professional Positions Held: Student, Family Nurse Practitioner Program.
Uniformed Services University of the Health Sciences.

Family Nurse Practitioner.
59th Medical Wing, Lackland Air Force Base, Texas

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ABSTRACT

The purpose of this research study is to identify and describe the levels of care that could be provided by a family nurse practitioner (FNP) during a military deployment. A family nurse practitioner is an advanced practice nurse who possesses the skills necessary for the detection and management of acute self-limiting conditions and management of chronic stable conditions across an individual's lifespan. FNP activities include providing ambulatory care, guidance and counseling for families, consultation and referral, and working collaboratively with physicians. Armed forces medical surveillance outpatient data, commonly referred to as disease non-battle injuries (DNBI), collected during Operation Desert Shield and Desert Storm (ODS/DS) were used to design a questionnaire. Level of care items were developed using modifications of the levels of prevention from the Neuman Systems Model. The survey questions addressed each condition in the reported DNBI data. The questionnaire was tested for validity and reliability before it was mailed to 104 directors of FNP educational programs listed in the National Organization for Nurse Practitioner Faculties directory. Fifty-eight usable questionnaires were returned and used for the research sample. These data were analyzed to determine consensus among the respondents as to what level of care the FNP could provide for the conditions identified during a military deployment. The findings show that at least 90% of the respondents agreed that the FNP could assess, diagnose, and provide interventions for prevention and education for the conditions experienced during ODS/DS. The most significant findings were in the "treat" and "refer" levels of care. At least 70% of the respondents agreed that uncomplicated primary care conditions could be treated by the FNP. The need for a referral was dependent on many factors identified by the respondents including: (a) severity of the problem, (b) etiology, (c) underlying risk factors, (d) expertise and comfort level of FNP, (e) knowledge and frequency of caring for the condition, (f) specialized training, (g) level of physician support, (h) facility protocols, and (i) prescription authority. These factors could complicate a primary care condition or limit the FNP. The findings of the study describe the levels of care provided by the FNP and support a role in deployment for FNPs.

TITLE OF THESIS

DETERMINING THE LEVEL OF CARE PROVIDED BY THE FAMILY NURSE
PRACTITIONER DURING A DEPLOYMENT

by

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PREFACE

My interest in medical readiness and deployment stems from my eleven years as an active duty Air Force nurse. Having never been deployed, my knowledge about deployment has been from secondary sources obtained from the literature, military training exercises and personal testimonies from other military members. As a staff nurse, charge nurse, triage nurse and flight commander of a nurse recruitment team, the importance of medical readiness and deployment were continually stressed. Providing health care to meet the needs of deployment is what distinguishes the military from the civilian sector. Being given the opportunity to attend the Uniformed Services University of the Health Sciences Graduate School of Nursing Family Nurse Practitioner Program has been an honor, and I truly wanted to give something back to the Air Force for giving me this unique and memorable experience. When I learned the family nurse practitioner had no deployment role, I set forth my efforts to help describe this needed role. I hope this study has helped build a knowledge base for the future of the Air Force Nurse Corps.

DEDICATION

I dedicate the creation of this thesis to God. For without God, I would not be. God has allowed me to be a part of this great country - the United States of America. God has given me the strength and courage to go forth and accomplish his work through my service to my country. God has surrounded me with a loving family of whom I am eternally grateful for all of their encouragement and support. To my devoted husband, Bob, who has been my lover, companion and best friend for over 20 years. Thank you for being there when I was in need. To my daughter, Jennifer whose desire to be a gymnast and to sell 100 boxes of Girl Scout cookies provided welcomed distractions during the past two years. To my son, Michael, whose love of sports ventured the family to Camden Yards for Orioles games and to the U.S. Air Arena for Capitals and Bullets games. And to my youngest son, Brad who has the endurance and stamina to ride his 16-inch, no-gear bicycle 26 miles to keep up with his mother who is participating in the Marine Corps Marathon. To my mother who is always there willing to listen and my father who is always there encouraging me to do my best. I have truly been blessed.

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In life's journey we all walk in darkness searching for the light. I thank God for the assistance of the chairperson and members of the thesis advisory committee who use their God-given talents and expertise to help others come closer to the light. For this I am eternally grateful and pray the Prayer of St. Francis.

Make me a channel of your peace.
Where there is hatred, let me bring your love.
Where there is injury, your pardon, Lord,
And where there's doubt, true faith in you.

Make me a channel of your peace.
Where there's despair in life, let me bring hope.
Where there is darkness, only light
And where there's sadness ever joy.

Make me a channel of your peace.
It is in pardoning that we are pardoned,
In giving of ourselves that we receive,
And in dying that we're born to eternal life.

Oh Master, grant that I may never seek
So much to be consoled as to console,
To be understood as to understand,
To be loved, as to love, with all my soul.

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CHAPTER I: INTRODUCTION

The purpose of this research study is to identify the levels of care that could be provided by the family nurse practitioner (FNP) during deployment and to determine if the FNP has a valid role in deployment. A family nurse practitioner is an advanced practice nurse who possesses the skills necessary for the detection and management of acute self-limiting conditions and management of chronic stable conditions across an individual's lifespan. FNP activities include providing ambulatory care, guidance and counseling for families, consultation and referral, and working collaboratively with physicians.

Background

The latest military medical need focuses on adoption of a new market driven way of delivering health care while reducing the size of the force and closing facilities (Brown, 1994). According to Brigadier General Linda Stierle, Chief, US Air Force Nurse Corps, in response to demands for more accessible, cost-effective health care providers, the Air Force Nurse Corps is expanding the services provided in the military health care system through use of the FNP. The introduction of the FNP into the Air Force (AF) health care system has been a slow process. Rather than recruiting from the civilian community, FNPs are being educated within the military system. Recently, ten active duty AF nurses were graduated from the Uniformed Services University of the Health Sciences (USUHS) Graduate School of Nursing (GSN) receiving a master's degree from the FNP program and were assigned to military treatment facilities across the United States and overseas. Thus, the advanced practice role was officially recognized by the services in the assignment of personnel to attend the GSN.

The role of the FNP is not an entirely new concept in the Air Force. Twenty years ago, the primary care nurse practitioner (PCNP) was introduced into the health care system. Uncertainties about the capabilities of the primary care nurse practitioner and how the role fitted into the military health care system as a whole resulted in confusion, unrealistic expectations, and conflict (Maroon, 1976; Southby,1980).

FNPs have been utilized by the AF in the past, camouflaged among the many support personnel in the military system and often not recognized for their special contributions to the health care system. In the past the FNP role was not very visible because there were no positions for them in the AF. Even though positions were not available, active duty and reserve nurses sought certification as FNPs on their own through continuing education and tuition assistance programs. They concurrently maintained positions in their old job descriptions under their previous Air Force Specialty Codes (AFSCs). Currently, FNPs are being utilized outside the primary care setting in administration, education, research, staff and charge nursing. FNPs who have graduated from programs other than the USUHS/GSN have been underutilized because there are limited positions for FNPs (Colonel McKenna, Chief of Nurse Practitioner Assignments, AF Military Personnel Center (AFMPC), Randolph Air Force Base, Texas, personal communication, Nov. 15, 1996).

FNPs have filled vacancies based on specific facility needs. Within the primary care arena, FNPs have delivered competent, appropriate, quality care to a variety of patients in pediatrics, women's health, and primary care in the Army, Navy, and under another Air Force Specialty Code in the Air Force (Lavey, 1996; Lukasik, 1993; McGloon, Ballantyne & Armstrong, 1994; Murphy, 1996). However, FNPs have not been identified as a specialty in manpower staffing reports (Colonel McKenna, personal communication, Nov. 15, 1996).

In the past FNPs have not been deployed in their role as primary care provider. Little is known about their role because it has been blended into the military health care system rather than identified as a separate entity. Versatility and flexibility within the military system are characteristics that contribute to a quality force, and the role of the FNP incorporates both characteristics. FNPs have not been utilized in the role for which they were educated perhaps because members of the public and military health care system are unfamiliar with it. Unfortunately, the FNP role has been fragmented and never fully developed.

Role versatility is expected of all military personnel in order to support the needs of deployment (Lieutenant Colonel Quannetta Edwards, personal communication, Oct. 7, 1996).

Medical readiness, which includes knowledge and utilization of all available health care resources for deployment, is the primary focus during peacetime in the military health care system. Medical readiness denotes preparation for the primary mission of deployment. Military NPs have made major contributions to support deployment for both humanitarian and wartime missions.

Although FNPs have not been afforded formal deployment status, they have managed to convince unit commanders to implement their advance practice role during deployment (Lavey, 1996; Lukasik, 1993; McGloon et al., 1994).

FNP roles are often altered to meet the needs of the deployment (Lavey, 1996; Lukasik, 1993; McGloon et al., 1994; Murphy, 1996). For example, critical care and medical-surgical nurses are essential when casualties are expected, but, when casualty rates are low, the demand is for primary care services. NPs have filled those gaps as clinical nurses and as primary care providers. Based on the needs of the mission, NPs alternate between staff nursing and advanced practice nursing roles.

Since before the end of the Cold War, deployment needs have been an ongoing concern and under constant scrutiny by the federal government (Blood & Jolly, 1995). For example, funding for military staffing levels is dictated largely by projected deployment needs (Baker, 1996). Only ten years ago, active duty pediatricians were perceived as having little or no use during wartime (Pierce & Hemming, 1986). Prior to ODS/DS, even though pediatricians constitute a valuable asset during both peace and wartime, there were no designated requirements for pediatricians within any deploying medical unit (Pierce, 1993). According to Pierce, pediatricians who served during the Gulf War were utilized as field surgeons, general internists, emergency medicine, clinical/administrative positions as unit commanders or unit surgeons, but still found themselves having to defend and justify their military positions. Many military pediatric nurse practitioners (PNPs) are facing elimination of their positions due to the lack of a deployment role and perceived limited scope of practice.

The deployment responsibility is what distinguishes the military from the civilian sector. Some NPs may argue that a deployment role is not necessary. But, in the changing military health

care system, where personnel are being reorganized and services are being contracted to civilian services, it is essential that FNPs identify their role in deployment in order to survive.

Statement of the Problem

The development of the FNP deployment role is in its infancy. An expert panel appointed by the Air Force Surgeon General was given the task of defining the FNP deployment role (Lieutenant Colonel Regina Aune, Associate Dean, USUHS/GSN, personal communication, Oct. 19, 1995). From a deployment tasks list the panel determined what tasks could be accomplished by the FNP during deployment. FNP capabilities were based on the health care needs that were experienced during previous missions. These tasks are the foundation for building medical support teams for future deployments. Deployment health care needs are constantly changing and being updated with each deployment mission.

Research Questions

Because little research is published on the role of the military nurse practitioner, there are many questions that need to be answered. Health care system administrators, including those in the military, have recognized that NPs provide competent, cost-effective, accessible medical care with high levels of patient satisfaction (Brodie, Bancroft, Rowell, & Wolf, 1982; Goldberg, Jolly, Hosek, & Chu, 1981; Nice & Hamilton, 1990; Selby, 1978). In addition, they have recognized that significant savings in education, employment costs and practice patterns can be achieved by utilizing NPs to deliver primary care and basic health care services (Nichols, 1992; OTA, 1986; Salkever, Skinner, Steinwachs, & Katz, 1982). Yet, there are few positions for FNPs in the military, and their capabilities and potential contributions are still unclear.

Research is needed to improve medical readiness capabilities and deployment utilization of FNPs. The critical questions to be addressed in this research study are:

1. What level of care could be provided by FNPs during deployment to meet the primary care conditions of military personnel?
2. Is there a deployment role for the FNP?

Theoretical Framework

The main concepts, assumptions, and theoretical assertions of the Neuman Systems Model provided the theoretical framework for this study. Neuman defines the interrelationships of four essential concepts - nursing, person, health, and environment. She views nursing as a unique profession and analyzes the interrelationships among physiological, psychological, sociocultural, developmental, and spiritual factors. Health or wellness is the harmony between these variables and the environment, the internal and external factors that can potentially alter the system environment.

Neuman's concepts are components of the FNP scope of practice. In this study, Neuman's concepts will be defined as follows:

Nursing: FNP levels of care as defined by Neuman's three levels of prevention.

Person: Military personnel.

Health: Conditions identified in DNBI data.

Environment: Deployment.

In the Neuman Systems Model nursing care is defined in terms of three levels of prevention. As summarized by Beckman and colleagues (1994), the three levels of prevention are defined as:

Primary prevention is carried out when stressors are suspected or identified. A reaction has not occurred, but the degree of risk is known. The intervener attempts to reduce the possibility of encountering the stressor, strengthen the individual's encounter with the stressor, and strengthen the individual's flexible line of defense to decrease the possibility of a reaction (p. 273-4).

Secondary prevention involves interventions or treatment initiated after symptoms from stress have occurred. Both the client's internal and external resources are used toward system stabilization to strengthen internal lines of resistance, reduce the reaction, and increase resistance factors (p. 274).

