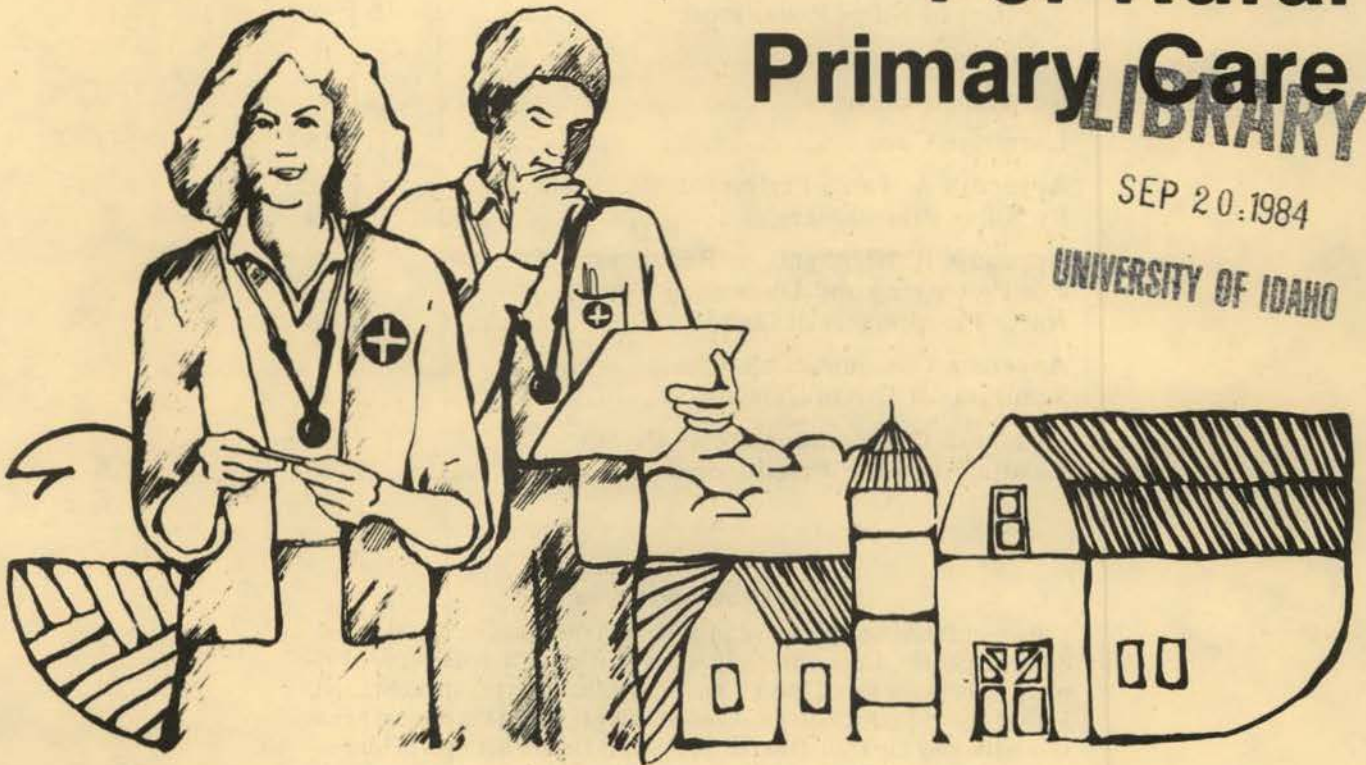


# Nurse Practitioners: An Alternative For Rural Primary Care



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## Acknowledgments

Project funds were received in part from the Western Rural Development Center, Corvallis, Oregon, as part of "Alternatives for Primary Care in the Rural West." The Agricultural Experiment Station, University of Idaho, also provided funding through the project "Factors Affecting the Utilization of Social and Health Services in Idaho." Preliminary funding was also provided by the Economic Research Service, USDA, through the project "Economic Analysis of Family Nurse Practitioner Projects in Sparsely Populated Areas." Graphics were done by Norma Smith.



Published and distributed by the  
Idaho Agricultural Experiment Station  
R. J. Miller, Director

University of Idaho College of Agriculture  
Moscow 83843

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## **Abstract**

Nurse practitioners can fill gaps in rural primary care, but community support is essential. This study examined the potential for that support.

Problems encountered by nurse practitioners include professional acceptance by other health care personnel. Attitudes attached to the social roles of nurse and woman also present barriers. Legal questions and financial concerns are also areas that impact on the usefulness of nurse practitioners.

A statewide survey assessed the potential for using nurse practitioners in Idaho. Nurse practitioners were well received, and care was deemed satisfactory. Even in the face of no prior experience with nurse practitioners, most respondents thought they would be willing to have a nurse practitioner perform a variety of health care tasks. These tasks would be either for themselves personally or in a general care situation such as health education or nursing homes.

Reasons that people gave for willingness to use nurse practitioners were more time and personal attention. Cost was not a factor.

The survey revealed no differences in use or in potential use related to a rural vs. urban residence. The possibility for using nurse practitioners for rural primary care appears to be positive, but certain cautions are indicated.

### **Foreward**

This is a two-part study of nurse practitioners as a potential alternative for rural primary care. Part 1 is a general overview of the topic. Discussion covers the need for nurse practitioners, a description, the specific situation in Idaho and problems — professional, legal, financial and attitudinal — encountered in the use of nurse practitioners.

Part 2 is a report on a survey of Idaho residents. It asked their experience with and opinions of nurse practitioners.

# Nurse Practitioners: An Alternative for Rural Primary Care

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## Overview

One of the most frequently cited needs in rural and semirural communities is for more doctors. Many of Idaho's communities are too small, however, to support a physician or cannot offer amenities to attract a physician who has a choice of practicing in a more densely populated area. The profession of nurse practitioner has been developed to cover this gap as well as to extend the doctor's ability to reach a large number of patients. If nurse practitioners are to be of service, however, they must be acceptable to the communities in which they practice.

Good health is increasingly seen as a "right" of all people, regardless of their ability to pay for the necessary medical services. Vast improvements in medicine, hygiene and the environment in the past century have led not only to greatly improved health but also to expectations that improvement should continue and should cover an increasing spectrum of the world's citizens. People in underdeveloped, rural and/or isolated areas who previously settled for marginal, often informal, health care now feel they should receive at least some of the health care benefits of a sophisticated medical system.

Efforts to improve the delivery of health care to people in underserved areas have met with only partial success. One of the first efforts was to encourage the addition of health care facilities and personnel to deficient areas, by government subsidy if necessary. Valuable as these programs have been, they have not completely solved the problems faced by underserved areas for a number of reasons. Health care personnel placed in rural areas have often been reluctant to settle permanently in the area. New facilities in rural areas are often faced with less use by residents than was expected when the facility was planned, either because people continue their old patterns of going elsewhere for medical care or because rural people simply may not seek medical care as often as more urban people. Thus, establishing a new facility in a rural area which will be economically viable has become very difficult.

The relevance of a discussion of nurse practitioners grows out of two concerns:

1. The need to improve health care in areas which cannot or likely will not be served by physicians.
2. The need to extend the skill of the physician to reach more people in critical need, at less cost to himself and less cost to the patient.

Speculation is that in the next decade we may see a surplus of physicians. An oversupply, however, is not likely to solve the problems for many of the remote areas that doctors are presently bypassing. Among reasons given by physicians for not wishing to practice in such areas are:

1. Isolation from colleagues and from educational possibilities.
2. No relief from excess workload.
3. The poor quality of facilities and equipment available.
4. The inability of sparsely populated areas to support a medical practice.
5. The poor quality of schools for their children in rural areas.
6. Personal problems in relating to a rural life style.

Obviously, some doctors find these factors insurmountable while others consider them insignificant or just a challenge. Nevertheless, these reasons for avoiding a rural practice are substantive and must be taken into account by rural people seeking improved health care.

A physician's availability does not automatically solve health care needs. Areas often neglected in health care are preventive medicine, care of the chronically ill, patient education and health maintenance (Bliss and Cohen 1977). While the doctor may recognize the importance of these aspects of medicine, does he have time? Could his patients afford it if he did have time? Physicians and psychiatrists have the highest suicide rate of any professions as well as high rates of alcohol and drug addiction, mental breakdowns and marital problems (Simon and Lumry 1968). Reasons are many and complex,

but an impossible workload is among them. Some type of midlevel practitioner could possibly fill these needs at less cost to the patient and to the welfare of the doctor. The nurse practitioner is one of the alternatives to be considered.

Many problems are inherent in the use of new health practitioners (including nurse practitioners) that must be addressed before their use can meet the concerns outlined above. This section will integrate material from other studies for a description of nurse practitioners and an overview of these problems.

