Pediatric Nurse Practitioners —Issues in Training—

BONNIE BULLOUGH, RN, PhD, JOSEPH W. ST. GEME, MD, and CHARLOTTE G. NEUMANN, MD

PEDIATRIC NURSE practitioners can perform routine medical services in a manner which is not only safe for the patient but satisfactory to the child, his mother, and his physician, according to a growing body of literature (*1,2*). While the evaluation of these services will undoubtedly continue, the question for some health planners now has shifted from one of whether we should train nurse practitioners to how we can best prepare them. The experimental training course described here was developed to provide additional insight regarding the academic preparation for pediatric nurse practitioners.

In the fall of 1970, representatives from various Los Angeles health care agencies met to explore the possibility of developing a course to train nurses for expanded roles in the health management of well children and children with minor illness. This group included representatives from the Los Angeles County Health Department, several hospital outpatient departments, Head Start, and two Los Angeles comprehensive health clinics. Consultants from the Schools of Medicine and Nursing, University of California at Los Angeles, also helped with planning the course.

All the authors are with the University of California at Los Angeles. Dr. Bullough is an associate professor in the School of Nursing, Dr. St. Geme is in the Department of Pediatrics, School of Medicine, Harbor General Hospital, and Dr. Neumann is in the Department of Pediatrics, Ambulatory Services, at the School of Medicine. *The project was sponsored by pilot grant funds from the Regional Medical Program, Area IV, State of California.* *Tearsheets requests to Dr. Bonnie Bullough, associate professor, School of Nursing, University of California, Los Angeles, Calif. 90024.*

Despite efforts to locate adequate funding, substantial financial support was unavailable. Although the Area IV Regional Medical Planning official supplied a classroom, clerical help, a part-time nurse coordinator, and a small cash grant, no money was available to employ an instructional staff. The steering committee, nonetheless, decided to proceed with the course and volunteered to teach. It was important to analyze the problems of curriculum design and to obtain experimental data to facilitate future training programs when money might become available. The course began in May 1971 with 17 nurses enrolled.

One issue discussed by the planning committee was length of the course. The original pediatric nurse practitioner curriculum developed by Henry Silver and Loretta Ford at the University of Colorado was a 4-month intensive course with approximately 20 hours of didactic work and 20 hours of clinical practice each week. This course was followed by an unspecified amount of practice in the field (*3*). Since this was the first and most well-known formal course of its type, it was used as a model, and 4 months became the norm for training nurse practitioners. The joint statement of the American Nurses' Association and the American Academy of Pediatrics (*4*) also suggested a minimum of 4 months for a course; however, it recommended only 4 hours of lecture and 8 to 12 hours of supervised clinical practice per week and the remaining time for on-the-job experience. Although both courses were 4 months, the ANA-AAP course seemed less intensive than the Colorado one.

As patterns other than the familiar 4-month course were studied, it became apparent that the range of possibilities was wide. St. Geme had begun an experimental course in 1967 that was modeled on the medical curriculum. This 21-

month course included four segments: fundamentals of pediatric science, physical diagnosis, clerkship, and internship. The two nurses who were trained in this program performed well on examinations and in subsequent practice. In analyzing the data collected in this trial, St. Geme and co-workers concluded that the course might well be shortened to 12 months (*5*). But even 12 months seemed unrealistic to the agency representatives of our planning committee, who argued that they could not afford to release nurses and continue their salaries for such a long time. They were also concerned that without some stipend the nurse practitioners would feel no responsibility for returning to their former employers. It was the goal of the agency representatives on the steering committee to plan a maximum educational experience with a minimum disruption of their agency schedules.

On the other hand, the Los Angeles County Health Department was not completely satisfied with its inservice efforts to train nurses in the extended role. In 1967 the county health department course was set up with 6 half-days of instruction, supplemented by supervised practice in the nurse's clinical setting; it was gradually lengthened to 2 weeks (80 hours). One nurse who took the early short version of the course said that it was "more of a blessing than a course." It is interesting that the 6 half-days of instruction could serve as a rite of passage without offering a substantial body of new knowledge.