Tertiary prevention occurs after the active treatment or secondary prevention stage. It focuses on readjustment toward optimal client system stability. A primary goal is to strengthen resistance to stressors or reduce stressors to help prevent recurrence of reaction or regression. This process leads back in a circular fashion toward primary prevention (p. 274).

As primary health care providers FNPs assess, diagnose, plan, intervene, and evaluate patients' problems and their stressors (American Nurses' Association, 1995). Neuman asserts that the broad perspective of nursing is concerned with all potential stressors and is ideal for utilization in primary care. FNPs share this same broad perspective of nursing and can appropriately be utilized in primary care.

The FNP as primary care provider can intervene at each of the three levels of prevention by strengthening lines of defense through:

1. Risk assessment and risk prevention with education and early recognition of conditions,
2. Early diagnosis and treatment of conditions,
3. Providing education to strengthen resistance, or
4. Referring the condition to another care provider or facility (Beckman et al., 1994).

The military health care system, like the Neuman Systems Model, sees prevention as intervention (Murphy, 1996). Actions to help the client retain, attain or maintain system stability begin when the stressor is either suspected or identified, and subsequent actions are based on possible or actual degrees of reaction, resources, goals, and anticipated outcome.

Primary care and prevention are the focus of military health care during peacetime and deployment. Dr James Zimble, President of USUHS (1996) stated at the October 30, 1995 AMSUS annual meeting,

The main purpose of medical support is to conserve combat power. Chief among the common features of modern military medicine is an emphasis on prevention. It is essential that the military medicine expert's focus be on disease prevention and health promotion anywhere that troops might be deployed. Military medicine

involves prevention, diagnosis and treatment by medical personnel who are intergrated into the operations they support.

In Neuman's model, primary prevention is the ultimate goal. It is also the primary goal of military medical readiness and deployment. It is imperative to prevent disease non-battle injuries and maintain a healthy force. Healthy soldiers perform better, have higher morale, deal more effectively with stress and have fewer deaths - all factors that enhance the probability of mission accomplishment (Armstrong, Hubbard, Szlyk, Matthew & Sils, 1985).

Using Neuman's levels of prevention, published twenty-four years ago, preventive functions of FNPs for the purpose of this study include:

Primary prevention - risk assessment, preventive education

Secondary prevention - diagnosis and treatment

Tertiary prevention - initial contact and referral

Clinical activities of military NPs frequently focus on preventive functions. According to Fuller (1996), clinical practice activities identified by military NPs include: completing histories; performing physicals (complete and episodic); evaluating lab work; noting vital signs, height, and weight status; performing throat cultures; performing breast and rectal exams; counseling patients and families, and providing several types of teaching (formal lecturing and developing teaching materials).

All these activities of NPs are interventions within Neuman's three levels of prevention. Primary prevention involves FNP clinical activities of taking histories and performing physicals. During history taking, the FNP performs risk assessment and provides education for health maintenance and prevention, all of which are part of the primary prevention role. Secondary prevention is initiated when the FNP diagnoses a health problem that requires a prescribed medical treatment. This level of prevention also involves counseling patients and their families about living with the disease. Tertiary prevention becomes necessary when the health problem is beyond the FNP's scope of practice. This level of prevention involves consultation with and referral to other health care providers or medical treatment facilities. The NP focuses primarily on

coordinated, ongoing care designed to maintain health while managing common acute and chronic illnesses and life stressors (Fitzgerald, Jones, Lazar, McHugh, & Wang, 1995).

Definition of Relevant Terms

Disease Non-Battle Injuries (DNBI)

Illness or injury experienced by deployed troops which was not a result of or related to combat, but required a sick call visit and loss of manpower hours.

Family Nurse Practitioner (FNP)

An advanced practice nurse (APN) who possesses the skills necessary for the detection and management of acute self-limiting conditions and management of chronic stable conditions across the lifespan including, providing primary ambulatory care, guiding and counseling families, and consulting with and referring to physicians.

Family Nurse Practitioner Expert

A nationally certified NP educator who is familiar with the scope of practice, competencies, and FNP curriculum and holds a legitimate position of responsibility (e.g., directors of FNP educational programs) based on knowledge or experience in the FNP role.

Family Nurse Practitioner Function (Role)

The behaviors and attitudes expected of all individuals who are educated, skilled, and certified as FNPs. As defined in this study the preventive care provided in Neuman's primary, secondary, or tertiary levels of prevention.

Military

All the branches of the armed forces of the United States.

Military Deployment

The mobilization of forces to areas of the country or world for purpose of training, assisting, or supporting in areas of conflict, or for whatever the president deems necessary to support the overall mission.

Primary Health Care

The assessment the client receives at the first point of contact with the health care system that leads to a decision as to what must be done to help resolve the presenting health problem. Primary health care includes identification, management and/or referral of health problems, promotion of health-maintaining behavior, and prevention of illness. It involves delivery of health care upon entry into the system and is continuous and comprehensive. It necessitates collaboration among health professionals (American Academy of Nursing, 1977).

Operation Desert Shield/Desert Storm (ODS/DS)

The United States military deployment to support Kuwait from August 1990 to March 1991.

Surveillance Categories

Broad characteristics or groupings for DNBI incidence rates designed for tracking trends.

Limitations

The following are study limitations in the setting, tool, and application:

1. Primary care conditions of the services were taken from statistics collected during ODS/DS.
2. ODS/DS was a short ground war that had a low incidence of DNBI. If the war had been longer, the medical needs could have differed.
3. DNBI categories may change based on areas of deployment. DNBI that occurred during ODS/DS may not be generalizable to all military deployments.
4. Financial assistance for research studies by graduate nursing students is limited.
5. The tool was designed by a novice researcher and had not been previously tested.

Assumptions

1. The DNBI that occurred during ODS/DS are representative of the types of DNBI that commonly occur during deployment.

2. Directors of FNP educational programs are qualified to identify FNP competencies within the FNP scope of practice.
3. The majority of DNBI literature is from the Army, but it can be assumed that it may be applied to the Air Force or Navy.

Summary

The purpose of this study is to describe appropriate levels of care that the FNP could provide during deployment. The concept of prevention as intervention based on the Neuman Systems Model and levels of prevention were used to define levels of care that could be provided by the FNP. The research questions pertain to the DNBI conditions experienced during ODS/DS. Directors of FNP educational programs were surveyed via a tool designed from these theoretical concepts to ascertain levels of care that the FNP could provide for DNBI conditions experienced by military troops during deployment. The results may be helpful in determining if there is a deployment role for the FNP. Chapter 2 will provide an overview of the literature as it applies to FNPs in deployment, the role of military NPs, the military health care system, DNBI, and medical surveillance.

CHAPTER II: REVIEW OF LITERATURE

The purpose of this research study is to identify and describe the levels of care that could be provided by FNPs to meet the primary care conditions experienced during deployment and to determine if the FNP has a valid role. It is hoped that the study add to the knowledge base.

The review of the literature will address NP utilization in primary care, the military health care system, health care needs during deployment (DNBIs), medical surveillance, and the deployment role of military NPs.

Nurse Practitioners in Primary Care

The first NP program, begun in 1965 and developed by Loretta Ford and Henry Silver, was based on a "nursing model focused on the promotion of health in daily living, growth and development for children and families, as well as the prevention of disease and disability " (Ford, 1982, 1986). The literature on NPs dates back to the 1970s, when physician supply was believed to be inadequate to meet societal health care demands and NPs were stepping forward to promote their own cause. Ford noted that it was nursing's potential as well as societal needs that led to the development and utilization of the NP role.

Existing literature provides little guidance on the extent to which NPs provide primary care. A bibliography compiled in 1991 and culled from more than 400 papers in 60 journals from 1987 to 1990 was entitled "Nursing in Primary Care". It included about 120 articles with primary care stated or implied in their titles (D'Angelo, 1991). The chosen articles represented demonstration projects, intervention studies, educational programs, and views of nursing leaders. The large majority of articles dealt with nurses in supplementary or complimentary roles as members of a team.

A more recent meta-analysis of publications dealing with primary care nursing roles identified 38 articles that concerned NPs in the United States and Canada. The study involved a control group involving physician-only care; a measure of effect in terms of processes of care, clinical outcomes or utilization/cost-effectiveness; and data that permitted calculation of effect size (Brown & Grimes, 1993). The study conclusions were:

1. Nurses provide more health promotion activities.
2. Nurses scored higher on quality-of-care measures.
3. Nurses ordered more -but less expensive- laboratory tests.
4. Nurse had equivalent rates of drug prescribing.
5. Nurses achieved higher scores on resolution of patients' problems and better functional status of patients.
6. Nurses scored better on measures of patient satisfaction and patient compliance.
7. Nurses had equivalent scores to physicians on their knowledge about the patient.
8. Nurses spent 50% more time with patients and had equivalent number of visits per patient.
9. NPs' patients experienced fewer hospitalizations, and the average cost per visit was lower (when cost included salaries of the individual providing care).

A sub-analysis of the study's findings concluded that nurses in advanced practice roles are cost-effective providers of primary care services (Osterweis & Garfinkel, 1993).

Brown and Waybrant (1988) surveyed the extent to which 110 NPs were involved in health promotion, nutrition/exercise counseling, education, health screening, family planning, and risk factor analysis and concluded NPs have a prominent role in patient education and health promotion. After completing the Pacific Northwest University primary health care program, NPs coordinated referrals for mental health, hearing and vision services, alcohol and drug rehabilitation, and social work. They provided medication and disease education to six or seven patients per day; dispensed information on lifestyle modification, stress management, diet, or exercise; counseled at least one patient daily and addressed psychosocial issues with three patients per day. Most frequently cited screening activities included Pap smears, breast exams, blood pressure, and diabetes testing. Of the 110 NPs who responded, 50% addressed hygiene, immunizations or safety in at least one patient encounter per day.

Feldman, Ventura, and Crosby (1987) briefly listed and described the most relevant and valid studies identified through an information synthesis of 350 documents on NP effectiveness

between 1973 and 1983. In these studies NPs were favored in history taking, advising correctly, telephone consulting, and overall communicating with patients. They were more likely than MDs to provide patient education and to give a patient better understanding of the disease.

Sirles, Leeper, Northrup, and O'Rear (1986) studied the distribution of NP practice activities in five categories: data collection, patient assessment and intervention, technical activities, administrative and supervisory activities, and out-of-office practice. More than 85% of NPs performed activities related to patients' primary care. They found that "in chronic and minor acute illness where learning self-care is a major patient need, nursing care (with emphasis on patient education) may be more beneficial than medical care for maintaining health and containing costs" (p.383).

Studies on specific NP functions in primary care in a military setting are few. Goldberg & Jolly (1980) studied 7 NPs, 48 physicians (MDs), and 23 physician assistants (PAs) in an Air Force ambulatory-emergency care setting serving 18,053 patients. Based on clinical records and questionnaires, NPs and PAs had comparable levels of performance to MDs in this outpatient clinic. The study assumed that the care provided by the MD was the standard of care for this outpatient clinic. Generalizations were difficult to make due to sample size and the specifics of the setting.

Brodie, Bancroft, Rowell, and Wolf (1982) compared PNPs and physician costs in a military outpatient facility and found through retrospective chart reviews only slight differences between the care variables delivered by PNPs and physicians. The study showed cost savings with PNP care as well as similar care to their physician counterparts.

It has been noted that methodological short-comings and inadequate statistical analysis frequently limit study results. The presence of confounding variables and lack of theoretical base combined with small samples without power analyses, focusing on short term outcomes, using nonrandomized samples, applying single evaluation criteria, using incomplete and nonstandardized medical records data and choosing nonrepresentative samples or sites are some of the criticisms cited in the literature. (Edmunds, 1978; Williams, 1975; Feldman et al., 1987)

Few rigorous methodological studies exist, and studies have often been criticized for bias because NPs are thought to be conducting such research to promote their own interests. In an effort to remove bias, non-nurse researchers compared nurse practitioner and physician performance (Hall, Palmer, Orav, Hargraves, Wright & Louis, 1990; Salkever, Skinner, Steinwachs, & Katz, 1992; & Avorn, Everitt & Baker, 1991). The results of these studies were consistent with those of nurse researchers who found NP performance comparable or superior to physicians. NPs were more likely to collect additional historical information about the patient before deciding upon a therapy and to prescribe nonprescription approaches to therapy such as change of diet or counseling to help the patient deal with stress. They were also better than male physicians at screening women (Buppert, 1995).

The literature shows that NPs have been providing cost-effective quality primary care to patients in the civilian sector. Literature is meager on the NP in the military health care system, but what there is seems to correlate with civilian experiences and practices. A closer look at the military health care system is needed to provide insight into the needs of the military population.

Military Health Care System

Rapidly rising health care costs and the closing of military bases and their hospitals are forcing the military to look for new ways to provide health care. Massive personnel cuts in the Services require cuts in the DoD's medical structure. The need to restructure the existing military health care delivery system to more effectively utilize all health care personnel prompted the creation of the TRICARE Health Care System. TRICARE has improved the military medical system by efficiently using the remaining military medical assets and supplementing them with civilian care.