## Description of Nurse Practitioners

The role of nurse practitioners has been a part of society for a long time, in practice if not in name. Many remote communities have traditionally had someone with some knowledge of medicine — a nurse perhaps — who might risk the charge of practicing medicine without a license because the need was so great, and no one else was able to fill it. Many capable nurses have extended their role in the doctor's office to give him the extra hands he so badly needed. Gradually, this extended nursing role has become formalized with a name and a structural training program. Elements of these training programs are:

1. A formal curriculum rather than inservice training.
2. Training for an extended nursing role.
3. A student must be a registered nurse to enter.

Of these training programs, most give certificates, but some give masters degrees. Specialties include pediatrics, midwifing, maternity, family, adult, geriatric and psychiatric.

Training programs vary among schools but generally cover:

- Theory and practice of history taking.
- Diagnosis and treatment.
- Interpretation of tests.
- Provision of supportive services to restore health.
- Health maintenance and preventive health education.
- Counseling (Bliss and Cohen 1977).

The demographic characteristics of the nurse practitioner trainees indicate that 98 percent are female, 90 percent are white, 55 percent are married, and the median age is 33 (Bliss and Cohen 1977). The median years spent in professional nursing before entering the program was 8 years for the certificate program and 5 years for the masters. Those in the certificate program were most likely to have a hospital diploma (47 percent), but 38 percent had a baccalaureate degree. Among the masters trainees, 94 percent held baccalaureate degrees.

Reasons for wishing to become a nurse practitioner include:

1. Greater influence on patient care.
2. Additional learning opportunities.
3. Challenge of the work (Bliss and Cohen 1977 and Ashizawa and Merrell 1975).

Average income for nurse practitioners appears to be somewhat higher than that of nurses, but salary and increased status were the least cited reasons given for entering training. (See Appendix A for a list of the tasks commonly performed by nurse practitioners.)

## Nurse Practitioners in Idaho

In Idaho, 92 nurse practitioners are currently in practice (State Board of Nursing 1980). Most (49) are family nurse practitioners, and several are women's health care practitioners (15) or pediatric nurse practitioners (10). Twenty-five have diplomas, 41 a bachelor's degree and 11 a master's degree. Public health departments employ 15½, but physicians' offices use the largest number — 31½. Others are in community health clinics (8), migrant council clinics (7), school health (6), mental health (1), nursing homes (5) and miscellaneous (10). Eight are classified as being in remote practice (Fig. 1).

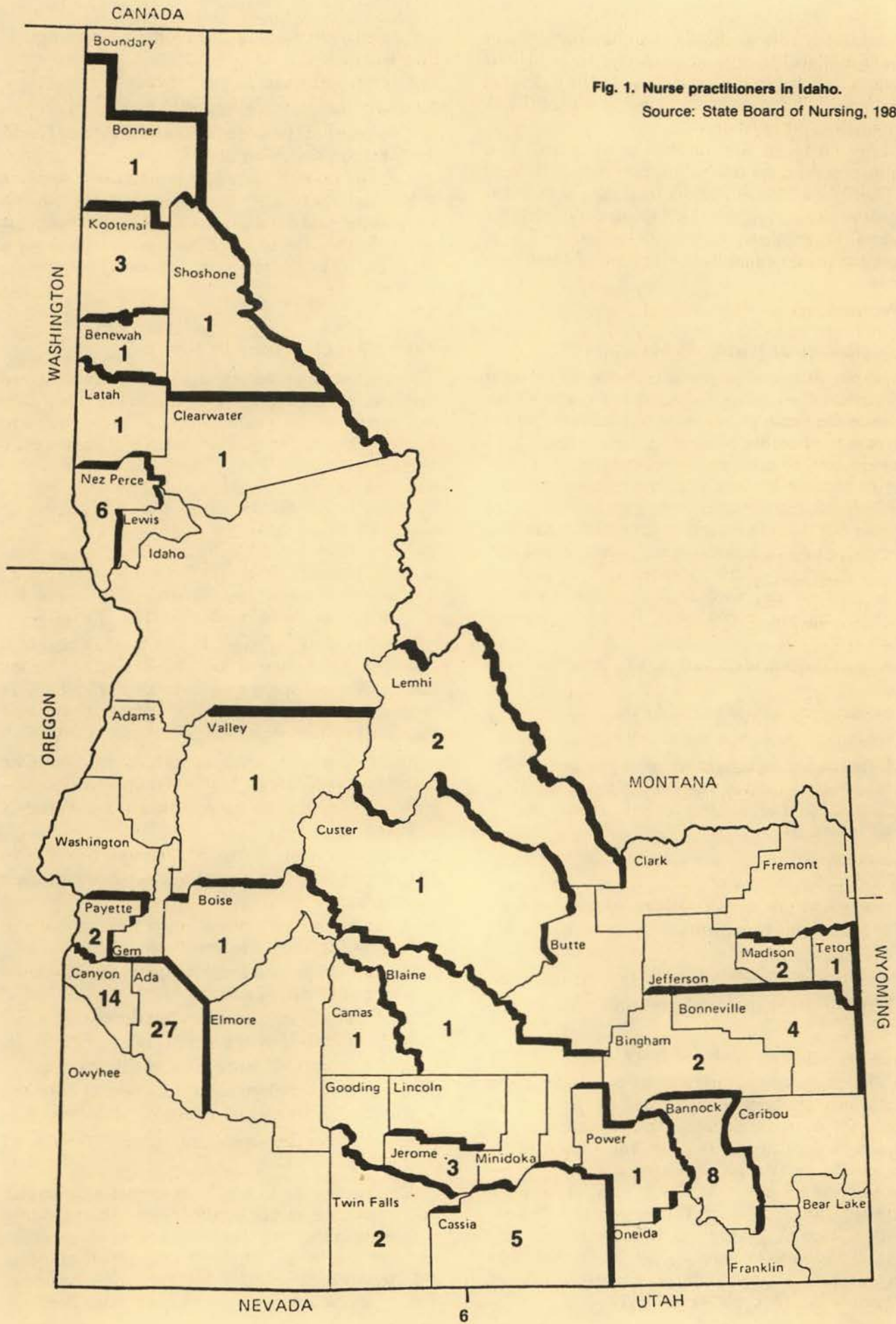
A new program funded by the Kellogg Foundation and administered by the Mountain States Health Corporation is also under way in Idaho. The program trains geriatric nurse practitioners and encourages their use in long-term care facilities.

Regulations for licensing include among other requirements (State of Idaho 1980):

1. A current license as a professional nurse in Idaho.
2. A baccalaureate degree in nursing.
3. Completion of an accredited nurse practitioner program.
4. A statement from physician-preceptor that she (he) has demonstrated proficiency.
5. An agreement with her/his supervising physician which shall provide for:
  - a. Regularly scheduled conferences.
  - b. Periodic review of a sample of patient records.
  - c. An acceptable score on a qualifying exam.
6. An interview before representatives of both the Board of Nursing and Board of Medicine.

Renewal of the license requires at least 60 hours of continuing education.

Among the acts for which a nurse practitioner can be disciplined under Idaho rules are exceeding authority, failure to adhere to practice policy or misrepresenting herself (himself) as a physician or as able to practice without a supervising physician. Two types of practice arrangements have been ob-



**Fig. 1. Nurse practitioners in Idaho.**  
 Source: State Board of Nursing, 1980.

served in Idaho: (1) associated nurse practitioners who work in a clinic with a doctor on hand and (2) detached nurse practitioners who practice in a satellite clinic where a supervising doctor is available by phone but does not himself work in the clinic on a regular basis (Meyer 1978).

## Problems Encountered

The problems encountered by nurse practitioners and by those who employ them fall into four categories — professional, legal, financial and attitudinal.

**Professional** — Professional problems revolve around relationships with physicians, other nurses, hospital staff and patients. **Physicians** who have employed nurse practitioners seem, on the whole, to be well satisfied with their services. Many doctors indicate the nurse practitioner has enabled them to increase the number of patients for whom they can provide care, to provide a broader range of services and to provide better care. Employing physicians, however, often encounter resistance from their colleagues (Ashizawa and Merrell 1975).

Fottler (1979) reported that physicians he interviewed indicated more willingness to hire a physician assistant than a nurse practitioner. Doctors who were unwilling to employ a nurse practitioner gave the following reasons:

1. Perceived lack of applicability to their particular speciality.
2. Satisfaction with traditional roles and relationships.
3. Concern for legal liability.
4. Perceived inability of a nurse practitioner to perform an expanded role.
5. Low volume of services and lack of economic incentive.

Doctors employing nurse practitioners have also had some problems with willingness to delegate tasks to the nurse practitioner. A study reported by Fottler (1979) covered not only physicians employing nurse practitioners but a sample of all physicians. This study indicated that 69 percent of the doctors interviewed would be willing to delegate the average task to a physician's assistant but only 61 percent would delegate to a nurse practitioner.

Tasks most willingly delegated were taking routine health history, providing health information and managing a regimen within an established protocol. The least readily delegated tasks were a preliminary physical, prescribing therapeutic regimen and discriminating normal/abnormal functions. Also, some tendency existed to regard nurse practitioners as technicians, not as colleagues. Older physicians were less likely to employ or to delegate tasks to either a physician's assistant or a nurse practitioner. Those in solo practice were less receptive to

nurse practitioners than were doctors in clinics or institutions.

