Montana nurse practitioners : prescriptive authority
by Keven Jean Comer

A thesis submitted in partial fulfilment of the requirements for the degree of Master of Nursing
Montana State University

Abstract:
A critical component of health care provision by rural nurse practitioners (NP) is independent prescriptive practice. Montana is one of only 17 states With independent prescriptive authority for nurse practitioners. Each legislative year there exists the possibility that individual state laws governing prescriptive practice may change, making prescriptive authority more, or less, restrictive for nurse practitioners.

The purpose of this study was to: a) identify facilitators and barriers to the use of prescriptive practice encountered by Montana nurse practitioners, and b) to identify descriptive predictors of the utilization of prescriptive authority. Since the number of nurse practitioners was small (N = 173), the entire population was utilized. All licensed Montana nurse practitioners were sent a mail questionnaire which contained an adaptation of the Griffin (1992) Nurse Practitioner Prescriptive Authority Questionnaire (NPPAQ), a demographic form and questions regarding the extent and type of their practice.

The response rate was 73.4 percent. The contribution to cost effective care was the primary facilitator to the use of prescriptive authority. The strongest barrier identified was the state rules and regulations surrounding prescriptive authority. Those with prescriptive authority were more likely to see more clients, to work longer hours and to have been in practice fewer years than those who did not carry prescriptive authority. In addition, membership ip the Montana Advanced Practice Registered Nurse Association was significantly associated with carrying prescriptive authority. This study provides states that have either no legal provision or dependent prescriptive authority, a model of independent prescriptive practice with identified facilitators, barriers, and demographic predictors.

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A thesis submitted in partial fulfillment
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of

Master of Nursing

MONTANA STATE UNIVERSITY-BOZEMAN
Bozeman, Montana

April 1997

APPROVAL

of a thesis submitted by

Keven Jean Comer

This thesis has been read by each member of the graduate committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and consistency, and is ready for submission to the College of Graduate Studies.

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VITA

Keven Jean Comer, born November 1, 1956, was the first of four children born to Byron Neil Schriever and Dorothy Jean Miller Schriever. She lived in a variety of states and countries during her formative years. In 1974 she completed her high school education and graduated from Canby Union High School in Canby, Oregon. In 1979, she graduated from the University of Portland with a Bachelor of Science in Nursing. Upon graduation she worked briefly on a large cardiac step-down unit. She then accepted a position in the Pediatric Intensive Care Unit (PICU) at Doernbecker Children's Hospital at Oregon Health Sciences University. She worked in the PICU and was a member of the pediatric transport team. She moved to Bozeman, Montana in 1983 and took a position in the ICU-CCU at Bozeman Deaconess Hospital. She has been certified as a critical care nurse since 1985. She enjoys teaching and is a current ACLS and PALS instructor. She is active in the Montana Nurses Association (MNA), having held a variety of offices at the local, district, and state levels. She was instrumental in the collective bargaining agreements at Bozeman Deaconess Hospital from 1988-1996. In 1989 she received the MNA "Eileen Robbins" award which recognizes exemplar workplace advocacy. In 1996 she was selected as MNAs "Nurse of the Year" which recognizes leadership. In February 1997, she was the co-recipient of a grant from Sigma Theta Tau International and Glaxo Welcome to study "Rural Nurse Practitioner Practice: Facilitators and Barriers". She is a member of the American Academy of Nurse Practitioners, the American Association of Critical Care Nurses, the Montana Nurses' Association, the Montana Advanced Practice Registered Nurse Association, and Sigma Theta Tau International. She is a member of the second cohort of Family Nurse Practitioner students at Montana State University College of Nursing and graduated in August 1997. She is married to Steven Comer and has two children, Stephanie and Matthew.

ACKNOWLEDGEMENTS

I wish to thank the members of my thesis committee, Dr. Clarann Weinert, chairperson, and committee members, Sandi Burgard PNP and Jane Perkins FNP. Dr Weinert was especially patient, helpful, and supportive as she guided me through many uncharted waters. Her dedication to research is premiere and I was especially fortunate to have her as my chair and mentor.

In retrospect, many people were destined to cross my path, read the manuscript at opportune times, and give me invaluable feedback by helping me to see the forest through the trees. A special thank you to my readers Dorothy Schriever, Linda Grossman, Polly Peterson, and Carol Nyman.

A personal thanks to Barbara Booher, Terry Knobel, and Pat O'Brien for their encouragement and friendship. Finally, I am indebted to my husband and children for their patience and ability to "hold it together" for the past 2 and one-half years, as I could never have accomplished this without their love and support.

TABLE OF CONTENTS

TABLE OF CONTENTS--Continued

TABLE OF CONTENTS--Continued

LIST OF TABLES

LIST OF TABLES--Continued

LIST OF FIGURES

ABSTRACT

A critical component of health care provision by rural nurse practitioners (NP) is independent prescriptive practice. Montana is one of only 17 states with independent prescriptive authority for nurse practitioners. Each legislative year there exists the possibility that individual state laws governing prescriptive practice may change, making prescriptive authority more, or less, restrictive for nurse practitioners.

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The response rate was 73.4 percent. The contribution to cost effective care was the primary facilitator to the use of prescriptive authority. The strongest barrier identified was the state rules and regulations surrounding prescriptive authority. Those with prescriptive authority were more likely to see more clients, to work longer hours and to have been in practice fewer years than those who did not carry prescriptive authority. In addition, membership in the Montana Advanced Practice Registered Nurse Association was significantly associated with carrying prescriptive authority. This study provides states that have either no legal provision or dependent prescriptive authority, a model of independent prescriptive practice with identified facilitators, barriers, and demographic predictors.

CHAPTER 1

INTRODUCTION

Access to health care is a persistent problem, which faces not only rural residents, such as those in Montana, but which can be found in urban and rural settings across the nation as well. Nurse practitioners offer a viable and cost-effective alternative to care which has been traditionally provided by physicians. During the past thirty years, nurse practitioners have taken the initiative in the care of clients across the age spectrum and in a variety of settings. Nurse practitioners are able to diagnose, treat, and manage a wide array of acute and chronic health conditions. Amidst the many roles performed by the nurse practitioner, an essential and integral element is the ability to independently prescribe pharmacotherapeutics.

When nurse practitioners are able to prescribe independently, not under the supervision of a physician, there is an increase in access, convenience, and quality regarding the delivery of health care as well as a reduction in health care costs (Hadley, 1989; United States Congress, 1986; Wilken, 1995). Nurse practitioner professional independence in decision making is directly related to the ability to independently prescribe drug therapies. Limitations to or prohibitions of the authority to prescribe decrease professional autonomy and result in unnecessary dependency on physicians.

Purpose

The purpose of this study was to: (a) identify facilitators as well as barriers to the use of prescriptive authority encountered by Montana nurse practitioners with prescriptive authority, and (b) identify demographic

factors associated with possessing prescriptive authority. This research contributes to the limited body of knowledge with regard to facilitators and barriers when utilizing prescriptive authority. In addition, a current Montana nurse practitioner database was initiated.

Significance

During the past 10 to 15 years the nurse practitioner role has expanded to include the ability to prescribe drugs. Prescribing is one adjunct utilized to deliver comprehensive health care to clients and complements the cycle of assessment, diagnosis, and treatment of the patient (Harkless, 1989).

The legal authority for nurse practitioners to prescribe drug therapies differs with individual state laws. This has resulted in a large disparity regarding the degree of prescriptive authority and professional autonomy which exists from state to state (McDermott, 1995). Montana is one of only seventeen states (the District of Columbia is counted as a state) in which nurse practitioners can prescribe independently of any required physician involvement in prescription writing. One state, Illinois, is without legal provision regarding nurse practitioner prescriptive authority and the remainder of the states have a variety of physician-supervised regulations constituting dependent prescriptive authority. (See Figure 1 for an accompanying map identifying the degree of prescriptive authority found in each state (Pearson, 1997)). As of July 1996, in Montana, of the 173 licensed nurse practitioners, 113 or 65 percent were recognized to use prescriptive authority within their specified practice environments.

Nurse practitioners in Montana have had independent prescriptive authority since 1991. However, there is a paucity of information regarding

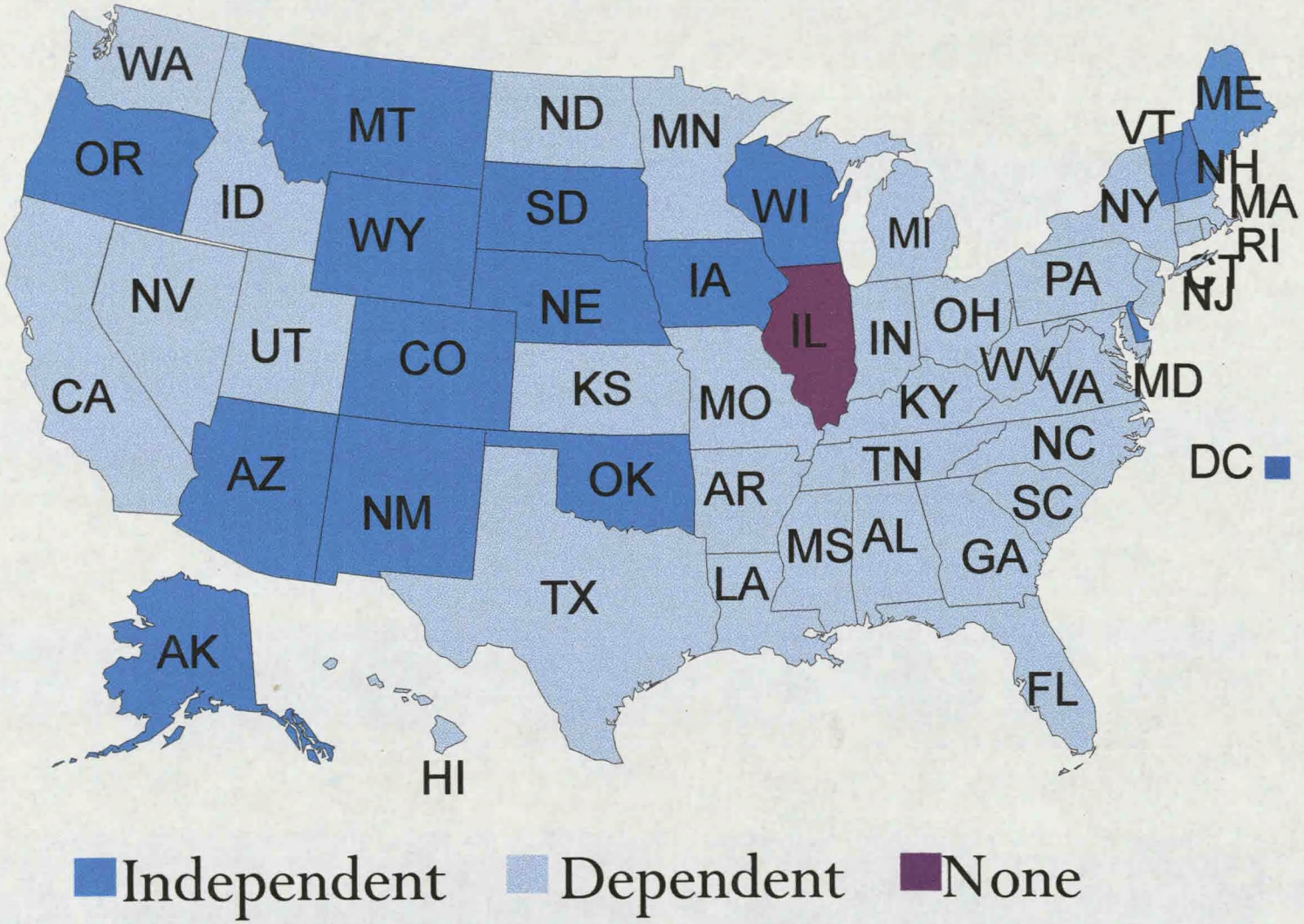

Figure 1. Map identifying degree of prescriptive authority in each state.

the utilization of this prescriptive authority. In addition, identification of specific facilitators and/or barriers encountered by nurse practitioners in Montana is lacking. Nationally, there are limited studies investigating facilitators and barriers in states with progressive prescriptive licensure. The majority of the documentation relates to the barriers which exist in states with dependent, supervised prescriptive authority. In addition, there is limited quantitative data on facilitators which may assist in the utilization of prescriptive authority. Even though there is a scarcity of research regarding the utilization of prescriptive authority, there is an abundance of research which documents the high-quality of care, patient satisfaction, and cost effectiveness of nurse practitioners (United States Congress, 1986; Safriet, 1992).

Prescriptive authority for nurse practitioners in Montana is still in its infancy. There has been little documentation which addresses why certain nurse practitioners fail to utilize prescriptive authority. In addition, it is unknown which segments of Montana populations are being served and in what specific practice locations nurse practitioners utilize prescriptive authority. It is also unknown if independent prescriptive authority is a specific reason for practicing in Montana. Evaluations of possible impediments imposed by medical and/or pharmacy professions are nonexistent. Finally, there is a limited demographic profile of the nurse practitioner group in the state.

It is imperative to have documentation to evaluate the impact of nurse practitioner prescriptive authority on health care in Montana. During the past several legislative sessions, there have been actual and potential threats, by the Montana Medical Association, to the independent nature of Montana nurse practitioner prescriptive licensure. With adequate documentation,

nurse practitioners will be able to take a proactive approach and adequately respond with factual information to the significant practice issue of prescriptive authority.

One problem with many published articles on prescriptive authority is the evolutionary path prescriptive authority has taken. The field is moving so quickly that it is difficult to keep the literature current. With each legislative year there exists the possibility that individual state laws governing prescriptive practice may change, thus adding to or lessening the barriers encountered.

In a meta-analysis of nurse practitioners in primary care roles, Brown and Grimes (1993) found the majority of studies had been conducted during the 1970s with few studies conducted since. They maintained that the body of research regarding nurse practitioners has not benefited from improvements in research methodology and the increasing research experience of the nurse scientist. They stated the majority of studies have been conducted in urban areas while the expanded roles of the nurse practitioner were designed to fill health care needs in rural and underserved populations. They concluded that there is scant information on the rural populations which are being served by nurse practitioners.

It is within the best interest of the profession to continue to gather information substantiating the effectiveness of independent nurse practitioner prescriptive authority as it impacts the continuity of patient care. Harkless (1989) confirmed one important aspect of enhancing the nurse practitioner role is the sharing and disseminating of (nurse practitioner) knowledge to the profession and to the public.

This study was the first step in the acquisition of information regarding the barriers and/or facilitators encountered by Montana nurse practitioners

who prescribe drugs. The information gathered provides a better understanding of the problems encountered by those nurse practitioners which possess prescriptive authority.

Conceptual Framework

Autonomy, the ability to function independently, is a valued and sought after characteristic that is respected both individually and professionally. One of nursing's current and future goals is to increase autonomy in practice. Mahoney (1992a) agreed that in many levels of practice nurse practitioners are willing to accept the responsibilities inherent to autonomy. Independent prescriptive authority is a fundamental and essential dimension of autonomous practice and is motivated by the professional drive towards independence.

The evolution of nursing and the nurse practitioner role has been grounded in the philosophies, beliefs, and social conditions of the late nineteenth century through the present. Nursing today is the result of multiple influences such as the status of women, feminism, societal norms and conditions, economics, the cultural milieu, and social and technological changes (Dempster, 1994).

The practice of nursing has historically been molded as being dependent, instead of independent or autonomous. The hierarchical relationship with physicians began around the turn of the century. Traditionally, nurses carried out the orders of physicians and made few if any independent decisions about the care of patients. This relationship was based on societal norms of the times, with women in a subservient relationship to men. Over the years, this arrangement became a legal relationship with laws defining the roles and scopes of practice of physicians and nurses.

When examining the diverse functions and roles of the nurse practitioner today, there has been significant movement from the early levels of practice to today's expanded practice roles. Nurse practitioners continue to participate in health promotion and disease prevention as major components. However, the role has increasingly blended the expertise in diagnosis, treatment, and management of a wide array of acute and chronic health problems. With this expansion of the nurse practitioner knowledge base, a more autonomous practice has ensued (McGivern, Mexey, & Glynn, 1990).

Dempster (1994) developed a conceptual model of autonomy as it relates to nurse practitioners. Four dimensions emerged: (a) the readiness for autonomy, (b) the actualization for autonomy, (c) the valuation of autonomy, and, (d) the empowerment for autonomy.

The readiness for autonomy involves the movement and/or progression from one practice level to another. The educational process has evolved and augmented that readiness. The advancement of the profession to the graduate level has incorporated unique nursing perspectives and has "enabled the creation of roles that are autonomous in nature yet collegial and collaborative with other disciplines" (Dempster, 1994, p.230). The second dimension, actualization of autonomy, refers to the application of autonomy in the practice arena. From the onset, nurse practitioners have accepted the responsibility and accountability for their own actions. Valuation of autonomy is the component that involves having value and worth. It is only by valuing autonomy by one's self or having it valued by others that autonomy exists to its fullest scope. Empowerment, the fourth component of autonomy, has been the most difficult for nurse practitioners to achieve. Empowerment includes the legitimacy, legal status, and privileges accorded one's profession. Lack of legal empowerment to practice to the fullest extent

of knowledge and skills has been a primary barrier to optimal practice. Through empowerment, nurse practitioners have the legal basis to perform their role to the fullest.

