The Role, Training, and One-Year's Experience of a Medical Nurse Practitioner

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THE MEDICAL NURSE PRACTITIONER (MNP) is one type of health worker who is prepared to assume some of the traditional patient-care responsibilities of the physician. Some of the published descriptions of the role of the medical nurse practitioner are hypothetical, and others are based on actual experience (*1–6*). The performance of the MNP, however, has been evaluated in only a small number of studies (*1,2*). Although suggestions have been made for training curriculums (*3*), most reports based on experience do not identify the specific training.

In this report we describe the training, role, and 1-year's experience of a MNP at the Terrace Village Health Center in Pittsburgh, Pa. The center is a primary care facility that serves a low-income housing project of about 1,900 families and 5,000 persons. It provides episodic (patient-initiated) medical care, supervision of patients with chronic illnesses, multiphasic screening, counseling, health education, and social and psychological services. The performance of a pediatric nurse practitioner at the center has been evaluated and published (*7*).

Nurse Practitioner Concept

Assumptions. The plans for training a medical nurse practitioner at the Terrace Village center were based on four general assumptions. The first assumption was that the MNP would be responsible for patient triage but would not perform all of it. While complex cases, such as the multiproblem family, would likely require triage by the MNP, routine triage for many persons could be done under her supervision by staff members with less training (for example, a nurse assistant or a receptionist).

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A second assumption was that the MNP would work independently in managing patients with certain types of problems. In such instances, she would receive only general guidance from a physician, and she would function as a practitioner by making clinical judgments and acting on them.

The third assumption was that the MNP would be a member of a health care team giving comprehensive service rather than a technical or clinical specialist in a narrow area of practice. The team would include a social worker, community health workers, and a physician, as well as the MNP. Each team member would have exclusive functions, but many would overlap; although one member might manage a patient with an acute problem, over time most patients would have some contact with all members of the team.

The fourth assumption was that the MNP would retain her identity as a nurse. Since much of the MNP's function depends on her nursing training and skills, her role as a practitioner was considered to be a logical extension of nursing rather than a simplified or restricted practice of medicine.

Areas of practice. It also was necessary at the outset to define which areas of medical practice might be included in the province of an MNP. The first area considered was evaluation of well adults. The MNP could supervise all screening, take "check up" histories, perform physical examinations for young adults, and determine whether these patients need care. These functions are analogous to those of well child care, an accepted area of pediatric nurse practitioner competence (*7,8*). Well adult care would also include immunizations, nutrition, health education, and family planning.

The second area of practice was management of patients with stable chronic diseases. Satisfactory management of such patients by nurses has been reported (*1,2,5,6*). At Terrace Village the MNP would conduct much of the routine monitoring of chronically ill patients and tell them about the implications of and the restrictions imposed by their diseases. The physician would always be available for consultation. The illnesses considered appropriate for MNP management were hypertension, diabetes, atherosclerotic heart disease, arthritis, obesity, chronic depression, and psychophysiologic reactions.

The third area proposed for MNP responsibility was acute self-limited illnesses such as colds, sore throats, acute viral syndromes, minor trauma, rashes, and skin infections. The MNP would work from sets of standing orders and procedures drawn up for a variety of common ailments. Emphasis would be placed on danger signs that indicate more serious illness or complications for which the physician must be consulted. Certain patients such as those with known unstable chronic illness or patients with certain complaints such as severe chest pain or purulent cough would be assigned by initial triage to the physician.

Training Program

The MNP training program included three basic types of learning experience—didactic, clinical, and case conference—and several ancillary structured components, including laboratory techniques, field visits to other facilities, and consultation with the staff psychiatrist. The 6-month program was conducted by the physician and other professional staff at the health center.

Didactic sessions were held twice weekly throughout most of the training period. They began with history taking and interview techniques; organization of patients' data within the conceptual framework of a problem-oriented record system (*9,10*); and physical and mental status examinations, similar to the way they were being performed at the health center. Later sessions dealt with common acute conditions in primary practice, preventive care, and maintenance of patients with chronic diseases.

