

Evaluating the Training of Nurses to Do Family Planning Work in India

J. B. WEISBUCH, M.D., M.P.H. and CARL WATSON, M.D.

FAMILY PLANNING programs in this country and abroad urgently need trained workers. Skilled medical assistants can stretch scarce physician manpower by performing many tasks in these programs.

Once the basic job description of a family planning worker is drawn up, it is not difficult to design a training program that will produce persons with the requisite skills. But increasing the numbers of trained medical assistants is of little value if they are not able to do their assigned tasks. Therefore, it is essential to determine the effectiveness of training. Evaluation of the trainee, the training program, and the productivity of its graduates is necessary to make this determination.

Evaluation of training and educational programs is not highly developed. Miller and co-workers (1) discuss many of the problems and some solutions applicable to the evaluation of medical education. A few attempts at measuring overall effectiveness of trained midwives and family planning workers have been reported (2-4), but we could find no specific attempt at evaluation of a training program for family planning workers in the literature.

The purposes of this paper are twofold. We

shall delineate the methods of evaluation used to measure the effect of a training sequence designed to develop skilled family planning assistants, and we shall describe the problems inherent in both training and evaluation.

Background

In spring 1968, a training contract was signed by the U.S. Peace Corps and the University of Kentucky Center for Developmental Change. The university was to train 36 Peace Corps volunteers to be family planning extension educators in rural areas of the Punjab in India. Twenty-four volunteers, 12 married couples (all college graduates), were to be trained to carry out general family planning education. The other 12 volunteers were to be registered nurses.

The training aims for these nurses were clear-cut. They were to become paramedical professionals with factual knowledge of the anatomy, physiology, and the elementary pathology of reproduction. They were to acquire specific technical skills—be capable of taking obstetrical and gynecologic histories, of performing gynecologic examinations with self-confidence, and of inserting IUD's. They would have the judgment to select appropriate women for IUD insertion. As extension educators, the nurses would be able to transmit their knowledge, technical skills, and judgment to Indian health workers, using a foreign language, Punjabi, in a foreign culture. The Indian Govern-

Dr. Weisbuch is an associate professor in the department of community medicine, Boston University School of Medicine. Dr. Watson is with the U.S. Air Force Hospital at Omaha, Nebr.

ment agreed to conduct most of the nurses' training in the specific skill of inserting IUD's, recognizing the difficulty of giving such training in the United States.

The Peace Corps and the University of Kentucky had had experience in training volunteers as extension workers in family planning (5), but the nurses were the first volunteers to be taught to do pelvic examinations and insert IUD's. Having persons other than physicians insert IUD's was a major departure from India's previous policy; the Punjab government had stipulated that the volunteers be registered nurses because it was concerned that a professional person teach the Indian workers to insert IUD's.

Methods

Preliminary selection of trainees. The methods of selecting Peace Corps members are not specifically delineated. Many techniques are used to encourage intelligent, motivated young people to volunteer. Women volunteering for service late in 1967 and early in 1968 who were registered nurses with at least a year of experience were informed by the Peace Corps of the basic outlines of the program for the Punjab and asked if they were interested. The prospective volunteer was told of plans for specific work in family planning, encompassing clinical as well as educational phases in India. At recruitment, 6 months to 1 year before training started, few specifics were delineated. Peace Corps staff interviewed women interested in the program. A Peace Corps physician, who had helped develop the program in India, contacted each prospective trainee 3 months before training to make a final judgment of her interest and to attempt to answer her questions. Unusual care was taken in selection to assure high-quality personnel.

Training. Training 12 nurses to do pelvic examinations and insert IUD's in a 3-month period created problems. The first was to find a well-trained obstetrician-gynecologist who would supervise the nurses closely and serve as a medical consultant. A physician who had recently completed his residency in obstetrics and gynecology at the University of Kentucky was selected.

The second hurdle was to find enough pa-

tients for each trainee to examine. Neither the program coordinator nor the medical consultant knew how many pelvic examinations a person needed to perform to develop the requisite skill. The literature concerning such training does not indicate the number of pelvic examinations necessary for proficiency (2,3). We decided that between 50 to 100 examinations per trainee, the minimal number the average medical student does in his obstetrics and gynecology clerkship, would suffice. Between 600 to 1,200 women submitting to pelvic examinations would be needed for training. Using patients of the obstetrics and gynecology outpatient clinic of the University Hospital of the medical school and inpatients at Kentucky State tuberculosis and mental hospitals, we were able to approach the lower figure.