Apparently the employment of a nurse practitioner is a large factor in the perception of the role (Burkett *et al.*, 1978) Physicians who opt to employ a nurse practitioner are preselected to be more favorable. In addition, the experience with a nurse practitioner seems to enhance the physician's concept of an expanded role for the nurse practitioner.

The nurse practitioner, as part of the licensing procedure, must have a "practice policy" that delineates the duties she (he) is expected to perform in the specific practice setting (Ashizawa and Merrell 1975). Comparisons were made between the functions actually performed by nurse practitioners in Idaho and those in the practice policies of the interviewees. Most of the nurse practitioners were performing the functions for which they had been trained. The largest exception was in the prescribing and writing of prescriptions for permitted medications.

The situation in Idaho points up the controversy about the prescribing and dispensing of drugs by nurse practitioners. A series of public hearings was held in 1979 on development of a set of regulations in compliance with a directive from the Idaho legislature. Comments by those opposed included:

"What you're proposing to do is turn sophomore medical students free to practice medicine."

"There should be no prescription writing by nurse practitioners. This provides nurse practitioners with dangerous latitudes" (Hibbard 1979).

Most physicians testifying at the hearings wanted more physician control of nurse practitioners including professional certification and disciplinary action.

On the proponent side were health department personnel who foresaw the cost of public health care increasing without the services of nurse practitioners. Patients of nurse practitioners also felt they needed the low cost care.

The regulations resulting from these hearings were a compromise, allowing some prescribing and dispensing of drugs. The full regulations are available (State of Idaho 1980). (Appendix B gives some highlights from these regulations.)

**A lack of hospital privileges** is another problem for nurse practitioners. Hospitals are reluctant to allow such privileges, understandably because of legal questions but also because of the resistance of affiliated physicians and hospital staff (Ashizawa and Merrell 1975). In Idaho, 65 percent of the nurse practitioners interviewed did not have access to hospitals.

Some of the resistance to nurse practitioners from **other nurses** is expressed by Rogers (1975). She states that primary care by nurses is as old as the

nursing profession and that an expanding role for nurses is part of the expanding role for all professional occupations. What is needed, in her view, is not a proliferation of roles but a differentiation of nursing's technical and professional careers. Failure to differentiate, legally and otherwise, not only denies reality but leaves the nursing profession vulnerable to the onslaught of vested interests. "As the number and proportionate representation of baccalaureate and higher degree graduates in nursing have increased, so too has the traditional power structure become increasingly threatened" (p. 1,838). Thus, Rogers sees a conspiracy to take over nurses and nursing, to turn R.N.'s into physicians' assistants and hence to diminish the number of professional nurses or to force them to practice at a lower level of medicine.

Rogers feels that nurses who become assistants to physicians, by whatever name, will find their permission to practice deriving from physician-determined laws of certification. She concludes that a course of training that requires an M.D. as instructor is not preparation for nursing.

The expected response of patients to the nurse practitioner is sometimes cited by physicians as a reason for their reluctance to hire a nurse practitioner. Experience indicates, however, that nurse practitioners are generally well received by patients, particularly if it is clear they have the support of one or more physicians in the community.

Litman (1972) found similar responses to physician assistants. Potential patients thought they would be willing to use physician assistants for routine physical exams and histories (94 percent of respondents), simple emergency care (77 percent) and advice on where to go and whom to see for medical care (83 percent). Somewhat acceptable was postnatal care, including immunization and initial screening to determine whether the patient needs to see the doctor. More opposition was evident to the physician assistant performing maternity services, particularly deliveries, even under supervision of the doctor.

Possibly actual experience with a midlevel practitioner reduces the reluctance expressed above. The nurse practitioners in the Ashizawa and Merrell study indicated they were for the most part performing the functions for which they were trained. The Idaho nurse practitioners also reported that acceptance by patients was excellent (68 percent) to good (32 percent). Factors which they listed as contributing to their acceptance by patients were physician acceptance, community education, role security and other professionals' acceptance.

Litman (1972) suggested that if midlevel practitioners are to be accepted in the community, extensive orientation and education are needed. This

should be for both physicians and the public before implementation of such programs.

One additional problem often cited by nurse practitioners is that of the **structural-organizational** aspect of their practice. This may not seem a major factor, but it is a day-to-day issue that can erode morale and may be the most difficult or expensive to change. Limitations of space and facilities, especially examining rooms, was cited by both nurse practitioner and employers as barriers in a study reported by Sullivan *et al.* (1978). Other problems mentioned by a few respondents were too many or too few patients for a satisfactory practice, the practice area available being too far from home and interference coming from nonnurse practitioner tasks such as clerical duties.

**Legal** — Legal questions center around the significant difference between the traditional role of the nurse and the expanded role of the nurse practitioner. The nurse practitioner involves many functions not traditionally performed by nurses, such as medical functions of diagnosis, treatment and prescription that assume a legal significance (Bliss and Cohen 1977). Not only does the type of function raise legal questions, but of equal concern is the performance of a medical task independent from or in collaboration with a physician rather than directly under his supervision.

Bliss and Cohen pointed out that medical regulations of all states require the practice of medicine only by licensed physicians or persons specifically exempted. Any unlicensed person to whom medical acts are delegated, any physician who surprises such a person and any employer of unlicensed persons may risk a charge of malpractice.

Nurse practitioners are affected by both nursing practice acts that forbid medical practice and medical practice acts that exempt nurses from the prohibition provided she (he) is acting under the direction of a physician (Fottler 1979). Ideally these two practice acts should be coordinated. In reality, though, much ambiguity exists. Hence, physicians are legitimately concerned about their legal liability in employing nurse practitioners.

Chapman and Record (1979) reported that at the present time members of the new health professions are generally able to obtain malpractice insurance at a small cost. The use of midlevel practitioners does not appear to increase either the cost of malpractice insurance for the physician or the risk of being sued for malpractice. Future trends are hard to predict. Many current malpractice claims against physicians, however, result not so much for medical procedures as from patient dissatisfaction. Thus, to the extent that use of a nurse practitioner could improve the physician's rapport with patients via less waiting time, more personalized service and more



accessibility, the prospect of malpractice claims could potentially be reduced.

Sullivan, *et al.* (1978) felt that the perceived legal risk may be greater than the actual risk. The legal argument may be espoused by those whose real objection is on other grounds.

**Financial** — Third-party payments for medical services by public and private insurers have been a major barrier to the use of new health professionals. Some breach of the barrier has been made with PL 95-210, 1977, that provides for cost reimbursement in certain rural clinics (Chapman and Record 1979). Other breaches will likely be made in the future, particularly if concern over malpractice is lessened.

Another financial barrier is the cost associated with a nurse practitioner. Salaries must be paid, space must be rented and equipment must be purchased. To the extent the nurse practitioner can use the existing facilities of the associated physician, some cost savings may occur. But even there, one of the more frequent complaints of both nurse practitioners and employing physicians was constraints on space and equipment. When the nurse practitioner is on detached service, the cost of setting up a suitable clinic becomes even more germane.

A certain minimum population in the service area is necessary to support any type of nurse practitioner practice arrangement. Meyer (1978) and Meyer and Radtke (1981) estimated the minimum population using the assumptions:

- 90 percent collection rate.
- 20 percent of patients referred elsewhere.
- 20 percent of patients going to a larger community for some reason.
- 5 patient visits per year.
- An office fee of \$15 or \$18 per visit.

Using these assumptions, Meyer and Radtke estimated that a detached nurse practitioner clinic needs a minimum service area population of 1,200 to 1,500. An associated nurse practitioner-physician clinic (which would have to support the physician also) would require a population of at least 2,100 to 2,600. Moscovice and Rosenblatt (1979) concluded that remote areas probably never will be able to support even midlevel practitioners without some type of subsidy. One complaint recorded by Ashizawa and Merrell (1975) was by a physician who stated he had to subsidize his detached nurse practitioner clinic with funds from his own town practice.

**Attitudinal** — The special perspective that a sociologist can bring to the issue centers not only on the objective material of legal, financial and professional problems but also on the subjective material of attitudes and roles. As long as the nurse practitioner is defined as an expanded nursing role and indeed

must have a nursing background, all the expectations attendant to the role of nurse will also attach to the role of nurse practitioner.

Mechanic (1978) pointed out that even though nurses are trained to make many decisions, the structure of authority in the medical system is "designed to make it appear that nurses' responses are reactive to physician judgments and orders. Thus, while nurses frequently exercise important powers of decision, they must do so subtly, avoiding the appearance of being in command" (p. 362). The nurse learns to suggest, to show deference to the doctor and to be unobtrusive. With a role definition such as this as background, it becomes difficult for both the physician and the nurse practitioner to see her (him) in an assertive stance.

