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presented by

Nicole L. Jamieson

has been accepted towards fulfillment of the requirements for

Master of Science_degree in Nursing

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RELATIONSHIP BETWEEN RURAL COMMUNITY HEALTH CENTERS' WILLINGNESS TO CONSIDER AN ALTERNATIVE PRENATAL VISIT SCHEDULE AND THEIR PRENATAL CARE PROVIDER MIX

By

Nicole L. Jamieson

A THESIS

Submitted to Michigan State University in partial fulfillment of the requirements for the degree of

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ABSTRACT

RELATIONSHIP BETWEEN RURAL COMMUNITY HEALTH CENTERS' WILLINGNESS TO CONSIDER AN ALTERNATIVE PRENATAL VISIT SCHEDULE AND THEIR PRENATAL CARE PROVIDER MIX

By

Nicole L. Jamieson

Accessibility to maternity services for the United States' rural population can be addressed through the utilization of advanced practice nurses (APNs) and by offering a modified prenatal schedule with fewer visits for medically low-risk pregnant women based on the Expert Panel's (1989) recommendations on the Content of Prenatal Care. This study examined 70 rural community health centers' (CHCs) prenatal care provider mix and their willingness to consider an alternative prenatal structure. The results indicated that the rural CHCs that employed APNs as prenatal care providers were more likely to be willing to adopt the alternative prenatal schedule than those centers who employed only physicians, although this difference did not reach statistical significance. Findings suggest that the majority of the rural CHCs were employing APNs as primary prenatal care providers and that these providers were willing to offer a alternative prenatal visit structure. This study implies that APNs as primary prenatal care providers must be encouraged.

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iii

TABLE OF CONTENTS

	Page
LIST OF TABLES	. v
LIST OF FIGURES	. vi
	. 1
Background to the Problem	. 1
Statement of the Problem	. 4
Research Question	. 6
Research Hypothesis	. 6
THEORETICAL FRAMEWORK	6
Concentual Definition of Study Variables	. 0
Conceptual Definition of Study Variables	. /
	• 14
REVIEW OF THE LITERATURE	. 19
Critique of the Literature	. 26
AETHODS	. 28
Research Design	. 28
	. 28
Operational Definitions of the Variables	28
Instrumentation	. 20
Drotection of Human Subjects	. 23
Data Analycic	· JU
Data Analysis	• 31
Assumptions of the Study	
Limitations of the Study	. 31
RESULTS	. 32
Description of Sample	. 32
Analysis of Research Ouestion and Hypothesis	. 33
DISCUSSION	. 35
Sample	. 35
Discussion of Results with the Conceptual	
Framework	. 39
Implications for Advanced Practice Nursing and	
Primary Care	. 40
Recommendations for Further Research	. 42
SUMMARY	. 43
LIST OF REFERENCES	. 45
Appendix A: Field Procedures for the Primary Study	. 48
Appendix B: UCRIHS Approval for Primary Study	. 40
Annendix C. UCDING Approval for This Study	• 47
shewary c. ocume white at for this sends	. 50

LIST OF TABLES

Table 1:	Frequencies of Sample Characteristics 33
Table 2:	Contingency Table for Prenatal Care Provider Mix and Willingness to Consider an
	Alternative Prenatal Visit Schedule

LIST OF FIGURES

Figure

Figure

	Pag	je
1:	The Health Services System	16
2:	An Adapted Conceptual Framework for Evaluating Prenatal Care From Starfield's Model of Health Services System	17

INTRODUCTION

Background to the Problem

Currently there are over 4 million births annually in the United States (National Center for Health Statistics, 1995) with approximately one-quarter of these births occurring in rural counties (McManus & Newacheck, 1989). As many as one out of 18 women receives inadequate or no prenatal care in the United States (Burks, 1992). The literature has shown how important prenatal care is to improving perinatal outcomes for mothers and infants (Hall, 1991; Nesbitt, Connell, Hart & Rosenblatt, 1990). The provision of universally accessible and cost effective prenatal health care is a primary objective in the United States (Graveley & Littlefield, 1992; Long, Marquis, & Harrison, 1994). Achieving this objective in rural settings has often been difficult. Significant challenges exist in providing adequate access to maternity services to the onefourth of the United States' population that lives in rural areas (Nesbitt, 1996).

These issues of cost and accessibility of services have hindered access to prenatal care for some rural pregnant women (Hicks, 1992; Huntington & Connell, 1994; Rowland & Lyons, 1989). Both the issue of cost and accessibility for prenatal care in rural areas can be addressed through the use of advanced practice nurses (APNs), which includes nurse practitioners and certified nurse-midwives (CNMs), providing prenatal care in rural settings (Blake & Guild, 1978;

Sekscenski, Sansom, Bazell, Salmon & Mullan, 1994; Weis, 1992). It has been shown that most medically low-risk pregnant women and even certain groups of high-risk women, especially the socioeconomically disadvantaged, can be effectively managed by advanced practice nurses (Knoll, 1990). In addition, the issue of accessibility can be partially addressed through a modified prenatal visit schedule for medically low-risk pregnant women with less frequently scheduled prenatal visits with a specific content for each visit.

Rural pregnant women face certain barriers in accessing and obtaining obstetrical services (Nesbitt, 1996). A decline in the absolute number of primary prenatal care providers has not only hindered access but has also affected the continuity of care for rural pregnant women (Nesbitt et al., 1990). Keeping the specified number of prenatal visits as recommended by the American College of Obstetricians and Gynecologists (ACOG) (1992) provides challenges for the rural pregnant population. Geographical barriers, distance, time, transportation and loss of work are just a few of the reasons for the difficulties in obtaining prenatal care services (Nesbitt, 1996; Nesbitt et al., 1990).

The Expert Panel (1989) on the Content of Prenatal Care has recommended a reduction in the number of prenatal visits for medically low-risk pregnant women (McDuffie, Beck, Bischoff, Cross, & Orleans, 1996). With an alternative prenatal visit schedule for medically low-risk rural women, they would be able to take less time off from work for

prenatal visits and spend less money and time on babysitting and transportation thus increasing the accessibility and obtainability of adequate prenatal care for these women. In addition, prenatal care providers would be available to see more women thereby increasing accessibility to prenatal care. However, rural prenatal care providers need to be willing to implement the Expert Panel's recommendation of a reduced prenatal visit structure as well as accept APNs in the delivery of prenatal care services to rural women.

Community Health Centers (CHCs) provide comprehensive primary care services including prenatal care to medically underserved populations which includes rural populations. Identifying prenatal care providers within rural CHCs who are willing to consider an alternative prenatal visit schedule could favorably impact the current cost and accessability of services in rural areas. Studies have shown that the majority of births occur to low-risk women who require minimal medical intervention (Montquin, Gagnon, & Trainville, 1987) and that perinatal outcomes have not declined with the implementation of the Expert Panel's alternative prenatal visit schedule for low-risk women (McDuffie et al., 1996).