That nurses could extend their role in this manner without substantial new educational preparation has been seen in other agencies in California (*6*), perhaps because of the considerable overlap in the role of the community health nurse and the pediatrician. Nurses have traditionally given nutritional advice, helped mothers with behavioral problems, and assessed developmental progress when they visit children in homes or when they see them after the physician has seen them in the clinic. These skills could easily be transferred to the setting of well-baby evaluation. Moreover, public health nurses usually have baccalaureate degrees in nursing, and the nursing curriculum contains several courses in the behavioral sciences. Their formal educational backgrounds for advising mothers has often been better than that of physicians, whose basic science background is more often in the physical or biological sciences rather than in the social sciences. The major deficiency in the background of the nurse is in physical diagnosis; for this function, she requires new background knowledge and new manual skills.

The committee concluded that the shortest time for instruction in physical diagnosis was 1 month. The instruction in that month was to be intensive—3 to 4 hours each day in the classroom for lecture or discussion and 4 hours in the clinical setting to learn the rudiments of physical diagnosis. This initial month was to be followed by a 6-month internship under the supervision of a pediatrician preceptor in the student's agency, who would be a clinical supervisor and teacher. The total program was to be 7 months.

Questions were raised about the best approach to specialty content—whether to have several visiting lecturers, such as a nutritionist, an ophthalmologist, a cardiologist, and a neurologist, or whether to have most of the instructions delivered by a smaller staff having more limited knowledge in these highly specialized fields. Because of the voluntary characteristic of the faculty, the specialist option was taken, and many of the classes were conducted by guest lecturers or the students examined children in specialty clinics. Thirty-five teachers participated in the classroom or clinical instruction, or both.

Another question about curriculum and instructors arose when nurses on the steering committee asked for the preservation of a nursing focus in the course so that graduates would not lose their identity as nurses. Some nurses are concerned that identity loss will occur as nurse practitioners become an established group. Because of this concern, approximately half of the lectures were given by nurses, and considerable attention was given to upgrading traditional skills in interviewing, counseling, and developmental assessment.

Evaluation

Sixteen of the 17 enrolled students completed the course. Student progress in this experimental program was measured by a written pretest and post-test, as well as concurrent written tests which covered lectures and assigned readings. In the pretest and the post-test, there were 80 items which covered common questions of pediatric diagnosis and management. Following are the pretest and post-test scores of the 16 students.

Scale	*Pretest*	*Post-test*
Range	43–72	54–73
Median	57	67
Mean	57	66

When the students took the same test 7 months later, the mean gain on the test was 9 points although the students with the lowest scores tended to show the most progress. At the end of the first intensive month of training, students were observed by a pediatrician as they performed a physical examination. At this point all but one of the students were rated as satisfactory. At the end of the 7 months, they were again evaluated by a pediatrician other than their own preceptor. These pediatricians indicated that all of the nurses were able to perform a well-baby examination and that the mothers of the infants they examined seemed to accept the nurses as satisfactory agents of primary health care.

Research data were also gathered from questionnaires, which were administered before the course started and at the end of 7 months; student evaluations submitted at the end of 2 weeks, 1 month, and 7 months; and from questionnaires completed by the students' preceptors and nursing supervisors.

From these sources, as well as the informal observations of the faculty members, it was concluded that the overall format of the program was workable but that the initial 1-month introduction was too short and too intensive. Thirteen of the 16 nurse practitioners who finished the program said that 1 month was too brief, but that 6 weeks would be sufficient time to cover all material. They explained that the hectic pace of the 1 month left them too little time for reading, reflection, and the necessary travel to the clinics. Some students and faculty members also noted that important items had been omitted from the curriculum. For example, the orientation to cardiac anatomy and physiology was so brief that the students had difficulty in understanding the source of the cardiac sounds they heard.

Since some physicians supervised more than one nurse, there were nine preceptors. When their questionnaires were tabulated, only two stated unequivocally that the 1-month orientation period was too short, but several others argued that the pace was too hectic or that more supervised clinical experience was needed before the student returned to the agency for her internship. It was concluded that the introductory section of the course should be lengthened to at least 6 weeks.