In the study by Ashizawa and Merrell (1975), most nurse practitioners and their employing physicians reported the nurse practitioner was considered a colleague. In 4 percent of the responses, however, the physician replied he considered the nurse practitioner an employee while she considered herself a colleague. More significant, perhaps, in 12 percent of the responses, the physicians stated he considered her a colleague, but she considered herself an employee. Clearly, this is a problem not only of the attitude of the physician but also of the self-image of the nurse practitioner.

Interfacing with the role expectations of the physician-nurse relationship are all the socially developed role relationships of male and female. Since nurse practitioners are predominately female, they suffer whatever discrimination attaches. Mechanic (1978) noted that nurses are often viewed as having many of the attributes of wife and mother, responding to definitions of their tasks in relation to needs of others. Fottler (1979) reported that physician assistants (predominately male) seem more acceptable to physicians than do nurse practitioners. He speculated that at least a portion of this is attributable to discrimination and an expectation that female employees will not stay on the job as long as males. Concrete evidence of this is that not only do nurse practitioners earn less than physician assistants, but female graduates of special practitioner programs earn significantly less than do male graduates of the same program.

Nurse practitioners must, therefore, cope with all the role expectations of nurse and woman and fit them into an expanded role as a professional member of the health care team. How well she does this may depend of her own self-image. Sullivan (1978) reported that many nurse practitioners fear an incompetent performance, worry about their relationship with other providers and struggle to avoid unconscious participating in "doctor-nurse" games. They feel particularly vulnerable to role challenges from other nurses. Nurse practitioners must "overcome

nonassertive behavior in order to assume the role of decision maker and become autonomous, capable, responsible and accountable professionals" (Sullivan 1978: 1,079).

The overcoming of nonassertive behavior may be true for any woman entering a professional field — and the older the woman at time of entry, the greater the problem. Bliss and Cohen (1977) reported the average age of the nurse entering nurse practitioner training is 33. A twin problem exists in that a woman who has learned to be assertive (particularly an older woman) may instead be regarded as aggressive, which is not an allowable female trait.

### Success of Nurse Practitioners

Nurse practitioners have been in practice long enough for some judgment to be made as to their success. How acceptable are nurse practitioners to physicians, other providers and patients? More than 85 percent of the physicians surveyed by Sullivan (1978) indicated they were very satisfied with the level of competence of the nurse practitioners in their employ. About one-half of the nurse practitioners in midwifing and maternal specialties reported some resistance from other providers, but only about one-fourth of the nurse practitioners in pediatrics and family practice reported such resistance. Those practicing in hospitals reported more resistance from other providers.

Yankhour, *et al.* (1972) reported a followup of 73 nurse practitioner training graduates 2½ years after graduation. More than 80 percent were employed as nurse practitioners. Of those not working, 13 had left the job for more education, research or career advancement, three for personal reasons (pregnancy) and one because she couldn't find a satisfactory position. Yankhour, *et al.* also surveyed the physician-employers of 30 pediatric nurse practitioners. Most were enthusiastic about the practitioners' performance and acceptance by patients and by the improvement in patient care. Physicians, however,

were about equally divided as to whether or not employment of the nurse practitioner enabled them to increase the volume of patients handled or to free up their own time. The majority of physicians felt care of children improved in quality because of the work of the pediatric nurse practitioner or to more time on the doctor's part. None felt it had suffered.

The physician-employers surveyed by Ashizawa and Merrell (1975) reported excellent to good satisfaction (96 percent) with their nurse practitioners. Fifty-two percent reported that the number of patients had increased since hiring the nurse practitioner, and 57 percent reported that the time delay patients experienced in receiving appointments decreased since using a nurse practitioner. Only 39 percent reported some resistance from colleagues about working with a nurse practitioner.

In the same Idaho study (Ashizawa and Merrell), nurse practitioners themselves rated their acceptance by patients as excellent to good (100 percent). Eighty-one percent rated physicians acceptance as excellent to good.

What about the effectiveness of nurse practitioners care — does it produce medical results as good as regular care? A study cited in Bliss and Cohen (1978) showed no difference in outcome of patients treated by conventional health care and those treated by nurse practitioners in regard to mortality or physical, emotional or social function.

A resume of the various studies reported indicates a high degree of satisfaction on the part of the majority of nurse practitioners. Most feel their physician-associates treat them as colleagues and encourage them to perform the expanded function for which they were trained. Most nurse practitioners surveyed planned to stay on the job "indefinitely." There were a few complaints that the nurse practitioner is not allowed to make full use of her skills and training. Major problems seem to center around the resistance from nonemploying physicians and other providers such as nurses and hospitals.

## Nurse Practitioners in Idaho

Idahoans generally appear to be healthy people, based on health statistics for the U.S. and for other states. That doesn't mean, however, that all Idaho residents necessarily perceive themselves as healthy or that they don't wish for better health care. People in certain areas or under certain circumstances do not have every facet of medical care close at hand or readily accessible. This is especially true for residents of the more remote, sparsely-populated rural areas.

Based on official data, Idaho's rural residents have two, possibly interrelated, disadvantages:

1. Rural people have a higher death rate for all causes and from specific leading causes such as heart disease, cancer and accident.
2. Rural people have fewer physicians, nurses and hospital beds per 1,000 population.

If indeed 1 and 2 are related, then there are steps which rural communities need to take to improve their life possibilities. Among these are consideration of the use of nurse practitioners to provide services not now readily available.<sup>1</sup>

Specific questions dealt with in this section are:

- How many and what kind of people have used services of nurse practitioners? What demographic factors are related? Do people use nurse practitioners primarily when no doctor is available in the community? Does skepticism about the doctors' motives encourage the use of nurse practitioner services?
- Regardless of whether they have had any experience with a nurse practitioner, how willing do people think they would be, given the opportunity, to use the services of a nurse practitioner for their personal medical care or for general health care such as institutional? Does this potential willingness vary by prior experience with a nurse practitioner? What are demographic factors? Are people more willing to use nurse practitioners if there is not a doctor available in their community or if they are skeptical of doctors?
- What reasons do people give for their potential willingness to use nurse practitioners?

### The Survey

In March-April 1981, we conducted a statewide survey asking Idaho residents their opinions about health and health care, problems they have experienced, needs they perceive in their communities, patterns of illness behavior, attitudes, lifestyle habits and much demographic information.<sup>2</sup> We also asked experience with and opinions about the use of nurse practitioners.

Our sample was selected randomly from telephone directories, with controls to achieve as representative a sample as possible and to assure that all areas of Idaho were adequately represented. Our procedure was a mailed questionnaire with follow-up at 2-, 4- and 7- week intervals. Response was very satisfactory, resulting in 1,311 usable questionnaires for a return rate of 81 percent.

Initial analysis was by crosstabulations and correlations that point out areas which may be of significance. Handling as many variables as we included, however, required more complex manipulation. A multiple regression equation for each dependent variable was developed incrementally by adding successive groups of variables that represent the independent variables.<sup>3</sup>

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<sup>2</sup>People generally rated their health as good and were well satisfied with their health care. People in the more rural counties were likely to rate their health as slightly less good than did urban residents and were also somewhat less likely to be satisfied with their health care. Almost everything in the way of personnel and facilities was perceived as needed in rural areas, with more doctors leading the list. Rural residents were as likely as urban people to see a doctor for specific enumerated symptoms but were less likely to seek emergency care and more likely to delay care for a few days. Healthy lifestyle habits also were not significantly different for rural people (Sargent and Carlson 1982 and 1983).

<sup>3</sup>Using a combination of hierarchical and stepwise regression procedure, variables are entered in blocks representing demographic, community or personal variables. Within each block, the variable with the most significant F value is selected first, the second most significant variable, etc. until a predetermined limit is reached, in this case F values where  $p < .05$ . The procedure then picks up the next block and repeats the process until all blocks are exhausted. The end result is a simplified equation that contains all the significant variables and which explains the maximum amount of variance attributable to any combination of independent variables.

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<sup>1</sup>For a more complete discussion of health status and the availability of health care personnel and facilities in Idaho, see Sargent 1980.

Standardized (beta) coefficients are reported rather than unstandardized regression coefficients to facilitate comparisons across equations that have dependent variables with different ranges and also, in a single equation, across independent variables with different ranges. The test of the significance of the equations is the F ratio.

The independent variables analyzed in association with use of nurse practitioners are divided into three groups: demographic, community and personal. The demographic variables are the usual ones — age, sex, occupation, education, income and county.

Community variables refer to those factors over which the individual has little or no control, relating to medical facilities and personnel available in the community. Those variables are:

- No doctor available in the community.
- Medical needs other than a doctor in the community.
  - More doctors.
  - More nurses.
  - Hospital or improved hospital.
  - More specialists.
  - Health education.
  - More public health efforts.
  - Mental health services.

Personal variables were those that reflect the patient-physician relationship or those over which the individual has some control. These were:

- A long wait for appointment.
- A long wait in the doctor's office.
- Office hours not convenient.
- Not enough time with the doctor.
- Lack of courtesy toward patients.
- Medical language difficult to understand.
- Inconvenient location of doctor's office.