Autonomy is critical to the role of the nurse practitioner (Conway & Biester, 1995; Dempster, 1994). The ability of nurse practitioners to prescribe independently is one very important factor which facilitates autonomous practice. Limitations placed on prescriptive authority are barriers to autonomous practice (Wilson, 1994).

CHAPTER 2

LITERATURE REVIEW

Since the beginning of the nurse practitioner movement, prescriptive authority has consistently been one of the dominant practice issues addressed. The importance of independent prescriptive authority in the ability of the nurse practitioner to function autonomously has been pointed out in numerous articles. Prescriptive authority from a historical perspective is reviewed in this chapter. In addition, the specifics of licensure, prescribing, and the rules and regulations for Montana nurse practitioners are discussed. This is followed by an overview of selected relevant articles and research studies discussing nurse practitioners, practice settings, autonomy, and collaboration as they relate to prescriptive authority.

Historical Perspective

National

A historical overview of prescriptive authority highlights how economic realities and political perceptions created a physician dominance in this field. Many do not realize that prescribing has not always been within the sole domain of the physician. Throughout the colonial period and into the late 1800s more women "practiced medicine" than men. Women were nurses, apothecaries, unlicensed physicians, and midwives. Only the area of surgery was dominated by men. Prior to 1900, the majority of consumers went directly to an apothecary or a midwife for their medicines (Fennell, 1991; Griffin, 1992; Harkless, 1989).

Beginning in 1900, the control of drugs began to shift toward physicians. Journalists, politicians, and physicians began crusading for the regulation of medications. The American Medical Association (AMA), with its growing membership and financial resources was the catalyst compelling drug manufacturers to disclose product contents and stop advertising to consumers. This forced consumers to turn to physicians for specific professional opinions on which medications to purchase. As a result of the AMA's action, drug manufacturers realized their dependence on physicians for the success or failure of their products. Pharmaceutical companies then began to concentrate on physicians, rather than the consumer, as the focal point of advertising. This began changing public perception and resulted in the need for increasing physician collaboration in the decision for pharmaceutical intervention (Harkless, 1989).

The first federal legislation to control the dispensing of drugs was passed in 1906 as the Pure Food Act. This law gave physicians the authority to prescribe narcotics. However, all non-narcotics remained indirectly available to the consumer without a prescription (Harkless, 1989). In 1938 a non-prescription medication which accidentally contained a toxic substance killed one hundred people, thereby prompting the enactment of the Federal Food, Drug and Cosmetic Act (Griffin, 1992; Harkless, 1989). The purpose of this law was to distinguish over-the-counter drugs from those drugs requiring a prescription by a physician. This law defined drugs needing a prescription, as "any product, including medical devices, that affected bodily structures or function even in the absence of disease"(Harkless, 1989, p.58). This clearly placed the access to a prescription in the hands of physicians.

By 1951, the Food and Drug Administration (FDA), a drug review board of experts, was established to decide drug safety. In 1962, the FDA was given

authority to regulate which drugs could be used for specific illnesses. The FDA regulatory process took even more decison-making away from the consumer as manufacturers and physicians were placed in subordinate positions by the government appointed "experts" of the FDA (Harkless, 1989). Consumer input and influences continued to decline. Physicians' authority to prescribe increased as pharmaceutical companies began focusing solely on the medical profession. Pharmaceutical companies subsidized medical journals, professional associations, and political activities (Harkless, 1989; McDermott, 1995).

The nursing profession as a whole did not keep pace with these changes (Harkless, 1989). Nurses accepted unconditionally the rule that the physician was the expert. The exception to this "physican-as-expert" rule has been the nurse anesthetist. For the past eighty years, through common practice and the court decision of Frank vs South (1917), nurse anesthetists have been making autonomous drug choices when providing anesthesia to patients (Griffin, 1992).

The original nurse practice acts were legislated prior to the passage of the nineteenth Amendment, adopted in 1920, which recognized women's right to vote. Before this time, any legislation depended on the support of lawmakers and physicians (usually men) for passage. Original nursing licensing boards were comprised of physician members and required letters of support from physicians for licensure. "This helped set the stage for the perception of nursing as a physician-controlled occupation" (Harkless, 1989, p.58). All of this assisted in setting the tone for a health care delivery system dominated by physicians.

In 1955, the American Nurses Association (ANA) developed a model nurse practice act that specifically excluded diagnosis and prescription from

nursing functions. However, nurses never stopped providing an array of services which included diagnosis and treatment. This disclaimer by the ANA widened the gap between actual nursing practice and the statutory definition. The landmark legal case of Darling vs Charleston Community Memorial Hospital (1965), helped nursing identify and clarify its position in regards to diagnosis and prescribing. The case stated that "the duty of the nurse was to be knowledgeable about diagnosis and prescribing so as to monitor the care of patients and take action if the care is negligent" (Harkless, 1989, p.58). In 1970, the American Nurses Association amended the model definition of the nurse practice act to recognize the professional nurse's responsibility for diagnosis and prescribing (McDermott, 1995).

Prescribing has not always been solely within the domain of the physician. However, this perception has been developed and encouraged resulting in the lay population's view of the physician as the "only" medical authority. Consumers have been led to believe that physicians are the only providers with enough knowledge and information to sort through the complexities necessary to decide on a medication (Harkless, 1989). McDermott (1995) agreed that nurses have been "consistently but unofficially involved in prescribing over time but have lacked the organizational power, professional authority, and political enlightenment to effectively change this process" (p.25-26).

Montana Specifics

Prescriptive authority for Montana nurse practitioners was part of a long-range plan of the Montana nurse practitioner group in the 1970s. These nurses set three goals: (a) revision of the nurse practice act, (b) authorization for third party reimbursement, and (c) acquisition of

independent prescriptive authority (C. Caniparoli, personal communication, April, 17, 1996).

The revision of the nurse practice act was necessary for the inclusion and identification of the "nurse specialist". Prior to that time, only Registered Nurses (RN) and Licensed Practical Nurses (LPN) were recognized under the nurse practice act. The group of nurses needing to be included as "nurse specialist" were nurse practitioners, nurse midwives, and nurse anesthetists. Legislation incorporating this category into the nurse practice act was passed in 1975. In the Montana Statutes and Rules Relating to Nursing, the term "nurse specialist" is interchangeable with the term Advanced Practice Registered Nurse (APRN). The Montana State Board of Nursing has the sole authority to promulgate and enforce rules and regulations for all LPNs, RNs, and APRNs within the state (State of Montana, 1995).

The second goal, third party reimbursement, was attained in the legislative years from 1979-1981. Although nurse practitioners have legislated third party reimbursement, there remains the challenge for providership status in today's competitive arena.

In the attainment of the third goal, prescriptive authority, the nurse practitioner group began in 1983 to work on a rough draft of the rules and regulations needed for prescriptive authority. This rough draft was an important tool to assist legislators in clarifying the issues and the specific language necessary for the new law(s). Final passage of prescriptive authority for Montana nurse practitioners occurred in 1989 (C. Caniparoli personal communication, April 17, 1996).

Rules and Regulations

National

All but one state has rules and regulations governing prescriptive authority for nurse practitioners. However, there is a large disparity between individual states regarding the laws and responsibilities of prescribing nurse practitioners (Pearson, 1997; Weisenbeck & Calico, 1995).

State laws for prescriptive authority are usually incorporated into nursing, medical, or pharmacy practice acts. The majority are found under nurse practice acts, which regulate the practice of nurses and nurse practitioners. The overall problem with these acts is their lack of uniformity in regards to advanced practice nursing. This is reflected by the broad spectrum of independent practice regulated by the Board of Nursing to dependent, supervised practice regulated by medical or pharmacy boards (Safriet, 1992). In addition, many states utilize formularies, written protocols, mandated physician supervision, site restrictions, and/or specific physician practice agreements (Meyer, 1994; Pearson, 1997).

States with prescriptive authority can be divided into two groups. They are: (a) states with independent or substitutive authority, and (b) states with dependent or complementary authority. Substitutive authority allows the nurse practitioner to prescribe independent of physician authority (Hadley, 1989). With complementary authority, nurse practitioners are authorized to prescribe only under certain, limited circumstances or conditions, and must usually have some degree of physician supervision.

Montana Specifics

In Montana, the State Board of Nursing (SBON) and the Board of Medical Examiners (BOME) act jointly to adopt the rules regarding authorization for

prescriptive authority. The membership included three (3) members from the State Board of Nursing, two (2) members from the Board of Medical Examiners and one (1) member from the Board of Pharmacy. A seventh member included is a non-voting APRN. Although there is joint board involvement in the adoption of rules, it is important to note that the Board of Nursing acts independently in the issuance and regulation of prescriptive authority (State of Montana, 1995). Montana nurse practitioners have substitutive prescriptive authority. Each Montana nurse practitioner may apply for his or her own prescriptive authority license based on, but separate from, the authorization to practice as a nurse practitioner. Nurse practitioners are allowed to prescribe independently of physician supervision.

The criteria necessary to obtain prescriptive authority include: (a) documentation of certification, (b) documentation of pharmacology continuing education hours, (c) identification of the practice site or sites, (d) identification of a referral process, and (e) a method of quality assurance.

First, a copy of the original certification document from the advanced practice registered nurse certifying body must be reproduced. As of January 1, 1996, all Montana Advanced Practice Registered Nurses must be Master's prepared. Second, each nurse practitioner must initially document the completion of a minimum of fifteen continuing education hours of pharmacology, six of which must be obtained within one year immediately prior to the date the application is received by the Board of Nursing office. One-third of the continuing education hours must be face-to-face meetings and all pharmacology hours received in the educational training of the nurse practitioner are exempt. For renewal or subsequent application, there needs to be documentation of a minimum of six contact hours of State Board of Nursing-accredited pharmacology during the two-year period immediately

preceding the effective date of renewal, with two of the six hours consisting of face to face conferences.

Third, the nurse practitioner must specifically identify and describe the proposed practice site or sites, and a referral process. This includes written documentation of the referral in the client record and identification of specific licensed physician(s) who have agreed to accept the referral (if and when necessary).

Finally, the nurse practitioner must submit a method of quality assurance for the evaluation of the practice and the Board of Nursing must approve the quality assurance method prior to issuance of licensure. The essential elements for quality assurance include pre-established criteria for quarterly, concurrent or retrospective review of five percent or thirty charts handled by the nurse practitioner, whichever is less. The review is to include a mixture of peer review and a same-specialty physician. Standards of practice that apply to the area of practice are to be utilized when determining quality assurance. Prescriptive authority expires on December 31 of even-numbered years (State of Montana, 1995).

DEA Registration and Regulation

The Drug Enforcement Administration (DEA) was founded in 1973 to safeguard the dispensing of narcotics and other dangerous drugs. Controlled substances include drugs in Schedules I through V as defined by the Controlled Substance Act of 1970.

In June 1993, the DEA established a new category of registration for mid-level practitioners (MLP). This permitted nurse practitioners to receive individual DEA registration (Aprile, 1995; Havens & Zink, 1993). Prior to this date only five categories of practitioners had the legal right to prescribe

controlled substances. They included: (a) physicians, (b) osteopaths, (c) dentists, (d) podiatrists, and (e) veterinarians. The goal of the mid-level practitioner classification was to define and regulate the prescribing, dispensing, and/or the administration of controlled substances by advanced practice health care professionals. The term "dispense" was defined to include either prescribing or administering medication.

The DEA made a point of clarifying that it does not require or encourage the registration of mid-level practitioners who are under the supervision of a physician (Aprile, 1995; Towers, 1993). Nurse practitioners under the supervision of a physician are to utilize the physicians DEA number when writing prescriptions for controlled substances.

DEA registration and licensure allows the practitioner to prescribe narcotics and controlled pharmaceutical substances, identified as Schedule II-IV drugs. Prescribers do not need a DEA number to prescribe Schedule V drugs because in some states consumers may purchase these drugs "over-the-counter" without a prescription. In Montana, Schedule V drugs are not available without a prescription. However, the nurse practitioner does not need a DEA number, only prescriptive authority to prescribe Schedule V drugs.

The Federal Drug Administration (FDA) determines what drugs need a prescription and what drugs can be dispensed over-the-counter, and the DEA monitors controlled substances I-V. Schedule I drugs consist of drugs that are not accepted for medical use in the United States and have a high potential for abuse, for example: LSD, marijuana, peyote, and heroin. Schedule II drugs include stimulant or depressive agents with serious potential for addiction. Examples include morphine, codeine, meperidine, barbiturates, and amphetamines. Schedule III drugs are combinations of narcotic and nonnarcotic drugs like acetaminophen with codeine. Schedule IV includes

drugs with less dependence susceptibility and include tranquilizing substances like diazepam and lorazepam. Schedule V substances have the least potential for harm or addiction, and contain small amounts of narcotic drugs in combination with compounds like cough medicines and antidiarrheal agents (Aprile, 1995; Towers, 1993). "Legend" drugs are those drugs not controlled by the DEA, but that require a prescription. These include antibiotics, antipsychotics, antidepressants, antihypertensives, and others. Without DEA recognition and registration, the Montana nurse practitioner with prescriptive authority is only able to prescribe Schedule V and "legend" drugs (Griffin, 1992).

The DEA registration only grants privileges in accordance with state rules and regulations. Each practice site where a nurse practitioner dispenses, prescribes, or administers controlled substances must be registered separately with the DEA. When utilizing prescriptive authority, nurse practitioners do not have to apply for and use DEA registration if it is not deemed beneficial in their practice.

In Montana, the state rules and regulations allow nurse practitioners to prescribe controlled substances (II-IV) with DEA registration. The combination of DEA registration with Montana rules and regulations governing prescriptive authority allow nurse practitioners the same degree of prescriptive authority as physicians, osteopaths, dentists, podiatrists, and veterinarians in the determination of appropriate therapy for patients. As of July 1996, fifty-four percent of the Montana nurse practitioners who are licensed for prescriptive authority also carry licensure to prescribe under DEA regulations.

Over the past several years there have been articles relating to the anticipated obtainment and final passage of the federal rules and regulations

allowing mid-level practitioners DEA utilization. The authors of these articles agreed this act was a positive move by the federal government in the acknowledgment of the advanced practice nurses' responsibility to patient care and the autonomy of the provider.

Nursing Literature Overview

Griffin (1992) conducted a study regarding prescriptive authority and compiled data from 465 nurse practitioners in thirty-six states. At the time of the study there were 36 states in which nurse practitioners could utilize prescriptive authority with either independent (substitutive) or dependent (complementary) prescriptive practice. The survey respondents were all certified through the American Nurses Association. Of the respondents, 62 percent fully utilized the prescriptive authority authorized by their state. Of the nurse practitioners not utilizing prescriptive authority, 65 percent stated legal restrictions and ambiguity of the state statute were the primary reasons for not doing so. Other reasons included: non-acceptance by physicians, pharmacists, and clients; specific site limitations; and their work setting did not warrant prescriptive authority. Griffin found that 96 percent of the nurse practitioners stated that the most important reason to have prescriptive authority was the opportunity to provide total patient care. Griffin however, did not investigate if any correlation existed between nurse practitioners with or without prescriptive authority and the independent versus dependent nature of their prescriptive authority.

Mahoney (1992b) conducted a comparative analysis of nurse practitioners with and without prescriptive authority and found important differences between the two groups. She found geographic location to be statistically significant, with a higher percentage of prescribers in western

states. Mahoney hypothesized that western states attract and retain more nurse practitioners because of a supportive prescribing environment. Therefore, she concluded that it was the environment which precluded or permitted the utilization of prescriptive authority.

It is interesting to note that currently, of the seventeen states in which nurse practitioners have full independent prescriptive authority, twelve are west of the Mississippi, none are in the south, and five are in the New England region (see Figure 1). A majority of those states could be identified as having considerable rural populations (Pearson, 1997).

In addition to the location of practice being important, Mahoney (1992b) found nurse practitioners without prescriptive authority practiced in urban areas, were affiliated with group practices, and had less years of experience than those with prescriptive authority. Nurse practitioners with prescriptive authority worked in nonurban areas, practiced in non-group settings, had more years of experience than non-prescribers, and saw more clients per week than non-prescribers.

Mahoney (1992b) also found nurse practitioners with independent prescriptive authority did not prescribe with any significant differences than nurse practitioners who were dependent on physician agreement to prescribe. However, she stated, " policies that mandate complex physician arrangements for prescriptive supervision may be counter-productive...policies that limit or deny prescriptive authority for NPs may well have the unintended effect of reducing services to populations in need" (Mahoney, 1992b, p.75).

Batey and Holland (1985) analyzed the prescribing practices of 89 nurse practitioners on 7086 prescriptions issued during 890 clinical days in five western states: Alaska, Idaho, New Mexico, Oregon, and Washington. They found the prescribing practices of nurse practitioners to be remarkably

similar to physicians, but the number of prescriptions written by nurse practitioners was lower. They speculated that this is because nurse practitioners emphasize health teaching and prevention to a greater degree, and see a larger proportion of health supervision and/or wellness visits. They also concluded that prescribing practices are similar because physicians many times serve as preceptors/mentors in the educational programs and preparation of nurse practitioners. However, Brown and Grimes (1993) conducted a meta-analysis of nurse practitioners in primary care roles and found no difference in prescription rates between nurse practitioners and physicians.