On the other hand, the 6-month internship seemed long enough to both students and preceptors, although 9 of the 16 students expressed some dissatisfaction with the supervision they received in their home agencies. While the preceptors were chosen because they supported the movement to train and to use nurse practitioners, some were too busy to give as much supervisory time as the students felt they needed. The agency physicians freely admitted that the students' complaints were valid. They realized that more supervision was needed, but they simply did not have the available time for more teaching. It seemed obvious that a regular rotating faculty member was needed to supplement the supervision of the agency physician.

The comments written by the students at the end of the first month were also helpful in evaluating the use of guest lecturers. The large number of instructors, including the numerous guest specialists, fragmented the course. Although the instructors who were most closely involved with the planning of the program were better able to assess the biomedical background of the students, some of the guest lecturers had difficulty directing their presentations at the appropriate level. Special meetings were held or telephone contact was made with each of these volunteer teachers to orient them to the knowledge level of graduate nurses. One such contact proved insufficient. Some of the lectures were too technical and seemed to have been aimed at physician residents within the lecturer's medical subspecialty, while other speakers seemed to equate an audience of nurses with a lay audience. For example, the ophthalmologist carefully demonstrated elementary visual screening techniques, while the nurses, particularly those from the health department, had long years of experience screening hundreds of children in this fashion. Since the students were nurses, they listened to the physician politely rather than giving him the immediate helpful feedback that a more emancipated student body might have given. It was concluded that it might be better to sacrifice some of the special expertise of the guest lecturers and have a smaller faculty who could be better oriented to the needs of the students. This decision of course means that a paid faculty is crucial, since it is possible to ask many people to give a small amount of time, but

it is impossible to request large blocks of volunteer time from skilled instructors.

Most of the nursing lectures and discussions were led by the senior author (a nurse-sociologist) or a pediatric nurse practitioner, who is a member of the School of Nursing faculty of the University of California at Los Angeles. There were also three guest lectures by nurses. Several of the students indicated, either in the written evaluations or less formally, that they wanted less material from nurses and more from physicians. Since their immediate concerns in the course were to learn physical diagnosis and medical management of children, they considered the nursing focus peripheral to their goals. They argued that they were more familiar with material covered by the nurses, and that even when it was new knowledge they would rather pick it up later. Thus the nursing material might be reduced, although it would probably be unwise to have an all-physician faculty. Some of the students found the role-change to be anxiety provoking and turned to the nursing faculty for emotional support, as well as for some practical help in managing the course and their experience in their agencies.

Opinions of Supervisors

Since completion of the course, the students have been functioning as nurse practitioners in their agencies. Reports from their physician and nursing supervisors indicate that all are performing at a satisfactory level. When evaluated by their physician preceptors, the nurses were found to be fully competent in the performance of histories and physical examinations, as well as in the formulation of clinical diagnoses that deviated from the diagnoses made by the physicians in only minor ways.

The physician and the nurse supervisors were asked to indicate the level of medical supervision that they considered appropriate for the nurse practitioner. Although none thought that the physician needed to be in the same room to give over-the-shoulder surveillance to the nurse practitioner, the majority indicated that the physician should be in the same building when patients were being seen so that he could be consulted when necessary. Only 2 of the 16 nursing supervisors and 1 of the 9 physicians took the more radical position that physicians were needed only for referrals; 5 supervising nurses and 3 physicians indicated that if the physician could not be in the building, telephone contact would be adequate.

The belief that a physician consultant should be readily available was shared by the nurse practitioners. The fact that the practitioners requested more medical supervision during their 6 months' clinical experience suggests their inherent caution. No preceptor indicated that the nurse he rated was overconfident, but several preceptors suggested that the student needed more confidence. One physician indicated that he was pleased that his student was attending seminars at a nearby hospital, not because he believed she lacked knowledge, but because he felt the experience might give her more confidence. This behavior is not surprising in light of the traditional socialization process in nursing; students have been taught to avoid risks and to leave most of the decision making to the physician.

Despite the caution of the nurse practitioners, reports indicate that they are making significant contributions to patient care. All the nursing supervisors stated that they were making effective use of the practitioners in their clinics, although half of the practitioners were still carrying their old nursing responsibilities in addition to their new expanded role. Several physicians were enthusiastic about the new role of the nurse and indicated that they now have more time to spend with the seriously ill problem patients.

