A Case Report in a Rural Health Center

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An experiment utilizing nurse practitioners in the delivery of health care in a rural Nebraska community is described. In spite of several reorganizations, over a 2 1/2-year period of study, the project failed in terms of patient utilization. Visit rates began at 300 per month and increased to a high of 825 until the community perceived that the nurse practitioner was interposed between themselves and the primary physician. Rates then dropped to 375 and the community withdrew from the project. Implications for rural health projects using ancillary personnel are discussed.

From November 1972 to April 1975, the Department of Family Practice at Creighton University participated in an experiment in health-care delivery involving utilization of nurse practitioners in the primary care of patients in a small rural community approximately 40 miles from the urban center. This paper provides a partial description of this experiment and will not undertake to explore all of the many complex reasons which contributed to the failure to attain the established goals of the experiment, but rather will highlight what appears to be the overriding influence on the final outcome, since this information may be of importance to the many people who are now experimenting in new models of health-care delivery systems.

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A Rural Health Project

In 1971, a small community of 2,000 people in a farming area, with an overall population of approximately 10,000, comprising families in the aggregate of above-average income expectations for a rural community, was suddenly left without any physician coverage. This situation was not unique, and there are many such communities in the state of Nebraska, as in other rural areas. What did make this community unique was the fact that a group of citizens from the community, since they had been unable to recruit a physician on their own, indicated that they would be interested in participating in a new approach to delivery of health care in order that their community might have better access to medical care.

After consultation with the community group, a plan was devised providing for utilization of physician assistants or nurse practitioners as the primary source of patient care. The plan was implemented by Creighton University and the community in November 1972. After being implemented, funding for the project became critical, and because of the financial problems incurred, a

grant application was submitted to the Robert Wood Johnson Foundation for a three-year period in the amount of $209,000. It was only through the funds granted by this agency that it became financially feasible to conduct this experiment over a two-year period.

The basic plan of the project was to use nurse practitioners for delivery of primary care in the community; to have back-up physician coverage on an intermittent basis for complex medical problems; and, to also have the nurse practitioners in close contact with the university at all times by telephone communication. The nurses selected for the project were registered nurses, one of whom lived in the community and had previously worked for one of the physicians who had left the community. These nurses were given special training at the university before the project was initiated.

As mentioned earlier, this article is in no way an attempt to describe the many complex ramifications of this project, which would involve such factors as the geographic location, the financial status of the members of the community, the previous training of the nurse practitioners, and other factors. This paper undertakes instead to focus on one major issue—that is, that residents of the community never did accept the concept of a nurse practitioner as a substitute for a primary physician as their first entry, engagement, or contact into the health-care system.

Repeated analysis of the patient records consistently showed that the quality of care rendered in this setting was satisfactory, and there were no major problems in patient care encountered during the 2 1/2 years of operation of the clinic. As pertains to organization of services, during the entire period of operation of the clinic, the nurse practitioner was the first source of entry to the health-care delivery system for the patients, a practice which continued even after a full-time physician was brought into the community. The nurse practitioner also accepted all emergency calls at night and on weekends, although there was always physician back-up.

The graph in Figure 1 reflects the monthly patient volume of the clinic over the 2 1/2 years of operation. The university participation in the project was terminated by mutual agreement of the community and the university in April 1975, and the project was continued for several months under the direction of a private physician from a neighboring community.

The summary tabulation (Table 1) reflects utilization depicted in the graph correlated with the successive stages of development of staffing of the project, ie, Stage I—initial staffing with part-time physicians; Stage II—the addition of limited consultation visits by pediatrics and obstetrics practitioners; and, Stage III—initial assignment of a full-time resident family practitioner in lieu of partial coverage by visiting physicians.

Stage I

As seen from the first year of operation, November 1, 1972 through October 31, 1973, the average patient census was approximately 350 patients per month, and there was no significant tendency for this number of visits to increase. Because of the relatively low utilization of the program, an effort was made to seek out members of the community and interview them to determine the reasons for this unexpectedly low utilization of the medical facility. It was determined, from these interviews, that many people did not consider nine hours per week of physician coverage adequate to meet their expectations; however, at this time there was no real indication that the patients objected to the nurse practitioner being the initial contact on entry into the medical care system.