It is interesting to note that in 1985, Idaho and Oregon both utilized a formulary for nurse practitioners. A formulary lists specific drugs that the nurse practitioner can and cannot prescribe. Formularies can be limiting because new pharmaceutical agents are marketed and utilized each day. However, if they are not listed in the formulary, the nurse practitioner is unable to prescribe them. In 1985, nurse practitioner prescribers in Alaska, Idaho, and New Mexico were under the supervision of a physician. Since that time, of the five states in the study, all the states except Idaho have gone to independent (substitutive) prescriptive authority for the nurse practitioners in their respective states. Idaho, on the other hand, continues to utilize a formulary in conjunction with mandatory joint practice requirements with a physician (Pearson, 1996).

LaPlante and O'Bannon (1987) described the impact nurse practitioners had on the selection of prescription and non-prescription drugs in California. They examined nurse practitioners without prescriptive authority and asked them to recommend pharmacologic therapy. The results showed only

0.10 percent of all the drug recommendations were changed after consulting with a supervising physician.

Mahoney (1992a) reviewed current literature on prescribing practices and made recommendations for further investigation and study. She stated minimal attention has been focused on the regulatory constraints that affect nurse practitioners. "Without an awareness of the research available on nurse practitioner prescribing regulations, policy makers may continue to favor unnecessarily complex supervision, such as the involvement of state boards of medicine and pharmacy" (p.50). She found that the majority of existing studies used nurse practitioners who treat children or young adult populations and recommended that research explore the prescribing practices for those administering to older adult populations. Her last recommendation was to examine criteria on a client "outcome" basis.

Barriers and Facilitators to Prescriptive Practice

Barriers to prescriptive practice documented in the existing literature included: (a) prescriptive authority not regulated through the State Board of Nursing, or prescriptive authority regulated through boards of medicine, or joint pharmacy/medical/nursing boards, (b) formularies and/or, legislated prescriptive protocols (Rich, 1993; Safriet, 1992), (c) restrictive policies and patterns concerning prescribing (Safriet, 1992), (d) employer resistance (Mahoney, 1995), (e) mandated physician supervision (Safriet, 1992) and, (f) resistance from within the profession (Craig, 1996).

The ability of nurse practitioners to prescribe independently is one factor required for autonomous practice. Safriet (1992) stated "no other aspect of advance practice nurses' (APNs) authority is as volatile and controversial as their power to prescribe drugs and devices for patient use" (p. 456). Lawler

and Valand (1988) found thirty-three percent of surveyed nurse practitioners reported legal restrictions to prescriptive authority as the primary barrier to their role development. Mahoney (1992b) stated "legislative approval of independent prescriptive authority for nurse practitioners fosters role autonomy and will allow nurse practitioners to increase their services to consumers" (p.75).

Griffin (1992) found the greatest barrier identified by nurse practitioners with and without prescriptive authority to be the specific legal restrictions in their state statute(s). However, she stated that nurse practitioners felt physicians were supportive of the expanded role once the state permitted prescriptive authority.

Batey and Holland (1983) noted that additional requirements such as physician supervision and use of a drug formulary were structural constraints on the nurse practitioners' performance. The discretionary nature of the limits suggest that the authority to prescribe derives from the societal status of nursing.

In Montana, every nurse practitioner with prescriptive authority must have a collaborative relationship with a physician in place prior to allocation of their prescriptive license. Some may see the mandated physician collaboration as a barrier. It is conceivable that if a nurse practitioner were unable to find a physician in the state willing to serve in this collaborative role, he/she would be unable to obtain prescriptive authority and deliver that aspect of patient care. However, this scenario has never been documented. In respect to actual prescription writing, the nurse practitioner may prescribe any medication therapy within his/her scope of practice and there is no physician control of practice in the diagnosing, treating, and/or decision about which drugs to prescribe.

Thirteen percent of nurse practitioners in the Griffin (1992) study stated non-acceptance by pharmacists was the reason they did not utilize prescriptive authority in their employment setting. In addition, 55 percent identified a barrier to prescriptive authority as unwillingness of out-of-state pharmacists to fill prescriptions. This has become an issue with the advent of mail-order pharmacies. Pharmacists and pharmacies in states without independent nurse practitioner prescriptive authority are refusing to fill prescriptions for out-of-state clients, even though the client's prescriber (a nurse practitioner) has appropriate licensure.

In fact, issues relating to out-of-state pharmacies rejecting prescriptions properly written by nurse practitioners were discussed by the 1993 American Nurses Association Institute of Nursing Practice and the they agreed this was a problem that needed to be investigated (Carson, 1993). However, no further information has been forthcoming from the American Nurses Association on problem solving strategies or resolution of the problem. Officially, retail and clinical pharmacists oppose independent prescribing practices for nurse practitioners citing a lack of education and inexperience with pharmaceuticals (Craig, 1996).

External barriers may not be the only factors affecting the prescribing practices of nurse practitioners. Craig (1996) stated that nurse practitioners themselves may represent a hindrance to their own practice by "resisting" independent prescriptive authority. Concerns and resistance within the profession include: lack of education in pharmacology, the fear of increased accountability that may lead to potential lawsuits and rising malpractice insurance, and the fear of independence without physician supervision or support.

Barriers tend to be identified in states with the most restrictive practice requirements and regulations. Montana is one of seventeen states that is viewed as having a progressive practice and prescriptive climate for nurse practitioners (Pearson, 1997).

The largest facilitator identified for prescriptive authority has been the ability to manage total care. Griffin (1992) found 97 percent of nurse practitioners identified the greatest facilitator was the opportunity to provide total patient care. Additional facilitators identified by Griffin were the support of physicians, pharmacists, fellow nurses and nurse practitioners. Little is documented through the literature with regards to specific facilitators to prescriptive practice.

Evolution of Prescriptive Practice

Prescriptive practice has been an evolutionary process. In its early conception the "act" of prescribing was seen by both nursing and medicine as needing supervisory and collaborative direction by a physician. In the past decade, two predominant patterns have emerged in regard to nurse practitioners' prescriptive authority. Principally the patterns differ with respect to the degree of autonomy afforded and the range of drugs nurse practitioners are permitted to select. The two patterns are characterized as either independent (substitutive) or dependent (complementary) prescriptive authority.

Organized Advanced Practice Registered Nurse (APRN) groups have lobbied for increased autonomy with less and less physician involvement by advocating independent (substitutive) prescriptive authority. Conversely, the American Medical Association (AMA) advocates the dependent or complementary model, officially stating that nurse practitioners should be

under the supervision of a physician (Safriet, 1992). The American Medical Association also has model legislation (as cited in Safriet, 1992), that defines prescribing as a "medical function" and defines a prescribing nurse practitioner as one who has agreed to practice under protocols and under an agreement with a delegating physician.

Koch, Pazaki, and Campbell (1992) blamed an increasingly competitive health care market in the late 1970s and 80s in combination with increasing desire for professional autonomy as fueling the anti-nurse practitioner sentiments of the American Medical Association and the American College of Physicians. The shortage or "perceived shortages" of primary health care physicians during the 1960s

> created an environment conducive to the growth and development of new health care providers including nurse practitioners...medical doctors initially interpreted the movement as a physician-controlled method of increasing their profits or providing health care for less desirable markets, little resistance was voiced. (p.68).

The American Nurses Association believes prescriptive authority is one of the many "treatments" available to nurses; prescribing is a tool, nothing more, nothing less. Prescriptive capability is not the foundation of practice. The American Nurses Association (as cited in Griffin, 1992) stated "all nurses who are qualified" should prescribe, and advocates that prescription writing not be restricted to advanced practitioners alone, but should be used as a tool of practice much the same way a referral is used: "anything within the scope of the nurse's practice and knowledge." Recipients of nursing prescriptions should include "any person whom the nurse has the capacity to treat" (Griffin, 1992).

Summary

During the past 30 years the role of the nurse practitioner has grown, developed, and prospered due to a tremendous need for comprehensive, quality health care in our society (Griffin, 1992). Today, nurse practitioners diagnose, treat and manage a wide array of acute and chronic health conditions.

Evolution of the nurse practitioner role has necessitated the incorporation of pharmacotherapy into practice. The inclusion of prescriptive authority provides another dimension to the total health care of the patient (Dachelet & Sullivan, 1979). It also strengthens the advancement of the autonomous practice environment. Independent prescriptive authority insures adequacy of therapeutic regimens and continuity of care (McGivern, 1993). The basis for utilization of prescriptive authority stems from the shared professional goal and commitment to enhance the health care of society (Sheahan, 1991).

Some barriers to the institution of independent prescriptive authority include: employer resistance, the use of formularies and resistance from within the medical field which desires the control of direct or indirect supervision. Limited facilitators have been identified in the literature.

Present and future policymakers will be focused on methods of cost-effective health care. The current expansion of the nurse practitioner role holds within it the potential for resolving the dilemma of access to health care (Craig, 1996). Independent prescriptive authority has evolved as an essential and integral element in the ability of the nurse practitioner to function autonomously. It is essential to document the degree that prescriptive authority is being utilized, as well as identify impediments to independent prescriptive practice. Only with this documentation can interventions be

created and instituted that alleviate the barriers and constraints placed on independent practice.

It is the responsibility of the profession in preserving its autonomy to provide current and adequate documentation to nurse practitioners as they lobby to protect or attain independent prescriptive authority. The data generated in this study provides a basis for nurse practitioners to take a proactive approach to this significant practice issue.

CHAPTER 3

METHODS

This study was designed to elicit information regarding facilitators and barriers to the use of prescriptive authority and to develop a demographic profile of the nurse practitioners in the state of Montana. The topics discussed in this chapter are the: (a) research methodology, (b) sample, (c) instrument design and description, (d) human subjects approval, (e) data collection procedures, (f) response, (g) data management, (h) data analysis, and (i) time frame.

Research Methodology

The mail questionnaire format was chosen as the means to conduct the research because it is relatively easy to use and inexpensive. It is also a common method employed by beginning researchers. In addition, since the entire nurse practitioner population was only 173, the goal was to use a method to be inclusive in data gathering. Neither face-to-face interviews nor phone interviews were chosen because of the expense associated with gathering and transcribing data. Face-to-face or phone interviews could have been utilized if smaller samples would have been deemed valuable. However, the distance of the respondents from the site of the investigation precluded face-to-face. Furthermore, the mail questionnaire format was desirable because respondents were able to respond in their own environments, as well as in their own time frame. It was anticipated the questionnaire would take approximately fifteen to twenty minutes to complete.

The literature was searched to find a questionnaire that had already been developed and used to obtain information regarding possible facilitators and/or barriers encountered by nurse practitioners who utilize prescriptive authority. A questionnaire was located in a doctoral dissertation, An exploratory study of the influencing factors of prescriptive authority for nurse practitioners, by M.A. Griffin (1992). Dr. Griffin surveyed 1094 nurse practitioners in 36 states where prescriptive authority was permitted by law. The prescriptive authority was either independent or dependent. With permission from Dr. Griffin, the section of the Nurse Practitioner Prescriptive Authority Questionnaire (NPPAQ) pertaining to the identification of facilitators and barriers to the use of prescriptive authority was adapted for use in this study (see Appendix A).

Since Dr. Griffin surveyed nurse practitioners from states with both independent and dependent prescriptive authority, changes were made in the instrument to accommodate the specifics of only addressing nurse practitioners with independent prescriptive authority and nurse practitioners from only one state. Griffin categorized a response as a barrier when the respondent answered "disagree" or "strongly disagree" and as a facilitator if they answered "agree" or "strongly agree". However, in this study facilitators and barriers were quantified with a score of one through four in an attempt to better interpret their respective strengths. In addition, when designing the instrument this author wanted to specifically identify certain broad theoretical categories that might be facilitators or barriers. Griffin alluded to these categories but did not go as far as to group them.

Sample

Since the Montana population of nurse practitioners was relatively small, the entire group was studied. All licensed nurse practitioners in the state were mailed the questionnaire with a stamped, self-addressed return envelope.

The names of licensed nurse practitioners were retrieved from public domain records available through the Board of Nursing office in Helena. Additional information regarding the number of nurse practitioners with prescriptive authority and Drug Enforcement Administration (DEA) numbers was also extracted from Board of Nursing records. As of July 1996, there were 173 licensed nurse practitioners in Montana, of these 113 (65 percent) had licensure for prescriptive authority. Of those with prescriptive authority, 63 (54 percent) carried concurrent Drug Enforcement Administration (DEA) registration.

Instrument

A descriptive design consisting of a self-administered questionnaire was utilized. The majority of questions used in this study had fixed choice responses, however several questions had an open-ended format. The questionnaire (see Appendix B) was divided into two sections: (a) facilitators and barriers encountered by Montana nurse practitioners in the utilization of prescriptive authority, and (b) selected demographic information that was useful in developing a profile of the population of nurse practitioners in the state. Only respondents who carried licensure for prescriptive authority filled out the first section addressing facilitators and barriers to prescriptive practice. All respondents were asked to fill out the demographic profile.

Section One

The first question in the questionnaire packet was designed to ascertain whether or not the respondent was licensed for prescriptive authority in Montana. If they did not carry licensure there was a space for them to explain the reasons why not. If they answered "no" to the possession of prescriptive authority the participant skipped to Section Two--the demographic profile. If they answered "yes" they continued through Section One answering the questions that were used to assess facilitators and barriers to prescriptive practice.

Although open-ended questions may be difficult to use when trying to gather and construct meaningful variables for statistical analysis, they can provide background and direction for additional clinical nursing research topics (Dillman,1978). While the main objective of this study was to identify the facilitators and barriers for those who utilize prescriptive authority, the author felt it was important to identify the reason(s) nurse practitioners in the state do not utilize prescriptive authority. It was hoped that all nurse practitioners who needed prescriptive authority were utilizing it, and that those not utilizing prescriptive authority did not do so because of internal or external restraints.

Facilitator and Barrier Items

Twenty-nine questions, which were from the modified NPPAQ, were used to gather information regarding the facilitators and barriers to the use of prescriptive authority. These questions had a summated, Likert-type scale with a four response option. The responses ranged from "1" strongly disagree, to "4" strongly agree. For this study, if the mean score for a question

was three or greater it was deemed a facilitator, if it was below three, it was deemed a barrier. For all negative statements the scores were reverse coded.

Theoretical Groupings

The twenty-nine questions were grouped by the author into seven theoretical categories. The seven categories, as they relate to the facilitators and barriers in the utilization of prescriptive authority, were: (a) physicians, (b) pharmacists, (c) rules and regulations, (d) autonomy, (e) client perceptions, (f) role acceptance, and (g) pharmacology education. These categories were identified by the author after researching the literature and identifying key issues that consistently arose. Individual questions from the NPPAQ were then placed into the specific categories as deemed appropriate. The questions were placed in random order in Section One of the questionnaire.

Six questions (2,3,4,5,6, and 27) were placed within the theoretical category of physicians. All questions had something to do with physicians and addressed questions regarding: (a) physician relationships, (b) ability to find supportive physicians in regards to prescriptive practice, (c) availability of physicians for pharmacology consultation, (d) physician assistance with pharmacologic intervention or discussion, (e) perception of collaboration, and (f) adequacy of physician "back-up".

In the category of pharmacists four questions were grouped (7,8,9, and 10). This grouping contained questions regarding: (a) relationships with pharmacists, (b) pharmacists' availability for consultation, and (c) any problems with in-state or out-of-state pharmacies filling prescriptions written by nurse practitioners. Again, all questions addressed issues and relationships with pharmacists.

Seven questions (12,16,17,18,19,23, and 25) were aimed at assessing collectively the rules and regulations imposed on nurse practitioner prescriptive practice. Issues involved include: (a) support of professional organizations in relationship to nurse practitioner issues, (b) language clarity of state statutes, and (c) whether independent prescriptive authority was a specific reason for practicing in Montana.

Autonomy was addressed by grouping four questions (11,19,28, and 30). The issues addressed: (a) mandatory supervision, (b) the perception of autonomy, and (c) the opportunity to fully utilize educational preparation.

Five questions (11,20,21,22, and 26) were focused on the issues surrounding client perceptions. This grouping discussed: (a) continuity of care, (b) acceptance of the nurse practitioners' authority to write prescriptions, and (c) cost effectiveness.

In the theoretical category of role acceptance by fellow nurses there were two questions (15 and 24). Three questions (13,14 and 29) were directed at assessing the past and present adequacy of pharmacology education.

Some questions were placed in more than one category because they contain overlapping domains, as seen with questions 11 and 19. Question 11 is included in the category of autonomy as well as client perceptions, while question 19 jointly addressed issues within the categories of autonomy and rules and regulations.

Additional Prescriptive Authority Questions

The five remaining questions in the questionnaire packet were designed to elicit information regarding the number of prescriptions written per day and whether the nurse practitioners' employer paid for prescriptive licensure and/or Drug Enforcement Agency (DEA) licensure. The final

question respondents were asked was if they frequently gave out samples of medications to clients.

Section Two--Personal Data Questions

The personal data sheet contained twenty-five questions designed to elicit information about demographic characteristics thought to relate to the issues under investigation. All respondents, regardless of answering the section addressing facilitators and barriers, were to answer the demographic profile questions. These included: age, gender, educational background, years employed, years as a registered nurse, years as a nurse practitioner, speciality area, ethnic background, geographic location of practice, practice setting, income category, length of time as a Montana resident, place of residence, client payment method, and number of clients seen per week.