(Above rated "not a problem," "slight problem," "moderate problem" or "serious problem.")

In addition, an attitude question was included on the personal variables. "Skepticism towards doctors" is an index variable composed of agree-disagree responses to:

- Doctors are basically honest and do the best job they know how to do.
- Doctors are more interested in making money than preventing or curing illness (reversed for the index).
- Most doctors are genuinely concerned about the health of their patient.<sup>4</sup>

<sup>4</sup>The inter-item correlation (Alpha = .72) for these items indicates it is appropriate to combine them into an index variable. The index was created by adding the numerical values of the responses (ranging from 1-agree to 6-disagree) to each of the questions. Thus, the higher the total, the more respondents disagreed with the statements and, thus, the more they could be considered skeptical of the doctors' motives.

## Experience with Nurse Practitioners

We asked people, "Have you ever used the services of a nurse practitioner?" If the reply was "yes," we then asked how satisfied they were with the care given. Responses were "very satisfied," "somewhat satisfied," "somewhat dissatisfied" and "very dissatisfied." About 25 percent of our respondents reported some experience in using the services of a nurse practitioner.<sup>5</sup>

Because the R<sup>2</sup>s associated with our regression equation were very small, we did not use them as models purporting to explain variance in the dependent variables. A large proportion of the variance remains unexplained, possibly because of other variables that were not measured and possibly as a result of random variance among human subjects. Following the practice common to the field, however, we did use multiple regression equation to establish patterns of relationships between the dependent and independent variables, controlling for other independent variables. We also recorded the change in the contribution to R<sup>2</sup> as we moved from one set of variables to an additional set. Furthermore, we took a conservative approach and considered the F values as significant only if they met the critical level of  $p < .001$ .

Age appeared to be the most significant demographic factor related to the use of nurse practitioners (Table 1). People in the younger age group (under 45 years) were the most likely to have had some experience with a nurse practitioner, while those in the older group (more than 65 years) were the least likely to have used nurse practitioners. In view of the small R<sup>2</sup> associated with the demographic variables, and our decision to use a conservative

<sup>5</sup>Appendix D gives percentage responses for specific items from the questionnaire about nurse practitioners.

**Table 1. Use of nurse practitioners by demographic, community and personal variables.**

| Independent variables            | Standard beta      | Standard beta      | Standard beta      |
|----------------------------------|--------------------|--------------------|--------------------|
| <b>Demographic</b>               |                    |                    |                    |
| Age                              | -.16 <sup>2</sup>  | -.17 <sup>2</sup>  | -.16 <sup>2</sup>  |
| Sex                              | -.07 <sup>1</sup>  | -.07 <sup>1</sup>  | -.06 <sup>1</sup>  |
| <b>Community</b>                 |                    |                    |                    |
| Doctor not available             |                    | .15 <sup>2</sup>   | .15 <sup>2</sup>   |
| <b>Personal</b>                  |                    |                    |                    |
| Skepticism about doctors         |                    |                    | .14 <sup>2</sup>   |
| Long wait for doctor appointment |                    | .08 <sup>1</sup>   |                    |
| R <sup>2</sup>                   | .03                | .05                | .07                |
| R <sup>2</sup> change            |                    | .02                | .02                |
| F for equation                   | 17.59 <sup>2</sup> | 19.97 <sup>2</sup> | 16.52 <sup>2</sup> |

<sup>1</sup>F sig  $p < .05$

<sup>2</sup>F sig  $p < .001$

Variables which never enter the equation: income, occupation, rural residence, education, other needs in the community and other problems with patient-physician relationship.

approach in considering an independent variable significant only if  $p < .001$ , we cannot consider sex a factor.

Did people turn to nurse practitioners primarily because no doctor was available in that community? Or did they resort to nurse practitioners because they were skeptical of the motives of doctors or because they have had problems with the patient-physician relationship? Regression analysis indicates that both were significant factors, with "doctor not available" having slightly more influence (Table 1). Of the 317 who reported experience with nurse practitioners, 59 (18 percent) indicated no doctor available was a moderate to serious problem. Fifty of the 317 users rated high on the skepticism index. All the variables together, however, explained only 7 percent of the variance. Among the variables which never entered the equation were income and rural residence.<sup>6</sup>

Respondents who had experience with nurse practitioners reported a high rate of satisfaction: 55 percent said they were very satisfied with the care given, and 34 percent said they were generally satisfied. Only 11 percent reported they were somewhat to very dissatisfied with the care they received from a nurse practitioner.

Although use of nurse practitioners varied somewhat by age, by the presence of a doctor in the community and by an attitude of skepticism about doctors, satisfaction with the services of nurse practitioners did not vary in any way that we could consider significant. Table 2 shows this.

<sup>6</sup>"Rural" as used in the U.S. Census can mean anything from barely outside a city to an area terribly remote from all civilization. To make the concept of "rural" more meaningful, we have adopted the guidelines stated in Appendix C.

Table 2. Satisfaction with nurse practitioners by demographic, community and personal variables.

| Independent variables    | Standard beta     | Standard beta     | Standard beta     |
|--------------------------|-------------------|-------------------|-------------------|
| <b>Demographic</b>       |                   |                   |                   |
| Sex                      | .12 <sup>1</sup>  | .12 <sup>1</sup>  | .12 <sup>1</sup>  |
| <b>Community</b>         |                   |                   |                   |
| Need specialists         |                   | .14 <sup>2</sup>  | .13 <sup>1</sup>  |
| <b>Personal</b>          |                   |                   |                   |
| Skepticism about doctors |                   |                   | -.13 <sup>1</sup> |
| R <sup>2</sup>           | .01               | .03               | .05               |
| R <sup>2</sup> change    |                   | .02               | .02               |
| F for equation           | 4.23 <sup>1</sup> | 5.07 <sup>2</sup> | 5.17 <sup>2</sup> |

<sup>1</sup>F sig  $p < .05$

<sup>2</sup>F sig  $p < .01$

Variables which never enter the equation: Age, income, occupation, rural residence, education, no doctor available, other needs in the community and other problems with patient-physician relationship.

## Willingness To Use Nurse Practitioners For Personal Care

We asked respondents to indicate how willing they thought they would be to have a nurse practitioner perform certain medical services, regardless of whether the respondent had had previous experience with a nurse practitioner (Fig. 2). These questions were answered by nearly all the 1,300 respondents.

Most of the people surveyed indicated they would be very willing to have a nurse practitioner perform a variety of tasks related to their personal medical care. Taking medical history, doing routine tests and treating wounds and burns were all very acceptable tasks for a nurse practitioner. Also acceptable to a majority of the respondents were "diagnose and refer to a doctor" and for emergencies. Prescribing drugs was not generally an acceptable task. Had this item been modified to read "prescribe a limited variety of drugs under supervision of a doctor or pharmacist" as is presently the requirement in Idaho, responses might have been different.

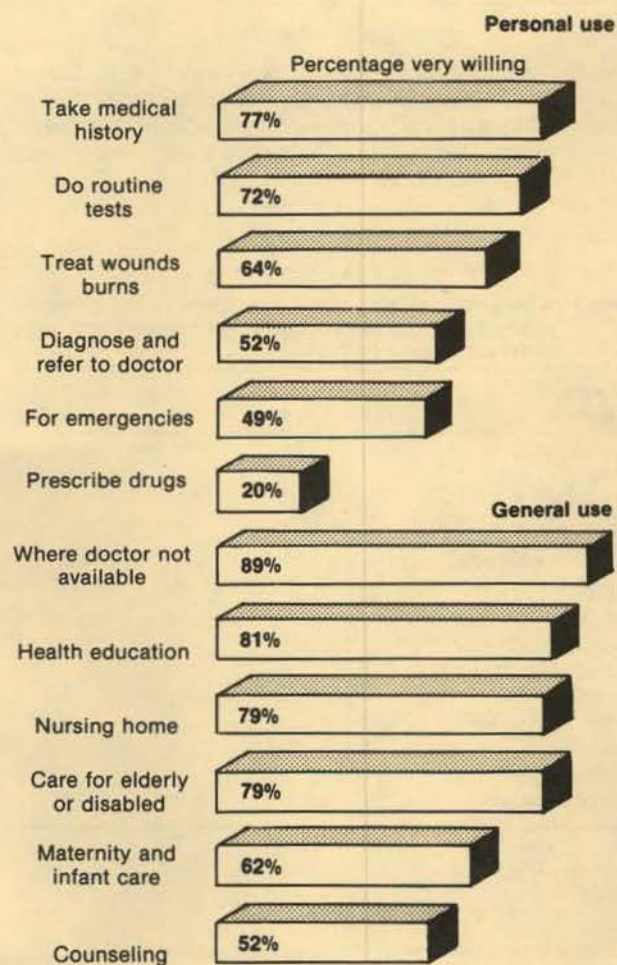


Fig. 2. Willingness to use nurse practitioners.