TRICARE, a DoD managed-care program, is one initiative designed to expand access to care, assure high quality of care, control health care costs for patients and taxpayers alike, and improve medical readiness (Health Benefits Advisor, personal communication, Jan. 9, 1997). TRICARE offers expanded opportunities for health care personnel to influence the areas of disease prevention and health promotion. Because of the growing expense of medical technology,

the focus of health care has been on cost reduction through prevention of illness rather than treatment of disease. If fully implemented, military medicine will shift from the illness and disease treatment arena to the improvement and maintenance of healthy communities.

For many years preventive medicine has played an active role in the military. However, its emphasis in the military health care system has recently increased. Through Tricare initiatives the Air Force has increased health promotion and disease prevention activities. Prominent at the primary care level has been self-care. Economic demands of health care have prompted interest among economists and health care planners to attempt assessment of the economics of self-care (Hardy & Hardy, 1988). Recently, the Air Force has initiated the shift to self-care. Take Care of Yourself - The Complete Guide to Medical Self-Care, a book by Donald Vickery and James Fries (1994), has been distributed to all Air Force personnel. The book contains information on probable causes of health problems, seriousness of the symptoms, and home treatment options. The authors also provide information about choosing health plans, working with health care providers, and avoiding serious illness.

The value of prevention, self-care, and humanistic use of technology have stimulated a variety of creative ways to deliver health care including utilization of NPs. As of 1994, more than 550 active duty Army, Navy, and Air Force NPs had been placed in specialties such as family practice, adult health, pediatrics, obstetrics and gynecology, psychiatry, and community health (Murphy, 1996). Murphy states that NPs have provided primary care for most of the health problems of the military personnel during peacetime and deployment, thereby accomplishing the primary mission of military medicine, which has always been to ensure optimal health and medical readiness of active duty personnel.

The Air Force implemented a new organizational structure known as the Objective Medical Group (OMG) just prior to the restructuring of health care delivery. The purpose of the OMG was to improve client service and restructure the Medical Services to mimic Air Force operational structure. This restructuring of available resources was designed to enable health care professionals to provide quality service to clients by improving communication and support

among health care professionals (Department of the Air Force, Health Programs, 1995). In addition, it has provided the groundwork for new and expanded roles for some health care professionals (Lavey, 1996).

These initiatives, TRICARE and OMG, have created an environment conducive to the growth and development of FNPs. They emphasize teamwork, health promotion, and disease prevention. The development of the FNP role in the AF health care system, if fully utilized and deployed within the role, offers an important primary care resource to the military health care system. But, with medical services downsizing and more health care services being contracted to the civilian sector, the importance of examining primary care conditions during deployment and describing a deployment role for the FNP becomes even more crucial.

Disease Non-Battle Injury Literature (DNBI)

Disease non-battle injuries are non-combat related illnesses or injuries experienced by deployed military personnel that result in lost manpower hours. Much of the literature describes experiences on deployments or field exercises in specific military units. The articles, written by physicians, contained discussions, after action reports, and ways to improve future deployments (Lee, Alvarez, Wilson, & Harned, 1992; Lesho, 1994; Markenson, Raez, & Colavita, 1992; Moloff & Lockrow, 1991; Pierce, 1993). A large portion of the DNBI literature was written as it applies to ground forces. However, it is applicable to the air and naval forces as well. Medical surveillance data of DNBI obtained from the Army, Navy, and Air Force were comparable.

DNBIs have historically caused more deaths during war than battle injuries. Korenyi-Both, Juncer, and Dellva (1991) discussed examples in which soldiers lost from duty due to disease outnumbered those wounded by a ratio of at least 3 to 1. The impact of DNBI on readiness can not be overemphasized. During deployment, military personnel face a variety of simple but potentially serious health problems. Especially problematic during ODS/DS were eye and ear problems, respiratory diseases, sexually transmitted diseases, skin problems, and diarrheal disease that resulted in approximately 46% of all U.S. military deaths and 25% of hospitalizations (Garfield & Neugut, 1991).

Suis (1991) has emphasized the need for deployed medical personnel to be prepared to treat the range of primary care illnesses. In several articles the incidence and occurrence of primary care conditions based on medical surveillance categories were described (Lesho, 1994; Molloff & Lockrow, 1991; Stowe, 1992). Benenson (1990) listed disease and injury categories as: fever, gastrointestinal, respiratory, genitalurinary, ophthalmologic, dermatologic, environmental injury, surgical illness, psychiatric, dental, follow-up, or miscellaneous. Medical surveillance is the systematic collection and evaluation of disease and injury data used to detect trends early.

One trend identified in the articles was the need for preventive medicine (Withers, Erickson, Petruccelli, Hanson, & Kadlec, 1994). These physicians, who represented three military services, found that the importance of field preventive medicine was appreciated, but that there were uncertainties about how to practice it, as few physicians have had the benefit of specific training or experience. The findings were similar in another article, which stated that command emphasis on preventive measures was lacking in the following areas: personal protective measures, knowing the early warning signs of environmental injury, identifying those at high risk for injuries, and immunizations (Armstrong et al., 1985).

Medical Surveillance Data

Medical surveillance data obtained for this study were collected by unit level environmental health officers and noncommissioned officers in the United States Air Force Medical Treatment Facilities in Saudi Arabia, United Arab Emirates, Bahrain, Oman, Qatar, Diego Garcia, and Cairo West from 16 September 1990 to 16 March 1991. The relative impact of these conditions were recorded based on number of cases per 1000 troops per week. CDR Hanson, preventive medicine officer, 1st Marine Expeditionary Force, Camp Pendleton, California, provided a sample DNBI experienced in the Air Force, Navy and Army during ODS/DS. His findings are summarized in Table 1.

Table 1**Relative Impact of all DNBI Categories during ODS/DS.**

Category	Number of cases/1000 troops/week
Respiratory	20.9
Non-battle Injuries	12.3
Dermatological	8.5
Gastroenteritis	7.7
Psychological	3.1
Ophthalmological	2.6
Heat/Cold Injury	0.2
Sexually Transmitted	0.2

DNBIs are preventable, but many unit surgeons and physician assistants, especially at battalion/squadron and brigade/wing level, may not have had the benefit of preventive medicine training or experience (Withers, Erikson, Petrucelli, Hanson, & Kadlec, 1994). Information on DNBI prevention is available for medical personnel to review prior to deployment. The Armed Forces Medical Intelligence Center (AFMIC, Fort Detrick, Maryland) routinely publishes several classified and unclassified medical intelligence documents on any area of interest. The AFMIC bulletin board system for online dissemination of unclassified medical intelligence can be accessed with a computer by U.S. Government agencies only. Navy Environmental & Preventive Medicine Units publish updated Disease Risk Assessment Profiles, which provide specific preventive medicine guidance for military operations on all countries in the units' areas of responsibility. The majority of the health problems of the military population during peacetime and deployment are the responsibility of primary care providers. The need to keep soldiers fit for duty and available for training is and always will be the focus.

Military Nurse Practitioner Deployment Role

There are no published studies on the utilization of the Air Force FNP in deployment. A thesis on the deployment role of military NPs prepared by an Air Force graduate nursing student from the Uniformed Services University of the Health Sciences FNP class of 1996, plus other unpublished papers written by military NPs are the only sources known and available to this researcher (Lavey, 1996; Lukasik, 1993; McGlooin et al., 1994). These sources found that the NP role varied with each deployment based on the needs of the deployment mission.

Lavey qualitatively described the deployment role of ten military NPs who were utilized on various deployment missions including the Gulf War, Croatia, and Haiti. The sample contained 10 military NPs from the three services. Four were FNPs. The others specialized in pediatrics or women's health. These NPs provided personal testimonies about acquiring the practitioner role, delivering primary care during sickcall and in the emergency room (ER), and opportunities for providing education and prevention.

The NPs were utilized to fill positions in staff nursing, specialty nursing, and nursing management as well as primary care providers depending on what was determined to be the medical needs of the mission. During ODS/DS where the needs were determined to be combat casualty related, many PNs, obstetrical and gynecological NPs (OB/GYN NPs), obstetrical and community health nurses were deployed in medical-surgical staff nurses, critical care, or administrator positions. PAs had billets, but NPs were not slotted for their advanced practice roles. In the AF, NPs revert back to previously held Air Force Specialty Codes (AFSCs).

During these deployments, although there were no specific billets for NPs, they learned how to market their primary care skills to unit commanders, enabling them to fill positions in sick call and emergency services. APNs volunteered to work on their days off to assist with the workload during sickcall and in the ER to keep up their skills. Physicians welcomed the help and were found to be supportive of the advanced practice role.

All of the NPs sampled found primary care to be the largest component of the deployed health care system. NPs encountered primary care conditions that included minor trauma/injuries

(sports injuries, small lacerations), acute and chronic illnesses (asthma, pneumonia, sinusitis, vomiting, diarrhea, URI, appendicitis, mononucleosis), nutrition and health maintenance issues (obesity, breastfeeding, alcoholism, smoking), immunizations, and basic self care.

The versatility of the advanced practice role was evident and utilized during various deployments. NPs were engaged in the three levels of prevention described in chapter 1. They used primary prevention to assess children at risk and prioritized the immigration of these children to the United States. NPs were involved in teaching medical teams and the community about neonate assessment, caring for small infants and children, nutrition, and breastfeeding. Medical technicians were taught about medical readiness issues and endemic diseases (Lavey, 1996). Secondary and tertiary prevention were evident as NPs diagnosed and treated patients in sickcall and referred patients to hospitals for further treatment. Newly acquired skills and privileges improved the delivery of secondary and tertiary prevention. Physicians taught NPs to suture, pull teeth, and remove foreign bodies and thrombosed hemorrhoids. Some NPs ran cardiac arrest (CODE) teams and others had admitting privileges. Physician support of the advanced practice role improved utilization of the NP.

Lavey's findings regarding the NP deployment role were consistent with McGloon, Ballantyne, and Armstrong (1994), who wrote a historical perspective of the NP deployment role in the Navy and Army after the Vietnam War, in Cuba, and during the Gulf War. After the fall of Saigon, Navy NPs were sent to refugee camps in California and Guam, where they functioned in much expanded roles as residents on the pediatric ward. Their duties included making rounds, managing patients' care, and making medication and infusion adjustments as needed (Lukasik, 1993). During the Gulf War, CDR McGloon was deployed without a billet, but provided primary care during sick call and in the ER after marketing her advanced practice role to the unit commander. Lt Ballantyne performed physical assessments, administered immunizations, and provided primary care to the Haitian population. The authors stressed the importance of NPs taking a stance and demanding that they be allowed to function in their role to the fullest extent in all operational settings.

Lukasik, in an unpublished thesis, targeted active duty and retired Navy NPs to study the historical perspective of the Navy NP role development and utilization. The study included 19 telephone interviews and nine audiotapes of active duty NPs. Specialties of respondents included 21 FNPs, five PNPs and one each in adult and women's health. Nine retirees participated in the telephone interview process or provided an audiotape of their responses.

Participants in this study discussed the issue of no billets on deployment missions, the acceptance of the role by physicians and nurses, and the carving of new roles for themselves. Their personal accounts of deployments to Haiti and Saudi Arabia are comparable (Lavey, 1996; McGlooin et al., 1994).

To summarize, studies available on the military NP deployment role were unpublished theses or scholarly papers containing personal stories of Navy, Army and Air Force NPs. The number was small, which limited the ability to generalize results, but their content described NP functions described in Neuman's three levels of prevention. Primary prevention, which included assessment, prevention, and education; secondary prevention, which included diagnosing and treating primary care conditions and acquiring new technical skills to help patients regain wellness; and, finally, tertiary prevention, which included admitting patients to hospitals or referring them to facilities for further treatment.

Summary

The literature shows that even though the scope of the FNP encompasses most of the primary care services, a distinct role has not been delineated. Within their areas of competence, NPs provide care, the quality of which is equivalent to that of physicians. Furthermore, NPs are more adept than physicians at providing services such as teaching preventive behavior that depend on communications with patients. The literature seems to indicate that as high as 90% of the primary health care needs can be managed by the NP (Osterweis & Garfinkel, 1993).

Restructuring within the military health care system has created opportunities for nursing professionals to expand their roles into other areas, including NPs in family practice, in education, and even in administration as hospital commanders. Medical readiness and deployment are the

priority in military medicine with concentration on self-care and prevention of disease and illness. The meager literature on the deployment role for FNP, combined with limited studies on unit specific DNBI, medical surveillance, and experiences during deployment emphasize the need for more studies. There is not yet enough published information to make generalizations about the deployment role of the FNP. The question of whether a FNP can provide appropriate care to the deployed troops needs to be explored.

This study will determine the levels of care which could be provided by the FNP during deployment based on conditions identified in the DNBI data collected during ODS/DS. Whether or not the FNP can manage the various conditions experienced during deployment will determine if there is a valid role for the FNP in deployment.

CHAPTER III: METHODOLOGY

The purpose of this research study is to identify and describe the levels of care which could be provided by FNPs during deployment. This chapter will describe the methodology of the study. The research design will be described including the instrumentation, validity and reliability testing, sampling, and protection of human rights.