The purpose of this study was to determine if there was an association between the willingness to consider an alternative prenatal visit structure based on the Expert Panel's (1989) recommendations for medically low-risk pregnant women and the prenatal care provider mix currently providing prenatal care in rural community health centers.

Statement of the Problem

Nearly one-fourth of the United States' population lives in rural areas where significant challenges to providing adequate access to maternity services exist (Nesbitt, 1996). Availability of prenatal care providers in rural areas has declined (Thompson, 1996) with 60% of all rural counties having no practicing obstetricians (Bureau of Health Professions, 1992) and 79% of rural counties with 215,000 annual births having no source of clinical prenatal care by any provider (Bureau of Health Professions, 1992). One solution to increase the availability of prenatal care providers in rural areas is through the use of APNs. As a direct result of increased numbers of providers of prenatal care services, continuity of care should be improved for the rural pregnant population. Advanced practice nurses are frequently more willing to work in underserved areas and are less costly providers of prenatal care (Davis, McAdams, & Tilden, 1994; Shi, Samuels, Ricketts, & Konrad, 1994). Prenatal care delivery, including the prenatal visit structure, has been guided by ACOG's standards of practice (Baldwin, Raine, Jenkins, Hart, & Rosenblatt, 1994). The American College of Obstetricians and Gynecologists consists of a uni-disciplinary, uni-specialty team of physicians with expertise in the areas of obstetrics and gynecology. The Expert Panel was composed of a multi-disciplinary team of physicians and advanced practice nurses with expertise in the areas of obstetrics and gynecology. The current prenatal visit schedule evolved chiefly in response to the

problem of maternity hypertension; however, there is no scientific basis for this (Baldwin et al., 1994). Interest in exploring the potential of an alternative delivery model of prenatal care delivered by advanced practice nurses has emerged.

Providing accessible, appropriate, and affordable rural prenatal care is a national problem which demands scientific attention. There is limited research on alternative prenatal care delivery models in rural areas. The purpose of this study was to add to the body of knowledge by examining if there was an association between the willingness to consider an alternative prenatal visit structure and the prenatal care provider mix currently providing prenatal care in rural community health centers. If an association is identified, rural community health centers, health planners, and policy makers can use this information to help promote increased utilization of advanced practice nurses as direct providers of prenatal care in rural areas. In addition, this information can be used to recommend modifications of the current prenatal care visit schedule for medically low-risk pregnant women.

This study examined the prenatal care provider mix in rural community health centers and their willingness to consider an alternative prenatal visit structure using advanced practice nurses. A secondary analysis using primary data collected by Omar, Schiffman, and Hogan (1997) was done. In the primary study, consenting executive directors of rural CHCs were asked to complete the

Partnership for Rural Prenatal Care Delivery Survey. The completed survey supplied information about the type of prenatal care providers at the rural community health centers, rural CHCs' characteristics, and willingness to consider an alternative prenatal visit schedule based on the Expert Panel's recommendations and provided by APNs. Research Question

Is there an association between the willingness of rural community health centers to consider an alternative prenatal visit schedule for medically low-risk pregnant women and the prenatal care provider mix currently providing direct obstetrical care in these health centers?

Research Hypothesis

There will be an increase in the willingness of rural community health centers to consider an alternative prenatal visit schedule for the medically low-risk pregnant population when the community health center is staffed by both physician and advanced practice nurse prenatal care providers than when the community health center is staffed by physician prenatal care providers.

Theoretical Framework

This section includes the conceptual definitions of the study variables. Secondly, the conceptual model using Starfield's Health Services System (Starfield, 1992) is described. The concepts, prenatal care provider mix and willingness to consider an alternative prenatal visit schedule, are defined conceptually.

Conceptual Definition of Study Variables

Prenatal Care Provider Mix Currently Providing Prenatal Care in Rural Community Health Centers. As a result of difficulties with recruitment of physicians, many rural communities are employing nonphysician providers (Blake et al., 1978; Sekscenski et al., 1994; Weis, 1992). A community or migrant health center on the average employs 2.7 nonphysician providers, including 1.4 nurse practitioners, 1 physician assistant, and 0.3 certified nurse-midwife (Shi et al., 1994). Nesbitt (1996) states that it is essential for rural family physicians, nurse practitioners, and certified nurse-midwives to embrace the idea of collaborative practice in order to enhance both the quality and quantity of maternity care for the low-risk population.

Specifically, prenatal care provider was defined as a provider of prenatal care services who has met the prescribed educational requirements, and is licensed and certified, if applicable, as set forth by state law, to practice in that particular state. Physician providers represent those health care providers who have 11 years or more of higher education. As a result, the medical profession deems its physicians as having the expertise that is needed at the diagnostic stage of the medical assessment process (Avery, 1995). Most physicians tend to focus mainly on the diagnosis and management of a disease process, while under-emphasizing the assessment of the client in a holistic manner, including psychosocial issues. Most medical work is

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divided among specialties, with considerable overlap between and among the primary care physician and some specialists. One factor that seems to influence where physicians choose to provide their services is professional and social status (Gordon, Meister, & Hughes, 1992). These authors have divided the physician reward structure into three parts: prestige, economic benefits, and service. Urban settings carry predominately prestige associated with academic medical centers. Suburban areas include secondary and tertiary centers outside of academic medicine where economic rewards hold sway. Finally, rural settings pertain to primary care areas where service is highlighted. Davis (1994) illustrated that most physicians preferred to practice where they could schedule time off, and where they had the support of consulting colleagues and access to more specialized assistance when needed. In addition, the American Medical Association insists that every team needs a leader and that only a physician can fill that role (Avery, 1995). McLain (1988) also states that many primary care physicians are continuing to be taught values that promote hierarchical relationships.

Advanced practice nurses have a minimum of a baccalaureate nursing degree which provides them with a basic foundation of knowledge and skills. Typically, the education of the advanced practice nurse is at the masters level with advanced didactic and clinical preparation that has further prepared them to assess, diagnose, manage, and Prescribe in the primary care arena. Advanced practice

nurses are licensed, certified, and can work independently or in collaboration with other members of the health care team. Advanced practice nurse are specially trained to manage a variety of acute and chronic health problems as well as healthy states through health promotion and disease prevention behaviors. The APN can be a generalist or specialist just like their collaborating physician. The APN's scope of practice pertains to one's field of expertise. According to the Pew competencies needed for health professionals in 2005 (National Organization of Nurse Practitioner Faculties, 1995), the APN's scope of practice must include: care for the community's health, provision of contemporary clinical care, participation in the emerging system and accommodation of expanded accountability, ensuring cost-effective care and using technology appropriately, practicing prevention and promotion of healthy lifestyles, involving patients and families in the decision-making process, managing information, and continuing to learn. The literature describes the effectiveness of the APN as having better listening skills, spending more time with patients, delving more into psychosocial issues, and being better patient educators (Weis, 1992). The advanced practice nurse has developed strong interpersonal communication skills and counseling techniques while in the nurse/client relationship.