A third problem was to develop appropriate measures to evaluate the increase in knowledge and skill of the trainees—measures of the degree to which the training goals were achieved. The methods we devised are described subsequently.

The training cycle. Stage 1 included 3 hours of lectures on obstetrics and gynecology every third morning for 2 weeks followed by 3 hours in the University Hospital's obstetrics and gynecology clinic. The last session consisted of a 1-hour lecture and a 2-hour examination. In the 10 hours of lectures, the women were taught obstetrical anatomy, reproductive physiology, and gynecologic pathology. In the clinic, under the direct one-to-one supervision of the medical consultant, the nurses were taught methods of taking histories, making Papanicolaou smears, and doing pelvic examinations. Each nurse inserted one IUD. Each nurse saw three to five patients during an afternoon at the outpatient clinic. The primary texts for this portion of the training were the booklets "Understanding" (6) and "Methods of Contraception Control" (7) as well as portions from standard texts on obstetrics and gynecology.

Stage 2 included in its 6-week format further lectures on broader aspects of maternal and child health as well as participation in a mass screening effort—taking Papanicolaou smears of patients in chronic disease hospitals in the State. In this phase each pelvic examination was supervised, but not as closely as in stage 1.

Each nurse examined about 20 hospital patients. The academic material presented in this stage drew on the literature concerning problems of nutrition and maternal and child health in India (8-14)

Stage 3 was a 1-week field experience at the Frontier Nursing Service in Leslie County, Ky. The nurses worked in the Hyden Hospital, the service's central facility, and in its rural outpost satellite clinics "up the hollers." In this phase, the Peace Corps nurses handled daily clinical situations similar to their expected clinical functions in India. Each had the opportunity to interview approximately 10 patients.

During the first 4 weeks of technical training, the nurses were also required to participate in the general training the other volunteers were undergoing (15). They re-presented the information they had acquired in the lectures on obstetrics and gynecology to the 24 non-nurse trainees. This procedure had three purposes: (a) to help the nurses acquire greater familiarity with the material, (b) to give them the opportunity to learn to use audiovisual teaching aids which are helpful in presenting complicated information to an unsophisticated audience, and (c) to expose the other volunteers to the technical material so that they, too, would understand complex aspects of anatomy and physiology while serving as family planning extension workers (but not as IUD inserters or teachers) in India. To assure that all relevant material was covered, the medical consultant and coordinator attended each session. All members of the training staff assessed the presentations for total content and skill in delivery.

Evaluation. Evaluation was designed to measure two aspects of the program.

1. Did the nurses achieve the level of factual knowledge, clinical skill and judgment, and competence in extension education outlined in the primary objectives of the program?

2. Were the primary training objectives relevant to preparing the women to handle the specific problems they confronted during the first few months on the job in India?

To answer the first question, we used both objective and subjective methods to determine the achievement of the nurses. To determine

whether they carried out the number of examinations and histories felt appropriate, each nurse kept a log of her activities indicating the number of obstetrical and gynecologic histories, pelvic examinations, Papanicolaou smears, and IUD insertions she had performed.

The level of academic material learned was measured by a written examination on the anatomy and physiology of reproduction given at the outset of the training and repeating the examination 6 weeks later. Each nurse served as her own control.

Cases from the "The Casebook for the IUCD" (16) were used as an objective measure of the nurses' ability to make competent clinical decisions concerning family planning problems. The nurses' achievement on this test was measured against results on the same test achieved by two other groups with experience in family planning methods. One group was the other female volunteers in the training program, who were being trained as extension workers in family planning and were familiar with the technology of family planning but had no clinical experience. The other group was the registered nurses working full time in the obstetrics and gynecology outpatient clinics. They had no special clinical training but a great deal of experience. These two groups were chosen not as direct controls, but to give a gross measure of the clinical competence of the trainees compared with other educated women working in the same area.

The medical consultant subjectively evaluated the nurses' ability to handle clinical situations during the last week of the clinical training. The criteria for evaluation used by Watson follow:

1. Knowledge. The trainee's ability to relate didactic material to actual cases in making clinical judgments and diagnoses was rated. Part of this measure was the accuracy of the information the nurses used in counseling patients.