Research Design

Descriptive studies are designed to gain more information about the characteristics in a particular field of study and are often used to justify current practice or determine what others are doing in similar situations (Burns & Grove, 1993). A descriptive design was used to identify levels of care that could be provided by the FNP to treat DNBI's experienced during deployment. This type of design is appropriate to use when the researcher is attempting to assemble new information about a phenomenon and describe group characteristics.

Medical surveillance data were obtained from Kevin Hanson, MD MPH, Commander, Medical Corps, U.S. Navy, Preventive Medicine Officer from the 1st Marine Expeditionary Force, Camp Pendleton, California. It contained outpatient information from the Navy, Marines, and Air Force on the various DNBI's that occurred during ODS/DS between 16 September 1990 and 16 March 1991. Hanson's data provided a sample of the most frequent DNBI's encountered during this deployment.

Using primary care conditions identified in Hanson's data and Neuman's levels of prevention to define the level of care provided by the FNP, a questionnaire was developed.

Instrumentation

An Overview of Medical Surveillance

Medical surveillance data was used to design a study questionnaire. Medical surveillance is the systematic collection and evaluation of disease and injury data used to detect trends early so that investigations or control measures may be initiated (Benenson, 1990). It is not elaborate but it is effective. Each outpatient visit during deployment is assigned to one of several discrete disease/injury categories such as: fever, gastrointestinal, respiratory, genitalurinary,

ophthalmologic, dermatologic, environmental injury, surgical illness, psychiatric, dental, follow-up, or miscellaneous. Data are assembled systematically and analyzed centrally. The preventive medicine officer calculates incidence rates of disease category and follows trends by unit, location, or in the aggregate. Major command surgeons organize and manage the overall surveillance system, while medical officers at all levels supervise data collection.

Hanson's DNBI's data listed and described conditions in eight surveillance categories. The eight categories and the corresponding conditions are listed below according to the most frequent occurrence:

Respiratory

All upper and lower respiratory complaints. This includes URI, pharyngitis, rhinitis, allergic rhinitis, bronchitis, pneumonia, cough, bronchospasm, wheezing, asthma, and any other allergic or infectious respiratory complaint. It also includes secondary complications of respiratory symptoms such as otitis media and sinusitis.

Injury/Orthopedics

All musculoskeletal and soft tissue complaints. This includes lacerations, abrasions, contusions, sprains, dislocations, fractures, muscle pulls, or other acute injuries (except eye injury). It specifically includes head injury as well as chronic musculoskeletal conditions such as chondromalacia, tendonitis, bursitis, back pain, and neck pain.

Dermatologic

All skin conditions presenting for medical evaluation. This includes fungal or bacterial infection, cellulitis, heat rash, blisters, and sunburn.

Gastrointestinal

Focuses on infectious causes of symptoms. This includes diarrhea, gastroenteritis, dysentery, food poisoning, abdominal pain, appendicitis, and nausea and vomiting without other cause. It does not include GI bleeding, hemorrhoids, ulcers, or other non-infectious diagnoses.

Psychiatric

All psychological or psychiatric complaints. This includes depression, stress, personality disorder, psychosis, or any other mental health complaint.

Ophthalmological

Eye infections, injuries, vision problems. This includes conjunctivitis, keratitis, sty, corneal abrasion, foreign body, and other eye trauma. Also includes visual problems.

Heat Injury

Any systemic heat related symptoms requiring treatment. This includes dehydration, heat cramps, heat exhaustion, heat stroke, and unexplained fever. Unexplained fever is a temperature of 101 F or greater for 24 hours without clear-cut etiology. It does not include sunburn.

Miscellaneous Medical

All other complaints presenting to sick call not fitting the above categories. This includes headache, hypertension, chest pain, ulcers, GI bleeding, angina, MI, hemorrhoids, and ingrown toenails.

The conditions are assessed in terms of the levels of care that could be provided by the FNP. The levels of care include assessment, prevention, diagnosis, treatment, education, and referral. These are interventions and clinical activities provided by the FNP that are incorporated into Neuman's levels of prevention described in the Theoretical Framework section in chapter 1. The following are descriptions of the six levels of care which could be provided by the FNP:

Assessment

Identify factors in the individual's lifestyle, family history, medical history that could increase or decrease the probability of becoming ill or injured.

Prevention

Provide interventions to increase the individual's resistance to disease or injury, e.g., immunizations, prophylactic medications or devices, and ways to build the immune system.

Diagnosis

Identify the presenting health care condition.

Treatment

Provide total health care necessary to return the individual to wellness.

Education

Provide health promotion information to the individual, e.g., classes that explain disease process, medications, lifestyle changes, and additional community resources.

Referral

Assistance from another health care professional to return an individual to wellness.

The study questionnaire consists of three parts (Appendix A). Part I elicits data on demographic variables and experience of the respondents. Part II defines the six levels of care. Part III identifies 69 primary care conditions during deployment and asks respondents to indicate whether FNPs can provide the level of care for each. For example, a patient presents with dehydration. The respondent is asked if the FNP could assess this primary care condition? The respondent circled "yes" if the respondent felt that the FNP could assess this condition and "no" if the FNP could not. Finally, space is provided for comments or explanations of the responses.

Validity and Reliability Testing

Face and content validity were established by three Uniformed Services University of the Health Sciences (USUHS) FNP faculty members. The content validity index (CVI) was determined by having the faculty members rate the relevance of each condition to the FNP function on a 4-point scale. All were rated as "appropriate" by the reviewers as within the scope of practice of FNPs in a primary care setting. The levels of care were found appropriate for the usual FNP scope of practice. As a result only minor changes were made to the tool's format.

Reliability of the tool was measured using the test-retest method. It was administered to three USUHS FNP faculty members twice, a week apart. The results were consistent over this specified period of time with 97% agreement.

Sample

After the questionnaire was reviewed by USUHS FNP faculty for relevance and tested for reliability, it was mailed to 104 FNP program directors, the total population of directors of FNP educational programs in the United States listed in the 1995 National Organization of Nurse Practitioner Faculties. All respondents were included who returned the questionnaire within a two-month response period. A minimum of fifty returns was considered an adequate response.

Sixty-one questionnaires were returned and 58 were used for the study, a 57% response rate. Two questionnaires were returned as undeliverable, and one was unusable because it was incomplete. There was no attempt to contact nonrespondents because the questionnaire was anonymous.

Ethical Considerations

Ethical considerations were reviewed. This study did not directly involve human subjects and was exempt from the USUHS Institutional Review Board review process. Participant consent was implied when the questionnaire was completed and returned. No identifying information was requested on the questionnaire to ensure the participants' anonymity.

Summary

In this study a descriptive design was used to gain more information about the levels of care that could be provided by the FNP for medical conditions experienced during deployment situation. According to Waltz & Bausell, as described in Burns & Grove (1993), a descriptive design is used for the purpose of developing theory, identifying problems with current practice, making judgments, or determining what others in similar situations are doing.

Neuman Systems Model (1982) and medical surveillance data were used to develop the questionnaire. Neuman's levels of prevention were modified, then incorporated into the tool and used to define levels of care that could be provided by the FNP. Military medical surveillance data, supported by the literature, described primary care conditions experienced during deployment. The questionnaire elicited information about the levels of care that could be provided by the FNP for a sample of primary care conditions.

The questionnaire was sent to directors of FNP educational programs listed in the national directory. Data in returned questionnaires were summarized by computing percentage of agreement among respondents on whether FNPs could provide six levels of care for conditions likely to occur in a deployment. Chapter 4 presents the data collected in this study.

CHAPTER IV: ANALYSIS OF THE DATA

The purpose of this research is to describe the levels of care that could be provided by FNPs during deployment and to determine if the FNP has a valid deployment role.

A questionnaire was developed, pilot tested, revised, and sent to 104 directors of FNP educational programs listed in the National Organization of Nurse Practitioner Faculties directory. Sixty questionnaires were returned, but only 58 were usable, for a 57% response rate.

The variables in part I of the questionnaire included age, gender, current position, educational background, years of experience in nursing, teaching and as a practitioner, nurse practitioner specialty area, and military experience. Part II outlined the instructions for part III, the level of care questionnaire. The questionnaire contained 69 primary care conditions experienced during deployment and the six levels of care that could be provided by FNPs. A comments section was available for explanation of responses or to identify problems with the questionnaire.

Summary statistics that included frequency and percentage distributions were used to analyze the data to determine whether the FNP could provide care for the stated primary care conditions.

Demographics of the Respondents

The demographic variables included gender and age, current position, years in current position, years in teaching, FNP/NP/RN experience, educational degrees and certifications held, and military experience. Significant findings are described.

Gender and Age

The sample consisted of 95% females, whose ages ranged from 37 to 65 years with an average age of 49 years (Table 2).

Table 2**Age of Respondents.**

Years of Age	Number	Percent
Total	58	100
35-40	5	9
41-45	11	19
46-50	16	28
51-55	17	29
More than 55	6	10
Unknown	3	5

Current Position and Experience

Approximately 50% of the respondents held faculty or associate professor positions. The position of program director was held by 37% and clinical coordinator by 12% of the respondents. A few of the respondents were deans of schools (Table 3). There was no relationship between agreement on the conditions and positions held by the respondents.

The number of months in the current position ranged from less than 1 year to 22 years. The largest group had less than four years of experience (Table 4). Average years of experience was six.

Table 3**Current position of Respondents.**

Current Position	Number	Percent
Total	58	100
Dean/Assoc Dean	3	5
Director FNP/MSN	21	36
Coordinator/Clinical	7	12
Faulty/Assoc Professor	26	45
Unknown	1	2

Table 4**Experience of Respondents in Current Position.**

Years	Number	Percent
Total	58	100
Less than 4	32	55
4-12	17	29
More than 12	8	14
Unknown	1	2

Teaching Experience

The number of years in a teaching role ranged from 1 to 31 years, with a mean of 15 years. Over 50% of the respondents had been teaching from 10 to 20 years (Table 5). There was a question as to how long the respondents had been away from the clinical area and whether this could have impacted their responses. When responses on conditions were correlated with years in current position, no correlation was found between those with less than two years experience and those with more.

Table 5**Teaching Experience of the Respondents.**

Teaching Years	Number	Percent
Total	58	100
Less than 3	4	7
3- 9	9	16
10-20	30	51
More than 20	14	24
Unknown	1	2

FNP/NP/RN Experience

Almost 70% of the respondents had up to 30 years experience as an RN (Table 6). About half of the respondents had at least 10 years experience as an FNP (Table 7). Although 31% reported no FNP experience, they probably had experience in another NP specialty. Three quarters of the respondents reported that they had at least 10 years of experience as a nurse practitioner. Clearly, respondents were knowledgeable of the role and responsibilities of the FNP.

Table 6**Summary of Years as RN.**

<u>RN Experience in Years</u>	<u>Number</u>	<u>Percent</u>
Total	58	100
Less than 20	8	14
20-30	32	55
More than 30	14	24
Unknown	4	7

Table 7**Summary of Years as FNP.**

<u>FNP Experience in Years</u>	<u>Number</u>	<u>Percent</u>
Total	58	100
None	18	31
Less than 10	10	17
10-20	14	24
More than 20	15	26
Unknown	1	2

Educational Degrees and Certifications

Two thirds of the respondents were doctorally prepared. Nursing was the education specialty for 65% of the respondents. A similar percentage (65%) were certified FNPs and 40% were certified NPs in another specialty.

Military Experience

Nearly 80% of the sample had no military experience. Of the 12 who had military experience, the length of time averaged 12 years with a range of 5 to 23 years.

Military Family Nurse Practitioner Students in Civilian FNP Programs

Two thirds of the respondents had some military students in their FNP educational programs.

In summary, the typical respondent was a doctorally prepared nurse with 26 years of nursing experience, 49 years old, female, a FNP program faculty member for an average of 6 years, and 15 years teaching experience who had been certified as an FNP or NP in another specialty.

Agreement on Conditions

The first research question was about the level of care FNPs could provide for primary care conditions experienced during military deployment. Data collected on this question was obtained from part III of the questionnaire, the level of care survey. The percentages of agreement among the respondents for each of the conditions listed in the medical surveillance categories of DNBI are shown in Appendix B and are summarized in the following tables according to each level of care.

Assessment

One hundred percent of the respondents agreed that FNPs could assess all of the conditions surveyed in the heat-related, gastrointestinal, dermatologic, and respiratory category (Table 8). For the orthopedic/injury, ophthalmologic and miscellaneous medical category, at least 95% of the respondents agreed that FNPs could assess each of the conditions in the category. The lowest percentage of agreement was 90% for psychiatric conditions.