The clinical sessions dealt first with preventive care for well persons and gradually became more involved with care of sick patients. Discussion was first centered on the information-gathering aspects of a patient encounter, then on diagnostic or judgmental aspects, and finally on the treatment or disposition phase. The MNP progressed at different rates in mastering the various types of clinical duties she was asked to undertake. She first became competent in physical examinations and family planning consultation. She then assumed responsibility for patients with a limited variety of acute illnesses, and later she began managing chronically ill patients who made routine visits, while also broadening her scope in treating patients with acute conditions.

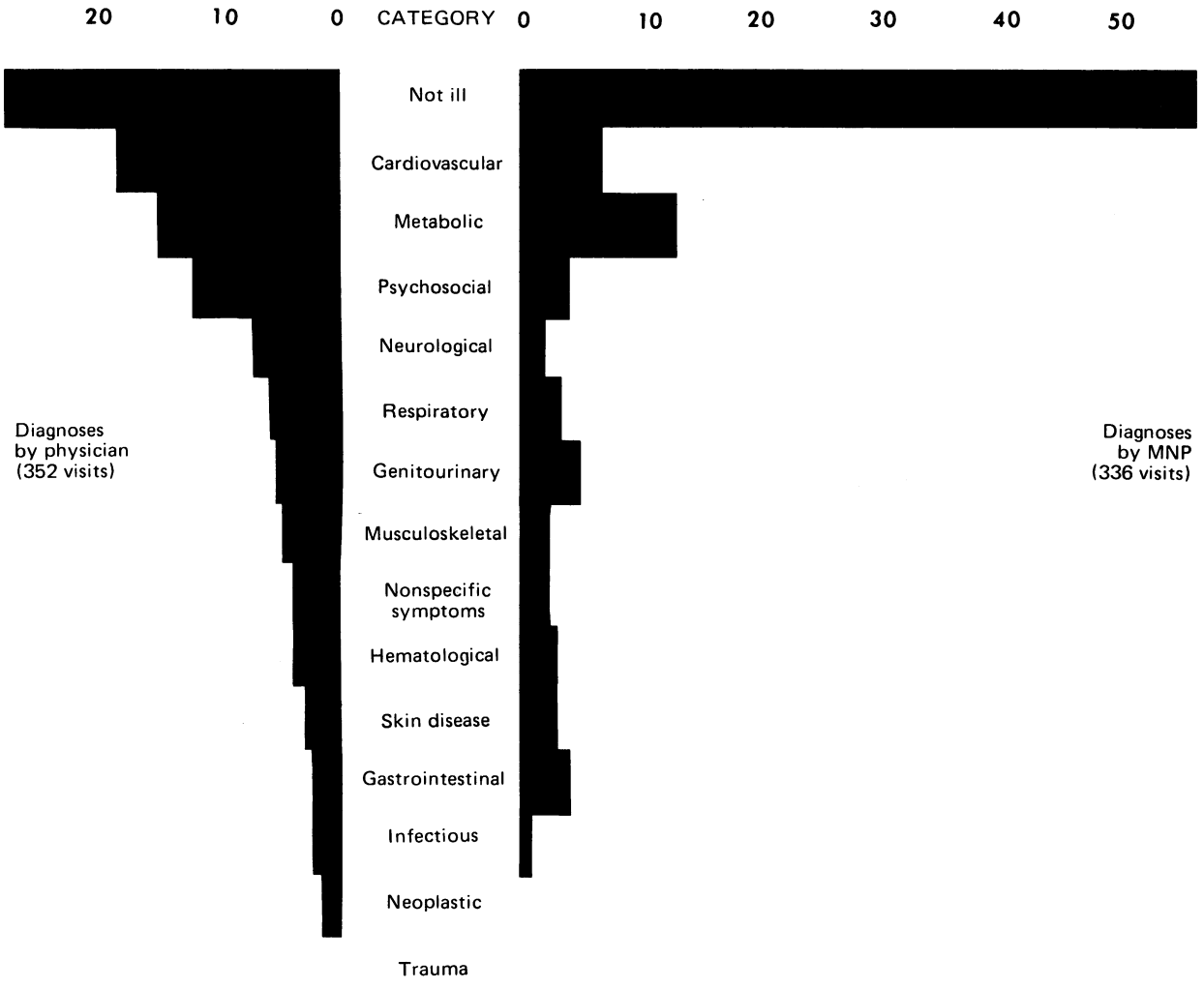
A third aspect of training was the case presentation conference in which an attempt was made to develop a health care plan for a patient or an entire family. Members of the health center pediatric team, the psychiatric consultant, and the project social service staff often participated in these conferences.