For the purpose of this study, provider mix was defined as a model of prenatal care delivery by one of two groups of prenatal care providers. One group consisted of a

physician(s) and could include an obstetrician, family practice physician, or a general practice physician who was currently providing direct prenatal care services to the population of women serviced by the rural community health center. This model of prenatal care delivery formulated an uni-disciplinary team approach. The second group consisted of a combination of any of these physicians with an advanced practice nurse and could include a nurse practitioner or a certified nurse-midwife who were in a collaborative practice together. This model of prenatal care delivery constituted a multi-disciplinary team approach.

Willingness to Consider an Alternative Prenatal Visit Schedule. A solution needs to be formulated that addresses the problem of providing adequate access to rural maternity services. Nesbitt (1996) states that childbearing women in rural areas are not being offered adequate and appropriate services under current models for prenatal care. Nesbitt suggests that rural caregivers must develop new prenatal care models that serve their low-risk population. In addition, these prenatal care providers must be willing to offer an alternative visit structure to the appropriate population. Advance practice nurses have been educated regarding the importance of fostering health assessment and promotion. An altered model of prenatal care corresponds with the philosophy of advanced nursing practice. The Expert Panel on the Content of Prenatal Care has recommended a form of this new schedule. They have described this model as fewer visits for healthy, low-risk women by combining

visits for risk assessment and health promotion (McDuffie et al., 1996).

Currently, the prenatal visit schedule across the United States is based on the recommendation of the American College of Obstetricians and Gynecologists which state that generally women with uncomplicated pregnancies should be examined approximately every four weeks for the first 28 weeks, every two to three weeks until 36 weeks of gestation and then weekly thereafter (ACOG, 1992). In order to decrease the challenges in providing accessible rural obstetrical care, it is imperative that a prenatal visit schedule for rural women with low obstetrical risks be developed which can meet the specific needs of these women.

The Expert Panel on the Content of Prenatal Care was commissioned by the Department of Health and Human Services. This Panel was designed to assess the content of the current prenatal visit structure scientifically and systematically. They identified that the timing and frequency of the current prenatal visit schedule was lacking in sound empirical studies (Baldwin et al., 1994). The Panel evolved a recommended visit schedule from scientific evidence and expert clinical judgement regarding the effectiveness for identifying and modifying risk and the success of medical and psychosocial interventions in the provision of prenatal care (U.S. Public Health Service, 1989). A reduction in the number of visits was based on the assumption that high quality care would be offered, that prenatal care providers would be easily accessible to the women, that the women

would continue to be screened for changing risk states throughout their pregnancies and that there would be no detrimental effect on the perinatal outcome. Specifically, the Expert Panel on the Content of Prenatal Care established an alternative prenatal visit structure which proposes ten prenatal visits for a nulliparous woman and eight prenatal visits for a multiparous woman. This is in comparison to the American College of Obstetricians and Gynecologists' proposed thirteen to fourteen prenatal visits for a fullterm pregnancy. For the purpose of this study, willingness to consider an alternative prenatal visit schedule was defined as the stated opinion given by the rural CHCs' directors regarding the prenatal care providers currently providing prenatal care within their rural CHCs and the willingness of these prenatal care providers to consider implementing a different prenatal visit schedule consisting of fewer prenatal visits for their medically low-risk clients based on the Expert Panel's recommendations with this care being provided by an APN.

Rural Community Health Centers. The literature defines rural as a delimited geographical area characterized by a population that is small, relatively sparse, and isolated, to varying degrees, from metropolitan hubs (Miller, Farmer, & Clarke, 1994). Rural communities are unique in their combination of structural characteristics such as population size and composition, human and economic resources, employment patterns, density, and cultural norms (Miller et al., 1994). Rural areas are often medically underserved.

This means that there is a shortage of health personnel. Indicators that are used to ascertain this are infant mortality rates, ratio of primary care physicians to the population, percentage of population ages 65 and older, and percentage of population below the poverty level (Shi et al., 1994).

Community health centers have a direct mission to a designated medically underserved area. Their main goal is to provide comprehensive, coordinated, preventative, and community-based primary health care services to their target population. This target population includes those rural patients that are low-income, uninsured, or underinsured. In addition to providing basic health services, community health centers must have a governing board with 51 percent of the membership composed of users of the center (Davis et al., 1994). The member communities, where the community health centers are located, develop and operate the centers. In addition, with help from the health care staff, the consumer board develops a health care plan and implements intervention strategies. Emphasis is on designing health care programs that meet the needs of the rural population group. Care provided usually centers on promoting health and preventing disease, in addition to curative care. Organizationally, all CHCs have a medical director and an executive director. It is unclear to how much, if any, nursing leadership is present. For the purpose of this study, rural community health center was defined as an organized operation that provides comprehensive,

coordinated, preventative, and community-based primary health care services, including prenatal care, to their rural patients who are low-income, uninsured, or underinsured.

Conceptual Framework

The conceptual framework for this study was derived from Starfield's (1992) model of the health services system which is a basis for evaluating primary care. The definition for primary health care is essential in the understanding of the model and organization of the health services system. Starfield specifies that primary health care must constitute first contact, longitudinality, comprehensiveness, and coordination (or integration) of health care services.

Primary care is the basic level of care that should be provided equally to everyone (Starfield, 1992). The two goals of the health services system are optimization of health and equity in distributing resources. Primary care is utilized to achieve these goals. Primary care focuses it's services on the community's problems and complaints. It provides preventive, curative, and rehabilitative services to maximize health and well-being of each individual member of the community. People's responses to their health problems are greatly influenced by their primary care provider's approach to the management of their care. Primary care facilitates the organization and utilization of all resources of the community, basic as well as specialized, directed at promoting, maintaining, and

improving health. Under this definition, an appropriate source of primary health care must be directly accessible to everyone and it must be continuous over the span of time. Primary care services must respond to a variety of problems, including needs for preventative measures.

Starfield (1992) has provided a framework for measuring attainment of primary care in the model on the health services system (see Figure 1). Every health services system has three types of components: structure, process, and outcome. In this model, Starfield has attempted to describe an approach to measure primary care that is based on certain structures and processes within the health services system. Two basic assumptions of this model are: (a) before important activities can occur, certain structural attributes must be in place, and (b) the performance of those activities must be properly addressed.