2. Skill in performing the pelvic examination. The nurses were rated on their skill in conducting the examination and gleaned the relevant clinical findings as determined initially by Watson. The evaluation included proper positioning of the patient, insertion of the speculum, the recognition of normal and ab-

normal anatomy, the position of the uterus, the presence of infections, prolapse, and so forth.

3. Overall approach to the patient. The nurse's competence in this area was also judged.

A 1-5 rating scale was used, 5 being a high level of achievement. The final rating for each trainee was based on the average of these three scores.

The Frontier Nursing Service physicians gave a short summary of each nurse's skill, based on her ability to handle clinical situations. Unfortunately, these physicians used no precise measurement criteria; comments were wholly subjective.

The nurses' ability to teach material and communicate complicated ideas to an unsophisticated audience was judged in two ways. Their ability to develop and carry out teaching sessions using audiovisual aids, both in English and Punjabi, was subjectively evaluated without specific external controls. Specific ability to use Punjabi was measured twice during the program by the U.S. Government language testers who spent 15 minutes with each candidate.

All four members of the training staff who evaluated the nurses' teaching ability had experience in training volunteers for India; three of the four had spent some time in that country. They judged the organization of material, ease of the presentation, consistency in the use of audiovisual teaching aids, and the degree to

Table 1. Results of examinations on anatomy and physiology of reproduction before and after training

Trainee	Quiz before training	Quiz after training
P.S.-----	27	40
L.L.-----	27	43
M.S.-----	27	45
A.P.-----	29	41
N.W.-----	35	40
K.P.-----	31	38
B.P.-----	22	43
N.G.-----	22	38
S.B.-----	¹ 35	41
C.T.-----	33	(²)
Mean-----	28.8 ± 4.68	41.0 ± 2.34

¹ Incomplete examination.

² C.T. left the program midway through training.

NOTE: Maximum score was 50.0. The *t* value = 7.25, with 17 d.f. yields *P* < 0.001.

Table 2. Procedures performed by nine trainees

Trainee	Pelvics, bimanual	Papanicolaou smears, vaginal specimens included	Gynecologic histories	Loops inserted
S.B.-----	35	50	20	1
L.L.-----	39	40	15	1
N.G.-----	25	40	20	1
B.P.-----	15	30	25	1
K.P.-----	22	26	20	1
A.P.-----	25	40	20	1
M.S.-----	33	44	44	1
P.S.-----	37	40	20	1
N.W.-----	36	50	15	1
Total	267	360	199	9
Average	29.7	40.0	22.1	1
S.D.	± 8.2	± 8.0	± 8.7	-----

which the central and peripheral ideas came across to the audience. A 1-5 rating scale was used, a grade of 3 implying that the subject was as good as the average Peace Corps' trainee in presenting her teaching package. A grade of 5 implied that the trainee was better than 95 percent of the volunteers previously trained.

At the end of the training in Lexington each trainee underwent a general assessment by the Peace Corps staff. The final selection of the volunteers for India was based on the technical skills acquired, the language learned, and the estimate of the volunteer's potential as an extension worker in rural India.

Only eight nurses completed the training sequence and went to India. One Catholic nurse completed the training but, after Pope Paul's encyclical proscribing all "unnatural" forms of family planning, did not go to India; two dropped out midway to get married; a fourth left for personal reasons. The three who dropped out of the program midway were doing well up to the time of their departure.

To determine whether the training protocol was relevant to the actual work situation in India, we tested each nurse's attitude toward the various parts of the training program by questionnaire 3 months after she was placed in the field. The questionnaire covered all parts of the training including the 2-week training in IUD insertion in India. In addition, we also queried the volunteer on her appraisal of the overall

Table 3. Language skills scores for nine nurses

Trainee	1st test score ¹	2d test score ¹
E.P.-----	½	1
J.P.-----	1	1½
K.P.-----	½	1
L.L.-----	1	1½
M.S.-----	½	1
N.G.-----	½	1
N.W.-----	½	1
P.S.-----	1	1
S.B.-----	1	1½
Average ² -----	0.72	1.17

¹ Scale for scores was 0—unable to communicate, ½—uses a few words, 1—small vocabulary for directions, essential needs, 2—communicates in sentences, 3—fluency in two or more areas, 4—fluency of an educated native speaker, 5—able to handle technical vocabulary with complete facility. (Peace Corps sends no one with a score below 1.)