During the training program, the physician spent 2 hours a week for didactic teaching, 1 hour a day for informal discussion, and 2 to 3 hours a day as a preceptor. The role of the project physician as a teacher and consultant for the MNP continued after the 6-month formal training period, and through their mutual practice a colleague relationship developed between the two. Three nurses have completed the training program.

Practice Experience

A 1-year practice experience of the first MNP who completed the training program was evaluated. The MNP saw patients whose complaints fell within her designated areas of practice. During 1971 an encounter form was completed at the end of each medical care visit of patients seen by the project physician or the MNP. Type of visit, primary care provider, procedures performed, consultation, referral, diagnosis, and disposition

Figure 1. Percentage of diagnoses made at the time of patients' health assessment visits by the physician and the medical nurse practitioner in 1971, according to diagnostic category

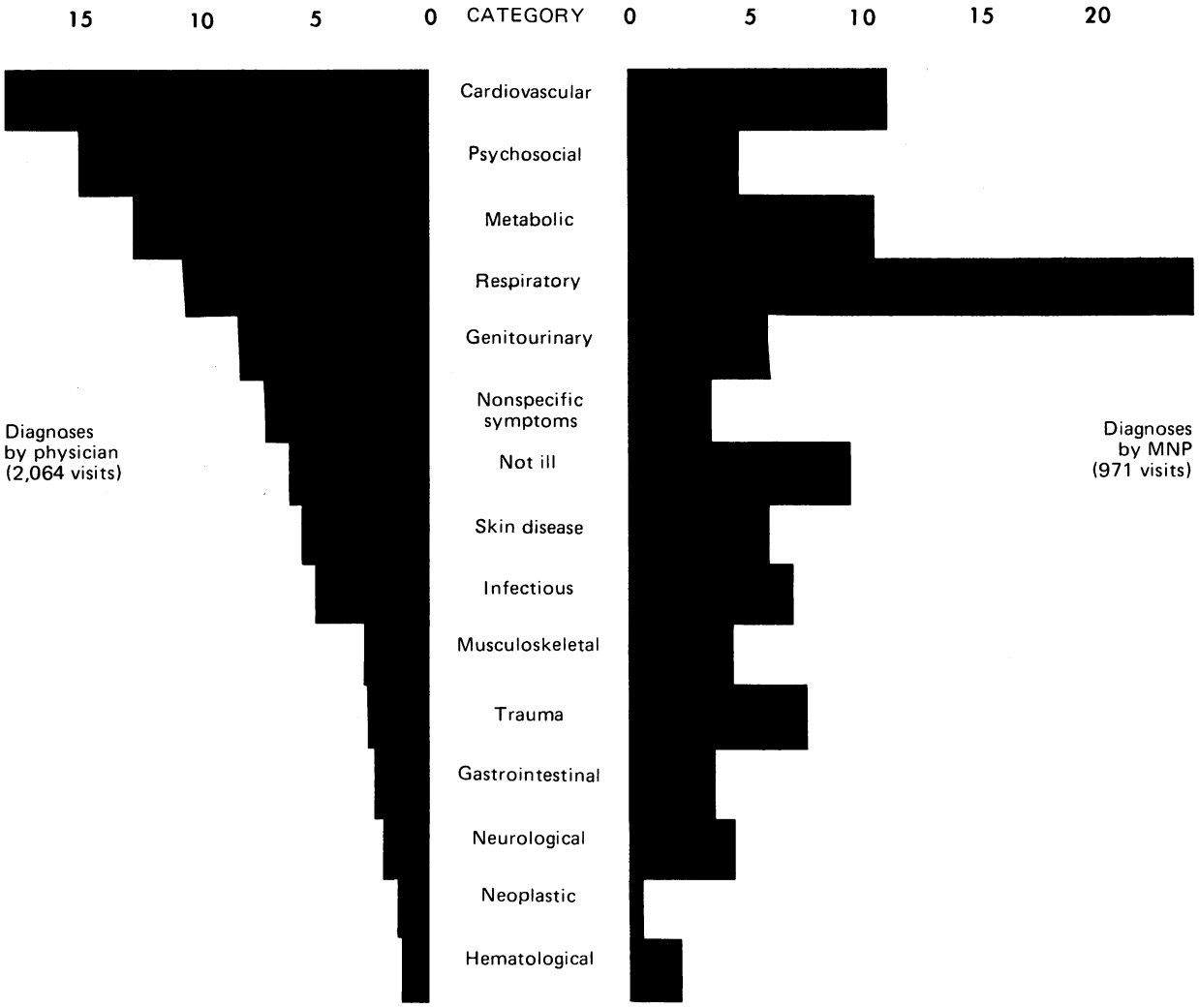


were recorded on the form. A record was also made of failed appointments. Charts of the first 100 persons who had a "normal" health assessment were reviewed, and information was obtained on subsequent use of the health center by this cohort.

During 1971 the physician and the MNP managed 3,094 medical care visits made by adults (over 15 years old). The types of visits were broken down into the following four major categories: (*a*) assessments, 366—general health evaluation including history and physical examinations, (*b*) returns, 919—health-center initiated for followup or health maintenance, (*c*) episodes, 1,525—patient-initiated because of illness, and (*d*) screening, 220—predominantly multiphasic. New patients were often scheduled for two visits, the first for screening and the second for assessment. For all types of scheduled visits, there were 17 percent failed appointments. Of the total number of visits, the MNP managed 43 percent of the assessments, 30 percent of the returns, 37 percent of the episodes, and 71 percent of the screening. The MNP handled almost 40 percent of all patient contacts.

The diagnoses made by the physician and the