Human Subjects Approval

Approval by the College of Nursing Human Subjects Committee was received prior to sending out the questionnaires. The letter of approval, dated September 12, 1996, is included in Appendix C.

Data Collection

Questionnaires were mailed September 14, 1996 to 173 licensed Montana nurse practitioners. The study, purpose, usefulness of the study, need for their participation, and the methods for protecting the confidentiality of all subjects were described in the cover letter (see Appendix D).

Participants were advised that all responses were confidential and results were to be presented as aggregate data only. Participants received the name and address of the researcher in the cover letter thereby allowing contact if there were specific questions. Participants were requested to return

the questionnaire as soon as possible and were provided a stamped, self-addressed envelope. Instructions for completing the questionnaire were explicit. Participants were informed that a summary of results would be available upon request and were thanked for their participation. All participants who returned questionnaires received a personalized thank you letter from the researcher (see Appendix E).

Response

The overall response rate with usable data was 73.4 percent (see Table 1). Of the 173 questionnaires sent, seventy-four (42.7 percent) were returned within the first two weeks. Two were returned address unknown, one not completed at all, and the remainder were returned as completed surveys. A follow-up postcard was sent to the remaining ninety-nine (99) non-responders fourteen days after the questionnaire was mailed (see Appendix F). Fifty-one persons (51) responded after the first prompt. A second prompt (see Appendix G) was sent in the form of a letter to the remaining forty-eight (48) non-responders at four weeks. Five responded to the second notice.

Table 1. Questionnaire response rate.

Mailing	#Returned	% Total	#Usable	% Usable
Initial mailing	74	42.7	71	41.0
1st notice	51	29.5	51	29.5
2nd notice	5	2.9	5	2.9
Total	130	75.1	127	73.4

This return rate was significantly higher than reported in the Griffin study (1992). Dr. Griffin had a response rate of 56.2 percent and considered that very high compared to two other similar studies with 11 and 26 percent return rates.

There are several speculative reasons for the high return rate in this current study. First, the topic was timely and of interest to the nurse practitioners of the state. Second, many nurse practitioners were aware of the continual legislative threat to prescriptive authority and were willing to supply information that may be useful in the defense and protection of prescriptive authority. Third, the questionnaire was easy to comprehend and well-organized, thereby facilitating completion. In addition, a self-addressed envelope was provided, aiding in the ease of return and the cover letter was persuasive in the call for needed data. Lastly, 75 percent responded which indicated a genuine interest in the topic as well as an eagerness to contribute to the study.

Data Management

Data were entered into a SPSS-PC file for analysis and management. All names were coded and only code numbers were used in the management of incoming data. The data base with specific names was kept in a separate computer file. A code book was developed to aid in data entry and analysis.

Data Analysis

The majority of data were analyzed utilizing descriptive statistics and displayed in tabular format to include: (a) frequency, (b) mean, (c) median, (d) mode, (e) percentage, (f) range, and (g) standard deviation.

Inferential statistical tests of chi-square and independent t-tests were performed between selected demographic variables and the variable

"possession of prescriptive authority." Demographic variables included: age, gender, education, type of practice setting, specialty area, number of years in nurse practitioner practice, number of patients seen per week, hours worked per week, and professional affiliations. Demographic characteristics of the Montana profile of nurse practitioners were compared to a compiled national data base of nurse practitioners.

Chi-square analysis was utilized to test the association between variables that could be divided into categories (ie., nominal or categorical). The chi-square statistic answers the basic question of whether the frequencies observed in the sample deviate significantly from a theorized population frequency. Therefore, through chi square analysis, the author was able to assess whether any given (appropriately selected) two variables were independent of one another, or whether they were associated (Woods, 1988). However, it must be remembered that although chi-square is a test of independence, it provides little information about the strength or form of the association between two variables. A significance level of less than or equal to .05 was deemed significant.

Independent t-tests were used to compare the means of the two groups; those with prescriptive authority and those without prescriptive authority. The variables evaluated within these two groups were: (a) numbers of years in practice, (b) numbers of clients seen per day, (c) age, and (d) hours worked per week. A significance level of less than or equal to .05 was deemed significant.

As discussed earlier, both individual questions in the NPPAQ and the categorical grouping of questions were scored as either facilitators or barriers to the use of prescriptive authority. In addition, within each theoretical grouping, empirical validation was carried out by doing: (a) an item to total

correlation, and (b) a reliability analysis (Cronbach's alpha) for each theoretical category.

In the item to total correlations, a p value of less than or equal to .05 were deemed significant. An alpha of greater than 0.70 was indicative of the internal consistency of the group of questions. The correlation coefficients and the reliability analysis were both used to aid in identifying whether the theoretical grouping hung together as conceptualized.

Time Frame

Questionnaires were mailed September 14, 1996. The cutoff date for inclusion in the study was November 21, 1996.

Summary

Data were collected from the pool of all licensed Montana nurse practitioners to determine their perceptions of facilitators and barriers when possessing prescriptive authority. An existing questionnaire (Griffin, 1992) was adapted to meet specific author requirements for this study.

Facilitators and barriers were identified by responses to thirty items. Those questions were arranged into seven theoretical categories which assisted in identifying certain broad areas as either facilitators or barriers. Two techniques were used to evaluate the cohesiveness of the theoretical groupings. Item to total correlations gave an indication of how well each question fit with the theoretical group. Cronbach's alpha was calculated for each group of questions to provide another indicator of the internal consistency of the questions in each theoretical category.

Selected demographic characteristics were summarized to provide a comprehensive profile of all the nurse practitioners in the state. Selected

variables were tested, with chi-square and independent t-tests, assessing possible associations or differences between the means of the two groups (those with prescriptive authority and those without prescriptive authority).

CHAPTER 4

DATA ANALYSIS

This study was conducted to identify specific facilitators and barriers to the use of prescriptive authority encountered by Montana nurse practitioners who have prescriptive authority. Several steps were used for analysis of the data. First, theoretical groups were identified and questions were empirically placed into specific groups. Second, the rule quantifying a facilitator or barrier was decided upon. The rule stated that a score of three or greater was a facilitator and a score less than three was a barrier. All individual questions as well as total categories were then judged to be either a facilitator or a barrier. Third, empirical validation of the theoretical groupings was assessed with the mean score of each group, item to total correlations and Cronbach's alpha. It must be made clear at the outset that this was not tool development, but an attempt at empirical validation of the theoretical groups.

Chapter Four begins with the display, analysis, and interpretation of the questions asked in Section One. The demographic information, Section Two, follows in the same format.

Carrying Prescriptive Authority

In order to ascertain if participants carried prescriptive authority the first question in the prescriptive authority portion of the questionnaire asked them to answer "yes" or "no" to that stated question. Ninety-six (76 percent) responded "yes" they carried prescriptive authority, and thirty-one (24 percent) responded "no", they did not carry prescriptive authority. Ten

respondents (6 percent) did not carry prescriptive authority because they were retired or not currently practicing. Of those nurse practitioners working, some of their responses (author selected) as to why they did not carry prescriptive authority were:

"I'm just getting it together to apply."

"It is expensive and frustrating, I've had difficulty with the BON (Board of Nursing) in obtaining."

" (My) Clinical site (does) not necessitate a need for prescriptive authority."

"I do not want the hassle of applying or maintaining."

"I work under protocols and the MDs sign the prescriptions."

"I work so part-time."

" I am a federal employee, prescriptive authority is automatic with licensure and credentialing within the institution."

"The continuing education requirements are absurd and expensive, benefiting the educators not the practitioners...Those who prescribe keep up. Those who don't keep up or write screwy prescriptions get nailed quickly by their peers or the pharmacists. You can bet that the board of nursing will hear about them."

"The quality assurance requirements constitute restraint of trade..as bad as these arbitrary rules are for us, I'm sure it is equally bad for the Board of Nursing. Keeping track of all the quality assurance is a lot of work which costs them time and money."

" I haven't needed it."

" I'm not in a clinical role that requires me to do it."

" Too expensive, too many hoops to jump through."

" Haven't gotten around to it."

" I don't have pharmacology education and live 70 miles from the nearest classes."

Identification of Facilitators and Barriers

A total of 29 questions were designed to identify facilitators and barriers encountered by nurse practitioners that carry prescriptive authority. Shown in Table 2 are all the mean scores for each question. Mean scores of three or more were considered as indicators of facilitators and mean scores of less than three were indicative of barriers.

Table 2. All questions: Mean scores.

Question	Mean
MDs supportive of prescriptive authority	3.62
MD available to discuss pharmacology strategies	3.45
MD not available but discuss by phone	2.49
Difficulty finding MD for QA for prescriptive authority	3.03 *
Work in collaboration with MD	3.48
Pharmacists supportive of prescriptive authority	3.46
Pharmacists dispense per state law	3.70
Pharmacists willing to discuss pharmacology strategies	3.63
Out-of-State pharmacists dispense per state law	2.61
Prescriptive authority allows for total client care	3.83
Prescriptive authority contributes to cost effective care	3.88
Adequate continuing education in pharmacology	3.04
Pharmacology curriculum adequate	2.77
Acceptance prescriptive authority by health professionals	3.27
Wording of prescriptive authority statute clear and precise	2.64
MNA supportive of NP issues	3.04
ANA supportive of NP issues	3.14
NP should be supervised by a MD	1.77
Client accepts authority of NP to prescribe	3.73
Client indicates NP prescribing cost effective	3.40
Client indicates NP prescribing enhances continuity	3.54
NP practice in state <u>without</u> independent prescriptive authority	2.13
Difficulty finding peer for QA for prescriptive authority	2.80 *
Rules and regulations cumbersome and restrictive	2.01 *
Majority of patients expect prescription with visit	2.80
Adequate MD "back-up"	3,48
I have autonomy in my practice setting	3.47
Opportunity to utilize training to fullest	3.30
Employer limits use of prescriptive authority	3.42 *

*Reversed to reflect positive direction

Clearly far more facilitators than barriers were identified. However, this is probably inconsequential as the magnitude of each facilitator or each barrier was not addressed. There was no way of knowing the real impact of a negative or positive score, because several positives may be outweighed by one negative or vice versa. Further empirical research could quantify the strength of a facilitator or the severity of an identified barrier. Furthermore, many facilitators and barriers may exist that have yet to be identified.

The strongest facilitators identified in this study were the contribution to cost effective care and the ability to provide total patient care. Additional facilitators included client acceptance of the role and acknowledgment of the cost effectiveness of nurse practitioner prescription writing. Both pharmacists and physicians were viewed as being facilitators to prescriptive practice. Respondents, in general, stated they worked within autonomous settings, had collaborative relationships with both physicians and pharmacists, and were not limited by their employer in the utilization of prescriptive authority. See Table 3 for the top 16 facilitators.

The allowance for total patient care was the number one facilitator identified by Griffin (1992). Griffin also identified support of physicians, pharmacists, and fellow nurse practitioners as facilitators.

Identified in this study were several barriers in the utilization of prescriptive practice. Shown on Table 4, in order of severity, are the eight top barriers to the utilization of prescriptive authority.

The question regarding being supervised by a physician is not necessarily an indicator of an existing barrier. Because of the way the question was stated, the answer indicated only that nurse practitioners in this state do not feel they should be supervised by a physician. However, it would make sense that if nurse practitioners were supervised by a physician it

Table 3. Top 16 facilitators: Mean scores.

Question	Mean
Contributes to cost effective care	3.88
Allows for total patient care	3.83
Client accepts NP authority to prescribe	3.73
Pharmacists dispense per state law	3.70
Pharmacists willing to discuss strategies	3.63
MDs supportive of prescriptive practice	3.62
Prescriptive authority enhances continuity	3.54
Work in collaboration with MDs	3.48
Have adequate MD "backup"	3.48
Autonomous in practice setting	3.47
Pharmacists supportive of prescriptive practice	3.46
MD available to discuss pharmacology strategies	3.45
No limitations of prescriptive authority by employer	3.42 *
Client indicates NP prescriptive authority cost effective	3.40
Ability to use training to fullest	3.30
Role accepted by other health care professionals	3.27

*Reversed to reflect positive direction

Table 4. Top eight barriers: Mean scores.

Question	Mean
To be supervised by physician	1.77
Rules and regulations cumbersome and restrictive	2.01 *
Practice in a state <u>without</u> independent prescriptive authority	2.13
MD unavailable but will discuss strategies by phone	2.49
Out-of-state pharmacists dispense per state law	2.61
Prescriptive authority statute wording clear and precise	2.64
Adequacy of pharmacy curriculum	2.77
Difficulty finding peers for quality assurance	2.80 *

*Reversed to reflect positive direction

would be a barrier to practice. As previously discussed, Safriet (1992) stated supervision by a physician was a barrier to prescriptive practice.

The strongest current existing barrier identified by Montana nurse practitioners was the restrictive nature of the rules and regulations surrounding prescriptive authority. This substantiated Griffin's (1992) findings which identified that specific legal restrictions existing within state statutes comprised the greatest barrier.

Respondents to this study resoundingly stated they would not choose to work in a state without independent prescriptive authority. This would lead one to conclude that independent prescriptive authority would be a facilitator to practice and dependent prescriptive authority would be a barrier. Mahoney (1992a) theorized that an independent practice environment was an important determinant for the utilization of prescriptive authority.

Identification of Facilitators and Barriers: Theoretical Groupings

Within each theoretical category, the mean of individual questions were totaled as well as the mean of each category. In addition, in order to get an empirical estimate of how well the questions fit into the theoretical categories, item to total correlations and Cronbach's alpha were calculated.

Physicians

To assess the degree to which the relationship with physicians was a facilitator or a barrier, six questions were grouped into the category labeled "physicians". The category mean for the physician grouping was 3.16. This indicates that in general, the category of physicians was a facilitator to prescriptive practice (see Table 5).

However, the question concerning physician availability by phone had a score of 2.49, which would indicate a barrier. It was possible this was a poorly worded question which respondents did not understand, as many respondents had question marks next to the question and only 76 responded to the question. Normally, more than 90 responded to the majority of other prescriptive authority questions. This would lead the researcher to wonder if some nurse practitioners did not have the need to phone physicians for consultation since the majority seemed to have physicians readily available to discuss pharmacological strategies.

Reliability analysis revealed an alpha of .24 for the physician group. However, the question regarding physician availability by phone only had seventy responses and after dropping this question the alpha increased to .47. This low alpha indicates that the questions probably did not have a strong internal consistency.

However, an item to total correlation was calculated to assess how well this set of six questions was related. Within the theoretical grouping, all calculations had significant correlation coefficients except the question "I work in collaboration with physicians" ($r = .14, p = .24$). It is unclear why this question did not group well with this category but it may be because this follows more of a "yes" or "no" format than a strongly agree to disagree format (see Table 6).

Table 5. Physicians category: Scores and means.

Item	Frequency				
	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean
MD supportive of PA (n = 92)	1	1	30	60	3.62
MD available to discuss Pharmacology strategies (n = 93)	4	4	31	54	3.45
MD unavailable but will discuss by phone (n = 76)	23	11	24	18	2.49
Unable to find MD for chart review (n = 94)	39	30	14	11	3.03*
Work in collaboration with MD (n = 94)	1	6	34	53	3.48
Adequate MD "back-up" (n = 96)	0	3	44	49	3.48
				category mean =	3.16

*Reversed to reflect positive direction

Table 6. Item to total correlations: Physician group

Questions	r
2. MD supportive of PA	.34 *
3. MD available to discuss Pharmacology strategies	.29 **
4. MD unavailable but will discuss by phone	.35 *
5. Unable to find MD for chart review	.78 *
6. Work in collaboration with MD	.14
27. Adequate MD "back-up"	.49 *

* $p < .001$, ** $p < .01$

Pharmacists

The theoretical group of "pharmacists" as facilitators or barriers was assessed with four questions. The mean of the category "pharmacist" was 3.35, indicating that the behaviors and characteristics of pharmacists were perceived as facilitators to prescriptive practice (see Table 7). Specifically, three questions were identified as facilitators to prescriptive practice, and one question as a barrier.

Facilitators within this grouping were the support of prescriptive authority by pharmacists, pharmacists dispensing according to state law, and the availability of a pharmacist to discuss pharmacological strategies.

The answer regarding dispensing of drugs from out-of-state pharmacists indicated a barrier, with a score of 2.61. This is further validation of the findings of both Carson (1995) and Griffin (1992) who identified out-of-state pharmacists not dispensing as legally required as being a barrier to prescriptive practice.

The theoretical grouping of pharmacist's questions had a reliability estimate of .55. If the question regarding out-of-state pharmacists was deleted the alpha rose to .80. All item to total correlations for the theoretical pharmacists grouping were strong and significant. The high item to total correlation coefficients and high alpha indicate that all questions were similar within their theoretical grouping and intent (see Table 8).

Table 7. Pharmacist's category: Scores and means.

Question	Frequency				
	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean
Pharmacists supportive of PA (n = 95	1	1	46	47	3.46
Pharmacists dispense per state law (n = 95)	0	0	29	66	3.70
Pharmacists available to discuss pharmacology strategies (n = 96)	0	0	36	60	3.63
Out-of-state pharmacists dispense per state law (n = 72)	14	14	44	10	2.61
				category mean =	3.35

Table 8. Item to total correlations: Pharmacists group.