Table 8**Agreement on the "Assess" Level of Care by Category of Condition.**

Category	Percent Agreement on each Condition in Category
Heat Injury	100
Gastrointestinal	100
Dermatologic	100
Respiratory	100
Ophthalmologic	95 - 100
Orthopedic/Injury	98 - 100
Psychiatric	90 - 100
Miscellaneous	96 - 100

Diagnosis

All respondents agreed that FNPs could diagnose all the conditions in heat-related, gastrointestinal, dermatologic, and respiratory DNBI categories, plus one of the psychiatric conditions, "depression" (Table 9). For 13 of 16 orthopedic/injury conditions, the percentage of agreement was over 90%. At least 84% of the respondents agreed that FNPs could diagnose the ophthalmologic, miscellaneous medical, and three of the orthopedic/injury conditions surveyed. The lowest percentage of agreement was for complex psychiatric conditions. But, even for this category, nearly three quarters of the respondents agreed that FNPs could diagnose the conditions.

Table 9**Agreement on the "Diagnose" Level of Care by Category of Condition.**

<u>Category</u>	<u>Percent Agreement on each Condition in the Category</u>
Heat Injury	98-100
Gastrointestinal	96-100
Dermatologic	98-100
Respiratory	98-100
Ophthalmologic	84-100
Orthopedic/Injury	88-100
Psychiatric	72 - 98
Miscellaneous	84-100

Prevention

At least 90% of the respondents agreed that FNPs could provide interventions for prevention for the heat-related, dermatologic, respiratory, orthopedic/injury, ophthalmological, and miscellaneous medical conditions (Table 10). In the gastrointestinal category, except for the condition "appendicitis", which had 77% agreement, there was also at least 90% agreement that FNPs could provide interventions for the various conditions that could arise. In prevention of psychiatric conditions the spread of agreement percentages was the largest of categories, 62 to 91%, with the highest agreement for the condition, "depression".

Table 10**Agreement on the "Prevent" Level of Care by Category of Condition.**

<u>Category</u>	<u>Percent Agreement on each Condition in the Category</u>
Heat Injury	98-100
Gastrointestinal	77-100
Dermatologic	98-100
Respiratory	100
Orthopedic/Injury	96-100
Ophthalmologic	91-100
Psychiatric	62 - 91
Miscellaneous	93 - 98

Education

At least 93% of respondents agreed that FNPs could educate patients about all the heat related, gastrointestinal, dermatologic, respiratory, orthopedic/injury, ophthalmologic, and miscellaneous medical conditions surveyed, plus one psychiatric condition, "depression" (Table 11). The agreement percentage was slightly lower for the more complex psychiatric conditions.

Table 11**Agreement on the "Educate" Level of Care by Category of Condition.**

<u>Category</u>	<u>Percent Agreement on each Condition in the Category</u>
Heat Injury	100
Gastrointestinal	98-100
Dermatologic	98-100
Respiratory	100
Orthopedic/Injury	94-100
Ophthalmologic	93-100
Psychiatric	87 - 98
Miscellaneous	94-100

Treatment

For most categories of conditions there was a fairly large diversity in agreement on the role of the FNP as the sole provider of treatment (Table 12). The narrowest range was for conditions in the dermatologic and respiratory categories, from 72 to 98%. The widest range was in the gastrointestinal category, ranging from 9% for appendicitis to 93% for gastroenteritis (Appendix B). However, for all other conditions in this category there was at least 61% agreement that FNPs could provide the sole treatment. For 53 of 69 conditions, there was at least 70% agreement on the treatment role for an FNP (See Appendix B). Conditions on which there was low agreement--under 25%--were, in addition to appendicitis, such acute medical or psychiatric problems as fracture, head injury, visual disturbances, personality disorder, psychosis, internal chest pain, GI bleeding, and myocardial infarction.

Table 12**Agreement on the "Solely Treat" Level of Care by Category of Condition.**

Category	Percent Agreement on each Condition in the Category
Heat Injury	51-91
Gastrointestinal	9 - 93
Dermatologic	72-98
Respiratory	72-98
Orthopedic/Injury	19-97
Ophthalmologic	21-97
Psychiatric	14-59
Miscellaneous	10-88

Referral

There is an inverse relationship between the percentages of agreement on conditions in the "solely treat" and "refer" levels of care. For example, although there was 9% agreement that FNP's could solely treat appendicitis, 91% agreed that the condition should be referred (Appendix B). On the other hand, 96% of the respondents agreed FNP's could solely treat a cough and 17% would refer this condition. For only 15 of the 69 conditions would more than 50% of the respondents agree that the FNP should refer to other providers, again indicating that deans and directors of FNP educational programs thought that there was a deployment role for FNP's. Consistent, too, is the finding that only in the psychiatric category were percentages of agreement on specific conditions in the category above 50% (Table 13).

Table 13**Agreement on the "Refer" Level of Care by Category of Condition.**

<u>Category</u>	<u>Percent Agreement on each Condition in the Category</u>
Heat Injury	19-58
Gastrointestinal	23-91
Dermatologic	20-34
Respiratory	17-33
Orthopedic/Injury	17-74
Ophthalmologic	24-71
Psychiatric	52-90
Miscellaneous	22-81

Summary

Data have been presented on the percentage of agreement among respondents on the FNP role in providing care during deployment, according to six levels of care. At least 90% of the respondents agreed that FNPs could assess, diagnose, and provide interventions for prevention and education, for most conditions experienced during ODS/DS. At least 75% agreed that FNPs could solely treat uncomplicated DNBIs, and a range of 16 to 90% agreed that FNPs would need to refer complicated conditions, as would family practice physicians. The data, therefore, support the conclusion that FNPs have a valid deployment role. The data, conclusions, and recommendations for future studies will be discussed in the final chapter.

CHAPTER V: CONCLUSIONS

The purpose of this study was to determine the level of care which could be provided by the FNP during deployment and to determine if the FNP has a valid role.

According to the Neuman Systems Model, interventions provided by the nurse help the client retain, attain, or maintain system stability. These interventions can be provided before or after the patient's resistance lines are penetrated, but Neuman supports beginning intervention when the stressor is either suspected or identified. Neuman identifies three levels of prevention - primary, secondary, and tertiary - used to define the six levels of care provided by the FNP.

To determine if the FNP has a valid role in deployment within the military health care system, the author-developed questionnaire was designed, tested, and sent to 104 FNP educational program directors listed in the National Organization of Nurse Practitioner Faculties directory. Fifty-eight of the returned surveys were used in the data analysis.

Sample

Of the 104 distributed questionnaires, the overall response rate was 57%, acceptable for a study of this kind. The questionnaire was sent to civilian FNP educators. Only 12 (22%) respondents had military experience, which may have limited their understanding of the FNP deployment role.

Demographics of the Respondents

Gender and Age

Average age of the respondents was 49 years. Most respondents were women (95%).

Current Position/Experience

The directors of FNP educational programs held a variety of position titles including: dean or associate dean, clinical coordinator or faculty or professor. More than half had fewer than five years of experience as a program director. There was no correlation between experience and the ratings of the levels of care. These findings may reflect the recent increase in number of new nurse practitioner programs and hiring of relatively inexperienced faculty. New faculty and program directors may not have developed a definite concept of the FNP role.

Teaching Years

Half of the respondents had been teaching from 10 to 20 years. They clearly fulfill the definition of an educator.

FNP/NP/RN Experience

Half of the respondents had more than nine years of experience as a family nurse practitioner. This finding was expected as many FNP programs were developed and staffed by nurse practitioners in other specialties. It also supports the finding that one third of the FNP program directors had no experience as a family nurse practitioner and that more than half the sample had experience as nurse practitioners in specialties other than family practice. In addition, approximately 60% of the respondents had established strong expertise in nursing, from 20 to 30 years of experience as a registered nurse.

Military Experience

The questionnaire was sent to civilian FNP program directors. An expected finding was that the majority (78%) had no military experience. This may represent a study limitation. Some respondents (22%) did have some military nursing experience and related their experiences in the comments section of the questionnaire.

Educational Degrees/Experience

Two thirds of the respondents were doctorally prepared and the remainder had master's degrees. This finding is consistent with that of Hupcey (1993) who found a large number of master's and doctorally prepared NPs in the fields of education and research. Over half of these degrees were in nursing-related specialties. This finding provided support to the respondents' high level of expertise.

Military Family Nurse Practitioner Students in Civilian FNP Programs

Two thirds of the respondents have military students in their programs. The growing number of military FNPs presents a potential for underutilization of their skills if they are assigned specialty codes that utilize them as staff nurses, charge nurses, administrators, or researchers

(Lavey, 1996; Lukasik, 1993; McGlooin et al., 1994). Currently, the military has limited positions available for FNPs.

Research question 1 asked: What level of care is provided by the FNP for primary care conditions experienced during a deployment? The findings suggest that FNPs could assess, diagnose, and provide interventions for prevention and education for 90-100% of the primary care conditions surveyed. Family nurse practitioners could solely treat 70-90% of the uncomplicated primary care conditions, and as would family practice physicians, would need to refer many of the complicated primary care conditions. These findings are supported by other studies (Osterweis & Garfinkel, 1993).

The Level of Care Survey

Assessment and Diagnosis

Over 90% of the respondents agreed that FNPs could assess all of the 69 conditions that would be found during deployment, a finding similar to those in the literature on activities of civilian NPs. There was 72% agreement that FNPs could diagnose all conditions. Some of the ophthalmologic (keratitis, foreign body, visual disturbances); orthopedic (fracture, back/neck/head injury, laceration, chondromalacia); psychiatric (personality disorder, psychosis); and miscellaneous (GI bleed, angina, ulcers, chest wall pain, myocardial infarction) conditions, depending on the cause or severity of the problem, could require consultation or referral for the diagnosis. Respondents further agreed that FNPs could diagnose the majority of uncomplicated primary care conditions.

The assessment data results were similar and in some cases identical to the results of the diagnosis data. This finding was expected because, usually, if FNPs could assess the problem, they could diagnose it. This is especially true if the condition is a common, uncomplicated case.

Prevention and Education

There was 62-100% agreement that FNPs could provide interventions to prevent all of the 69 conditions to which they responded. The percentage of agreement fell to 62-77% for psychiatric (personality disorders and psychosis) and some of the gastrointestinal conditions

(appendicitis, abdominal pain, nausea and vomiting). Some respondents wrote that several conditions, e.g. appendicitis and psychosis, were not preventable. For all other conditions, the percentage of agreement was 90%.

There was 87% agreement that FNPs could provide education for all conditions. Psychiatric conditions (personality disorders and psychosis) slightly lowered the percentage range of agreement. Some FNPs are more comfortable managing these conditions and have more experience in this area than others. Prevention data results were similar to the results of the education data. This finding was expected because many primary care conditions are preventable with education.

Treatment and Referral

The most definite findings were in these two categories that were inversely related. These findings were expected because, for conditions FNPs could not solely treat, a referral would be necessary. FNPs could solely treat from 81 to 98% of the primary care conditions. The decrease in the treatment agreement percentages was not isolated to a specific category of conditions. The treatment percentages of agreement decreased for the following conditions: cellulitis, appendicitis, abdominal pain, dysentery, heat stroke, angina, myocardial infarction, internal chest pain, GI bleeding, foreign body, keratitis, visual disturbances, head/neck/back injury, fracture, dislocation, animal bite, chondromalacia, personality disorder, pneumonia, bronchospasm, and asthma. These are all conditions that have the potential for becoming complicated or resistant to treatment or requiring hospitalization or the services of a specialist. The referral agreement percentages for these conditions varied between 24 and 91%.

Research question 2 asked: Is there a deployment role for the family nurse practitioner? The data clearly suggest that FNPs do.

According to several respondents, some conditions should be evaluated by a specialist. One respondent wrote:

Family nurse practitioners are prepared as generalists, not specialists. Some of the conditions on the questionnaire should be evaluated by a specialist. For

instance, conditions that require surgical intervention such as appendicitis or lacerations would necessitate referral and/or consultation to resolve. Other examples would be eye emergencies or psychoses. These conditions should be evaluated by an ophthalmologist or psychiatrist. Once such conditions are properly confirmed and treatment plan by the expert in the field established, then the FNP could manage, as do generalist physicians.

This research data are consistent with published studies on civilian NPs which find that NPs can substitute for physicians in as many as 75-90% of primary care functions, and that as many as 90% of primary health care needs can be managed by the NP (Osterweis & Garfinkel, 1993). FNPs are qualified to handle a wide range of basic health problems. FNPs conduct physical exams, take medical histories, diagnose and treat common acute minor illnesses or injuries, order and interpret lab tests and x-rays, and counsel and educate clients (Fuller, 1996). They can provide the same diagnostic and management services as most primary care physicians and can refer to physicians when client problems are beyond the nurses' scope of practice (OTA, 1986; Safriet, 1992).

Conclusions and Recommendations

It would have been more appropriate to send the questionnaire to Air Force FNPs. This was not possible since the only known FNPs identified at Air Force Military Personnel Center (AFMPC) are those FNPs from the Uniformed Services University of the Health Sciences Class of 1996. This class, however, did not meet the size or experience level required for this study. FNPs from the Army or Navy could have been included, but that would have required joint service Institutional Review Board approval, which was not possible because of time constraints.