Figure 2. Percentage of diagnoses made at the time of patients' episodic and return visits by the physician and the medical nurse practitioner in 1971, according to diagnostic category



MNP at the time of assessment, episodic visits, or return appointments are shown in figures 1 and 2. The diagnoses are shown as percentages of the entire visit load managed by either the MNP or the physician, thus giving a diagnostic profile of each one's practice. More than 70 percent of the nurse's assessments were of patients in the not ill or metabolic (obesity) categories. On the other hand, only 26 percent of the physician's assessments were of not ill persons, while 46 percent were cardiovascular, metabolic (primarily diabetes), or psychosocial diagnoses. About two-thirds of the diagnoses for the MNP's return and episodic patients were respiratory, cardiovascular (usually hypertension), metabolic (usually obesity), not ill, or trauma.

An analysis was made of the 15 most common specific diagnoses made for patients who were ill (51 percent of all illness diagnoses) and the proportion of patients with these conditions who were managed by the MNP. The MNP managed half or more of the patients with upper respiratory infections, otitis media, otitis externa, soft-tissue trauma, and gonorrhea. She also managed one-third to one-half of the patients who had muscle or back strain, dermatitis or eczema, hy-

pertension, diabetes, obesity, and urinary tract infection.

The procedures performed by staff members in medical care visits during the first 9 months of 1971 are shown in the table. The MNP took 68 percent of the Papanicolaou smears and conducted about 40 percent of the history taking and interviewing, physical examinations, and venipuncture. Laboratory and screening tests were performed most commonly by the nurse assistant under the supervision of the MNP.

During 3 months of 1971, the MNP dispensed medications in 38 percent of the visits she managed and gave prescriptions (presigned by the physician) in 16 percent. The physician dispensed medications in 27 percent of the visits he managed and prescribed drugs in 33 percent. Overall, the physician prescribed or dispensed medications in 60 percent of the visits he managed and the nurse in 54 percent of the visits she managed.