The main focus of this study was on the rural community health centers' current structure for the delivery of prenatal care services. The structure of the health services system consists of the resources needed to provide services. The structural aspect consists of nine main components: personnel, facilities and equipment, range of services, organization, management and amenities, continuity, accessibility, financing, and population eligible. For the purpose of this study, as shown in Figure 2, the structural component of personnel was of interest. Personnel, in this study, pertains to those providing direct prenatal care services. The personnel mix who directly

A Basis for Evaluating Primary Care



Figure 1. The health services system. Source: Starfield, 1992.

A Basis for Evaluating Primary Care



Figure 1. The health services system. Source: Starfield, 1992.

A Basis for Evaluating Prenatal Care



Figure 2. An adapted conceptual framework for evaluating prenatal care from Starfield's model of health services system. Source: Starfield, 1992 (Revised).

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provide prenatal care can include one or any combination of the following: family practice physicians, general practice physicians, obstetricians, or advanced practice nurses.

Also included in the structural component is the facilities and the organization of services. In rural communities, which reflect the study's environment, community health centers are largely responsible for the provision of prenatal care to the population they serve (Davis et al., 1994). Consequently, these services need to be continuous, accessible, and affordable. Organization of services depicts who is responsible for providing the different aspects of care. In most rural community health centers, advanced practice nurses are providing services that were once reserved for family practice physicians and obstetricians. These vacancies are available to them due to the shortages of these health care providers and their willingness to work in these underserved areas (Davis et al., 1994; Shi et al., 1994).

It is also important to note the process and outcome components of the health services system. In this model, the process component contains two segments: the provision of care and the receipt of care. Under the provision of care, also the focus in this study, providers must recognize the needs that are present in the individual clients that they serve and the community as a whole. This problem recognition is essential in determining what diagnosis, management, and treatment plans are needed. The provision of care that community health centers offer refers to the

current prenatal visit protocol for medically low-risk pregnant women which can include: (a) ACOG guidelines (i.e., every 4 weeks for the first month, every 2-3 weeks between weeks 28-36, and every week for 36+ weeks), (b) Expert Panel on the Content of Prenatal Care recommendations (i.e., reduced number of scheduled visits [8-10 visits] occurring at week 6-8, 8-12, 16, 24-28, 32, 36, 38-39, 40+), and (c) other (i.e., anything not included in [a] or [b]). This area also pertains to the willingness to consider an alternative prenatal visit structure by those who are currently providing prenatal care in the rural CHCs. The segment on receipt of care refers to the utilization, acceptance, and participation of an alternative prenatal visit schedule and primary prenatal care provider mix. While not the main focus of this study, the last component of the health services system, the outcome, needs to be addressed. Cost effectiveness, birth outcomes, and satisfaction are three measurable outcomes of providing an alternative prenatal visit schedule to the medically lowrisk rural pregnant population.

Review of Literature

This section examines the empirical literature relevant to the variables under study: (a) prenatal care provider mix in rural areas, and (b) willingness to consider an alternative prenatal visit schedule. In addition, any direct literature relating prenatal care provider mix and an alternative prenatal visit structure was reviewed.

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Twenty-three percent of the nation's population live in rural areas (Nesbitt et al., 1990). An adequate number of primary prenatal care providers to service this population needs to be available. There is an increasing shortage of family-practice physicians and obstetricians in rural areas (Hueston & Murry, 1992; Weis, 1992). General and family physicians make up two-thirds of rural maternity care practitioners in the United States (Nesbitt, 1996). Unfortunately, this group has left rural obstetrics in the greatest numbers (Nesbitt, 1996). As a result, advanced practice nurses are being presented with increased opportunities to practice because of these vacancies (Davis et al., 1994; Weis, 1992). The reasons for the undersupply of rural physicians has been addressed throughout the literature. One reason cited in the literature reports that medical students are influenced to enter specialty fields and urban practice sites that offer higher pay reimbursement under the present system (Davis et al., 1994; Weis, 1992). Declining rural economies, rural hospital closures, and changes in technology of medicine are also factors that have impacted the growing shortage of physicians in many rural areas of the country (Gordon et. al., 1992).

Advanced practice nurses offering prenatal care services is one answer to the shortage of prenatal care providers in rural areas. Establishing an alternative Prenatal visit schedule that meets the needs of the rural low-risk pregnant population is another possible solution for the medically underserved. A review of the literature

focusing both on physician and advanced practice nurses in the provision of prenatal care in rural areas is presented in this section. Very few articles with a focus on APNs in rural prenatal care were found in reviewing the literature. Two of these selected articles which were current and relevant are reviewed. In addition, four studies were identified and reviewed which dealt with the effects of offering an alternative prenatal visit schedule for women at low-risk for antenatal complications.

Hueston and Murry (1992) described a three-tier model for the delivery of rural obstetrical care using a nursemidwife and family physician copractice. In this model, the nurse-midwives were responsible for routine low-risk obstetric care. Family physicians provided the higher-risk consultations and surgical interventions. The results of the study suggested that the health care needs of an indigent, underserved rural population were better met by combining the skills of nurse-midwives and family physicians with surgical backup provided by a consulting obstetrician. With this new approach to prenatal care, the maternity center was able to increase the obstetrical care that was available to every woman in the region. The overall rate of deliveries without prenatal care decreased significantly from 29.9 per 1,000 deliveries in 1985 to 2.9 per 1,000 deliveries in 1989. As a result, this utilization of Certified nurse-midwives in practice with family physicians has offered rural areas the ability to provide obstetrical Care in a less costly and more effective manner.

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Shi, Samuels, Ricketts, and Konrad (1994) conducted a study which compared the use of nonphysician providers in rural and urban Community and Migrant Health Centers. The sample for this study included 383 Community and Migrant Health Centers with 243 being rural and 140 being urban. A survey instrument was mailed to the executive directors of the health centers. The survey focused on the utilization of nonphysician providers and the staffing models for the community and migrant health centers. The results of this study illustrated that advanced practice nurses were more likely to be employed by larger centers and those who were affiliated with nonphysician provider training programs. The findings of the survey also revealed that advanced practice nurses were capable of providing guality care equivalent to physician providers. The APNs provided quality care within their areas of competence equivalent to the quality of comparable services provided by physicians. They concluded that the use of advanced practice nurses as primary care providers in rural areas is one answer to providing care to the nation's underserved.

A study conducted by Binstock and Wolde-Tsadik (1995) compared the impact of a reduced visit schedule on continuity of care as compared to the current prenatal visit schedule. Two groups (n=549) of low-risk pregnant women were divided in which the experimental group received a reduced number of prenatal visits, on average, eight visits, and the control group received, on average, 13 prenatal visits. The results of this study revealed no significant

pregnancy outcome differences between the two groups. The number of prenatal visits was reduced by 27% for the experimental group and was not associated with any adverse changes in maternal or perinatal outcomes. Interesting, however, was that a higher level of patient satisfaction was reported in the experimental group than the control group regarding the number of prenatal visits. They concluded that an alternative prenatal care program for low-risk patients reduced resource utilization without adversely affecting prenatal care process variables, pregnancy outcome or patient satisfaction.