	Question	r
7.	Pharmacists supportive of prescriptive authority	.76 *
8.	Pharmacists dispense per state law	.69 *
9.	Pharmacists available to discuss pharmacology strategies	.68 *
10.	Out-of-State pharmacists dispense per state law	.63 *

* $p < .001$

Rules and Regulations

The theoretical category of rules and regulations contained seven questions. The mean of rules and regulations category was 2.6, indicating the entire theoretical category was identified as a barrier. This was the only category identified as a barrier. This is consistent with the findings of Griffin

(1992) that the greatest barriers encountered by nurse practitioners were the legal statutes (see Table 9).

As a group the seven clustered questions were considered a barrier, although three individual questions were actually identified as facilitators. The first was prescriptive authority contributing to cost effective care. The other two facilitators identified were the supportive nature of the professional organizations of the Montana Nurses Association and the American Nurses Association regarding nurse practitioner issues. It is interesting to note that although the Montana Nurses Association is a division of the American Nurses Association, the state organization had a slightly lower facilitator score than the national organization. One explanation is that the national organization has paid more attention to the current Advanced Practice issues than the state organization. In addition, less than five percent of the Montana Nurses Association membership is made up of nurse practitioners.

The coefficient alpha for the rules and regulations grouping was .41. The deletion of any questions did not result in any significant higher alpha. In the item to total correlation, the question concerning cost effectiveness of care had a low correlation (r =.17, p = .17). This probably indicates this question did not belong in this theoretical group. However, the remainder of seven questions in the group had strong correlation coefficients and significant p values (see Table 10).

Table 9. Rules and regulations category: Scores and means.

Question	Frequency				
	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean
PA contributes to cost effective care (n = 96)	1	0	9	86	3.88
Statute wording clear and precise (n = 95)	6	29	53	7	2.64
MNA supportive (n = 96)	4	18	44	30	3.04
ANA supportive (n = 96)	1	13	48	30	3.16
NP should be supervised by MD (n = 96)	41	40	11	4	1.77
Would practice in a state without independent PA (n = 92)	19	45	25	3	2.13
Rules and regulations cumbersome and restrictive (n = 96)	6	18	43	29	2.01*
			category mean =		2.66

*Reversed to reflect positive direction

Table 10. Item to total correlation: Rules and regulations category.

	Question	r
12.	Prescriptive authority contributes to cost effective care	.17
16.	Statute working clear and precise	.65 *
17.	MNA supportive	51 *
18.	ANA supportive	.52 *
19.	Nurse practitioners should be supervised by a MD	.32 *
23.	Would practice in a state without independent PA	.46 *
25.	Rules and regulations cumbersome and restrictive	.56 *

* $p < .01$

Autonomy

The theoretical grouping of autonomy contained four items relating to supervision by a physician, limitations of prescriptive authority by employers, and degree of autonomy. The mean for the autonomy grouping was 3.12, indicating the nurse practitioners identified autonomy issues as facilitators to prescriptive authority (see Table 11). There were no identified employer limitations or restrictions of prescriptive authority and nurse practitioners stated that prescriptive authority allowed for total client care. Ninety percent stated they were autonomous in their practice setting. In addition, the respondents resoundingly (85 percent) stated nurse practitioners should not be supervised by a physician.

Table 11. Autonomy category: Scores and means.

Question	Frequency				
	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean
PA allows for total client care (n = 95)	1	2	9	83	3.83
NP should be supervised by MD (n = 96)	41	40	11	4	1.77
Autonomy in practice setting (n = 96)	1	3	41	50	3.47
Employer limits PA (n = 95)	56	28	6	5	3.42*
				category mean=	3.12

*Reversed to reflect positive direction

The alpha coefficient for the autonomy group was .40. No change in alpha would have been identified with any deletion of questions. The

correlation coefficients for the theoretical group "autonomy" are presented in Table 12. All questions had moderate to strong item to total correlation coefficients and were significant, indicating that the questions were fairly well grouped into this theoretical category.

Table 12. Item to total correlations: Autonomy group.

	Question	r
11.	Prescriptive authority allow for total patient care	.48 *
19.	NP should be supervised by a MD	.44 *
28.	I have autonomy in practice	.59 *
30.	Employer limits use of prescriptive authority	.70 *

* $p<.001$

Client Perceptions

Five questions were designed to assess client perceptions to prescriptive authority. The mean of the category for client perceptions was 3.47. This indicates that, as a group, client perceptions were facilitators to prescriptive practice (see Table 13).

Four questions were identified as facilitators. This grouping had the highest mean score. The facilitators identified were the ability to give total patient care, client acceptance of the authority of the nurse practitioner to prescribe, client indication that prescriptive authority was cost effective and that nurse practitioners with prescriptive authority enhanced the continuity of patient care.

One question related to the client expectation of receiving a prescription when seeing the nurse practitioner was identified as a barrier. However, this question should not be construed as a barrier: it is just a statement which indicated that patients do not always expect a prescription when seeing a nurse practitioner. Because nurse practitioners emphasize

many other possible solutions to problems besides pharmaceutical interventions, most nurse practitioners would agree this lack of an expected prescription is a positive occurrence rather than a barrier.

Table 13. Client perceptions category: Scores and means.

Item	Frequency				
	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean
PA allows for total care (n = 95)	1	2	9	83	3.83
Client accepts NP authority to prescribe (n = 96)	0	0	26	70	3.73
Client indicates cost effectiveness of PA (n = 93)	1	7	39	46	3.40
Client indicates PA enhances continuity of care (n = 93)	0	4	43	54	3.54
Client expects prescription with visit (n = 94)	2	32	43	17	2.80
				category mean =	3.47

Cronbach's alpha for the client perceptions grouping was .61. This was the highest alpha within all the theoretical groupings. In addition, all item to total correlations for the five questions in the grouping of "client perception" had significant p values and high r values (see Table 14).

The alpha and item to total correlation coefficients indicated that the questions were similar in their intent and appropriately grouped. Of all the groupings this one had the most consistent grouping as evaluated by both reliability analysis and item to total correlation and a high mean score.

Table 14. Item to total correlations: Client perceptions group.

	Question	r
11.	Prescriptive Authority allows for total care	.47 *
20.	Client accepts NP authority to prescribe	.62 *
21.	Client indicates cost effectiveness of prescriptive authority	.74 *
22.	Client indicates prescriptive authority enhances continuity	.77 *
26.	Client expects a prescriptions with visit	.56 *

* $p < .001$

Role Acceptance

The role acceptance group had two questions which addressed the issues associated with role acceptance. Since this category had only two questions, and one was identified as a barrier and the other as a facilitator, the category mean provides no useful information. However, when examining the questions separately, approximately thirty percent of those answering stated they had difficulty finding peers to assist with the quality assurance requirements necessary to keep their prescriptive authority licensure current. Ninety-two percent stated there was acceptance of the nurse practitioner role by other professionals (see Table 15).

Table 15. Role acceptance category: Scores and means.

Question	Frequency				
	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean
Acceptance of role by other professionals ($n = 95$)	1	7	52	35	3.27
Difficult finding peers for QA ($n = 96$)	27	40	12	17	2.80*
				category mean =	3.04

*Reversed to reflect positive direction

Pharmacology Education

Three questions were grouped into the theoretical category of pharmacology education. This was to help identify the adequacy of pre-practice pharmacy education and the current availability of continuing education. The mean of the category pharmacy education was 3.04 (see Table 16).

Table 16. Pharmacy education category: Scores and means.

Question	Frequency				
	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean
Adequate available Pharmacology CEU ($n = 96$)	3	19	45	29	3.04
Pharm curriculum adequate ($n = 96$)	7	25	47	17	2.77
Able to use training to fullest ($n = 96$)	2	15	32	47	3.30
				category mean =	3.04

Two questions were facilitators and one, the adequacy of pre-practice (educational) pharmacologic curriculum, was identified as a barrier to prescriptive practice. In addition, the adequacy of available pharmacology continuing education was a low scoring facilitator. Twenty-three percent of the respondents indicated there was a lack of adequate continuing education offerings to fulfill the requirements necessary for prescriptive authority.

The coefficient alpha for the pharmacy education grouping was .29. All questions had high correlation coefficients and significant p values, indicating appropriate theoretical grouping (see Table 17). Although there

were high correlation coefficients, the alpha was extremely low, which may be a function of the small number of questions in this group.

Table 17. Item to total correlations: Pharmacy education group.

	Question	r
13.	Adequate available pharmacology CEUs	.74 *
14.	Pharmacology curriculum adequate	.59 *
29.	Able to use my training to fullest	.60 *

* $p<.001$

Theoretical Groups: An Overview

When summarizing the information found within the categorical groups, five groups were identified as facilitators and one as a barrier. The client perceptions group had the highest score and the most consistent reliability analysis, with an alpha of .61 and significant item total correlations. Both the physician and the rules and regulations groups each had one question that scored non-significant on the item to total correlation (see Table 18). The categories were helpful in the conceptualization and grouping of questions with similar content.

Table 18. Theoretical groups: Overview.

Group	Mean	item to total correlation coefficient (r)	reliability analysis Cronbach's alpha
Client Perceptions	3.47	.47-.77	.61
Pharmacy	3.35	.63-.73	.55(.80)*
Physicians	3.16	.14-.78	.24(.47)*
Autonomy	3.12	.44-.70	.40
Pharmacy Education	3.04	.59-.65	.29
Rules and Regulations	2.66	.17-.65	.41

*alpha after one question removed

Although the majority of the reliability analysis scores were not impressive, the item to total correlation coefficients in the majority of questions in each group had significant p values and hung together with relative cohesiveness. It should be noted that the group, client perception, with the most consistent correlation coefficients and alpha, and had the most questions, with seven. Many of the groups had only three or four questions. This may be partial explanation of the significant item to total correlations but the low alpha scores.

Additional Prescriptive Authority Questions

Five questions were used to assess the: (a) number of prescriptions written per day, (b) practice of giving samples to clients, (c) possession of Drug Enforcement Agency (DEA) licensure, and (d) degree of employer payment of prescriptive authority licensure and/or Drug Enforcement Agency (DEA) licensure.

Number of Prescriptions Written per Day

Nurse practitioners who carried prescriptive authority wrote an average of 13 prescriptions a day. Family Practice Nurse Practitioners wrote an average of three times more prescriptions per day than Pediatric Nurse Practitioners (see Table 19).

Table 19. Number of prescriptions written per day per area of expertise.

Practice expertise	# of prescriptions written per day
Family Practice	17 (SD = 13)
Urgent Care/ER	14 (SD = 7)
Women's Health/OBGYN	13 (SD = 9)
Adult	12 (SD = 15)
Geriatric	7 (SD = --)
Pediatrics	6 (SD = 5)

Samples

Approximately 70 percent of those surveyed gave out samples of prescriptive medications to their clients. Several respondents commented they were unable to give out samples because they were not given any by pharmaceutical representatives. Pharmaceutical representative may be unaware of the independent legal status of Montana nurse practitioners to possess prescriptive authority.

Employer Payment

Eighty-one percent of those carrying prescriptive authority stated they also carry concurrent DEA registration. When examining whether the employer assists with payment for prescriptive authority licensure and DEA licensure, more than 57 percent of employers paid for DEA licensure, while only 45 percent paid for prescriptive authority licensure. The DEA licensure appears to be more important to employers because it affords the ability to prescribe all drugs. Although the DEA licensure is more expensive, it has a less frequent renewal rate than the Montana prescriptive licensure. Because only 45 percent of employers paid for Montana prescriptive licensure for nurse practitioners, many may not realize that prescriptive licensure is not a "given" upon graduation as it is with medicine or dentistry graduates and that the nurse practitioner must make post-graduate application for licensure.

Demographic Data

Section Two, the demographic portion, consisted of twenty-six questions. The analysis of demographic data is separated into five groups. First is a description of personal characteristics followed by professional, practice, and client characteristics. Finally, there is an analysis of any association between

specific demographic variables and carrying prescriptive authority. A full display of all raw data not included in the narrative can be found in Appendix I.

Personal Characteristics

The average age of respondents was 46 (SD = 8), with a range of 29 to 67 years. Ninety-three percent were women. Most respondents were Caucasian (97.6 percent) with a small percentage Hispanic (1.6 percent) and Asian American (0.80 percent). In comparison to national statistics, Montana had a slightly higher percentage of men and a smaller percentage of minorities practicing as nurse practitioners. Forty percent of respondents listed their annual income in the $35,000 to $49,999 range, while 25 percent stated their annual income was between $50,000 and $74,999.

Place of Residence. Respondents had lived in Montana an average of 22 years (SD = 17) with a range from half a year to 58 years. The median for length of residency was 19 years and the mode 40 years. Forty percent identified their place of residence as a medium-sized town while roughly 20 percent stated they lived in a rural setting (see Table 20). Almost 60 percent stated they had grown up on farms, in small towns, or in rural communities, while only 18 percent stated they had grown up in large cities, suburban areas, or major metropolitan areas.

Table 20. Place of residence.

Place of residence	Frequency (n)	%
Medium city	50	40.3
Rural-not farm/ranch	24	19.4
Small rural town	19	15.3
Small town	16	12.9
Farm or ranch	8	6.5
Large city	7	5.6

Professional Affiliations. The issue of professional affiliation was examined. Respondents were to answer "yes" or "no" to being members of a list of organizations. Responses to more than one category were possible. More than 70 percent of those responding stated they belonged to the Montana Advanced Practice Registered Nurse Association (APRN) (see Table 21).

Table 21. Professional affiliation.

Professional Affiliation	Frequency (n)	%
Montana APRN Association	89	70.6
Other Associations	47	37.3
American Nurses Association	45	35.7
American Academy of Nurse Practitioners	35	27.8
Sigma Theta Tau International	31	17.9

Professional Demographics

Education. The percentages of nurse practitioners with a Bachelor's or a Master's degree in nursing were approximately equal. Fifteen percent listed their highest level of education as a diploma (see Table 22). The author speculated that the reason there is a disproportionate number of diploma prepared nurse practitioners is there exists a certificate program for women's health (in Montana) which requires only a RN license as the minimum educational qualification necessary for admittance. The number of diploma prepared nurse practitioners should decrease as the entry requirement in Montana (1996) to practice as a nurse practitioner is now a Master's degree.

Table 22. Highest level of education completed.

Level of Education	Frequency (n)	%
Master's in Nursing	47	38
Bachelor's in Nursing	46	37
Diploma in Nursing	19	15
Associate in Nursing	6	5
Bachelor Other	4	3
Doctorate in Nursing	1	1

Griffin (1992) reported similar numbers in regard to highest education completed. In her studies, 16 percent had a diploma, 19 percent had a Bachelor's of Nursing, and 31 percent had a Master's of Nursing. In addition, Griffin found a larger proportion of doctorally prepared nurse practitioners with 8 percent reporting a doctorate degree in nursing or another field. The data compiled by Pan, Geller, Gullicks, Muus & Larson (1997) on a national sample identified zero percent with less than a baccalaureate and roughly a fifty-fifty split between baccalaureate and greater than a baccalaureate. The low number of doctorally prepared nurse practitioners in Montana may be due to the fact that there is no doctoral program available within the state.

More than 65 percent of those surveyed were prepared as nurse practitioners in certificate programs and 29 percent in Master's programs. Seventy-seven percent undertook their nurse practitioner educational programs in western states. Griffin (1992) found similar statistics, with 70 percent obtaining practitioner educational preparation in certificate programs and 24 percent in Master's programs.

Practice Demographics

Years in Practice. The average number of years in practice before continuing into the nurse practitioner role was 12 (SD = 8). The range was less than one year to 31 years. More than 50 percent had been in practice less than ten years before continuing into the nurse practitioner role. Thirty-three percent had been in practice 11-20 years before becoming a nurse practitioner. Griffin (1992) found a mean of 10 years of practice before becoming a nurse practitioner. The Montana data further substantiate this finding and indicate that a large majority of nurse practitioners enter the role with a substantial experience base.

The number of years in practice as a nurse practitioner was 9 (SD = 6), with a range of 1 to 23 years. Nurse practitioners were asked how many years they had practiced in Montana. The range was less than one year to 23 years with a mean of 7 (SD = 6) years.

In the Griffin (1992) study, almost 84 percent of nurse practitioners had practiced as nurse practitioners for 11 to 20 years, compared to only 35 percent of the Montana nurse practitioners. Only 15 percent in the Griffin study had been practicing less than ten years. The national comparison is similar to the percentages represented by the Montana nurse practitioners, with the largest proportion of nurse practitioners in practice less than 10 years. This follows the trend that more nurse practitioners are being trained and entering the work force.

Hours Worked. The average number of hours worked per week was 33 (SD = 14) and the mode was 40 hours a week. The total hours worked per week ranged from 1 to 70. The national average for hours worked per week is 40.8 (Pan et al, 1997).

When comparing hours worked per week to area of expertise (see Table 23), nurse practitioners in ER/urgent care and geriatric settings worked the longest hours with an average of 39 per week and nurse practitioners in occupational health and pediatrics worked the least, with 15 and 23 hours a week respectively. However, many groups had a small number of respondents (n), making a representative sample difficult to achieve.

Table 23. Average hours worked in relation to area of expertise.