Recommendations for Tool Revision and Further Research

The Air Force has now created a specialty code for FNPs. A list of Air Force members identified by the FNP specialty code can be obtained from Air Force Military Personnel Center, Randolph Air Force Base, Texas. As the number of Air Force graduate FNPs grows, the

population of Air Force FNPs who have military experience and expertise in the role will also increase. A replication study to survey the military FNPs would improve the response rate.

Missing data may have influenced the study results (Appendix E). Several respondents stated that more detail would improve validity. A revision of the tool to include defining each primary care condition in terms of severity and etiology of the problem would undoubtedly improve the accuracy of the responses.

Lack of detailed description of conditions documented during ODS/DS has implications beyond this study. Documentation during deployments was identified as a problem in 1993 after ODS/DS. Information was kept at the unit level with no centralized data system to evaluate trends for the entire force. Joint Chiefs of Staff mandated that outpatient medical surveillance data would be a requirement for all deployments and that guidelines would be established to determine specific areas for monitoring. A Joint Task Force was assigned to develop a system to improve the tracking of DNBI's. Problems in tracking primary care conditions during deployment made obtaining outpatient data for this study difficult. It also has complicated the recent Gulf War syndrome study being conducted at Walter Reed Army Medical Center, Washington, DC.

The treatment and referral categories caused some confusion among respondents because the yes or no response format did not consider judgment and decision making by the FNP. Respondents gave examples, one of which was, when the FNP could independently treat the presenting condition, but instead must refer the client for further evaluation. The tool could be revised by developing specific case scenarios to include various FNP decision making processes. Case scenarios could include the typical or uncomplicated cases, cases in which conventional treatment has failed, and complex cases with multiple risk factors. A replication study could be done that required the experts to complete the questionnaire for each scenario. The yes/no format may be easier to respond to when there is added information from the case scenarios.

Some respondents wanted to add a "nonapplicable" and a "depends" category to the questionnaire (Appendix D). In retrospect, it is clear that some of the conditions, e.g., appendicitis and psychosis, were not preventable. A "nonapplicable" response could be useful for

conditions that may not be categorized in all the levels of care. Other respondents recommended adding a "depends" response category because guidelines or protocols are used in some civilian practices by FNPs to determine when to treat, consult or refer medical problems. A "depends" category with a comment section for each condition would allow respondents to provide useful anecdotal material.

Several of the respondents wrote in the comment section that "the level of care provided by FNPs was dependent on other factors". Other factors identified included: (a) severity or degree of problem, (b) etiology of condition, (c) complexity of condition, (d) underlying conditions, (e) resistance of condition to present prescribed treatment, (f) expertise of FNP, (g) FNP comfort level, (h) experience of FNP, (i) frequency of dealing with these conditions in daily practice, (j) equipment available, (k) specialized training, (l) level of physician support, (m) facility protocols for physician supervision and (n) prescription authority. The miscellaneous and specialty categories (psychiatric and ophthalmologic) had the majority of the "depends" responses for all the levels of care.

Implications for Education

The findings identified strengths in FNPs that could be used to overcome short-comings in educational programs were identified in this study and in the literature (Clawson & Osterweis, 1993; Safriet, 1992; McGivern & Mezey, 1993). Most educational programs for FNPs provide little guidance on the treatment and management of orthopedic and trauma conditions. But, according to respondents, FNPs can gain skills beyond basic education including casting, suturing, and the removal of a foreign body from the eye. The respondents agree that these procedures require special preparation because such specialized, technical information is not commonly included in the curriculum. FNP educational programs prepare students to be general practitioners, not specialists.

Suis (1991) identified the need for deployed health care providers to be prepared to treat a range of primary care illnesses and trauma related problems. He and others in the literature recommended continuing education for health care providers including trauma life support,

advanced cardiac life support, and care for battle fatigue (BICEPS) (Balacki, 1992; Lee et al, 1992; Steele, 1991). The FNP respondents agreed that additional training in any area is desirable for FNPs after an initial educational program is completed. Any additional training or continuing education by military health care providers improves overall medical readiness and better prepares military members for deployment.

Another strength of FNPs is the substantial years of experience as nurse and practitioner. "The number of years of experience are immeasurable." FNPs have a variety of experiences as registered nurses prior to becoming practitioners. These experiences may enhance the independence and comfort level of the practitioner in certain settings. One respondent wrote that "a family nurse practitioner with extensive emergency room background would be able to do more with the miscellaneous medical and orthopedic conditions listed on the questionnaire." Another stated that "a family nurse practitioner with ten years of experience in primary care or emergency services would be more independent than a new family nurse practitioner whose only prior experience was in staff development and education."

Newly graduated FNPs may benefit from an orientation program designed to familiarize the FNP with the routine patient load and typical patients seen in the clinic. The orientation should identify skills necessary to provide care for routine patients seen in the clinic. Facility-designed certification courses, attending local civilian courses, or home study are options to gain additional skills during this transition period.

Recommendation for Practice

Some barriers to practice were identified by the respondents that can relate to the military setting (Safriet, 1992; Clawson & Osterweis, 1993). One respondent stated, "FNP practice is often limited by the experience of the FNP or the expectations of the work environment." Ways to overcome these potential practice obstacles include co-management of patients in situations where multiple disciplines are available. Another respondent said, "FNPs are educated to be team players, seeking appropriate referrals from all health providers is not only encouraged, but constitutes safe practice." Campbell, Mauksch, Neikirk, & Hosokawa (1990) found that nurse

practitioners and physicians in joint practice settings provide a different focus of care, with nurse practitioners exhibiting significantly more psychosocial concern for the patient. Campbell and colleagues, supported by other studies cited in the literature, found that patients are more satisfied with personal interest exhibited, reduction in professional mystique of health care delivery, and amount of information conveyed (Graveley & Littlefield, 1992; North, 1991; OTA, 1986)

A cost effective mix of health professionals can expand the delivery of primary care services to those without access to basic health care while slowing the growth of health care costs (Prescott, 1994). Hardy & Hardy (1988) cited research studies regarding the team approach to medical care that found patients prefer care by physician-nurse practitioner teams to total care by one provider or the other. The nurse's role is complementary to the physician's and the contributions of each should be considered for patient management (Williams, 1975).

The quality of care provided by the FNP is important. Effective utilization depends upon the FNP's ability to render care that is safe and effective. Only when this issue is settled do questions of access, cost-effectiveness, and barriers to practice become relevant. According to Stone (1994), the most articulated basis for physicians' opposition to NPs has been concern about their ability to provide such care. Treatment and referral often depend on severity and nature of the problem, as well as training and experience of the FNP, much the same as with a family physician. Well-designed clinical trials to determine the FNP's ability to render safe, effective care need to be conducted.

Recommendations for a Role in Prevention

Today, prevention is considered a key element in the improvement of both civilian and military health care system. The FNP role in prevention and education could impact both systems. Family nurse practitioners could make a significant contribution toward achieving the national health objectives (Healthy People 2000) and toward keeping military troops ready for deployment.

This study concluded that the FNP has a valid deployment role. The literature identifies a lack of training or experience in preventive medicine of the physicians and physician assistants

deployed during ODS/DS (Withers et al., 1994). There is a documented need for disease prevention for mission requirements to support disaster preparedness, humanitarian relief, and joint or unified commands (Baker, 1996). Findings in this study provide evidence that supports a prevention role for the FNP. Respondents almost unanimously agree that FNPs could provide interventions, including education, to prevent a majority of the DNBI conditions surveyed. The training and curriculum of the FNP, scope of practice, and nursing theory used in this study provide added support for a prevention role that could be utilized in the military health care system.

FNPs, military and civilian, could benefit from further descriptive and correlational studies of the FNP role. Public and professional awareness of the utilization, capabilities, and scope of practice of family nurse practitioners can only serve to improve acceptance of these health care providers in the military and civilian health care system. This study provided a description of the levels of care provided by the FNP for medical conditions (DNBI) experienced during deployment. These findings can assist strategic planners in deciding which location on the battlefield the FNP could be utilized that would best meet the deployment mission requirements.

Recommendations for a Role in Teaching Self-Care

There is a recognized need for self-care within the military health care system. Recently the Air Force distributed Vickery & Fries (1994), Take care of yourself: The complete guide to medical self care, to all personnel. Vinson & Lutz (1993) wrote that consumers need to recognize the limitations of modern medicine, realize physicians' decisions are guided by patient or parent expectations, assume power over their own health care, and take responsibility for their own well-being.

FNPs can facilitate the shift to self-care in their leadership role of teaching self-care, diagnosis, and treatment. Nurses in the military have always provided education to corpsmen and medics and have been identified for their role in education (Balacki, 1992). Nurse practitioners are the least biased toward the disease and cure orientation of the medical model and are best suited to provide primary and preventive health care in a comprehensive and coordinated fashion

(Safriet, 1992). Nurse practitioners initiate interventions for potential (primary prevention) as well as actual health problems (secondary prevention) and focus their interventions so that patients will ultimately assume independence in health care activities (tertiary prevention) (Neuman, 1982; McGivern & Mezey, 1993).

Recommendations for Marketing the Role

Consumers need to help move FNPs beyond traditional settings toward new clinical sites. The challenge is in establishing expanded nursing roles for the provision of primary care in a variety of settings. Marketing the FNP role to provide knowledge about it to consumers is important in establishing the FNP as a member of the health care team (Smith & Shamansky, 1983; Bramble, 1991; Richmond & Keane, 1992). Marketing the role can be accomplished through research presentations at annual executive nurse meetings, continuing education, and research conferences. FNPs could market the role nationally by publishing articles in the *Military Nursing Research Journal* or other journals and locally by distributing information pamphlets at the FNP's assigned military facility. Demonstrating excellence in the FNP's job performance is yet another way to educate the others about the role. Additional research studies are needed to describe how services of FNPs could benefit the consumers.

Recommendations for FNP Utilization in Medical Readiness

The contributions of FNPs in education, counseling and support need to be communicated to the public. Through these activities many of the diseases that arise during deployment could be prevented. FNPs aim to keep people healthy by assisting individuals, families and groups to actively participate in maintaining, restoring, or improving health. The need for basic health education and instruction while deployed and as part of predeparture planning is essential in order to assure a safe, healthy, and successful mission (White, Hartwig, Thiese, Murdock & Pederson, 1991). Traveling into foreign countries exposes soldiers to organisms not commonly encountered in the United States. The soldier may or may not have natural or acquired immunity. The problem is compounded by young soldiers who think they are invincible and ignore that they might become ill if they fail to follow simple preventive measures. Dealing with emotional and

environmental stress that includes adjusting to a new environment, separation anxiety, disrupted personal routines, and changing eating or exercise habits increases deployed military personnel risk for DNBI. The levels of care provided by the FNPs identified in this study could impact deployment if FNPs were utilized to provide predeployment education or reinforce education while in the field setting.

Medical readiness involves knowing what resources are available prior to deployment. It is important that unit commanders have knowledge of FNP capabilities and awareness of the valuable medical assets available to their unit prior to the deployment. Military mobilization teams are primary care teams able to perform triage, diagnosis, and treatment of minimal category patients, and prepare patients for evacuation to conventional health care facilities (Haines & Weidenbach, 1993). FNPs provide levels of care that could be utilized for these teams. Some of the specialties represented during ODS/DS were emergency medicine, general internal medicine, family practice, infectious disease, and radiology (Keenan, 1991). FNPs can be utilized in any of these specialties.

Summary

Nurse practitioners have been recognized as primary care gatekeepers who can find the type of care that best suits and heals the patient. At times patients need physicians' specialized knowledge in a specific field. Often, personal attention to patients' cultures, motivations, needs, a broad overview of health care practices, and preventive teaching will bring patients to a higher level of wellness and personal peace (Inlander, 1993). The levels of prevention emphasize the educative, supportive, and counseling tasks that compose health care and the nursing aspects of clinical practice. These are the nursing contributions to health care often sacrificed to social, time, political, and economic constraints on practice (Yedidia, 1981).

The role and presence of the FNP must be understood in the context of the military healthcare system where prevention of injury and disease is a daily goal. The focus of military medicine is to prevent disease and injury and to provide immediate care to injured and ill military personnel. The goals are to reduce lost manpower hours through primary prevention, to rapidly

return military personnel back to duty through secondary prevention, and to restore the health of the force through tertiary prevention.

Research is needed on how best to describe and communicate to consumers the services of FNPs that benefit them, such as the caring functions that can prevent the need to cure. Through education, counseling, and support, many of the diseases commonly treated during deployment can be prevented. FNPs aim to keep people healthy by assisting individuals, families, and groups to actively participate in maintaining, restoring, or improving health. The contributions of FNPs in each of these areas must be communicated to the public. Consumers need to move FNPs beyond traditional settings toward new clinical sites. The challenge is in establishing expanded nursing roles for the provision of primary care in a variety of settings.