A randomized controlled trial was conducted by McDuffie, Beck, Bischoff, Cross, and Orleans (1996) to study an alternative prenatal visit schedule of fewer prenatal visits than the standard ACOG prenatal visit guidelines for low-risk women. Prenatal care was provided by teams composed of obstetrician-gynecologists and practitioners, which included nurse practitioners, physician assistants, or certified nurse-midwives. A total of 2764 pregnant women who were judged to be at low-risk for antenatal complications were included in the study. The participants were randomly assigned to either an experimental schedule (nine visits) or to a control schedule (14 visits) with additional visits as indicated or as desired by the patient. The alternative prenatal visit schedule (experimental group) followed the recommendations of the Expert Panel on the Content of Prenatal Care and included a prenatal visit schedule consisting of fewer visits than traditionally

provided. The study's findings revealed no significant differences between those obtaining care following the current standard schedule of prenatal visits and those who followed the lower-frequency of prenatal visits. The experimental group of women rated their prenatal care as good to excellent and having the "right" number of visits. The authors theorized that the use of this alternative schedule would lower the cost of delivery of prenatal care to low-risk women, without in any way adversely affecting perinatal outcomes. Even though the average visit difference of 2.7 was observed, the researchers speculated that the savings in direct medical costs for the estimated 2 million low-risk pregnant women receiving care each year in the United States would be considerable. The authors further stated that the societal benefits of the Expert Panel's guidelines would be even greater when indirect medical costs such as work absence, travel time and child care were taken into account.

In 1996, a multicenter randomized controlled trial was conducted by Tucker, Hall, Howie, Reid, Barbour, du V Florey, and McIlwaine. Their main objective was to compare the routine antenatal care provided by general practitioners and midwives with that of an obstetrician led shared care. The sample included 1,765 women at low-risk of antenatal complications and were associated with 51 general practices linked to nine Scottish maternity hospitals. Both groups of prenatal providers decided on the clinical content and proposed fewer visits for multiparous women than for

primiparous women. The results of this study showed that the general practitioner and midwife group displayed greater continuity of care and a reduced number of routine visits. In addition, both groups expressed high satisfaction with care and acceptability of the allocated style of care. Overall, the authors concluded that low-risk pregnant women can be effectively managed by a general practitioner and a certified nurse-midwife while being offered a prenatal program with fewer visits. They recommended that a new style of antenatal care be developed and offered to those who qualify which would match the resources available to the needs and satisfaction of those women.

Sikorski, Wilson, Clement, Das, and Smeeton (1996) carried out a randomized controlled trial comparing two schedules of antenatal visits. Their main objective was to compare the clinical effectiveness of the traditional British antenatal visit schedule (control group) with a reduced schedule of visits (study group) for low-risk women, together with maternal and professional satisfaction with care. The study population received shared care from physicians and certified nurse-midwives. The control group (n=1,416) consisted of 13 visits and the study group (n=1,378) consisted of seven visits for nulliparous women and six visits for multiparous women. The results of this study showed that there were no significant differences between the two groups for variables relating to pregnancy related hypertensive disorders, labor, maternal morbidity, or perinatal morbidity. The women in the study group saw

significantly fewer caregivers and thus received less conflicting advice which improved their continuity of care. The majority (82%) of the professionals reported that they would like to see a reduction (from the traditional 13 visits) in the overall number of routine antenatal visits.

When synthesizing these four studies which have dealt with the effects of offering an alternative prenatal visit schedule for women at low-risk for antenatal complications, one commonality arises. Offering an alternative prenatal visit schedule is an appropriate and effective way for providing obstetrical services to the medically low-risk pregnant population. All of these studies have shown that maternal and neonatal outcomes have not been adversely affected by providing prenatal care with fewer visits than that which has been traditionally recommended and offered. In addition, three out of four of these studies utilized a multi-disciplinary team approach in the provision of antenatal care. These specific studies support the utilization of advanced practice nurses who are in a collaborative practice with a physician in providing direct prenatal care to medically low-risk women.

Critique of the Literature

As the population of rural underserved individuals in the United States continues to grow, the problems of adequate access to rural prenatal care for medically lowrisk pregnant women is also compounded. Community health centers provide the health care for rural populations. However, an appropriate delivery model for prenatal care

must be developed based on the needs of the community. An alternative prenatal care program for medically low-risk patients has been shown in the above literature review to reduce resource utilization without adversely affecting perinatal outcomes.

The current health care delivery system continues to fall short of providing accessible and risk-appropriate prenatal care for the rural pregnant population. Consequently, further research is essential to evaluate an alternative prenatal visit structure that can increase access, decrease unnecessary use of services, lower costs and improve maternal satisfaction in these medically underserved areas. The Expert Panel's recommendations have not been greatly tested or widely accepted by the majority of practicing primary prenatal care providers. Further studies need to be performed to determine the appropriateness of this alternative model of delivering prenatal care to the rural low-risk pregnant population.

The four studies that were reviewed clearly showed that an alternative prenatal visit schedule for medically lowrisk rural pregnant women was consistent with good antenatal outcomes. In addition, three of these studies involved a multi-disciplinary team approach in the provision of prenatal care. These teams contained physicians practicing with advanced practice nurses as direct providers of prenatal care. The literature did not address the adoption of an alternative model of prenatal care by a specific type of prenatal care provider. The present study will hopefully

begin to fill the gap of linking a certain prenatal care provider mix with an alternative form of prenatal care delivery.

Methods

Research Design

This was a descriptive study using secondary data from the primary study "Provision of Prenatal Care Services by Rural Community Health Centers in the United States" (Omar et al., 1997). The primary study used a survey to describe the provision of prenatal care in rural community health centers in the United States. Field procedures for the primary study are in Appendix A.

Sample

The sample for this study consisted of 70 responses from executive directors of rural CHCs for which there were complete data. Inclusion criteria consisted of those rural community health centers that: (a) employed or did employ an APN within the current year, (b) provided prenatal care delivery services, and © had a minimum of 4 prenatal users per month. The sample in the primary study consisted of 162 completed surveys. Surveys were originally sent to 352 rural community health centers in the United States resulting in a 46% response rate for the primary study. The primary study's sample represented the entire population of rural community health centers in the United States. Operational Definitions of the Variables

<u>Prenatal care provider mix</u> was defined as the provider(s) the executive directors identified on Item 5 of

the Partnership for Rural Prenatal Care Delivery Survey. The respondents were asked to identify all providers who provided direct prenatal care at their rural community health center. Choices of provider were: (a) physician: obstetrician, family practice physician, or general practice physician, and (b) advanced practice nurse: nurse practitioner or certified nurse-midwife. For the purpose of this study, provider mix was defined as two groups of prenatal care providers: (a) physician only group, or (b) physician with an advanced practice nurse group.