Interitem correlations indicated that if a person were willing to have nurse practitioners perform one personal care task, he/she would be willing to have most personal care tasks performed.<sup>7</sup> For that reason, we combined responses for all personal tasks into a single index variable by summing the numerical values of the responses. This "willingness" variable was used as the dependent variable for multiple regression analysis.

Since only those respondents who had had experience with nurse practitioners answered the question on how satisfied they were with the care they received, it would be invalid to include use and satisfaction variables in the same regression equation. The two variables were combined, therefore, into a single variable called "satisfactory use of nurse practitioners."<sup>8</sup>

Among the demographic variables, age was significantly related to willingness to use nurse practitioners for personal care (Table 3). Older people would be less likely to turn to nurse practitioners as would those with higher incomes. Sex, income and a rural residence were apparently not factors. Rural residents were apparently as willing as urban residents to use nurse practitioners.

<sup>7</sup>Alpha = .92

<sup>8</sup>This variable (Usesat) was created as follows: If a respondent had not used a nurse practitioner, Usesat was coded as 1. If he/she had used a nurse practitioner but was dissatisfied, Usesat was coded as 2. If he/she had both used a nurse practitioner and been satisfied, Usesat was coded as 3.

**Table 3. Willingness to use nurse practitioners for personal medical care by demographic, community and personal variables.**

| Independent variables             | Standard beta      | Standard beta      | Standard beta      |
|-----------------------------------|--------------------|--------------------|--------------------|
| <b>Demographic</b>                |                    |                    |                    |
| Age                               | -.24 <sup>3</sup>  | -.25 <sup>2</sup>  | -.21 <sup>3</sup>  |
| Income                            | -.10 <sup>2</sup>  | -.11 <sup>2</sup>  | -.10 <sup>2</sup>  |
| <b>Community</b>                  |                    |                    |                    |
| Need specialists                  |                    | -.12 <sup>3</sup>  | -.11 <sup>3</sup>  |
| Need more doctors                 |                    | .09 <sup>2</sup>   | .08 <sup>1</sup>   |
| <b>Personal</b>                   |                    |                    |                    |
| Satisfactory prior use            |                    |                    | .23 <sup>3</sup>   |
| Long wait for doctor appointments |                    |                    | -.12 <sup>2</sup>  |
| Long wait in doctor's office      |                    |                    | .10 <sup>2</sup>   |
| R <sup>2</sup>                    | .05                | .06                | .13                |
| R <sup>2</sup> change             |                    | .01                | .07                |
| F for equation                    | 25.71 <sup>3</sup> | 16.64 <sup>3</sup> | 20.22 <sup>3</sup> |

<sup>1</sup>F sig p < .05

<sup>2</sup>F sig p < .01

<sup>3</sup>F sig p < .001

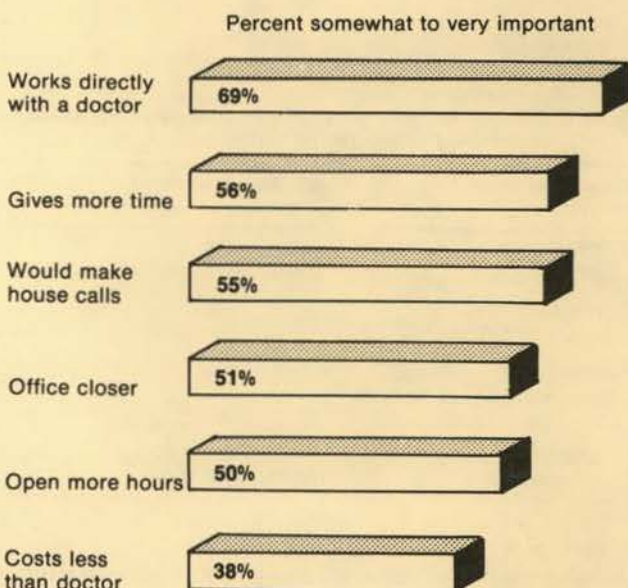
Variables which never enter the equation: Sex, occupation, rural residence, education, no doctor available, other needs in the community and other problems with patient-physician relationship.

As with the actual use of nurse practitioners, we were interested in whether people were influenced in their potential willingness by a lack of health care facilities and personnel in their local community or by an attitude of skepticism toward doctors or personal problems relating to a physician. The only community lack that appeared to be of any significance was the need for more specialists (Table 3). Prior satisfactory experience in the use of nurse practitioners did appear to influence attitudes positively toward future use. Altogether, only 13 percent of the variance in willingness to use nurse practitioners for personal care is explained.

### Willingness To Use Nurse Practitioners For General Care

Some people may not be willing to go to a nurse practitioner for their personal medical care but might be willing to have nurse practitioners used in certain general health situations (Fig. 3). The difference between this question and the previous one is specificity: people may consider nurse practitioners useful in the community but not for their own personal medical care.

The overall response was that nurse practitioners would be very useful in most of these situations (Fig. 3). The most useful situations for employing a nurse practitioner were judged to be where a doctor is not available or to conduct health education classes. Caring for nurse home patients and for elderly or disabled persons were also seen as valid uses of nurse practitioners. Other very acceptable assignments were for maternity and infant care and for personal or family counseling.



**Fig. 3. Reasons for using a nurse practitioner's services.**

While the interitem correlations among the tasks under general care were not as large as those for tasks under personal care, people did tend to respond in similar fashion. If they were willing to have one general task performed by nurse practitioners, they were usually willing to have most general tasks so performed. A single index variable was created to cover all general tasks listed and used as the dependent variable for further analyses.<sup>9</sup>

As with the study's other sections, multiple regressions were run with demographic variables. These went along with needs in the community and with personal variables including the index variables "satisfactory prior use of nurse practitioners" and "skepticism toward doctors" and the list of problems in the patient-physician relationship.

None of the demographic variables was significantly related to willingness to use nurse practitioners for general health care (Table 4). The only community variable we can consider of significance was the need for health education. No personal variables were significantly related to a willingness to use nurse practitioners in the future, and no combination of variables explained more than a very minor proportion of the variance.

### Reasons for Potential Use of Nurse Practitioners

In addition to asking people how willing they might be in the future to use a nurse practitioner for personal medical care, we also asked what might be

<sup>9</sup>Alpha = .79. The index variable was created by summing all the responses.

Table 4. Willingness to use nurse practitioners for general health care by demographic, community and personal variables.

| Independent variables    | Standard beta     | Standard beta     | Standard beta     |
|--------------------------|-------------------|-------------------|-------------------|
| <b>Demographic</b>       |                   |                   |                   |
| Sex                      | -.09 <sup>2</sup> | -.07 <sup>1</sup> | -.07 <sup>1</sup> |
| <b>Community</b>         |                   |                   |                   |
| Need health education    |                   | .12 <sup>3</sup>  | .14 <sup>3</sup>  |
| Doctor not available     |                   | -.08 <sup>1</sup> | -.08 <sup>2</sup> |
| <b>Personal</b>          |                   |                   |                   |
| Lack of courtesy, doctor |                   |                   | -.09 <sup>2</sup> |
| Satisfactory prior use   |                   |                   | .09 <sup>2</sup>  |
| R <sup>2</sup>           | .01               | .03               | .04               |
| R <sup>2</sup> change    |                   | .02               | .01               |
| F for equation           | 7.96 <sup>2</sup> | 9.81 <sup>3</sup> | 9.35 <sup>3</sup> |

<sup>1</sup>F sig p < .05

<sup>2</sup>F sig p < .01

<sup>3</sup>F sig p < .001

Variables which never enter the equation: Age, income, occupation, rural residence, education, other needs in the community and other problems with patient-physician relationship.

factors in the decision to go to a nurse practitioner. The largest group of respondents would be willing to go to a nurse practitioner only if she/he works directly with a doctor. More than half thought it would be a somewhat to very important factor in their decision if the nurse practitioner would make house calls or would give more time and personal attention than they currently receive (Fig. 3). Somewhat less important would be if the nurse practitioner's office were open more hours or in a more convenient location than a doctor's office. "Cost less than a doctor" was the least important reason.

## Summary

Ways to extend health care in rural areas where physicians are not willing or able to set up a practice need to be sought by communities. Nurse practitioners are one among many alternatives available for consideration.

Rural health appears to be less robust than that in urban communities, judging by a higher death rate for rural areas. At the same time, health personnel (particularly primary care physicians) are lacking in rural areas and appear not to be willing to relocate to rural practices in sufficient numbers. Nurse practitioners are one alternative to partially fill the gap. Community support, however, is essential to the survival of a nurse practitioner clinic. This report examines the potential for that support.

Nurse practitioners practice either associated with a physician in a clinic or detached but in touch by telephone or otherwise. Training programs result in either a certificate or a degree. Tasks performed by nurse practitioners vary by specialty for which they are trained, by practice setting and by length of training. Demographics indicate most are female, white and with an average age of 33 at the beginning of nurse practitioner training.

Problems encountered by nurse practitioners include professional acceptance by physicians, other nurses and hospitals. Patient acceptance does not seem to be a major problem as long as the nurse practitioner is supported by the employing physician. Some nurse practitioners feel the tasks delegated to them are not as extensive as those in their "practice policies." The prescribing and dispensing of drugs appears to be a particularly controversial area.