Stage II

On November 1, 1973, with the information that the community desired more physician coverage, the university began to send representatives from the pediatrics and obstetrics department, one afternoon a week, respectively, so that the physician

coverage was increased from approximately nine hours per week to 15 hours per week. The graph shows a rather significant increase when this increased physician coverage was initiated, reflecting 500 average monthly visits during this Stage II period, as compared with 350 during Stage I.

Stage III

In an attempt to further improve the utilization of the facility, the university actively recruited a full-time physician to live within the community and serve as director of the medical facility. An excellent family physician was recruited who had been in a busy private practice for 20 years and who was very interested in the challenge of developing a new approach to health-care delivery systems.

In July 1974, the physician came to live in the community. He was quite conversant with the concept of utilizing the nurse practitioner. It was his opinion that this was a very workable plan, and he concurred in the organized objectives of the plan, ie, establishing the nurse practitioner as the first person for patient contact in utilizing the health-care delivery system. The physician routinely saw all patients initially on their first visit to the clinic, and did take time to explain that in future visits, the patient would be seen by the nurse practitioner initially, and possibly treated by her under protocol developed by the physician. The patient was also advised that the physician would always be available for consultation if necessary. As can be noted in Figure 1, there was a dramatic and immediate increase in number of visits from 645 visits in June to 825 visits in July of 1974, the month when this full-time physician began serving the community.

In October 1974, the level of utilization began tapering off rapidly and shows a very precipitous decrease in utilization, having decreased to 385 visits in March 1975. The physician himself was deeply concerned with this development and met repeatedly with members of the community and the board in an effort to identify the problem and reverse this trend. Despite the enthusiasm among members of the board about the objectives of this program for utilizing nurse practitioners, it was obvious in talking with residents of the community, the consumers, that they were not satisfied with the fact that the nurse practitioner was their first contact on entry into the health-care system.

Discussion

The following discussion represents the authors' interpretation of the project in terms of utilization. The figure of 350 patient visits per month represents a baseline figure of utilization which might be anticipated from any minimal service health-care facility. This might possibly have been all that was necessary in this community. The increase in utilization during Stage II to about 500 patients per month most likely reflects the increase in hours of physician coverage. The dramatic increase of utilization in July 1974 probably reflects the fact that residents in the community perceived this new doctor as their family physician based on their previous concepts and experience. The deterioration of utilization appears to demonstrate the fact that the people in the community learned that this physician was not what they perceived to be their own family physician; rather they concluded that their care was still being rendered primarily by nurse practitioners and this, apparently, was unacceptable to them as patients.

As stated earlier, this paper does not address itself to all the facets of why this particular project failed, and there are, of course, many factors which contributed to the failure. Other factors notwithstanding, however, there is abundant evidence that the people in this community were unwilling to accept the nurse practitioner as their initial point of entry into a health-care system. Even though the leading members of the community insisted that their community was willing to support