Willingness to consider an alternative prenatal visit schedule was operationally defined as the response the executive directors identified on Item 8 of the Partnership for Rural Prenatal Care Delivery Survey. The respondents were asked on Item 8 "Would your prenatal care providers be willing to consider an alternative prenatal visit schedule for your medically low-risk pregnant women based on the Expert Panel's recommendations on the Content of Prenatal Care with fewer prenatal visits, and provided by an Advanced Practice Nurse with a prescribed content for each prenatal visit, including risk assessment and health promotion activities?" This was a forced choice dichotomous item: (a) Yes, or (b) No.

Instrumentation

There was one instrument utilized in this study, <u>The</u> <u>Partnership for Rural Prenatal Care Delivery Survey</u>. This instrument was developed by the principal investigators of the primary study. The Partnership for Rural Prenatal Care

Delivery Survey is a 14 item self-report instrument with forced choice responses. The survey allows the respondents to provide information about: the provision of prenatal care, provider(s) who deliver prenatal care, providers who deliver the infants, willingness to use advanced practice nurses in the provision of prenatal care delivery, current prenatal visit structure, willingness to consider an alternate prenatal visit structure, and acceptance of advanced practice nurses as primary prenatal care providers by the clients. The instrument does not have reported reliability or validity. Four additional forms were included with the survey: (a) Perinatal User Profile, (b) Community and User Characteristics, © Current Services Provided, and (d) Current Staff Profile which provided characteristics and other information about the population served by the rural community health centers. These are required federal forms for documentation and are completed by the community health centers each year.

Protection of Human Subjects

The primary study used volunteer respondents who completed the mailed survey. No potentially dangerous or adverse effect to the participants for participating was known or identified. The primary study (Omar et al., 1997) was approved by Michigan State University's Committee on Research Involving Human Subjects (Appendix B). The data utilized for this study has been maintained on a disk by the investigators. The respondents were entered by identification numbers only. Thus, no link can be made with

the name or site of any respondent for this study. Approval to conduct secondary analysis was obtained from the University's Committee on Research Involving Human Subjects prior to any data analysis (Appendix C).

Data Analysis

Data analysis was done using the SPSS/PC+ computer program. Descriptive statistics present the characteristics of the rural community health centers and included total number of prenatal users, number of deliveries, number of low birth weight infants, number of very low birth weight infants, and mortality data. An analysis of variance (ANOVA) was performed on the rural community health centers' characteristics to ascertain possible statistically significant differences by prenatal care provider mix.

To answer the research question, a contingency table was constructed in which the frequencies of the two study variables, prenatal care provider mix and willingness to consider an alternative prenatal visit schedule, were crosstabulated. To answer the hypothesis, the chi-square test was used. A significance level of 0.05 was used.

Assumptions of the Study

Assumptions of the study include the following:

- The responses to the questionnaire and supplemental forms reflect honestly and accurately the rural community health centers' practices and protocols.
- 2. All data were entered accurately.

Limitations of the Study

Limitations of the study include the following:

- 1. Possible bias in response rate.
- 2. Limited responses and return rate are associated with using a mailed survey.

Results

Description of Sample

In this descriptive study using secondary data, a total of 70 rural CHCs' executive directors' responses were analyzed on the variables, willingness to consider an alternative prenatal visit schedule and prenatal care provider mix currently delivering prenatal care services to their obstetrical population. This study's sample size was smaller than the primary study for data analysis purposes. Data analysis was done only on cases which had complete data for the study variables and had over 48 prenatal users per year. Generally, the rural CHCs' characteristics can be described as servicing a small to a large population of pregnant women which affects the total number of deliveries. Birth outcomes were generally positive. Table 1 summarizes the characteristics of the sample.

A one way analysis of variance (ANOVA) between the rural CHCs' characteristics and prenatal care provider mix was completed. This was done to identify any differences between rural community health centers with the physician only group and the physician with an advanced practice nurse group. No significant differences were found. Overall, the rural community health centers' characteristics were not significantly different between the two provider groups.

Table 1.

Frequencies of Sample Characteristics

Characteristic	n(Missing)	M	SD	Min	Max
Total Prenatal Users	70(0)	449	563	54	3520
<pre># of Deliveries</pre>	68(2)	229	290	0	1714
<pre># of Low Birth Weight Infants</pre>	65(5)	15	40	0	292
# of Very Low Birth Weight Infants	65(5)	2	3	0	18
Neonatal Mortality	64(6)	0.6	0.9	0	3

Analysis of Research Question and Hypothesis

Research Question: Is there an association between the willingness of rural community health centers to consider an alternative prenatal visit schedule for medically low-risk pregnant women and the prenatal care provider mix currently providing direct obstetrical care in these health centers?

A cross-tabulation between the willingness to consider an alternative prenatal visit schedule and prenatal care provider mix was completed (see Table 2). No association was found between the two study variables. Twenty-two percent (n=14) of the rural CHCs employed only physicians to provide their prenatal care services, while 78% (n=49) of the rural CHCs employed both physicians and advanced practice nurses to deliver prenatal care to their obstetrical population. Out of those CHCs (n=44) which stated a willingness to consider an alternative form of delivering prenatal services, 73% (n=36) from the physician with an advanced practice nurse group and 57% (n=8) from the

Table 2.

Willingness to		Prenatal Care	Provider M	ix	
Consider an Alternative Prenatal	Physician	only (<u>n</u> =14)	Physician with APN (<u>n</u> =49)		
VIBIL SCHEdule	٩	3	n	7	
Yes	8	57	36	73	
No	6	43	13	27	

<u>Contingency Table for Prenatal Care Provider Mix and</u> <u>Willingness to Consider an Alternative Prenatal Visit</u> <u>Schedule (N=63)</u>

physician only group identified a willingness. Overall, 70% (n=44) of the rural CHCs stated that they would be willing to offer an alternative prenatal visit schedule, and 30% (n=19) stating their unwillingness to change their current prenatal protocol.

Hypothesis: There will be an increase in the willingness to consider an alternative prenatal visit schedule for the medically low-risk pregnant population when the community health center is staffed by both physician and advanced practice nurse prenatal care providers than when the community health center is staffed by physician prenatal care providers.

There was an increased willingness to consider an alternative prenatal visit schedule with the employment of advanced practice nurses, but it was not statistically significant, (1, n=63)=0.16, p>.10.