Area of Expertise	mean hours/week	range	frequency (n)
ER/Urgent Care	39	6-60	5
Geriatric	39	5-60	4
Family Practice	37	1-60	34
Women's Health/OBGYN	34	1-70	45
Psych/Mental Health	32	32	1
Adult	26	4-50	8
Student Health	24	20-28	3
Pediatric	23	4-42	17
Occupational Health	15	15	1

Area of Expertise. The largest percent (39%) practiced in the women's health/ob gyn field and 28 percent stated their practice area as family practice (see Table 24). Nationally, the largest percent of nurse practitioners are adult nurse practitioners, followed by women's health, pediatric, and family nurse practitioners, in that order (Pan et al, 1997). As stated previously, it is believed that the large number of women's heath nurse practitioners in Montana is attributed to a women's health nurse practitioner program that is available in the state. The large number of family nurse practitioners is probably due to the need in rural communities for a practitioner to be able to treat everyone seen rather than the need to possess a speciality which could limit potential clients. Hopefully, the numbers of

family nurse practitioners will continue to increase with the availability of the family nurse practitioner program at Montana State University.

Table 24. Primary area of expertise

Area of Expertise	Frequency	Montana %	National %
Women's Health/OBGYN	48	38.7	20.2
Family Practice	35	28.2	15.4
Pediatric	17	13.7	16.5
Adult	8	6.5	27.1
ER/Urgent Care	5	4.0	
Geriatric	5	4.0	
Student Health	3	2.4	
Psych/Mental Health	2	1.6	
Occupational Health	1	0.8	

Practice Setting. Over 68 percent of nurse practitioners worked in either a physician office or in an ambulatory clinic. Nationally, over 90 percent of nurse practitioners worked in ambulatory versus inpatient settings (Pan et al, 1997). In Montana, approximately 97 percent worked in an ambulatory setting (see Table 25).

Table 25. Practice Setting

Practice Setting	Frequency	Montana %
MD office	40	33.6
Ambulatory clinic	40	33.6
Hospital out-patient clinic	10	8.4
School/University	9	7.6
Public Health	7	5.9
Other	4	3.4
VA/Military	3	2.5
Independent NP office	3	2.5
Nursing Home/extended care	2	1.7
ER/Urgent Care	1	0.8

Practice Location. Thirty-four percent of Montana nurse practitioners practiced in rural or frontier areas. Examples of rural and frontier practice locations included Lolo, St. Ignatius, Troy, Libby, Wolf Point, and the Crow Agency. Forty-three percent practiced in the mid-sized cities of Bozeman, Butte, Helena, Kalispell and Missoula. Only 23 percent of nurse practitioners practiced in the two larger Montana cities of Great Falls and Billings with populations of 50,000 or greater. Nationally, more than 85 percent of nurse practitioners practiced in metropolitan/urban areas (Pan et al, 1997). Compared to national standards, 77 percent of Montana nurse practitioners practiced in rural environments and only 23 percent in urban settings.

Client Demographics

Client Income. Respondents stated that 42 percent of their clients had an annual income of less than $15,000, while only 9 percent had an annual income greater than $35,000. The median 1990 household income for Montana residents was $22,988.

Distance Traveled by Clients. Over 56 percent of clients traveled less than 10 miles to see providers. Twenty-one percent traveled greater than 25 miles to see their nurse practitioner provider (see Figure 2).

Clients Seen per Week. The average number of clients seen per week was 57 (SD = 36), with a range of 2 to 200. When comparing the number of clients seen per week and the nurse practitioners' area of expertise, ER/urgent care and family practice nurse practitioners saw the largest numbers of clients per week at 87 and 77 respectively. National comparisons (Pan et al, 1997) revealed that Montana family nurse practitioners saw slightly higher numbers of clients per week but Montana adult, pediatric, and women's health/ob gyn nurse practitioners saw lower numbers of clients per

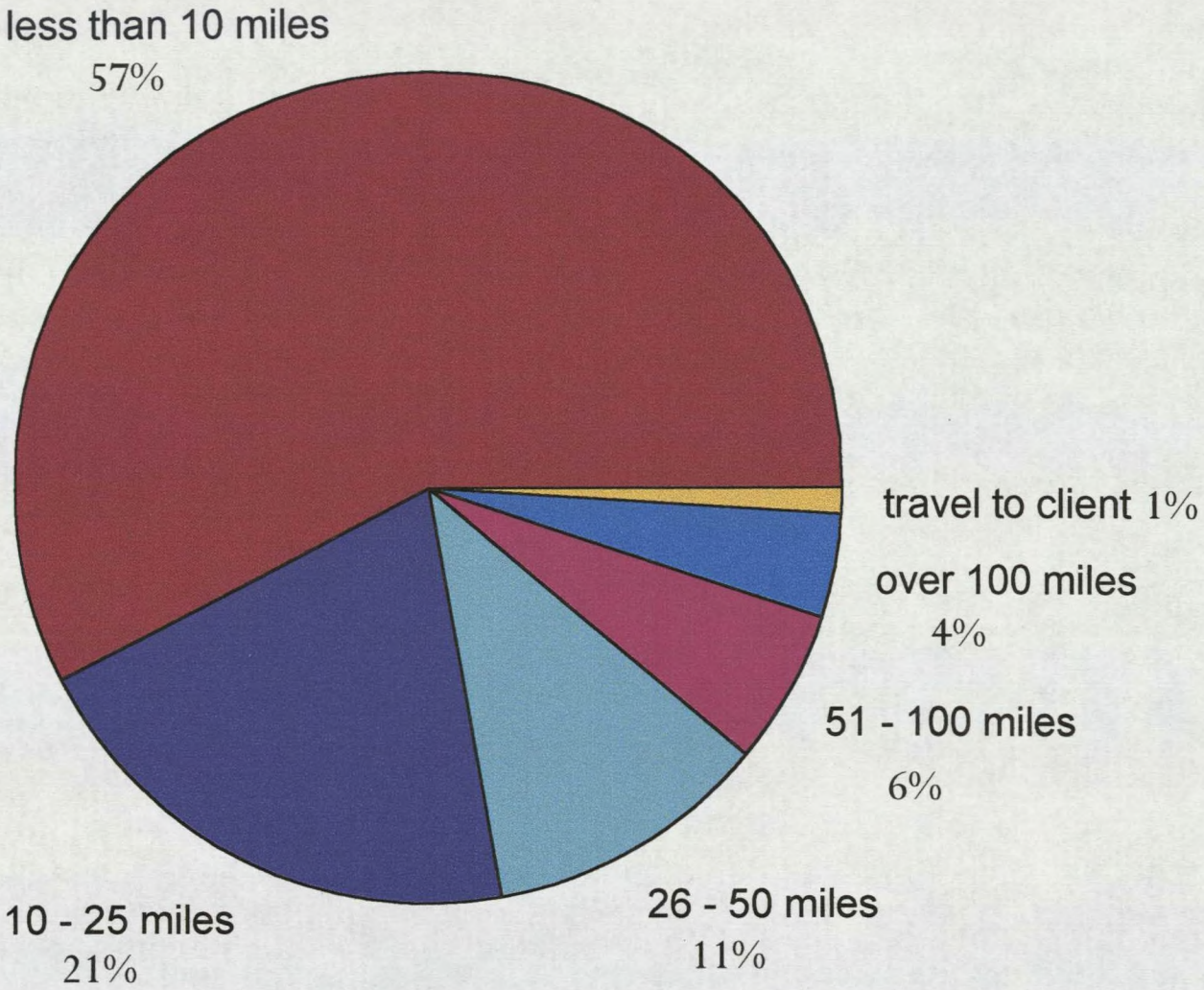

Figure 2. Pie Chart of Distances Traveled by Clients to Providers.

week than national counterparts (see Table 26). Three possible explanations may be that first, many respondents work part-time, therefore they see less clients per week; second, many groups had a low number of respondents which may or may not have been representative of the group; and last, some respondents saw very few clients and thereby possibly skewed the results.

Table 26. Average number of clients seen per week in relation to area of expertise: Montana and national data.

Area of Expertise	Montana Average	National Average
ER/Urgent Care	87 (25-200)	*
Family Practice	77 (10-140)	75
Women's Health/OBGYN	50 (2-150)	67
Geriatric	47 (25 - 75)	*
Adult	45 (8-100)	56
Pediatric	38 (5- 90)	65
Student Health	30 (20- 40)	*
Occupational Health	30	*
Psych/Mental Health	23	*

*information unavailable

Client Payment Methods. Client payment methods were assessed and multiple answers were possible. The largest payment category was medicare/medicaid followed closely by private pay insurance (Figure 3).

Associations with Carrying Prescriptive Authority

The strength of associations between those carrying prescriptive authority and those not carrying prescriptive authority were tested in relationship to selected demographic variables with chi-square analysis. Independent t-tests were used to determine any significant differences between the means of the two groups, those with prescriptive authority and those without, on selected demographic variables. The four variables

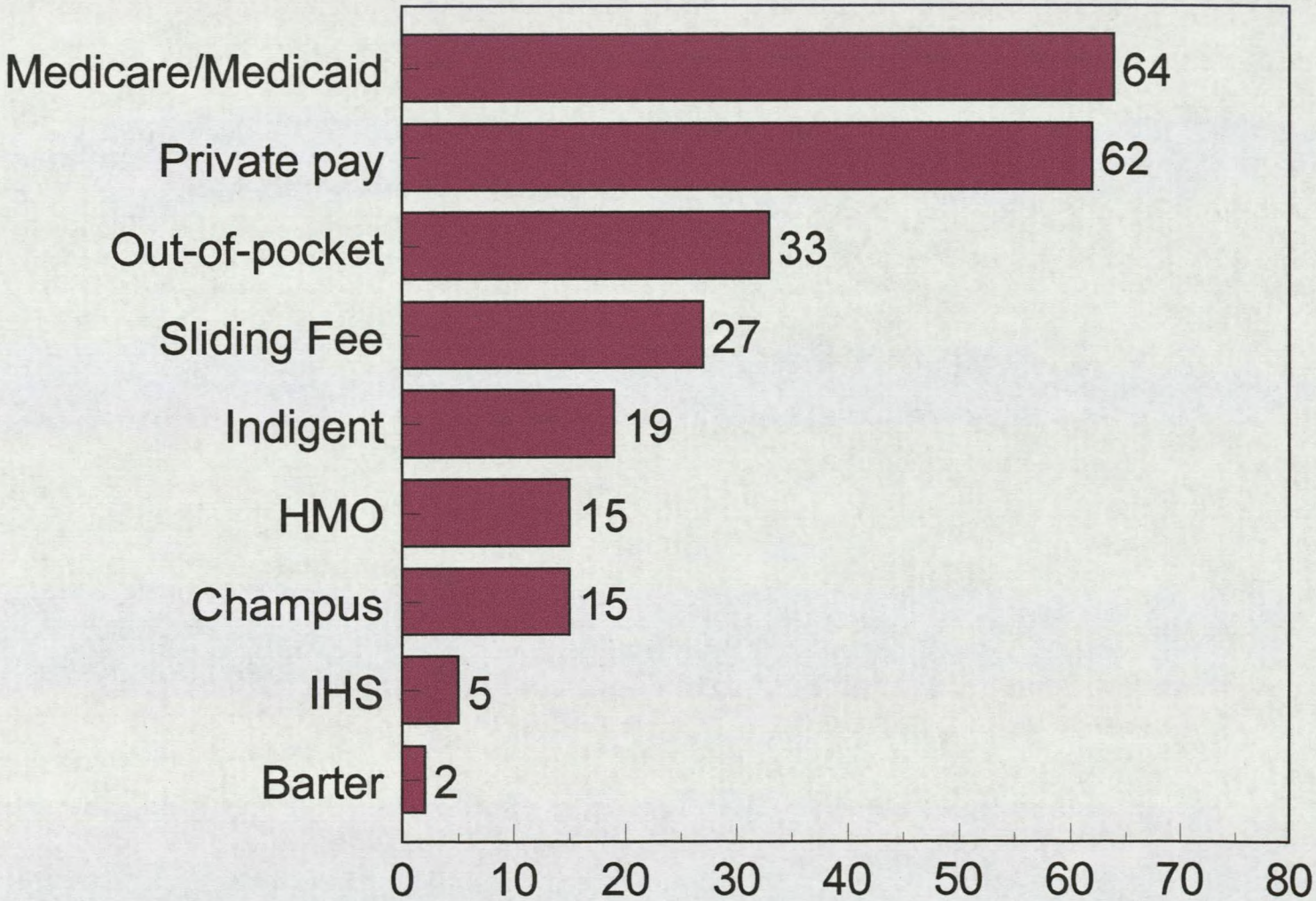

Figure 3. Bar Graph of Various Client Payment Methods.

examined with the independent t-tests were: age, hours worked per week, clients seen per week, and years in practice.

Independent t-test

There were no differences in age of respondents ($t = 1.98$; $p = .41$) and whether or not they carried prescriptive authority. However, with the remaining three demographic variables of hours worked per week ($t = 2.6$; $p = .002$), clients seen per week ($t = 1.98$; $p = .05$), and years in practice ($t = -2.24$; $p = .03$), the means of the groups were significantly different. Figure 4 is a bar graph in which are displayed the differences between the mean scores for each of the variables.

The more hours worked per week and the more clients seen per week, the more likely the respondent was to carry prescriptive authority. Additionally, the fewer the years in practice, the more likely the nurse practitioner was to carry prescriptive authority. In contrast, Mahoney (1992b) found that nurse practitioners with prescriptive authority saw more clients per week, but had more years of experience than non-prescribers.

Chi-Square Analysis

Chi-square analysis was used to test four variables (educational level, practice setting, area of expertise, and professional affiliation) for any identified association with carrying prescriptive authority. Chi-square analysis showed no association between educational level and the likelihood of carrying prescriptive authority ($p = .68$). However, practice setting ($p < .001$), area of expertise ($p < .001$), and professional affiliation with the Montana Advanced Practice Registered Nurse Association ($p < .001$) were significantly associated with carrying prescriptive authority.

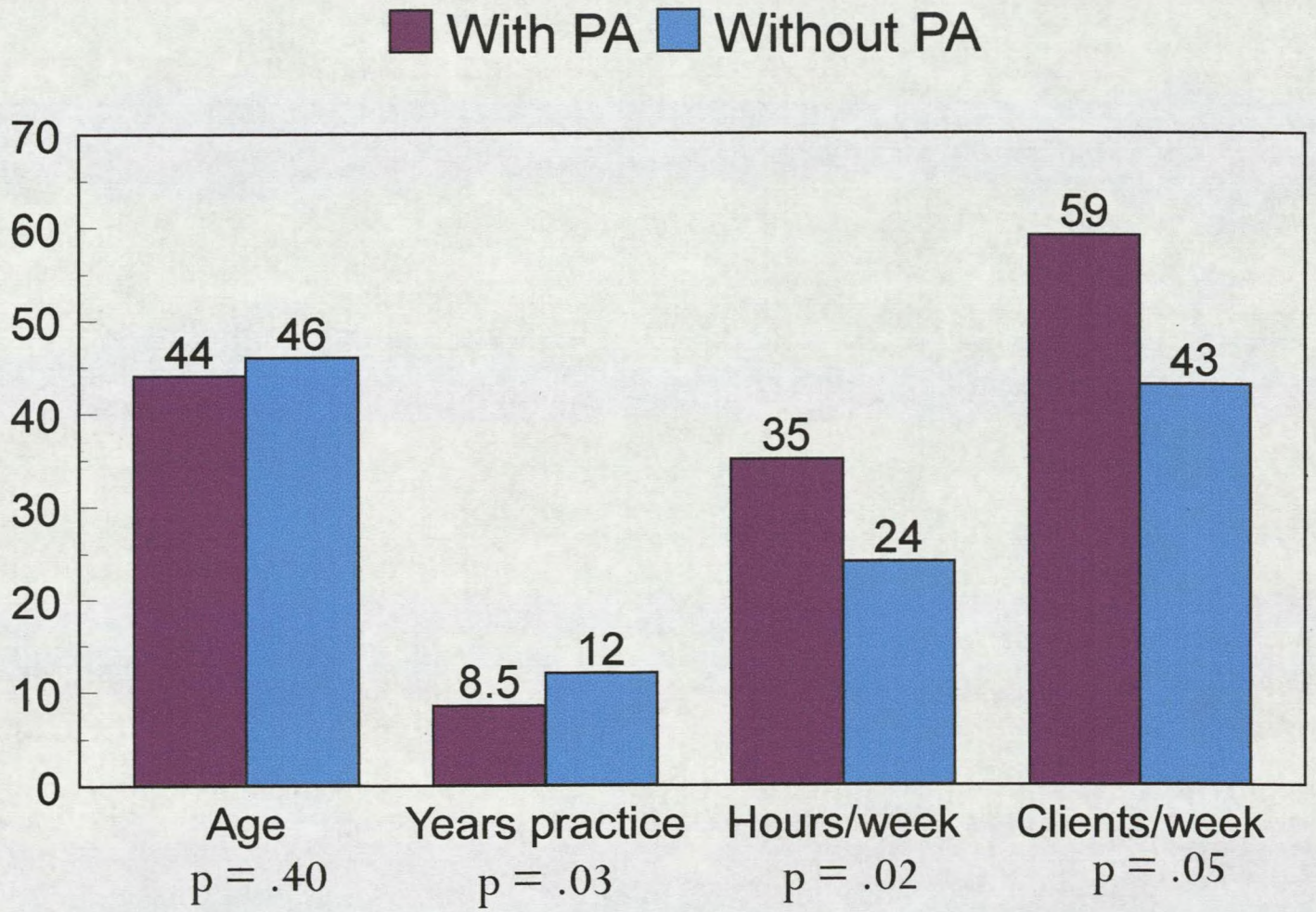

Figure 4. T-test comparison of means.