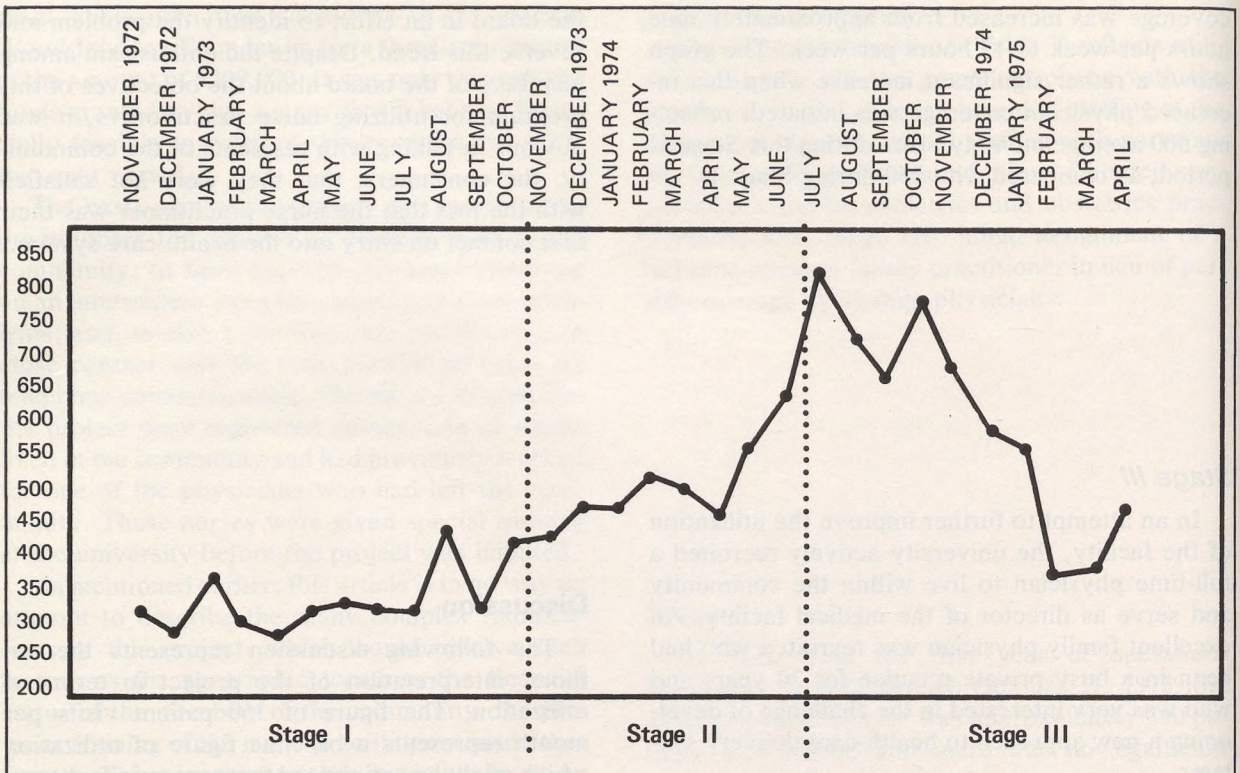

Figure 1. Cottonwood Health Center, Number of Patient Visits, November 1972 through April 1975

this experimental model in delivery of health care, in reality, the consumers in the community did not agree and were therefore unwilling to accept this concept. The obvious conclusion, after 2 1/2 years, was that this type of model did not function in this particular rural community.

One cannot draw the conclusion that nurse practitioners in themselves are not effective, or that they cannot, in fact, fill a productive role in health-care delivery systems in an appropriate setting properly organized. However, the experience reflected by this project must be taken into account in the future, particularly with respect to evaluating the effects of patient response when anticipating or planning for the use of any ancillary medical pesonnel in health-care delivery systems, whether it be a physician assistant or a nurse practitioner. It appears that, in this project, the prospective patients in this particular rural community were showing that they, as individuals, by personal determination, still wanted to use a primary physician as their first contact on entry into the health-care system. They demonstrated that they would exhaust other means, including traveling considerable distances, or forego health care rather than use this form of health-care delivery. This seems to represent the same message that was clearly brought out in both the Millis[1] and

Table 1. Summary of Utilization Experience during Successive Stages of Professional Staff Development

Stage of Development	Period of:	Average No. of Visits	Monthly High/Low Visit Experience Peak No. of Visits	Low No. of Visits	Personnel Coverage
Stage I	November 1, 1972 to October 30, 1973	350	445	285	Nurse practitioner, 8 hrs/day, 5 days a week Consulting Physician, 3 hrs/day; 3 days wk
Stage II	November 1, 1973 to June 30, 1974	500	645	425	Nurse practitioner, 8 hrs/day Consulting physician 3 hrs/day; 3 days wk OB coverage, 3 hrs/week (1 aft) PED coverage, 3 hrs/week (1 aft)
Stage III	July 1, 1974 to April 15, 1975	632	825	375	Nurse practitioner, 5 days/week, full-time resident family physician

Note: Potential visits of the service area population of 10,000 persons, utilizing a factor of 2.4 visits per person, would be 24,000 visits annually, or 2,000 visits per month related to a straight line average and full penetration of the population.

Willard Reports[2]—that the people want a personal physician on their entry into the health-care delivery system.

The fact that this attempt failed should not in itself discourage the use of ancillary personnel. However, the functional manner in which these ancillary personnel are inserted into the system is extremely important, if not in fact crucial, to the ultimate success of any such endeavor.

Although this project failed to meet established goals and objectives designed to serve this particular community, the experience described herein and the lessons learned may well be invaluable in the planning, development, and organization of any new programs in the future.

Acknowledgement

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