Changing Attitudes and Work Roles

Some important changes have taken place in the students. Twelve of the 16 students reported that they are more satisfied in their jobs than before. Since only two of them have received pay raises since beginning the course, this increased satisfaction must necessarily be on the intrinsic level. All the students reported that their work roles have expanded because of the course, and 10 described this expansion as significant. Half expressed the belief that they are of more value to their employers than before the course. Because of their new needs for information and perhaps because of increased interest in their jobs, most of the practitioners are reading more. Thirteen indicated that they not only are reading more nursing literature but also are reading medical journals, which they had not done before.

To better evaluate the change in work roles, a scale of independent action in medical manage-

ment was used. Twelve items were presented that described common pediatric problems and a traditional response to these problems. The following items are examples:

1. A child is brought in with a runny nose, no fever, slightly red throat. You send the child home after counseling regarding an upper respiratory infection.

2. A mother is distressed because she found her 2½-year-old boy examining his sex organs with interest. You tell her this is not an uncommon event.

3. Upon physical examination you suspect a dislocated hip. You order an X-ray of the hip.

The nurse practitioners were asked to indicate their probable response to these situations, using a scale from 1 to 5. The responses listed were: never, only upon direct order from the physician, after physician consultation, most of the time, and always. While a completely independent nurse practitioner could score 60 on this scale, only one of the graduates attained this level at the end of the program. However, all but two of the group moved toward more independence during the 7 months. As indicated in the tabulation that follows, the mean score on the pretest was 42, while it was 48 at the end of the 7-month course.

Independent action scale	*Before*	*After*
Range	34–56	38–60
Median	42	49
Mean	42	48

Often the change in rating on the item was only one step—for example, from "only upon direct order from the physician" to "after physician consultation." These findings support the impression gained from the questionnaires completed by the physician and nursing supervisors that although the graduate nurse practitioners are moving toward more independence, they are still somewhat cautious about the level of responsibility they are allowed or are willing to take.

Conclusions

In general, the attempt to build a curriculum for nurse practitioners preserving the close tie between the student and her employer was successful, and it was possible to draw some tentative conclusions about curriculum design from the experimental effort. The intensive introductory segment, followed by an internship, seems to be a useful model for this type of education, although there was general agreement that 1 month was too brief for the beginning segment. The current steering committee plan is to lengthen the introductory segment to 6 weeks when the course is offered again.

Students want the primary emphasis in the course to be on physical diagnosis rather than on nursing skills. The question of the possible impact of a predominantly medical focus on the nursing identity of the students is left unanswered, although the practitioners expressed less anxiety about this than other nurse observers.

It was concluded that too many guest lecturers fragment the course and the guests experience difficulty calibrating their instruction at the appropriate level. Because of this and the obvious need for more field supervision of the students, a reasonable budget with a paid faculty is crucial to the continued success of such a training program.

The movement to expand the nursing role may also open new vistas for nurses. Graduates of the course reported increased job satisfaction, more professional reading, and a more independent role in the management of their patients, although their independence was tempered with caution.

REFERENCES

(*1*) Andrews, P. M., and Yankauer, A.: The pediatric practitioner; growth of the concept. Am J Nurs 71: 504–506, March 1971.

(*2*) Collins, M., and Bonnymann, G. G.: Physician's assistant and nurse associates. A review. Institute for the Study of Health and Society, Washington, D.C., 1971.

(*3*) Silver, H. K.: Ford, L. C., and Day, L. R.: The pediatric nurse–practitioner program. JAMA 204: 298–302, Apr. 22, 1968.

(*4*) Guidelines on short-term continuing education programs for pediatric nurse associates. A joint statement of American Nurses' Association, Division on Maternal and Child Health Nursing Practice, and the American Academy of Pediatrics. Am J Nurs 71: 509–512, March 1971.

(*5*) St. Geme, J. W., Jr., Turner, B., Peirson, G. S., and Gabel, M. C.: A curricular experiment with the nurse pediatrist. Am J Dis Child 122: 195–201, September 1971.

(*6*) Fakkema, L.: Report of survey conducted in March and April 1971 of nurses who are taking on increased responsibility in ambulatory services for children in California. California Department of Public Health, Bureau of Maternal and Child Health, June 1971.