The MNP gave or prescribed medications most frequently (67 percent of the visits) for a regimen that she had initiated or for a change in a dosage that she had independently determined. In other cases, she continued previous regimens (20 percent) or the regimen was determined after consultation with the physician (13 percent). The MNP made 22 percent of all the referrals to the Terrace Village social worker or nutritionist and 17 percent of the referrals to outside facilities such as emergency rooms or specialty clinics.

Consultation. The physician was always available for consultation when the nurse was seeing patients. When she referred a patient to the physician for management it was considered part of her triage function, and the physician then became the primary care provider. The transaction was classed as a consultation when the MNP consulted the physician and continued in the role of primary care provider. The physician did not always see the patient before advising the MNP. The physician consultations for the final quarter of 1971 for three categories of visits—episodes, returns, and assessments were as follows

Type of visit	*Number handled by MNP*	*Percentage of consultations*
Episodes	145	27
Return visits	123	34
Assessments	101	19
Abnormal findings	29	48
Normal findings	72	6
Total	369	27

Assessment visits were divided into those in which examination findings were normal and those that were abnormal. Consultation rates were 8-fold greater for the abnormal findings than for the normal. Thus, the MNP handled 39 percent of the visits in the three categories, and she consulted the physician for more than 25 percent of them.

The physician actually saw 56 percent of the patients about whom he was consulted, and he discussed the remaining patients' problems with the MNP. The reasons for consultation included questions of altering or initiating treatment (44 percent), abnormal physical findings (26 percent), requests by the nurse for the physician to repeat examinations (19 percent), and abnormal results of laboratory tests (11 percent). No consultations were made for patients' questions or requests to see the physician.

Followup of well adult cohort. A review was made of the charts of the first 100 adults who were assessed as "normal" during their initial visit in 1971. The mean age at the time of assessment

Procedures performed in medical care visits during the first 9 months of 1971

Procedure	Number	Percent performed by—		
		Physician	MNP	Nurse assistant
Complete or partial physical examination	1,720	62	38	..
History taking and interview	2,021	59	41	..
Venipuncture	337	59	41	..
Papanicolaou smears	124	32	68	..
Laboratory test at health center [1]	1,079	11	24	65
Electrocardiogram	86	4	15	81
Screening of vision and hearing	553	.....	5	95

[1] Urinalysis, hematocrit, and various screening cultures.

was 26, and 87 percent of the 100 patients were women. The patients had been followed for an average of 13 months at the time of this review. The results of the followup for 33 patients assessed by the physician and 67 patients assessed by the MNP were as follows:

Followup	*Physician (33 patients, 153 visits)*	*MNP (67 patients, 356 visits)*
Number patients with initial complaint	18	22
Percent crossover contacts	28	34
Percent routine and preventive care	27	34
Percent psychosocial visits	30	28
Percent failed appointments	9	9
Visits per person per year	4.0	4.7

Persons who initially had a complaint for which they sought evaluation were more likely to have been seen by the physician ($X^2 = 4.34$, $P < 0.05$). The physician and the MNP each handled most of the subsequent visits of their patients, but 32 percent of the visits involved crossover. Between the two groups of patients, the number of visits per year, failed appointments, routine preventive services, and visits for psychosocial reasons were not significantly different.

Discussion and Conclusions

This study was limited by the size, setting, and kind of measure or descriptors used. First, it dealt with a tutorial and apprenticeship relationship between one physician and one medical nurse practitioner in a single practice. The observations have not been duplicated for additional MNPs, although two have now completed a similar training program at Terrace Village.

Second, the setting in which the study was conducted is atypical with respect to most primary care facilities. The center, which offers free care in a poverty neighborhood, differs in many ways from the usual medical practice. Third, we were concerned with the processes of health care rather than measuring outcome in terms of improved health of patients. It was not feasible to measure separately the outcomes of supervision by the MNP and the physician because neither one followed a defined patient cohort but participated as a team in patient management. The charts of the MNP were audited throughout the year by the project physician, and he was satisfied with both her professional knowledge and performance. Also, the MNP was well-accepted in the community and sought out by many patients.