Discussion

<u>Sample</u>

There were two main findings from this study. First, advanced practice nurses were greatly utilized in the rural CHCs surveyed. Seventy-eight percent of the executive directors (\underline{n} =49) reported that their rural CHC employed advanced practice nurses as part of their prenatal care delivery team. This large percentage of APNs practicing in rural areas is consistent with the literature which states that APNs are often more willing to work in these underserved regions (Davis et al., 1994; Shi et al., 1994). In addition, rural CHCs may provide a supportive environment for APNs as well as a multi-disciplinary team approach to prenatal care. Advanced practice nurses provide competent obstetrical care for those who are medically low-risk and function well when in a collaborative practice with physicians. This model of care seems to correspond with larger rural community health centers' policy of care. This may explain why a great many of the rural CHCs surveyed realized the value of the APN in the delivery of prenatal care services to their pregnant population and consequently were utilizing the APNs' expertise in their rural health centers.

Less than one-fourth (\underline{n} =14) of the rural CHCs reported that they only employed physicians to provide the prenatal care at their sites. This may be due to a variety of reasons. One reason may be the rural CHCs' size and financial status, such that only those CHCs that were larger

in size and population serviced employed advanced practice nurses as primary prenatal care providers (Shi et al., 1994). Smaller CHCs may not have adequate space or may lack financial funds to support additional primary providers. Rural CHCs may only employ physician providers if the CHC can only support one prenatal provider; a nurse practitioner would be unable to be a replacement for a physician prenatal care provider. Reimbursement may also play a role in the employment and recruitment of certain primary prenatal care providers.

The second main finding from this study pertains to the willingness that was reported by the rural CHCs' executive directors to consider implementing an alternative prenatal visit protocol. While there was lack of statistical significance to support the hypothesis, this can be viewed from a positive perspective. Regardless of the provider mix, the results showed that the majority of the rural CHCs were willing to consider an alternative form of prenatal care services. Seventy percent (n=44) from both groups of providers declared a willingness to consider offering an alternative prenatal model of care. Furthermore, over half (n=8) of the physician only rural CHCs expressed positive interest in an alternative form of delivering prenatal care services. The Expert Panel has recommended that a prenatal visit schedule with fewer visits is an effective way to provide obstetrical care to medically low-risk pregnant Those rural CHCs that utilized APNs and indicated a women. willingness to implement an alternative prenatal visit

protocol may be due to an alternative philosophy of care by the multi-disciplinary team. The community health centers that employed physician only providers may view the alternative prenatal care protocol as a way to see more pregnant women thus increasing accessibility to prenatal care.

Over one-quarter (n=19) of the rural CHCs reported that they would be unwilling to consider an alternative model for delivering prenatal care. This unwillingness may be related to the use of a uni-disciplinary approach to prenatal care by obstetricians in those specific rural community health centers. This uni-specialty approach adheres to ACOG's quidelines for prenatal care protocols. The current standard of care for prenatal care may also account for some unwillingness to consider implementing a modified prenatal visit schedule. Another issue important to consider in initiating a change to a reduced prenatal visit model is the impact on the reporting of adequacy of prenatal care which currently is based on a specified number of prenatal visits. Reporting anything less than the current standard would be considered less than adequate prenatal care. This accountability could have implications for future funding and operational management. Consequently, community health centers as well as private practices may be reluctant to change their current prenatal visit protocol to a model with a reduced number of onsite visits.

Another reason why some rural CHCs may have reported an unwillingness to consider offering an alternative prenatal

visit protocol may be related to the concept of change. Most people are comfortable with the status quo. Consequently, they are reluctant to undergo any form of change. Prenatal care providers may be uncertain of what the effects of implementing this type of change in the current prenatal protocol would have on birth outcomes. In addition, many obstetrical providers may truly believe in the importance of having the current recommended number of prenatal visits which are needed for assessment, monitoring, education, and counseling.

While not the focus of this study, several rural CHCs' characteristics were examined and compared between the two provider groups. The important finding to note here was that there were no significant differences in several of the critical birth outcome indicators between the two groups. This suggests that birth outcomes were equivalent regardless of prenatal care provider mix. This would lend support for use of the advanced practice nurse as a primary prenatal care provider.

Some limitations to the study's findings include a small sample size which resulted from using a mailed survey and having incomplete data. While there was a small sample size, it can still be considered representative of those rural health centers that provide prenatal care services to four or more prenatal users per month. Consideration of the nonresponders to the survey is important. Nonresponders may have been: a) unwilling to change to an alternative prenatal visit schedule possibly due to a lack of interest or low

volume, b) smaller rural CHCs that only employed physicians, c) nonproviders of prenatal care, or d) unable to answer the survey. Therefore, the results of this study may not have changed even with additional responses. Increased credence can be given to the findings of the study.

Discussion of Results with the Conceptual Framework

The results of this study provide support for the adapted conceptual model from Starfield's (1992) Health Services System. Under personnel in the structural component, there was support for a provider mix. Rural community health centers in this study utilized either a physician only or a physician with an advanced practice nurse as prenatal care providers. The provision of care corresponds with the process component. This aspect of the model dealt with the rural CHCs' current prenatal visit schedule and their willingness to consider offering an alternative prenatal visit structure. While no rural CHC had already adopted the alternative prenatal visit schedule, more than three fifths of the rural CHCs, regardless of the prenatal care provider mix, reported a willingness to offer an alternative prenatal visit schedule, while only slightly less than one third identified an unwillingness to change their current prenatal practice.

While not the focus of this study, outcomes were addressed in the description of the rural CHCs' characteristics and included: number of low birth weight infants, number of very low birth weight infants, and neonatal mortality data. Birth outcomes can be used as one

indicator to measure how effectively APNs are providing prenatal care services. Birth outcomes, however, can be influenced by other factors besides the advanced practice nurse and prenatal care. Overall, this model is effective for evaluating prenatal care.

Implications for Advanced Practice Nursing and Primary Care

The findings from this research study confirm that APNs are providing prenatal care to the rural medically low-risk population in multi-disciplinary health care teams. The data has shown, consistent with the literature, that there is a large percentage of APNs providing prenatal care in rural community health centers (Sekscenski et al., 1994; Weis, 1992). In addition, the data has shown that there were no observable differences in birth outcomes regardless of the prenatal care provider mix. The APN can use this information to further lend support to the continued utilization of APNs as providers of prenatal care services. Improved accessibility to prenatal providers as well as to obstetrical services for the medically underserved pregnant population can be influenced by the APN's crusade to be recognized and sought after as direct providers of primary prenatal care.

For those rural areas that lack an advanced practice nurse as a provider of care, the APN can educate the general public on the role and value of an advanced practice nurse as a primary provider of prenatal care services as well as those rural CHCs who employ physicians only. The APN can encourage utilization of APNs if and where appropriate.