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APPENDICES

Appendix A: The Level of Care Survey

Appendix B: Percent of Agreement for each Condition and Care Level

Appendix C: Number of Respondents Who Agree for each Condition and Level

Appendix D: Number of Respondents for "Depends" Response

Appendix E: Number of Blank Responses

APPENDIX A: FAMILY NURSE PRACTITIONER (FNP) LEVEL OF CARE SURVEY**Part I: DEMOGRAPHIC DATA**

Age: _____

Gender: _____

Current Position: _____

Years in current position: _____

Years in teaching: _____

Years as a family nurse practitioner: _____

Years as a nurse practitioner: _____

Years as a registered nurse: _____

Prior military experience: Y/N

Years in service: _____ Service affiliation: _____ Position held: _____

Highest educational degree held: _____ Specify type: _____

Current certifications: _____

Are there military students enrolled in your family nurse practitioner program? Y/N How many?

(if data is available) _____

Part II - Survey Instructions

The following is a list of conditions experienced by military troops deployed during Operation Desert Shield and Desert Storm. If a patient presented for health care with these conditions and the first contact in the health care system is with a family nurse practitioner, in your opinion, what level of care could the FNP provide for each of these conditions?

Please **circle "N"** if the FNP **could not** provide the level of care identified in the column or **circle "Y"** if the FNP **could** provide the level of care in the column. Please ensure **each condition has six responses**, one for each column. If you have any additional information to provide, please write it in the "**comments**" section at the end of the questionnaire.

Definition of the Levels of Care

Assess risks - identify factors in the individual's lifestyle which could increase or decrease the probability of becoming ill or injured.

Prevent disease - provide an intervention which will increase the individual's resistance to disease or injury, e.g., immunizations, prophylactic medications or devices, provide information on how to build the immune system.

Diagnose - identify the health care condition.

Treat solely - provide total health care necessary to return the individual to wellness

Provide education - provide health promotion information to the individual, explain disease process and medication regimens, suggest lifestyle changes to adapt to changing situations, identify additional support resources available in the community.

Refer - assistance from another health care professional is required to return this individual to wellness.

Part III - Level of care survey

	<u>Assess risks</u>	<u>Prevent</u>	<u>Diagnose</u>	<u>Treat solely</u>	<u>Educate</u>	<u>Refer</u>
<i>1.0 HEAT INJURY</i>						
1.01 Dehydration	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
1.02 Heat Cramps	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
1.03 Fatigue	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
1.04 Fever	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
1.05 Heat Stroke	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
<i>2.0 GASTROINTESTINAL</i>						
2.01 Diarrhea	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
2.02 Gastroenteritis	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
2.03 Dysentery	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
2.04 Food Poisoning	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
2.05 Abdominal Pain	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
2.06 Appendicitis	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
2.07 Nausea	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
2.08 Vomiting	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
2.09 Intestinal Parasites	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
<i>3.0 DERMATOLOGIC</i>						
3.01 Sunburn	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
3.02 Heat Rash	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
3.03 Fungal Infection	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
3.04 Bacterial Infection	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
3.05 Cellulitis	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
3.06 Blister	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
3.07 Insect Bite	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y

<i>4.0 RESPIRATORY</i>	<u>Assess risks</u>	<u>Prevent</u>	<u>Diagnose</u>	<u>Treat solely</u>	<u>Educate</u>	<u>Refer</u>
4.01 URI	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
4.02 Pharyngitis	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
4.03 Rhinitis	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
4.04 Allergic Rhinitis	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
4.05 Bronchitis	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
4.06 Pneumonia	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
4.07 Cough	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
4.08 Bronchospasm	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
4.09 Wheezing	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
4.10 Asthma	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
4.11 Otitis Media	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
4.12 Sinusitis	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
<i>5.0 INJURY/ORTHOPEDIC</i>						
5.01 Lacerations	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
5.02 Fracture	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
5.03 Sprain	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
5.04 Abrasion	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
5.05 Contusion	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
5.06 Dislocation	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
5.07 Muscle Pulls	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
5.08 Chondromalacia	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
5.09 Tendonitis	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
5.10 Bursitis	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
5.11 Back Pain (injury)	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
5.12 Back Pain (postural/low)	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
5.13 Neck Pain (injury)	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y

	<u>Assess risks</u>	<u>Prevent</u>	<u>Diagnose</u>	<u>Treat solely</u>	<u>Educate</u>	<u>Refer</u>
5.14 Neck Pain (postural)	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
5.15 Head Injury	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
5.16 Animal Bites	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
<i>6.0 OPTHALMOLOGIC</i>						
6.01 Conjunctivitis	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
6.02 Eye Infection	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
6.03 Keratitis	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
6.04 Corneal Abrasion	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
6.05 Sty	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
6.06 Foreign Bodies	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
6.07 Visual Disturbances	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
<i>7.0 PSYCHIATRIC</i>						
7.01 Depression	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
7.02 Personality Disorder	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
7.03 Psychosis	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
<i>8.0 MISCELLANEOUS MEDICAL</i>						
8.01 Headache	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
8.02 Hypertension(unspecified)	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
8.03 Chest Pain (wall)	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
8.04 Chest Pain (internal)	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
8.05 Ulcers	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
8.06 GI Bleeding	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
8.07 Angina	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
8.08 Myocardial Infarction	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
8.09 Hemorrhoids	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y
8.10 Ingrown Toenails	N/Y	N/Y	N/Y	N/Y	N/Y	N/Y

9.0 Comments:

APPENDIX B: PERCENT OF AGREEMENT FOR EACH CONDITION AND CARE LEVEL

	<u>Assess risks</u>	<u>Prevent</u>	<u>Diagnose</u>	<u>Treat solely</u>	<u>Educate</u>	<u>Refer</u>
<i>1.0 HEAT INJURY</i>						
1.01 Dehydration	100	100	100	83.9	100	25.9
1.02 Heat Cramps	100	100	100	90.9	100	22.2
1.03 Fatigue	100	100	100	87.7	100	18.9
1.04 Fever	100	98.3	98.2	82.5	100	23.6
1.05 Heat Stroke	100	100	100	50.9	100	57.9
<i>2.0 GASTROINTESTINAL</i>						
2.01 Diarrhea	100	100	100	91.4	98.3	23.2
2.02 Gastroenteritis	100	100	100	93.1	100	25
2.03 Dysentery	100	100	98.3	75.9	98.3	41.1
2.04 Food Poisoning	100	100	100	84.5	100	30.4
2.05 Abdominal Pain	100	92.9	96.6	61.4	100	43.9
2.06 Appendicitis	100	76.8	98.3	8.8	98.2	91.4
2.07 Nausea	100	94.6	98.3	87.9	100	26.8
2.08 Vomiting	100	98.2	98.3	91.2	100	23.2
2.09 Intestinal Parasites	100	100	100	87.9	100	34.5
<i>3.0 DERMATOLOGIC</i>						
3.01 Sunburn	100	100	100	98.2	100	20
3.02 Heat Rash	100	100	100	98.2	100	20
3.03 Fungal Infection	100	100	100	98.2	100	21.8
3.04 Bacterial Infection	100	100	100	94.7	100	21.8
3.05 Cellulitis	100	98.2	98.2	71.9	100	34.5
3.06 Blister	100	100	100	98.2	100	20
3.07 Insect Bite	100	100	98.2	94.7	98.2	20

<i>4.0 RESPIRATORY</i>	<u>Assess risks</u>	<u>Prevent</u>	<u>Diagnose</u>	<u>Treat solely</u>	<u>Educate</u>	<u>Refer</u>
4.01 URI	100	100	100	98.2	100	16.7
4.02 Pharyngitis	100	100	100	98.3	100	16.7
4.03 Rhinitis	100	100	100	98.3	100	16.7
4.04 Allergic Rhinitis	100	100	100	98.3	100	16.7
4.05 Bronchitis	100	100	100	93.1	100	18.5
4.06 Pneumonia	100	100	98.3	72.4	100	32.7
4.07 Cough	100	100	100	96.4	100	17
4.08 Bronchospasm	100	100	98.3	81	100	27.8
4.09 Wheezing	100	100	100	91.2	100	24
4.10 Asthma	100	100	100	79.3	100	25.9
4.11 Otitis Media	100	100	100	98.3	100	16.7
4.12 Sinusitis	100	100	100	94.8	100	16.7
<i>5.0 INJURY/ORTHOPEDIC</i>						
5.01 Lacerations	98.3	98.3	98.3	71.9	98.2	31.5
5.02 Fracture	100	100	94.8	19.3	100	74.1
5.03 Sprain	100	100	100	94.7	100	18.5
5.04 Abrasion	100	100	100	96.5	100	18.5
5.05 Contusion	100	100	98.2	94.7	100	20.4
5.06 Dislocation	100	100	100	39.3	98.2	63.2
5.07 Muscle Pulls	100	100	100	96.5	100	16.7
5.08 Chondromalacia	98.3	96.5	91.4	74.5	94.5	34.5
5.09 Tendonitis	100	100	100	94.6	100	16.7
5.10 Bursitis	100	100	100	87.5	100	23.6
5.11 Back Pain (injury)	100	100	94.8	50	100	44.6
5.12 Back Pain (postural/low)	100	98.2	98.3	85.7	100	25.9
5.13 Neck Pain (injury)	98.2	98.2	89.5	42.9	96.4	55.3

	<u>Assess risks</u>	<u>Prevent</u>	<u>Diagnose</u>	<u>Treat solely</u>	<u>Educate</u>	<u>Refer</u>
5.14 Neck Pain (postural)	100	96.5	96.5	86.5	98.2	30.2
5.15 Head Injury	100	98.3	87.9	21.1	98.3	72.4
5.16 Animal Bites	100	98.3	96.6	75.4	98.3	37
<i>6.0 OPTHALMOLOGIC</i>						
6.01 Conjunctivitis	100	100	100	96.6	100	24.1
6.02 Eye Infection	100	98.3	94.8	77.6	98.3	37.5
6.03 Keratitis	96.4	91.1	87.5	34.5	91.1	71.4
6.04 Corneal Abrasion	94.8	98.3	96.6	58.2	98.3	56.1
6.05 Sty	98.3	96.6	100	94.8	96.6	25.5
6.06 Foreign Bodies	96.6	98.3	98.2	47.4	98.3	57.9
6.07 Visual Disturbances	94.8	91.4	84.2	21.1	91.4	73.7
<i>7.0 PSYCHIATRIC</i>						
7.01 Depression	100	91.1	98.2	58.6	98.2	52
7.02 Personality Disorder	89.7	64.7	71.9	17.5	87.3	87.9
7.03 Psychosis	91.2	62.3	74.5	14	89	89.7
<i>8.0 MISCELLANEOUS MEDICAL</i>						
8.01 Headache	100	98.3	100	84.5	98.3	22.2
8.02 Hypertension(unspecified)	100	98.3	96.6	82.8	98.3	33
8.03 Chest Pain (wall)	100	96.5	94.8	81	98.3	32.7
8.04 Chest Pain (internal)	100	94.7	89.7	19.3	98.2	77.2
8.05 Ulcers	100	96.6	91.4	75.9	96.6	36.4
8.06 GI Bleeding	98.2	93.1	89.6	17.5	98.3	79.3
8.07 Angina	96.5	93.1	91.2	35	96.4	64.9
8.08 Myocardial Infarction	98.2	96.6	84.5	10.5	94.8	81
8.09 Hemorrhoids	100	98.3	100	87.5	100	24.5
8.10 Ingrown Toenails	100	98.3	100	81	100	29.6

APPENDIX C: # OF RESPONDENTS WHO AGREE FOR EACH CONDITION AND LEVEL

	<u>Assess risks</u>	<u>Prevent</u>	<u>Diagnose</u>	<u>Treat solely</u>	<u>Educate</u>	<u>Refer</u>
<i>1.0 HEAT INJURY</i>						
1.01 Dehydration	58	58	58	47	58	14
1.02 Heat Cramps	57	57	57	50	57	12
1.03 Fatigue	58	58	58	50	58	10
1.04 Fever	58	56	56	47	58	13
1.05 Heat Stroke	57	57	57	28	57	33
<i>2.0 GASTROINTESTINAL</i>						
2.01 Diarrhea	58	58	58	53	57	13
2.02 Gastroenteritis	58	58	58	54	58	14
2.03 Dysentery	58	58	57	44	57	23
2.04 Food Poisoning	57	58	58	49	58	17
2.05 Abdominal Pain	57	52	56	35	58	25
2.06 Appendicitis	56	43	57	5	56	53
2.07 Nausea	57	53	57	51	58	15
2.08 Vomiting	57	54	57	52	58	13
2.09 Intestinal Parasites	58	58	58	51	58	20
<i>3.0 DERMATOLOGIC</i>						
3.01 Sunburn	57	57	57	56	57	11
3.02 Heat Rash	57	57	57	56	57	11
3.03 Fungal Infection	57	57	56	56	57	12
3.04 Bacterial Infection	57	57	57	54	57	12
3.05 Cellulitis	57	56	56	41	56	19
3.06 Blister	56	57	57	56	56	11
3.07 Insect Bite	56	57	56	54	55	11