Those practicing in independent nurse practitioner offices, physician offices, ambulatory clinics, and hospital out-patient settings utilized prescriptive authority to a larger extent than those in nursing homes, public health, and school settings (Table 27).

Table 27. Practice setting with carry and not carry prescriptive authority.

Setting	Carry	Do not carry
Physician office	38	2
Ambulatory clinic	33	7
Hospital OP clinic	7	3
Public Health	4	3
School/University	4	5
Independent NP office	3	0
VA/Military	3	0
ER/Urgent	1	0
Nursing Home	0	2

In relation to area of expertise, those in family practice, women's health, pediatrics, adult, and ER/urgent care carried prescriptive authority to a greater degree than those in psych/mental health, student health, occupational health, or geriatric speciality areas. However, since the majority of respondents were in family practice and women's health, and very few respondents were from the other areas, the generalizability of the significance is weak in the other areas of expertise.

Significant association was found to exist with carrying prescriptive authority and affiliation in the Montana Advanced Practice Nurses Association. Belonging to any of the other organizations listed exhibited no significance with carrying prescriptive authority (see Table 28). Griffin (1992) found a weak association of those that carry prescriptive authority with area of expertise ($p < .004$) ie., more in family and adult practice, and type of setting ($p < .002$), ie., greater utilization in rural settings versus inner-city.

Table 28. Chi-square analysis table of prescriptive authority and membership in professional organizations.

Professional Affiliation	Value	DF	Significance
American Nurses Association	.09722	1	0.76
Montana APRN Association	21.90364	1	0.001 *
American Academy of NP	1.18731	1	0.28
Sigma Theta Tau International	.09038	1	0.76
Other Organizations	.61252	1	0.43

Summary

A 73.4 percent usable response rate was achieved. Data were first analyzed as individual questions to identify single facilitators and barriers. Secondly, the seven categorical groupings were analyzed. Demographic information was displayed and discussed. Possible associations between specific demographic variables and the utilization of prescriptive authority were investigated. Discussed in chapter five are the pertinent findings, conclusions, and recommendations for future study.

CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

There was a substantial amount of data collected in this questionnaire. The 75 percent return rate lends assurance that the sample is representative of the thoughts and perceptions of nurse practitioners in the state of Montana regarding facilitators and barriers when carrying and using prescriptive authority.

Demographic Profile

Portrayed in the profile is a homogeneous population of nurse practitioners. The profile of respondents was that of middle-aged Caucasian women, educated for nurse practitioner practice in a certificate program, who had practiced as registered nurses 12 years before becoming nurse practitioners, and who had practiced an average of 9 years as nurse practitioners, seven of those years in Montana.

The majority of respondents had been raised in rural communities and now lived and practiced in rural and frontier communities. The urban/rural mix was almost opposite that of the national profile. While roughly 75 percent of nurse practitioners in the nation practice in urban environments, only 23 percent of Montana nurse practitioners did so, and out of the remaining 77 percent, thirty-seven percent practiced in "frontier" areas. This finding is encouraging. Although nurse practitioners have many role opportunities, an objective of the nurse practitioner movement has been to deliver services to

underserved populations. Rural and frontier populations many times have difficulty finding providers and accessing care.

These findings in no way should be used to indicate that all rural and frontier needs in Montana are being met. However nurse practitioners in Montana are providing health care to rural clients who for many reasons have limited access to heath care services.

Participants in the current study worked approximately 33 hours per week in ambulatory settings, with some working as many as 70 hours a week. The majority stated their area of expertise as women's health or family practice. On the average they saw approximately 57 clients per week. However, family practice nurse practitioners saw an average of 77 clients a week which slightly exceeded the national average (75), while Montana women's health nurse practitioners saw 50 clients per week versus 67 clients per week nationally. Montana has a much higher proportion of women's health providers, probably due to the certificate program that has a minimum qualification of a RN license and the program has been in place for many years. The numbers of family nurse practitioners should continue to increase due to the new Montana State University College of Nursing Family Nurse Practitioner program.

Utilization of Prescriptive Authority

Of the 127 respondents, 76 percent possessed and currently utilized prescriptive authority. Six percent of respondents did not carry prescriptive authority because they were retired or not currently working. The remaining eighteen percent of nurse practitioners (all working) did not carry prescriptive authority because they: (a) identified difficulty with the rules

and regulations, (b) currently did not need it in their practice settings or (c) were getting ready to apply.

The average participant who carried prescriptive authority wrote 13 prescriptions a day, indicating that they utilize and need prescriptive authority in their practices. Respondents did not believe that patients always expected a prescription when coming to see the nurse practitioner. This should be viewed as a positive occurrence since many of the interventions recommended by nurse practitioners are not pharmaceutical interventions. Nursing favors preventive and alternative avenues whenever possible, versus the prescriptive medical model.

There were significant differences between the two groups: those with prescriptive and those without prescriptive authority. Those with prescriptive authority were more likely to see more patients, to work longer hours, and to have been in practice fewer years than those who did not carry prescriptive authority. Practice setting, area of expertise and professional affiliation with the Montana Advanced Practice Registered Nurse Association were significantly associated with carrying prescriptive authority. However, it is conceivable that the number of respondents in the group of nurse practitioners not carrying prescriptive authority was too small to be representative when examining practice setting and area of expertise.

In addition, the chi square analysis of the questions regarding setting and area of expertise had a large clustering of responses. This made impossible any extrapolation beyond the fact that the majority of respondents worked in those two settings. All that one is able to conclude, is that those nurse practitioners in family practice and women's health, and those practicing in physicians offices and ambulatory clinics were more likely to carry prescriptive authority.

Identified Facilitators and Barriers

Twenty facilitators to the use of prescriptive authority were identified. Several of the strongest were: (a) the ability to provide total patient care, (b) the contribution to cost effective care, (c) client acceptance of the nurse practitioner's authority to prescribe, (d) pharmacist and physician support, and (e) the enhancement of the continuity of care. In general, respondents stated they practiced in autonomous settings and were supported by physicians, pharmacists and fellow colleagues.

Several of the strongest existing barriers identified were: (a) difficulty in locating both physicians and fellow nurse practitioners for chart review, which are necessary components of prescriptive authority quality assurance and maintenance of licensure, (b) reluctance of out-of-state pharmacists to fill prescriptions of nurse practitioners, (c) restrictiveness surrounding the rules and regulations regarding prescriptive authority, and (d) lack of relevant and/or current pharmacology curricula in nurse practitioner preparation programs.

Within the theoretical grouping of questions, strongest facilitator was "client perceptions". This is intuitively appealing as clients are the ones who benefit most from the independent nature of prescriptive authority by nurse practitioners. The only barrier identified within the theoretical groupings was the category of "rules and regulations".

The remainder of the categories were all identified as facilitators. Although the majority of the correlation coefficients in the item to total correlations showed significance, the Cronbach's alphas were not impressive. However, this should not be viewed as a weakness because a substantial amount of information was gathered with the individual questions. Although the groups did not hold together as psychometrically solid units, they remain

conceptually important. Further research using the questions with larger populations and fine tuning the questions and theoretical groups may lead to greater empirical validity.

Conclusions

Facilitators and barriers encountered by Montana nurse practitioners in the use of prescriptive authority were identified. In addition, several demographic factors associated with the possession of prescriptive authority were identified. New findings were discovered as well as validation of previously documented data.

There was more than adequate information received regarding possible reasons why nurse practitioners do not pursue the legal ability to prescribe medications. Further research questions in this area could certainly be formulated. As theorized earlier in this paper, it was hoped that all nurse practitioners who had the need for prescriptive authority were utilizing it. Based on some of the comments, however, various nurse practitioners without current prescriptive authority licensure indicated that they have encountered barriers related to existing rules and regulations surrounding prescriptive authority.

The theoretical groupings were helpful and assisted the author in pulling together questions with similar concepts and issues. The reliability analysis and item to total correlations aided in the assessment of the internal cohesiveness of the questions. Individual questionnaires with the individual concepts could be developed or a questionnaire that covered more extensively the seven concepts could be further developed and used.

Study Comparisons

Barriers identified in the literature and corroborated in this study were the legal restrictions within state statutes and the unwillingness of out-of-state pharmacists to fill prescriptions for nurse practitioners.

The review of existing literature has revealed that the dominant position taken by the American Medical Association and the Pharmacists' Association regarding independent prescriptive authority is that all nurse practitioners should be in supervised, dependent prescriptive authority practice settings. Of the nurse practitioners that carry (independent) prescriptive authority in Montana, 98 percent stated that both physicians and pharmacists were supportive of their (independent) prescriptive practices. Griffin(1992) also found that after nurse practitioners were granted prescriptive authority by their states, physicians were supportive. These data may reveal a true discrepancy between "formal policy" and "actual practice" or may suggest that physicians who work with nurse practitioners hold less rigid views. However, it must be remembered that in the past Montana legislative sessions, the Montana Medical Association has put forth bills advocating restricting the current independent nature of prescriptive authority for nurse practitioners.

Recommendations

For nurse practitioners in the state, this information offers insight to the barriers encountered. The following are some suggestions which might be implemented to promote a better understanding of the issues surrounding the facilitators and barriers associated with utilization of prescriptive authority.

1. Disseminate relevant information. This might be accomplished by: (a) collaborating with organized local and national nurse practitioner groups, (b) publishing articles in journals relating the information and relevant findings, and (c) informing the advanced practice registered nurse who sits as a nonvoting member on the board of nursing as to the findings. The author will exhibit a poster presentation of the relevant findings to the Montana Advanced Practice Registered Nurse Association annual meeting in April 1997. This information will also be presented in poster format at the annual Research Day at the Montana State University College of Nursing, May 1997.

2. Conduct further research. This might be include: (a) a secondary analysis of these data delineating rural and frontier aspects in the utilization of prescriptive authority; (b) a random cross-sectional survey of Montana physicians to ascertain whether they agree or disagree with the American Medical Association's (AMA) formal policy on independent prescriptive authority for nurse practitioners; (c) follow nurse practitioner graduates for a longitudinal analysis (5-7 years) evaluating the changes being made in the pharmacy graduate education; is it effective and adequate in preparing nurse practitioners for prescriptive authority?; (d) conduct a quantitative study to identify possible differences in client outcomes resulting from the prescribing practices of physicians versus the prescribing practices of nurse practitioners; (e) investigate if other health professionals with prescriptive authority have difficulty with out-of-state pharmacists; (f) identify differences in the personal or professional attributes of the nurse practitioner who possesses independent prescriptive authority from those who do not; and (g) investigate actual client perceptions of the benefit of independent prescriptive authority.

This author is a principal investigator on a grant entitled Rural Nurse Practitioner Prescriptive Practice: Facilitators and Barriers. The grant is funded through Sigma Theta Tau International and Glaxo Welcome. In this grant, the finer points of utilization of prescriptive authority by rural and frontier nurse practitioners will be examined. It is essential that sole providers are able to practice with autonomy. Barriers to practice, be it rules and regulations or inability to garner adequate pharmacology continuing education, can directly impact rural communities. Achieving a balance between the limitations placed on providers to rural and frontier communities with client safety issues would be beneficial to rural Montana.

The above suggestions are only a partial listing of potential avenues which might be utilized to investigate and clarify other relevant issues. This study provides a framework within which the facilitators and barriers associated with prescriptive authority have been identified. The findings should be useful for educators, administrators, policy makers, and all present and future nurse practitioners.

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APPENDICES

APPENDIX A

LETTER OF PERMISSION TO USE NPPAQ

MARGO M. GRIFFIN
39 SPRING VALLEY ROAD
MORRISTOWN, NEW JERSEY 07960

5/30/96

Dear Kevin,

I so enjoyed speaking with you & hearing all about your thesis. Please feel free to use my questionnaire or any parts thereof. I would appreciate acknowledgement. If I can be of any further help just call.

Take of good luck

Sincerely

Margi Griffin EdD, ANP-C

APPENDIX B

QUESTIONNAIRE

DOCUMENT HAS BEEN FORMATTED TO ACCOMMODATE THESIS REQUIREMENTS

Montana State University College of Nursing
Keven J. Comer BSN RN CCRN

NURSE PRACTITIONER PRESCRIPTIVE AUTHORITY QUESTIONNAIRE

The questionnaire is divided into two parts. The first part is specific to prescriptive authority and the second portion is selected demographic information. Please do not skip any questions, there are no right or wrong answers.
Thank you for your cooperation.

==========

PART ONE

Q-1. Do you carry licensure for **prescriptive authority** in the state of Montana?

1 YES
2 NO

If N O, Why don't you carry prescriptive authority?

IF YOU ANSWERED **NO**, please **SKIP AHEAD** to **PART TWO**

IF YOU ANSWERED **YES**, Please continue by **circling the number** that best describes your opinions

1 STRONGLY DISAGREE 2 DISAGREE 3 AGREE 4 STRONGLY AGREE

Q-2.	Physicians in my practice setting are supportive of NP prescriptive practice.	1	2	3	4
Q-3.	Physicians are available and willing to discuss pharmacologic strategies for my patients.	1	2	3	4
Q-4.	Physicians are not available in my practice setting but are willing to discuss pharmacological strategies by phone.	1	2	3	4
Q-5.	I have difficulty finding physicians to review charts for the quality assurance measurement of prescriptive authority.	1	2	3	4
Q-6.	I work in collaborative relationships with physicians.	1	2	3	4
Q-7.	Pharmacists in my area are supportive of prescriptive practice for Nurse Practitioners.	1	2	3	4
Q-8.	Pharmacists are willing to dispense drugs as defined by state law.	1	2	3	4
Q-9.	Pharmacists are willing to discuss pharmacological strategies.	1	2	3	4
Q-10.	Pharmacists in other states are willing to dispense medications prescribed (e.g. Mail order prescriptions).	1	2	3	4
Q-11.	Prescriptive authority allows me the opportunity to provide total care to the patient/client.	1	2	3	4
Q-12.	Prescriptive authority affords me the opportunity to contribute to cost effective health care.	1	2	3	4

1 STRONGLY DISAGREE 2 DISAGREE 3 AGREE 4 STRONGLY AGREE

Q-13.	There is adequate availability of continuing education courses in pharmacology.	1	2	3	4
Q-14.	Integration of pharmacology through my NP curriculum prepared me for prescriptive practice.	1	2	3	4
Q-15.	There is acceptance of NP prescriptive authority by other health care personnel.	1	2	3	4
Q-16.	Wording of the prescriptive practice statute is clear and precise.	1	2	3	4
Q-17.	The Montana Nurses' Association is supportive of important Nurse Practitioner issues.	1	2	3	4
Q-18.	The American Nurses' Association is supportive of Nurse Practitioner issues.	1	2	3	4
Q-19.	A Nurse Practitioner should be supervised by a physician.	1	2	3	4
Q-20.	The client/patient accepts the authority of the Nurse Practitioner to sign prescriptions.	1	2	3	4
Q-21.	Clients/patients indicate Nurse Practitioner prescribing practice is cost effective in providing health care.	1	2	3	4
Q-22.	Clients/patients have indicated the nurse practitioner prescribing practice enhances the continuity of care.	1	2	3	4
Q-23.	I would practice in a state that did not have independent prescriptive authority.	1	2	3	4
Q-24.	I have difficulty finding peers to review charts for the quality assurance measurement for prescriptive authority.	1	2	3	4
Q-25.	The rules and regulations for prescriptive authority are cumbersome and restrictive.	1	2	3	4
Q-26.	The majority of my patients expect a prescription when they come to see me.	1	2	3	4
Q-27.	I have adequate physician "back-up"	1	2	3	4
Q-28.	I have autonomy in my practice setting.	1	2	3	4
Q-29.	I have the opportunity to utilize my training, preparation and abilities to their fullest.	1	2	3	4
Q-30.	My employer limits the use of my prescriptive authority.	1	2	3	4

Q-31. Average number of prescriptions you write per day _____

Q-32. Do you carry a DEA number?

1 YES
2 NO

Q-33. My employer pays for my prescriptive authority license.

1 YES
2 NO

Q-34. My employer pays for my DEA prescriptive license.

1 YES
2 NO

Q-35. I frequently give samples of drugs to my patients/clients.

1 YES
2 NO

(This tool is adapted and modified from the "Nurse Practitioner Prescriptive Authority Questionnaire" by Margo M. Griffin, Seton Hall, 1992. Written permission to adapt and utilize the tool for this study was obtained from Ms. Griffin.)

==========

PART TWO-- DEMOGRAPHIC INFORMATION

Fill in the blank or circle the appropriate answer. Thank you

==========

Q-1. In what year were you born? 19_____

Q-2. Your gender:

1 WOMAN
2 MAN

Q-3. In what state were you born? _____

Q-4. Ethnic Background:

1 ASIAN AMERICAN
2 AFRO-AMERICAN
3 HISPANIC/MEXICAN AMERICAN
4 NATIVE AMERICAN
5 WHITE/CAUCASIAN
6 OTHER (please specify)_____

Q-5. What is your highest level of education completed?