Legal questions about the status of nurse practitioners raise the specter of malpractice suits, but none has been recorded in the literature. Financial concerns center around restrictions on third-party payments and the cost of maintaining a clinic that requires some minimum population in the service area.

Attitudes can also be problems for nurse practitioners. The traditional social roles of nurses and women expect them to be submissive to male roles, but the nurse practitioner needs to be assertive if she is to be professionally competent. The nurse practitioners' self-image may be of as much significance as the attitudes of others.

Despite these problems (and possibly others), the nurse practitioners now employed seem to be successful in terms of acceptance by employing physicians and patients. Also, they are successful in terms of the effectiveness of their care.

A statewide survey in 1981 bears out the potential usefulness of nurse practitioners in Idaho. Respondents from our survey who reported experience with the use of nurse practitioners for primary care tended to be in the younger age groups, to have no doctor available and to be somewhat skeptical of doctors. Income was not a significant factor. Users appeared to be spread proportionately over rural and urban areas. A high rate of satisfaction was reported.

Most respondents indicated they would be willing to use nurse practitioners for personal medical care, regardless of whether they had had past experience with nurse practitioners. Acceptable tasks were taking medical histories, doing routine tasks and tests, treating wounds and burns and emergencies. People were willing to have the nurse practitioner diagnose problems and refer patients to a doctor for treatment but were not generally willing to have her/him prescribe drugs. Younger people and those who lived in communities where there were not enough specialists were most willing to go to a nurse practitioner for personal medical care. Willingness was also somewhat enhanced when the respondent had prior satisfactory care from a nurse practitioner.

Nurse practitioners were considered potentially useful in general health care situations such as health education, nursing homes, care of elderly or disabled, maternity and infant care or counseling. They were also deemed an acceptable potential substitute when a doctor is not available. A satisfactory prior experience did not significantly enhance willingness to use nurse practitioners for general health care, but a perception that health education was lacking in the community did have some effect.

Reasons that people mentioned as important to their potential use of nurse practitioners were if she/he made house calls or gave more time and personal attention. "Cost less" was the least important reason.

No difference existed in use or in potential use related to a rural vs. urban residence. This indicated that nurse practitioners are as acceptable in rural areas as elsewhere in the state.



## Recommendations

Specific recommendations have been suggested by the discussion of nurse practitioners. Some are related to possible changes within the profession, and others are related to cautions to be observed by a community before setting up a nurse practitioner clinic.

The objections of other professionals to nurse practitioners must be taken seriously. The nurse practitioner can function effectively only to the extent that she (he) is part of the health care team.

Changes in image and self-image may be necessary before nurse practitioners can practice with optimal efficiency. Changing the name from nurse practitioner to something that more clearly identifies the role, such as "health specialist," might help this process. It has also been suggested (Bliss and Cohen 1977) that nurse practitioners should have their own separate professional organization instead of attaching to present nurses' associations.

Thorough training in psychological and emotional problems could extend the usefulness of nurse practitioners in relieving the physician of some of the duties he may find particularly onerous. These duties could be the extensive and sometimes depressing work with elderly patients, dealing with patients' emotional problems, handling death, or work that only reassures the patient or helps him cope with chronic illness.

Consideration should be given by policymakers to changing some of the legal and financial barriers in the use of nurse practitioners. Sullivan (1978) pointed out that some of the most useful activities of nurse practitioners such as patient teaching and counseling are not insurance reimbursable services.

The possibility for using nurse practitioners for rural primary care appears to be favorable. A few admonitions, however, are in order if a community is considering steps to step up a nurse practitioner clinic.

Economic considerations are paramount. Is there sufficient potential patient load? Will services be insurance reimbursable? Will it be necessary to subsidize the clinic? Legal considerations may be a further barrier, varying from state to state.

Attitudes in a community considering a nurse practitioner should be assessed carefully. Cautions are evident from our survey. Age was a factor in willingness to use nurse practitioners for personal medical care. Older people were less likely to have

used nurse practitioners and thought they would be less willing to do so in the future. Once they did use such services, however, they were as likely as others to be satisfied with their care. This would imply that if nurse practitioners are to be used in a geriatric facility or where there is a large elderly population, some resistance might be met initially.

People were most willing to have nurse practitioners perform routine tasks. It might be a good idea to bring a nurse practitioner into a community gradually, possibly on a part-time basis and possibly by having her/him take on responsibilities a few at a time.

Nurse practitioners were considered most useful and acceptable only if she/he works directly with a doctor. In many states, the nurse practitioner must be under the review of a licensed physician, whether in the same community or at some distance. It also appears necessary to have doctors who have been delivering primary care to the community endorse, promote and enthusiastically support the nurse practitioner. A clinic set up in competition with usual sources of health care would have a difficult time.

Skepticism about the doctors' motives and possibly some problems relating to physicians appeared to influence how willing a respondent might be to use a nurse practitioner for personal medical care. Problems of this nature, however, with the local doctor(s) are not a valid reason for setting up a nurse practitioner clinic when there are not also sufficient other reasons. No matter what remedy is undertaken, there will always be some disgruntled patients since dissatisfaction can arise not only from aspects of the medical system but from the patient's personal characteristics.

Emergencies were considered one useful area for nurse practitioners. No doubt, that is where they would be called on a great deal in rural areas, even by people who resisted using their services otherwise. Nurse practitioners, however, cannot replace a good ambulance system, well-trained emergency medical technicians and rescue or quick response squads. The emergency component needs community commitment, including some local funding. The nurse practitioner clinic and the emergency system can be partners, giving much mutual support.

Health education is an area that seems to be a good potential use of nurse practitioners. She/he, however, must not compete with the local health

department. Rather, the nurse practitioner could be a useful catalyst to help patients understand what services are available from the public health department. Then it would be appropriate to offer health education beyond that available otherwise.

People must understand, also, that health education must be paid for, either directly by the patient or indirectly through health insurance or a taxpayer subsidy. Patients tend to feel that if a doctor or nurse practitioner writes no prescription or per-

forms no specific task, no care has been given, and no fee should be charged. Yet the evidence is increasing that health education may do more than any other single activity to improve health and reduce health care costs.

With these cautions in mind, it appears that nurse practitioners could help. They are one among several viable alternatives for improving the quality of rural primary care.

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## Appendix A

### Tasks Performed by Nurse Practitioners

Tasks performed by nurse practitioners in Idaho vary by length of training (Ashizawa and Merrell 1975). Of those with more than 7 months of training, at least 75 percent were performing the following duties:

1. Suturing lacerations which do not involve nerves, tendons or major blood vessels.
2. Applying topical ophthalmic anesthetic.
3. Applying rib belts, soft splints, dressings and clavicle splints.
4. Initiating emergency drug therapy that may include I.V. therapy.
5. Removing foreign bodies from surface of cornea.
6. Assessment of chronic disease status with modifications of regimen and therapy.
7. Debriding wounds, burns and animal bites.
8. Diagnosing and instituting initial therapy for acute infections of the ear and referring to physician.
9. Diagnosing and treating uncomplicated adult illness.
10. Administering local anesthetic.
11. Diagnosing and treating uncomplicated childhood diseases.
12. Removing sutures.
13. Diagnosing and treating uncomplicated gynecological problems, and referring complicated problems to physician.
14. Monitoring, evaluating effectiveness and modifying treatment regimes as appropriate for rehabilitation.
15. Prescribing contraceptives.
16. Recommend and counsel on appropriate birth control.
17. Abortion counseling and/or referral.
18. Screening and referral of children with complicated problems requiring differential diagnosis and selective therapies.
19. Initiating laboratory tests.
20. Performing routine pelvic examinations and pap smears.
21. Monitoring, evaluating effectiveness and modifying treatment regimes as appropriate for drugs.
22. Monitoring, evaluating effectiveness and modifying treatment regimes as appropriate for diet.
23. Visual field testing.
24. Prescribing and writing prescriptions for medications that are permitted by written policies signed by the physician(s) with whom the practitioner is associated.
25. Initiate referrals to other agencies.
26. Diagnosing and treating uncomplicated urinary tract infections.
27. Performing laboratory tests.
28. Interpret lab findings.
29. Initiate or modify therapy based on interpretation of lab findings.
30. Initiating and/or performing immunizations.
31. Well-child care.
32. Performing and recording a physical examination that includes inspection, auscultation, palpation and percussion.
33. Eliciting and recording a complete history.
34. Making both physical and psycho-social assessments.

Of the 70 functions listed, an additional 13 were performed by at least half the nurse practitioners with more than 7 months training — a total of 47 functions. The nurse practitioners with less than 7 months training, however, performed substantially fewer of these functions.