In rural CHCs where there currently exists an APN with a physician in the delivery of prenatal care services, the APN has several responsibilities and opportunities to discern the needs of the pregnant population that they are servicing. The APN must continue to be a leader in the movement towards accepting and utilizing an alternative prenatal visit schedule for those who qualify.

In rural CHCs where there was a willingness to use an alternative model of prenatal care, the APN should encourage the adoption of this prenatal visit schedule with fewer visits as recommended by the Expert Panel (1989) on the Content of Prenatal Care. The APN can facilitate in altering the current protocols for delivering prenatal care services to the medically low-risk along with the other appropriate personnel at the rural CHCs. The traditional prenatal care guidelines need to be adjusted to include health promotion and risk assessment into a reduced number of visits. Also, advanced practice nurses can assist in designing a system to measure and track selected outcomes of utilizing this alternative prenatal visit structure. It is essential that the APN consistently give positive reassurance and feedback to the prenatal care providers and to those rural CHCs' personnel involved during the adoption of this altered model of providing obstetrical care.

In rural CHCs where there was not a willingness to consider offering an alternative prenatal visit schedule, the APN should inform them of a safe and effective alternative form of delivering prenatal care services to

those who are risk appropriate. Determining reasons for this unwillingness to change the current protocol of prenatal care visits may assist the APN in deciding where to channel his/her efforts and in the most efficacious manner. Furthermore, the advanced practice nurse should seek a pilot test to verify that offering an alternative prenatal visit schedule is an effective model for delivering prenatal care to those who are medically low-risk and that there are no adverse effects in providing this altered protocol.

Even with the limitations of this research study, the information provided can be used to recommend modifications of the current prenatal visit schedule for the medically low-risk rural pregnant population based on the overwhelming willingness of the majority of the rural primary prenatal care providers to offer such an alternative form of delivering antenatal care. In addition, the continued promotion of the increased utilization of advance practice nurses as direct providers of prenatal care in rural areas is encouraged.

Recommendations for Further Research

Further replication of this research study with greater emphasis on increasing the response rate is needed to further test the research question and hypothesis. An additional area to research would be to survey the prenatal care provider groups in rural CHCs about: (a) their willingness to consider an alternative format for delivering prenatal care and (b) their current prenatal protocol.

Further research would also include determination of why rural CHCs either were or were not willing to consider an alternative prenatal visit schedule. In addition, exploration of why rural CHCs either were or were not employing advanced practice nurses as part of their prenatal care provider team is encouraged. Advanced practice nurses need to promote research that examines the effectiveness of utilizing the alternative prenatal visit schedule and prenatal care being provided by an APN. Additional studies which determine how clinical policies are reviewed and revised in rural CHCs are recommended.

The utilization of APNs as primary prenatal care providers is an important way both to achieve cost containment and improve access to quality primary prenatal care for those residing in medically underserved regions (Shi et al., 1994). This study has shown that the majority of the rural CHCs were employing APNs as part of their prenatal health care team. Consequently, research with this focus may assist in the continued recruitment of this highly skilled and competent group of obstetrical providers for the rural pregnant population.

Summary

This study examined if there was an association between the prenatal care provider mix currently providing prenatal care in rural community health centers and the willingness to consider an alternative prenatal visit schedule. The findings did not support an association between the two study variables.

The study did reveal that advanced practice nurses were part of the provider mix in the provision of prenatal care services to the majority of rural populations which is consistent with the current literature (Sekscenski et al., 1994; Weis, 1992). The findings identified that the majority of rural primary prenatal care providers were willing to consider implementing an alternative prenatal visit schedule in their practice. This implies that a shift from the traditional ACOG guidelines to a more cost effective and needs appropriate structure for delivering obstetrical care to the medially low-risk rural pregnant population is an option.

The problems with adequate access to rural obstetrical care for medically low-risk pregnant women is compounded with the continued growth of the rural underserved population in the United States. The literature has shown that the current health care delivery system remains inadequate in providing accessible and risk-appropriate prenatal care services for the rural pregnant population (Bureau of Health Professions, 1992; Nesbitt, 1996). Utilization of advanced practice nurses in the delivery of prenatal care is one logical solution to this dilemma. Application of the Expert Panel's recommendation of a reduced number of prenatal visits which focuses on risk assessment and health promotion for the medically low-risk pregnant population is another possible answer.

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APPENDIX A

Appendix A

Field Procedures for the Primary Study

The survey was mailed to the executive directors of 352 rural community health centers. A cover letter explaining the study was included with the survey. The letter requested that they complete and return the survey in the self-addressed envelope within two weeks. Consent to participate in the study was assumed when the survey was completed and returned. A postcard was sent two weeks after the initial mailing as a reminder to complete and return the survey.

APPENDIX B

MICHIGAN STATE

UNIVERSITY

March 1, 1995

TO: Mildred Omar A230 Life Sciences Bldg.

RE: IR

IRB#:	74-151
TITLE:	BARRIERS, EXPECTATIONS, AND PATIENT SATISFACTION
	AS PREDICTORS OF PREMATAL CARE UTILIZATION AND
	MATERNAL AND INFANT OUTCOMES IN BENZIE COUNTY,
	NTCHIGAN
REVISION REQUESTED:	π/λ
CATECORY	1-0
APPROVAL DATE:	03/01/95

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

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

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



OFFICE OF

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RESEARCH AND GRADUATE STUDIES

University Committee en Research involving Human Subjects (UCRIHS)

Michigan State University 225 Administration Building East Lansing, Michigan 48824-1046

> 517/355-2180 FAX: 517/432-1171

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

If we can be of any future help, please do not hesitate to contact us at (517)355-2180 or FAX (517)336-1171.

Sincerely, Ť David E. Wright, Ph (UCRIHS Chair DEW:pjm

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APPENDIX C

MICHIGAN STATE

UNIVERSITY

April 3, 1998

TO: Mildred Omar

 RE:
 IRB#:
 98-220

 TITLE:
 RELATIONSHIP BETWEEN RURAL COMMUNITY HEALTH CENTERS' WILLINGNESS TO CONSIDER AN ALTERNATIVE PRENATAL VISIT SCHEDULE AND THEIR TYPE OF PRENATAL CARE PROVIDER

 REVISION REQUESTED:
 N/A

 CATEGORY:
 1-E

 APPROVAL DATE:
 03/30/98

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

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

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CHANGES :

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

OFFICE OF RESEARCH AND GRADUATE STUDIES

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

University Committee on Research Involving Human Subjects (UCRIHS)

Michigan State University 246 Administration Building East Lansing, Michigan 48824-1046

> \$17/355-2180 FAX: 517/432-1171

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MSU is an affirmative-action, equal-opportunity institution

Sincerely, く Bavid E. Wright, Ph D. UCRIHS Chair DBW:bed

: Nicole Jamieson