1 DIPLOMA IN NURSING
2 ASSOCIATE DEGREE IN NURSING
3 BACHELOR DEGREE IN NURSING
4 BACHELOR DEGREE--OTHER
5 MASTERS DEGREE IN NURSING
6 MASTERS DEGREE--OTHER
7 DOCTORATE DEGREE IN NURSING
8 DOCTORATE DEGREE--OTHER

Q-6. _____Years in practice BEFORE becoming a Nurse Practitioner

Q-7. _____Number of clients you see in a typical week

Q-8. What type of education prepared you as a Nurse Practitioner? (CIRCLE ONLY ONE)

1 BACHELORS PROGRAM
2 MASTERS PROGRAM
3 CERTIFICATION PROGRAM
4 OTHER (please specify)_____

Q-9. In what state did you get your NP education _____

Q-10. _____Years in practice as a Nurse Practitioner.

Q-11. _____Years in practice IN MONTANA as a Nurse Practitioner.

Q-12. On the average how many hours do you work per week as a Nurse Practitioner ?

_____ hours per week

Q-13. What is your primary area of practice? (CIRCLE ONLY ONE)

0 FAMILY HEALTH
1 WOMEN'S HEALTH/OB/GYN
2 ADULT
3 GERIATRIC
4 PEDIATRIC
5 PSYCH/MENTAL HEALTH
6 STUDENT HEALTH
7 OCCUPATIONAL HEALTH
8 EMERGENCY/ URGENT CARE
9 NEONATAL

Q-14. What is your primary practice setting as a Nurse Practitioner? (CIRCLE ONLY ONE)

0 INDEPENDENT NURSE PRACTITIONER OFFICE
1 PHYSICIAN OFFICE
2 HMO
3 AMBULATORY CLINIC
4 HOSPITAL OUTPATIENT CLINIC
5 EXTENDED CARE/NURSING HOME
6 SCHOOL/UNIVERSITY
7 PUBLIC HEALTH/VISITING NURSE
8 VA/MILITARY
9 EMERGENCY/URGENT CARE
10 OTHER_____

Q-15. What is the zip code of your practice location:

_____ZIP CODE

Q-16. How long have you lived in Montana?

_____NUMBER OF YEARS

Q-17. Which income category best represents the majority of your patients/clients?

1 LESS THAN $15,000
2 $15,000-$24,999
3 $25,000-$34,999
4 $35,000-$49,999
5 $50,000-$74,999
6 $75,000 or more

Q-18. The majority of clients utilize the following payment method: (CIRCLE ALL THAT APPLY)

1 TOTAL PAYMENT OUT OF POCKET
2 PRIVATE INSURANCE
3 MEDICARE/ MEDICAID
4 BARTER
5 SLIDING SCALE FEE
6 INDIGENT-UNABLE TO PAY
7 HMO
8 CHAMPUS

Q-19. I would describe my place of residence as: (CIRCLE ONLY ONE)

1 ON A FARM/RANCH
2 IN A RURAL AREA (NOT A FARM/RANCH)
3 IN A SMALL RURAL TOWN
4 IN A SMALL TOWN
5 IN A MEDIUM SIZED CITY
6 IN A LARGE CITY

Q-20. Please describe where you grew up: (CIRCLE ONLY ONE)

0 MOVED TOO MUCH TO SELECT ONE OF THE RESPONSES
1 ON A FARM/RANCH
2 IN A RURAL AREA (NOT A FARM/RANCH
3 IN A SMALL RURAL TOWN
4 IN A SMALL TOWN
5 IN A MEDIUM SIZED CITY
6 IN A LARGE CITY
7 IN A SUBURBAN AREA
8 IN A MAJOR METROPOLITAN AREA

Q-21. Your annual income:

1 LESS THAN $15,000
2 $15,000-$24,999
3 $25,000-$34,999
4 $35,000-$49,999
5 $50,000-$74,999
6 $75,000 OR MORE

Q-22. An important issue to health care in a rural state is the distance traveled by your clients to see you. Please indicate into the identified categories the percentage of clients that travel these round-trip distances. TOTAL should equal 100%

LESS THAN 10 MILES _____%

10-25 MILES _____%

26-50 MILES _____%

51-100 MILES _____%

GREATER THAN 100 MILES _____%

100%

Q -23. How far must YOU travel for emergency medical care? In answering this question think about a potential emergency such as a serious cut from broken glass. How far (ONE WAY) must you travel to get assistance such as stitches? Please try to be as accurate as possible when recording the distance, e.g. 8 city blocks or 3 3/4 miles, etc (assume you CANNOT self treat)

_____NUMBER OF MILES (one way)

_____APPROXIMATE TRAVEL TIME

Q -24. Please describe your source of emergency care (for example: hospital, physician's office,urgent care, nurse practitioner).

_____

Q-25. I am a member of these professional organizations: (CIRCLE all that apply)

1 AMERICAN NURSES ASSOCIATION--ANA
2 MONTANA ADVANCED PRACTICE REGISTERED NURSE ASSOCIATION--MAPRNA
3 AMERICAN ACADEMY OF NURSE PRACTITIONERS
4 SIGMA THETA TAU INTERNATIONAL
5 SPECIALITY ORGANIZATION-PLEASE IDENTIFY_____

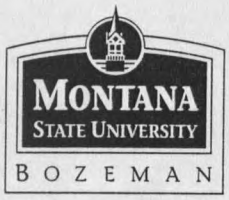
Q-26. I would like a summary of the results.

1 YES
2 NO

THANK YOU FOR YOUR TIME AND EFFORT

APPENDIX C

HUMAN SUBJECTS APPROVAL LETTER



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Fax (406) 243-5745

September 13, 1996

TO: Keven Comer, BSN, RN, CCRN

FR: Kay Chafey, PhD, RN KHC
Associate Dean (Acting)

RE: Human Subjects Proposal: "Montana Nurse Practitioners: Prescriptive Authority"

The Human Subjects Committee has approved your proposal with the recommended revisions that were received from you on September 12, 1996. You are now cleared to proceed with the distribution of your Nurse Practitioner Prescriptive Authority Questionnaire.

The Human Subjects Review Committee wishes you success with your study.

KHC/lt

APPENDIX D

COVER LETTER FOR QUESTIONNAIRE

Keven Jean Comer, BSN, RN, CCRN
2985 Tumbleweed Drive
Bozeman, MT 59715
(406)-587-4989

September 14, 1996

Dear Colleague,

Hello, my name is Keven Comer, and I am a Family Nurse Practitioner student at Montana State University College of Nursing. As part of my master's degree, I am conducting a research study on the utilization of prescriptive authority by Montana Nurse Practitioners. The purpose of the study is to identify facilitators and barriers encountered by nurse practitioners when utilizing prescriptive authority and to compile a current demographic profile of the nurse practitioner group. There exists little documentation regarding the use and utilization of prescriptive authority in the state. This is a significant practice issue that must be documented and protected. Your assistance is needed.

Enclosed you will find a questionnaire composed of a variety of questions regarding prescriptive authority and a demographic profile. The set of questions should take approximately 15 minutes to complete. All information is confidential. Code numbers are being used for follow-up and for the data analysis. These numbers will be stored separately from identifying information. No names will be used in the study and the information will be presented and analyzed in aggregate form. Please, do not identify yourself on the questionnaire. The benefit of your participation is knowledge that you assisted in the acquisition of information that is relevant to Montana Nurse Practitioners livelihood and profession. I believe the benefits of your participation greatly outweigh any risks.

Your participation is crucial to the success of the study and I encourage you to take an active part and let the survey reflect your thoughts and perspectives. While you are of course free not to participate, it is very important that I receive a representative sample of the nurse practitioners in the state. It would be helpful if you could fill out the survey as soon as possible and return it in the enclosed self-addressed stamped envelope. If you would like a summary of the results, just indicate your request on the specific question in the questionnaire.

If you have any questions you may contact me at home at 406-587-4989. If you have any specific questions in regards to the overall research project you may contact my chairperson, Dr. Clarann Weinert at 406-994-6036.

I look forward to receiving your completed questionnaire in the next few days. Thank you in advance for your participation and support.

Sincerely,

Keven J. Comer

APPENDIX E

SUMMARY LETTER

Keven Jean Comer, BSN, RN, CCRN
2985 Tumbleweed Drive
Bozeman, MT 59715
(406)-587-4989

June 4, 1997

Dear Participant,

Last fall, you assisted me in data collection for my thesis Montana Nurse Practitioners: Prescriptive Authority by answering a questionnaire regarding facilitators and barriers to prescriptive authority. Thank you for your cooperation and input. With your reply I was able to garner a 73.4% response rate. As you requested, I am sending a summary of the results. On this page I have summarized the facilitators and barriers and specific associations I found. On the following pages the remaining data collected are displayed.

Facilitators and Barriers:
The largest facilitators to prescriptive authority identified were:

--Contributes to cost effective care
--Allows for total patient care
--Clients accept the authority of the NP
--Physicians supportive of NP prescriptive authority
--Pharmacists supportive of NP prescriptive authority

The largest barriers to prescriptive authority identified were:

--The difficulty with the rules and regulations; ie cumbersome and restrictive
--Out-of-state pharmacists not filling prescriptions per Montana state law
--State statute unclear
--NP pharmacy curriculum not adequate
--Difficulty finding NPs for quality assurance piece of prescriptive authority
--Difficulty finding MDs for quality assurance piece of prescriptive authority

Montana nurse practitioners indicated membership in many different organizations. However, the only significant association found between professional membership and those that carry prescriptive authority was membership in the Montana Advanced Practice Registered Nurse Association (MAPRNA). In addition, differences between the two groups of nurse practitioners (those who did not carry prescriptive authority and those that did) were found. Those that carried prescriptive authority were more likely to see more patients per day, to work more hours per week, and to have been in practice less years that those NPs that did not carry prescriptive authority.

If you have any specific questions about this research, please do not hesitate to call me. I think the results are important to all nurse practitioners and hope to publish this data soon. Again, thank you for your time, support, and cooperation.

Sincerely,

Keven J. Comer

APPENDIX F

PERSONALIZED THANK YOU LETTER

Keven Jean Comer, BSN, RN, CCRN
2985 Tumbleweed Drive
Bozeman, MT 59715
(406)-587-4989

date, 1996

Mr/Ms Participant
1234 Nurse Avenue
Billings, MT 59000

Dear Mr/Ms Participant,

Thank you very much for responding to the Prescriptive Authority--Demographic Questionnaire. Your information will be compiled and analyzed. The results will be sent to those who indicated they would like a copy. Because of the great response rate, there will be an adequate sample size to be representative of the population of nurse practitioners in the state.

I appreciate you taking time from your busy schedule to answer the questions and return the survey.

Thank you, again.

Sincerely,

Keven Comer

APPENDIX G

TWO WEEK FOLLOW-UP LETTER

REMINDER REMINDER
REMINDER

PLEASE

COMPLETE AND RETURN THE
PRESCRIPTIVE AUTHORITY
DEMOGRAPHIC SURVEY
YOU RECEIVED IN THE MAIL 2 WEEKS
AGO.

YOUR INPUT IS NEEDED.

IF YOU HAVE ALREADY RESPONDED,
THANK YOU

KEVEN COMER

REMINDER
REMINDER REMINDER

APPENDIX H

FOUR WEEK FOLLOW-UP LETTER

Keven Jean Comer BSN, RN, CCRN
2985 Tumbleweed Drive
Bozeman, Montana 59715
(405) 587-4989

October 12, 1996

Dear Colleague,

I need your help. Approximately one month ago you received a Prescriptive Authority--Demographic questionnaire. I am writing to ask you to assist me in the gathering of this important information. Even if you do not carry prescriptive authority, it is imperative that I have your demographic profile to add to the other information. At this time there is no known data base of current information regarding nurse practitioners in the state. If you carry prescriptive authority, it is equally important to know your perceptions of facilitators and barriers encountered in the utilization of prescriptive practice.

Please take a few minutes and fill out the questionnaire and return it in the self-addressed stamped envelope. Remember all information is confidential and only code numbers are being used in the analysis of the data. If you have any questions please do not hesitate to contact me. Data analysis will begin November 22nd, so any questionnaires received after that date will not be included. Send in your questionnaire today and add to the wealth of data being compiled.

Thank you,

Keven Comer

APPENDIX I

RAW DATA

Age.

Age	Frequency	%
<35	10	8
35-44		39.9
45-54		39.9
>54	16	12.7

n =127
Mean 46
Range 29-67
SD = 7.7

Gender.

Gender	Frequency	%
Women	119	93.7
Men	8	6.3

n = 127

Ethnic Background.

Ethnic Background	Frequency	%
Asian American	1	.8
Hispanic	2	1.6
Caucasian	124	97.6

n=127

Highest level of education completed.

Level of Education	Frequency (n)	%
Master's in Nursing	47	38
Bachelor's in Nursing	46	37
Diploma in Nursing	19	15
Associate in Nursing	6	5
Bachelor Other	4	3
Doctorate in Nursing	1	1

n = 126

Years in practice before becoming a nurse practitioner.

Years before becoming NP	Frequency (n)	%	
less than 1	2	1.6	1.6
1-5	30	23.8	25.4
6-10	35	27.8	53.2
11-15	20	15.8	69.0
16-20	21	16.7	85.7
21-25	12	9.5	95.2
26-30	5	4.0	99.2
greater than 30	1	0.8	100.0

Mean 11.7
Median 10
Mode 10
SD = 7.7
n = 126

Number of clients seen per week

Mean 56.7
Median 50
Mode 50
SD = 35.5
Range 2-200
n = 113

Nurse practitioner educational preparation.

NP Education Prep	Frequency (n)	%
Certification	83	65.9
Master's Program	35	27.8
Other	6	4.8
Bachelor's Program	2	1.6

n = 126

State received NP education.

State	Frequency (n)
Montana	30
California	22
Colorado	15
Washington	12
North Dakota	8
Texas	5
Oregon	5
Florida	4
Utah	3
Arizona	2
Maryland	2
Virginia	2
Wisconsin	2
Alaska	1
Illinois	1
Kansas	1
Louisiana	1
Minnesota	1
Missouri	1
New Jersey	1
New Mexico	1
New York	1
North Carolina	1
Oklahoma	1
Tennessee	1
Washington DC	1
Wyoming	1
n = 126	

Years in Practice as NP.

Years	Frequency (n)	percent
1-5	51	40.8
6-10	24	19.2
11-15	24	19.2
16-20	20	16.0
>20	6	4.8
Mean 9.3		
Median 7		
Mode 4		
SD = 6.4		
Range 1-23		
n = 125		

Years in practice as a nurse practitioner in Montana.

Years in practice as NP	Frequency (n)	%
1-5 years	68	55.3
6-10 years	25	20.3
11-15 years	15	12.2
16-20 years	12	9.8
greater than 20 years	3	2.4

Mean 7.1
Median 5
Mode 4
SD = 5.7
Range .5-23
n=123

Hours worked per week.

Mean 33.2
Median 35
Mode 40
SD = 14
range 4-70
n = 115

Area of expertise.

Area of Expertise	Frequency	Montana %
Women's Health/OBGYN	48	38.7
Family Practice	35	28.2
Pediatric	17	13.7
Adult	8	6.5
ER/Urgent Care	5	4.0
Geriatric	5	4.0
Student Health	3	2.4
Psych/Mental Health	2	1.6
Occupational Health	1	0.8

n = 124

Practice setting

Practice Setting	Frequency	%
MD office	40	33.6
Ambulatory clinic	40	33.6
Hospital out-patient clinic	10	8.4
School/University	9	7.6
Public Health	7	5.9
Other	4	3.4
VA/Military	3	2.5
Independent NP office	3	2.5
Nursing Home/extended care	2	1.7
ER/Urgent Care	1	0.8

n = 119

Length of time lived in Montana.

Mean 22.4
Median 19
Mode 40
SD = 16.6
Range .5-58
n = 123

Patient income category.

Income	Frequency (n)	%
>$15,000	48	42.1
15-24,999	32	28.1
25-34,999	25	21.9
35-49,999	7	6.1
50-75,000	2	1.8

n = 114

Client payment methods.

Method	Frequency
Out of pocket	33.0%
Private insurance	62.4%
Medicare/Medicaid	64.1%
Barter	1.7%
Sliding scale fee	26.5%
Indigent--unable to pay	18.8%
HMO	15.4%
Champus	14.5%

n = 117

Nurse practitioner place of residence.

Place of Residence	Frequency	%
Farm or Ranch	8	6.5
Rural--not farm/ranch	24	19.4
Small rural town	19	15.3
Small town	16	12.9
Medium city	50	40.3
Large city	7	5.6

n = 124

Where nurse practitioner grew up.

Location	Frequency	%
Farm/ranch	26	20.6
Small rural town	24	19.0
Medium City	17	13.5
Small town	14	11.1
Major metropolitan area	11	8.7
Moved to much to say	11	8.7
Rural/ not farm or ranch	11	8.7
Suburban area	8	6.3
Large city	4	3.2

n = 126

Annual income of nurse practitioner.

Income	Frequency	%
<$15,000	6	5.1
15-24,999	15	12.7
25-34,999	18	15.3
35-49,999	48	40.7
50-74,999	29	22.3
>75,000	2	1.7

n = 118

Miles traveled round trip by client to provider.

Miles	%
less than 10	57%
10-25	20%
26-50	11%
51-100	6%
greater than 100	4%
Travel to client	1%

Member of professional organizations.

Organization	member (n)	not member (n)
ANA	45	81
MAPRNA	89	37
AANP	35	91
STTI	31	95
Other	47	79