## Appendix B

### Highlights — Regulations for Prescribing and Dispensing Drugs, Nurse Practitioners in Idaho

1. A nurse practitioner who wishes prescription writing authority must, among other requirements, document all pharmacology courses, and present a signed statement from her supervising physician that he considers her qualified.
2. The categories of drugs that the nurse practitioner may prescribe are limited to:
  - a. Antihistamines, decongestants, expectorants and antitussives.
  - b. Antibiotics (Probenecid when prescribed for treatment of gonorrhea in conjunction with penicillin).
  - c. Nonnarcotic analgesics/muscle relaxants.
  - d. Topical steroid preparations.
  - e. Antipruritics.
  - f. Topical eye, ear, nose and throat preparations, excluding ophthalmic steroids.
  - g. Antinauseants and antidiarrheals.
  - h. Contraceptive agents and devices.
  - i. Dietary supplements, i.e., iron, vitamins, including fluorides.
  - j. Antifungals, anthelmintics, scabicides and pediculicides.
  - k. Topical anesthetics.
  - l. Immunizations and vaccines (Biologicals).
3. The nurse practitioner may not write prescriptions for controlled substances.
4. Prescription forms must contain the names of both the nurse practitioner and the supervising doctor.
5. The nurse practitioner may also deliver pre-dispensed medication when a pharmacist is not available, regarded as an emergency period. This should be done in consultation with a pharmacist and limited to the categories in No. 2 unless directed otherwise by the supervising physician.
6. Medication for family planning, communicable disease and chronic disease are exempt from the emergency period.
7. Physicians retained some control over nurse practitioner licensing in that the agreement with the supervising physician must be in conformance with rules and regulations of the Idaho State Board of Medicine. A representative of the Board of Medicine also participates in the pre-licensing interview.
8. The Board of Nursing retained the right to discipline nurse practitioners but must promptly notify the Board of Medicine of any complaints received and disciplinary proceedings against nurse practitioners.

A nurse practitioner may order refills for other drugs originally prescribed by the supervising physician for patients with stable chronic illness.

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Source: State of Idaho 1980.

## Appendix C

### Counties by Rural, Semirural or Urban Categories

#### 1. 100% rural and/or no towns more than 2,500 population

|        |        |         |        |
|--------|--------|---------|--------|
| Adams  | Camas  | Lewis   | Owyhee |
| Blaine | Clark  | Lincoln | Teton  |
| Butte  | Custer | Oneida  | Valley |

#### 2. 59 to 99% rural and/or no towns more than 10,000 population

|           |            |           |            |
|-----------|------------|-----------|------------|
| Bear Lake | Clearwater | Gooding   | Minidoka   |
| Benewah   | Elmore     | Idaho     | Payette    |
| Bonner    | Franklin   | Jefferson | Power      |
| Boundary  | Fremont    | Jerome    | Shoshone   |
| Cassia    | Gem        | Lemhi     | Washington |
| Caribou   |            |           |            |

#### 3. 0 to 49% rural and/or at least one city more than 10,000 population

|         |            |           |            |
|---------|------------|-----------|------------|
| Ada     | Bonneville | Latah     | Twin Falls |
| Bannock | Canyon     | Madison   |            |
| Bingham | Kootenai   | Nez Perce |            |

## Appendix D

### Questionnaire — Items Relating To Nurse Practitioners

In recent years, there has been much discussion about using nurse practitioners to help doctors or in areas where a doctor is not available. A nurse practitioner is a registered nurse (RN) with additional medical education and training.

Q-13. Have you ever used the services of a nurse practitioner? (circle answer)

75% 1 NO

25% 2 YES (If Yes)

How satisfied were you with the care given? (please circle answer)

55% 1 VERY SATISFIED

34% 2 GENERALLY SATISFIED

6% 3 SOMEWHAT DISSATISFIED

5% 4 VERY DISSATISFIED

Q-14. Whether or not you have used the services of a nurse practitioner (NP), do you think you would be NOT WILLING, SLIGHTLY WILLING, SOMEWHAT WILLING or VERY WILLING to have a nurse practitioner perform the following tasks? (circle number)

|                                           | NOT<br>WILLING | SLIGHTLY<br>WILLING | SOMEWHAT<br>WILLING | VERY<br>WILLING |
|-------------------------------------------|----------------|---------------------|---------------------|-----------------|
| A. Take your medical history.....         | 4% 1           | 4% 2                | 15% 3               | 77% 4           |
| B. Do routine tests for you .....         | 4% 1           | 6% 2                | 18% 3               | 72% 4           |
| C. Treat your wounds, burns .....         | 7% 1           | 8% 2                | 21% 3               | 64% 4           |
| D. Treat your illnesses .....             | 25% 1          | 21% 2               | 25% 3               | 29% 4           |
| E. Treat illnesses of your children ..... | 29% 1          | 22% 2               | 23% 3               | 26% 4           |
| F. Treat illnesses of females only.....   | 34% 1          | 20% 2               | 24% 3               | 23% 4           |
| G. Treat illnesses of your whole family.. | 28% 1          | 21% 2               | 24% 3               | 27% 4           |
| H. Diagnose and refer to doctor .....     | 13% 1          | 15% 2               | 20% 3               | 52% 4           |
| I. Prescribe drugs for you .....          | 40% 1          | 20% 2               | 20% 3               | 20% 4           |
| K. Other (please specify) _____           | 1              | 2                   | 3                   | 4               |

Q-15. Below are a number of reasons one might have for using the services of a nurse practitioner. How important would each reason be to you in deciding to go to a nurse practitioner (NP)? Please indicate if the reason would be NOT IMPORTANT, SLIGHTLY IMPORTANT, SOMEWHAT IMPORTANT or VERY IMPORTANT to you. (circle number)

|                                                                  | NOT<br>IMPORTANT | SLIGHTLY<br>IMPORTANT | SOMEWHAT<br>IMPORTANT | VERY<br>IMPORTANT |
|------------------------------------------------------------------|------------------|-----------------------|-----------------------|-------------------|
| A. If NP cost less than doctor .....                             | 46% 1            | 17% 2                 | 22% 3                 | 16% 4             |
| B. If NP closer or more convenient than<br>doctor's office ..... | 33% 1            | 19% 2                 | 24% 3                 | 25% 4             |
| C. If NP would make house calls .....                            | 27% 1            | 19% 2                 | 23% 3                 | 32% 4             |
| D. If NP's office open more hours than<br>doctor's.....          | 31% 1            | 19% 2                 | 24% 3                 | 26% 4             |
| E. If NP gave more time and personal atten-<br>tion .....        | 27% 1            | 17% 2                 | 23% 3                 | 33% 4             |
| F. Only if NP works directly with a doctor .                     | 17% 1            | 15% 2                 | 25% 3                 | 44% 4             |
| G. Other (please specify) _____                                  | 1                | 2                     | 3                     | 4                 |

Q-16. In general, how *useful* do you feel a nurse practitioner would be for each of the following? (circle number)

|                                                  | NOT<br>USEFUL |   | SLIGHTLY<br>USEFUL |   | SOMEWHAT<br>USEFUL |   | VERY<br>USEFUL |   |
|--------------------------------------------------|---------------|---|--------------------|---|--------------------|---|----------------|---|
| A. To care for nursing home patients . . . . .   | 1%            | 1 | 4%                 | 2 | 16%                | 3 | 79%            | 4 |
| B. To conduct health education classes . . . . . | 1%            | 1 | 3%                 | 2 | 14%                | 3 | 81%            | 4 |
| C. To care for elderly or disabled . . . . .     | 1%            | 1 | 3%                 | 2 | 17%                | 3 | 79%            | 4 |
| D. For maternity or infant care . . . . .        | 4%            | 1 | 8%                 | 2 | 26%                | 3 | 62%            | 4 |
| E. For personal or family counseling . . . . .   | 9%            | 1 | 13%                | 2 | 27%                | 3 | 52%            | 4 |
| F. In an area where a doctor is not available    | 1%            | 1 | 3%                 | 2 | 8%                 | 3 | 89%            | 4 |



## SERVING THE STATE

Teaching . . . Research . . . Service . . . this is the three-fold charge of the College of Agriculture at your state Land-Grant institution, the University of Idaho. To fulfill this charge, the College extends its faculty and resources to all parts of the state.

**Service** . . . The Cooperative Extension Service has offices in 42 of Idaho's 44 counties under the leadership of men and women specially trained to work with agriculture, home economics and youth. The educational programs of these College of Agriculture faculty members are supported cooperatively by county, state and federal funding.

**Research** . . . Agricultural Research scientists are located at the campus in Moscow, at Research and Extension Centers near Aberdeen, Caldwell, Parma, Teton and Twin Falls and at the U. S. Sheep Experiment Station, Dubois and the USDA/ARS Soil and Water Laboratory at Kimberly. Their work includes research on every major agricultural program in Idaho and on economic activities that apply to the state as a whole.

**Teaching** . . . Centers of College of Agriculture teaching are the University classrooms and laboratories where agriculture students can earn bachelor of science degrees in any of 20 major fields, or work for master's and Ph.D. degrees in their specialties. And beyond these are the variety of workshops and training sessions developed throughout the state for adults and youth by College of Agriculture faculty.