<i>4.0 RESPIRATORY</i>	<u>Assess risks</u>	<u>Prevent</u>	<u>Diagnose</u>	<u>Treat solely</u>	<u>Educate</u>	<u>Refer</u>
4.01 URI	57	58	58	56	57	9
4.02 Pharyngitis	57	58	58	57	57	9
4.03 Rhinitis	57	58	58	57	57	9
4.04 Allergic Rhinitis	57	58	58	57	57	9
4.05 Bronchitis	57	58	58	54	57	10
4.06 Pneumonia	57	58	57	42	57	18
4.07 Cough	57	58	58	54	56	9
4.08 Bronchospasm	57	58	57	46	57	15
4.09 Wheezing	57	58	58	52	56	13
4.10 Asthma	57	58	58	46	57	14
4.11 Otitis Media	57	58	58	57	57	9
4.12 Sinusitis	57	58	58	55	57	9
<i>5.0 INJURY/ORTHOPEDIC</i>						
5.01 Lacerations	57	57	57	41	55	17
5.02 Fracture	58	58	55	11	56	43
5.03 Sprain	58	58	58	54	56	10
5.04 Abrasion	58	58	58	55	56	10
5.05 Contusion	58	58	56	54	56	11
5.06 Dislocation	58	58	58	22	55	36
5.07 Muscle Pulls	58	58	58	55	55	9
5.08 Chondromalacia	57	55	53	41	52	19
5.09 Tendonitis	58	58	58	53	56	9
5.10 Bursitis	58	58	58	49	56	13
5.11 Back Pain (injury)	58	58	55	28	56	25
5.12 Back Pain (postural/low)	57	56	57	48	55	14
5.13 Neck Pain (injury)	55	56	51	24	53	31

	<u>Assess risks</u>	<u>Prevent</u>	<u>Diagnose</u>	<u>Treat solely</u>	<u>Educate</u>	<u>Refer</u>
5.14 Neck Pain (postural)	57	55	55	49	56	16
5.15 Head Injury	58	57	51	12	57	42
5.16 Animal Bites	58	57	56	43	57	20
<i>6.0 OPHTHALMOLOGIC</i>						
6.01 Conjunctivitis	58	58	58	56	57	13
6.02 Eye Infection	58	57	55	45	57	21
6.03 Keratitis	54	51	49	19	54	40
6.04 Corneal Abrasion	55	57	56	32	54	32
6.05 Sty	57	56	57	55	58	14
6.06 Foreign Bodies	56	57	56	27	58	33
6.07 Visual Disturbances	55	53	48	12	53	42
<i>7.0 PSYCHIATRIC</i>						
7.01 Depression	58	51	56	34	56	29
7.02 Personality Disorder	52	33	41	10	48	51
7.03 Psychosis	52	33	41	8	49	52
<i>8.0 MISCELLANEOUS MEDICAL</i>						
8.01 Headache	58	57	58	49	57	12
8.02 Hypertension(unspecified)	58	57	56	48	57	18
8.03 Chest Pain (wall)	57	55	55	47	57	18
8.04 Chest Pain (internal)	57	54	52	11	56	44
8.05 Ulcers	57	56	53	44	56	20
8.06 GI Bleeding	56	54	52	10	57	46
8.07 Angina	55	53	52	20	54	37
8.08 Myocardial Infarction	56	56	49	6	55	47
8.09 Hemorrhoids	57	57	58	49	57	13
8.10 Ingrown Toenails	57	57	58	46	58	16

APPENDIX D: NUMBER OF RESPONDENTS FOR "DEPENDS" RESPONSE

	<u>Assess risks</u>	<u>Prevent</u>	<u>Diagnose</u>	<u>Treat solely</u>	<u>Educate</u>	<u>Refer</u>
<i>1.0 HEAT INJURY</i>						
1.01 Dehydration	0	0	0	5	0	6
1.02 Heat Cramps	0	0	0	4	0	3
1.03 Fatigue	0	0	0	5	0	6
1.04 Fever	0	0	1	6	0	9
1.05 Heat Stroke	0	0	0	4	0	4
<i>2.0 GASTROINTESTINAL</i>						
2.01 Diarrhea	0	0	0	4	1	5
2.02 Gastroenteritis	0	0	0	3	0	6
2.03 Dysentery	0	0	1	4	1	7
2.04 Food Poisoning	0	0	0	3	0	8
2.05 Abdominal Pain	0	1	2	10	0	16
2.06 Appendicitis	0	0	0	0	0	2
2.07 Nausea	0	2	0	6	0	6
2.08 Vomiting	0	1	0	4	0	8
2.09 Intestinal Parasites	0	0	0	1	0	7
<i>3.0 DERMATOLOGIC</i>						
3.01 Sunburn	0	0	0	1	0	2
3.02 Heat Rash	0	0	0	1	0	2
3.03 Fungal Infection	0	0	0	1	0	4
3.04 Bacterial Infection	0	0	0	3	0	7
3.05 Cellulitis	0	1	1	8	0	12
3.06 Blister	0	0	0	1	0	2
3.07 Insect Bite	0	0	1	3	0	4

<i>4.0 RESPIRATORY</i>	<u>Assess risks</u>	<u>Prevent</u>	<u>Diagnose</u>	<u>Treat solely</u>	<u>Educate</u>	<u>Refer</u>
4.01 URI	0	0	0	0	0	3
4.02 Pharyngitis	0	0	0	1	0	2
4.03 Rhinitis	0	0	0	1	0	2
4.04 Allergic Rhinitis	0	0	0	1	0	3
4.05 Bronchitis	0	0	0	4	0	3
4.06 Pneumonia	0	0	1	7	0	15
4.07 Cough	0	0	0	2	0	10
4.08 Bronchospasm	0	0	1	6	0	14
4.09 Wheezing	0	0	0	3	0	9
4.10 Asthma	0	0	0	7	0	15
4.11 Otitis Media	0	0	0	1	0	3
4.12 Sinusitis	0	0	0	3	0	7
<i>5.0 INJURY/ORTHOPEDIC</i>						
5.01 Lacerations	1	1	1	11	1	17
5.02 Fracture	0	0	1	7	0	10
5.03 Sprain	0	0	0	3	0	6
5.04 Abrasion	0	0	0	2	0	5
5.05 Contusion	0	0	0	2	0	6
5.06 Dislocation	0	0	1	8	0	8
5.07 Muscle Pulls	0	0	0	2	0	6
5.08 Chondromalacia	0	0	0	4	0	8
5.09 Tendonitis	0	0	0	3	0	7
5.10 Bursitis	0	0	0	4	0	9
5.11 Back Pain (injury)	0	0	1	12	0	17
5.12 Back Pain (postural/low)	0	1	0	4	0	6
5.13 Neck Pain (injury)	1	1	2	10	1	15

	<u>Assess risks</u>	<u>Prevent</u>	<u>Diagnose</u>	<u>Treat solely</u>	<u>Educate</u>	<u>Refer</u>
5.14 Neck Pain (postural)	0	1	0	4	1	6
5.15 Head Injury	0	1	0	10	1	11
5.16 Animal Bites	0	0	1	6	1	14
<i>6.0 OPTHALMOLOGIC</i>						
6.01 Conjunctivitis	0	0	0	1	0	2
6.02 Eye Infection	0	0	1	6	0	11
6.03 Keratitis	2	0	1	5	0	6
6.04 Corneal Abrasion	0	0	0	5	1	7
6.05 Sty	0	1	0	2	0	4
6.06 Foreign Bodies	0	0	0	8	0	14
6.07 Visual Disturbances	1	2	4	11	3	10
<i>7.0 PSYCHIATRIC</i>						
7.01 Depression	0	1	0	7	0	10
7.02 Personality Disorder	0	1	3	2	1	3
7.03 Psychosis	0	2	3	2	1	4
<i>8.0 MISCELLANEOUS MEDICAL</i>						
8.01 Headache	0	1	1	7	1	11
8.02 Hypertension(unspecified)	0	1	2	6	1	7
8.03 Chest Pain (wall)	0	1	2	7	1	7
8.04 Chest Pain (internal)	0	2	2	7	1	9
8.05 Ulcers	0	1	1	7	1	14
8.06 GI Bleeding	1	2	2	6	1	8
8.07 Angina	1	2	2	5	1	11
8.08 Myocardial Infarction	1	1	2	4	1	7
8.09 Hemorrhoids	0	0	0	3	0	6
8.10 Ingrown Toenails	0	0	0	4	0	5

APPENDIX E: NUMBER OF BLANK RESPONSES

	<u>Assess risks</u>	<u>Prevent</u>	<u>Diagnose</u>	<u>Treat solely</u>	<u>Educate</u>	<u>Refer</u>
<i>1.0 HEAT INJURY</i>						
1.01 Dehydration	0	0	0	2	0	4
1.02 Heat Cramps	1	1	1	3	1	4
1.03 Fatigue	0	0	0	1	0	5
1.04 Fever	0	0	1	1	0	3
1.05 Heat Stroke	1	1	1	3	1	1
<i>2.0 GASTROINTESTINAL</i>						
2.01 Diarrhea	0	0	0	0	0	2
2.02 Gastroenteritis	0	0	0	0	0	2
2.03 Dysentery	0	0	0	0	0	2
2.04 Food Poisoning	1	0	0	0	0	2
2.05 Abdominal Pain	1	2	0	1	0	1
2.06 Appendicitis	2	2	0	1	1	0
2.07 Nausea	1	2	0	0	0	2
2.08 Vomiting	1	3	0	1	0	2
2.09 Intestinal Parasites	0	0	0	0	0	0
<i>3.0 DERMATOLOGIC</i>						
3.01 Sunburn	1	1	1	1	1	3
3.02 Heat Rash	1	1	1	1	1	3
3.03 Fungal Infection	1	1	2	1	1	3
3.04 Bacterial Infection	1	1	1	1	1	3
3.05 Cellulitis	1	1	1	1	2	3
3.06 Blister	2	1	1	1	2	3
3.07 Insect Bite	2	1	1	1	2	3

4.0 <i>RESPIRATORY</i>	<u>Assess risks</u>	<u>Prevent</u>	<u>Diagnose</u>	<u>Treat solely</u>	<u>Educate</u>	<u>Refer</u>
4.01 URI	1	0	0	1	1	4
4.02 Pharyngitis	1	0	0	0	1	4
4.03 Rhinitis	1	0	0	0	1	4
4.04 Allergic Rhinitis	1	0	0	0	1	4
4.05 Bronchitis	1	0	0	0	1	4
4.06 Pneumonia	1	0	0	0	1	3
4.07 Cough	1	0	0	2	2	5
4.08 Bronchospasm	1	0	0	1	1	4
4.09 Wheezing	1	0	0	1	2	4
4.10 Asthma	1	0	0	0	1	4
4.11 Otitis Media	1	0	0	0	1	4
4.12 Sinusitis	1	0	0	0	1	4
<i>5.0 INJURY/ORTHOPEDIC</i>						
5.01 Lacerations	0	0	0	1	2	4
5.02 Fracture	0	0	0	1	2	0
5.03 Sprain	0	0	0	1	2	4
5.04 Abrasion	0	0	0	1	2	4
5.05 Contusion	0	0	0	1	2	4
5.06 Dislocation	0	0	1	2	2	1
5.07 Muscle Pulls	0	0	0	1	3	4
5.08 Chondromalacia	0	1	0	3	3	3
5.09 Tendonitis	0	0	0	2	2	4
5.10 Bursitis	0	0	0	2	2	3
5.11 Back Pain (injury)	0	0	0	2	2	2
5.12 Back Pain (postural/low)	1	1	1	2	3	4
5.13 Neck Pain (injury)	2	1	1	2	3	2

	<u>Assess risks</u>	<u>Prevent</u>	<u>Diagnose</u>	<u>Treat solely</u>	<u>Educate</u>	<u>Refer</u>
5.14 Neck Pain (postural)	1	1	1	1	1	5
5.15 Head Injury	0	0	0	1	0	0
5.16 Animal Bites	0	0	0	1	0	4
<i>6.0 OPTHALMOLOGIC</i>						
6.01 Conjunctivitis	0	0	0	0	1	4
6.02 Eye Infection	0	0	0	0	0	2
6.03 Keratitis	2	2	2	3	2	2
6.04 Corneal Abrasion	0	0	0	1	1	1
6.05 Sty	0	0	1	0	0	3
6.06 Foreign Bodies	0	0	1	1	0	1
6.07 Visual Disturbances	0	0	1	1	1	1
<i>7.0 PSYCHIATRIC</i>						
7.01 Depression	0	2	1	0	1	2
7.02 Personality Disorder	0	4	1	1	3	0
7.03 Psychosis	1	5	3	1	3	0
<i>8.0 MISCELLANEOUS MEDICAL</i>						
8.01 Headache	0	0	0	0	0	4
8.02 Hypertension(unspecified)	0	0	0	0	0	4
8.03 Chest Pain (wall)	1	1	0	0	0	3
8.04 Chest Pain (internal)	1	1	0	1	1	1
8.05 Ulcers	1	0	0	0	0	3
8.06 GI Bleeding	1	0	0	1	0	0
8.07 Angina	1	1	1	1	2	1
8.08 Myocardial Infarction	1	0	0	1	0	0
8.09 Hemorrhoids	1	0	0	2	1	5
8.10 Ingrown Toenails	1	0	0	1	0	4