The findings of the study indicated that the MNP did in fact carry out the functions proposed for her practice and for which she was trained. Her experience has implications for the pattern and content of expanded practice of nurses in a primary care facility. The pattern of the MNP function we described is that in which the nurse and the physician form a medical care unit as part of a larger health team. Some patients have problems that are suitable for care by the nurse, and other patients see the physician on most occasions. Most patients receive care from both professionals over time, and they become accustomed to having certain situations handled by one rather than the other.

This pattern at Terrace Village is in contrast to those described by Schulman and Wood (*2*), Runyan and associates (*5*), and Lewis and associates (*11*) that deal with chronically ill persons, a designated number of whom are followed up by the nurse as the primary provider of care. The Terrace Village pattern in which the patient visits are intermixed between the MNP and the physician may be more applicable to widespread use in private medical practice than the cohort approach.

The context of a nurse-physician unit is only one possible framework for MNP practice. In the experience described, the positive relationship was valuable for both patient care and professional satisfaction. Each complemented the other in handling a different aspect of the same health care practice. However, other arrangements are possible and should be explored. The MNP may work in a clinic setting, relating to two or more physicians, or may work independently at a site remote from medical consultation.

With regard to content, 22 percent of the visits managed by the MNP were for well adult services compared with 8 percent of the visits managed by the physician. Twenty-five percent of the MNP's patient contacts were for evaluation (assessment and screening), while only one-sixth of the physician's practice was of that type. Likewise, the nurse took 68 percent of the Papanicolaou smears, since she performed most of the well assessments. These findings suggest that promotion of preventive care for adults is a feasible part of the expanded nurse role. Health facilities previously available to Terrace Village residents were hospitals, clinics, and emergency rooms, all of which contributed to a crisis-oriented pattern of

utilization. The MNP role allowed the center to emphasize positive aspects of health, such as screening, nutrition, and education.

The largest component of MNP practice was episodic acute illness, which accounted for one-half of the visits handled by both the physician and the nurse. Schulman and Wood (*2*) have shown that an MNP can handle the intercurrent problems that occur in a cohort of chronically ill patients. At Terrace Village, the nurse saw persons with a wide range of problems and she immediately triaged those whose problems were outside her capability. She managed 39 percent of all acute illness visits and diagnosed and independently treated most of these patients. However, when she did consult the physician, the most frequent single reason was about a question of treatment (44 percent). The relative importance of acute illness in this nurse's practice was unexpected but, in retrospect, both reasonable and desirable. Community people who knew of the MNP through "healthy" contacts soon came to rely on her for "expanded nursing care" when they felt sick, recognizing that through her they had access to a full complement of more specialized services when needed.

The project physician and the MNP were available for patient care for various periods, which approximated 144 work days each during the year. The nurse independently managed an average of eight patients per day, while also assisting the physician when necessary. The physician managed an average of 13 patients per day, not including MNP consultations and supervision. The absolute productivity of the team in terms of patient visits in 1971 was small because the center is a demonstration and training project. The relative productivity of the nurse was smaller than might be expected because the patient load included a large proportion of people with acute and chronic illnesses. More persons with multiple, incapacitating conditions are likely to be seen in a low-income housing project than, for example, in a suburban residential area. Therefore, we believe that an MNP similarly trained but working in a private medical practice could handle a larger share of the patient load. On the other hand, "visits per day" is not in itself an accurate measure of productivity. More time spent with each patient, more understanding of the person, and an investment in health education will in the long run be more productive than numerous episodic contacts.

Finally, visits classed as psychosocial constituted a smaller part of the nurse's "sick" practice (4 percent) than the physician's (15 percent). This finding initially appeared contrary to our expectation that the MNP would be a listener and counselor. However, in retrospect, in a medical practice relatively little emotional support is offered to persons who are given psychiatric labels. The most support is usually given to persons who are "well" or who have problems such as family planning questions, headaches, tiredness, or loss of appetite. The physician was nearly four times more likely to see patients thought to be mentally ill. On the other hand, in the followup of 100 well persons, the MNP and the physician had approximately the same proportion of visits with psychosocial content. This is suggestive evidence that the MNP gave as much emotional support as the physician to well adults.

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