² Larger group's average for 1st test was 0.63, 2d test, 1.32.

project plan for training at the University of Kentucky.

To measure attitudes toward each section of the program, we asked an affirmative statement about that particular section. For example, the State hospital experience in Kentucky was a valuable experience . . . (and) it helped in preparing me for the work in India. Each volunteer was requested to respond: 1. strongly agree, 2. agree, 3. neutral, 4. disagree, or 5. strongly disagree.

The average score (1-5) for each section served as an attitude scale, indicating the degree

to which the nurses felt a specific portion of the training sequence was relevant to their daily work in the Punjab.

Results According to Objective Measures

Change in knowledge of obstetrics and gynecology was measured by scores on the before and after examinations. The nurses' knowledge increased during training (table 1). The change in the mean test scores was from 28.2 to 41.0. The maximum score was 50.0. Using the *t*-test analysis, there is a low probability that these results occurred by chance ($P < 0.001$).

The ability of the nurses to handle clinical situations was objectively tested by the casebook (16) examples. Forty-three examples were used, and the answers were graded 0 for incorrect, ½ for partly correct, and 1 for correct. Watson graded all tests. The results showed the nurse trainees scoring consistently well, averaging 39.2 (s.d.±1.06) out of a possible 43.0. The clinic nurses also scored well, but not as well as the nurse trainees, averaging 34.8 (s.d.±1.76). The other volunteers demonstrated their lack of clinical experience, scoring correctly on only slightly more than half of the questions (mean 22.8, s.d.±6.32).

The difference between the scores of the three groups indicates the training group to be more knowledgeable. Statistical tests were not used to determine the significance of the difference since the two comparative groups were not true controls for the nurse trainees.

Table 4. Ratings on teaching skills and clinical skills for nine nurses

Trainee	Teaching skills evaluators ¹				Clinical skills evaluators		Final Peace Corps grade ²
	B.R.	V.O.	C.W.	W.L.	C.W.	F.N.S.	
E.P.-----	2½	4	3	4	3	4	3
J.P.-----	4	4	3	4	3	4	3
K.P.-----	4½	3½	-----	-----	3	5	-----
L.L.-----	2½	4	3	4	4	2	2
M.S.-----	3	2	3	3½	2	2	2
N.G.-----	4½	2½	-----	-----	2	5	1
N.W.-----	4	3½	-----	-----	3	3	2
P.S.-----	3	3	3	3½	3	4	3
S.B.-----	4	3½	4	5	3	5	4
Group mean-----			3.50			3.33	2.5

¹ Evaluators used a scale of 1 to a high of 5. Ratings were a composite score on 2 or more presentations by each nurse who was judged on organization, presentation, use of audiovisual aids, and transmission of ideas.

See Methods section for explanation of clinical skills ratings.

² Top quarter=4.

During their training the nurses did not see as many patients as we had originally desired. The averages for the four categories of procedures are shown in table 2. The group took 199 histories overall. They did 267 pelvic examinations and sent 360 Papanicolaou smears to the State laboratories for evaluation. The excess of smears over the pelvic examinations and histories occurred because some institutionalized patients were too senile to give a history and too old for a complete pelvic examination. Some were virginal and their smears were virginal specimens.

Each trainee inserted only one IUD during the training cycle in Lexington. In India, a major breakdown in the IUD training sequence took place. The Peace Corps and the Punjab government had agreed that IUD insertion training would be done in India. In spite of this agreement, in India the nurses were only allowed to observe insertions except for two nurses who did three insertions each; the other six did no IUD insertions.

The nurses' language skills were slightly above the Peace Corps group's average on the first test midway through the program and slightly below the group average on the second examination (table 3). Both groups improved, indicating a degree of success in this important area. Communications from the Punjab indicate that some nurses are conduct-India are related to Indian Government's policy changes regarding the device. These factors are discussed subsequently.

Results According to Subjective Measures

Table 4 shows the score, as subjectively rated by evaluators, for each nurse in teaching ability and overall clinical skill as well as her final Peace Corps grade.

The mean score of 3.50 on teaching ability implies that the trainees performed above the average for the entire group. The nurses were evaluated twice, once when they presented the technical material to the other trainees and again on their final presentations conducted in Punjabi. Their final teaching demonstrations attempted to simulate the presentations they would be giving in India.

The clinical appraisal by Watson indicates

Table 5. Eight nurses' attitudes toward the value of the University of Kentucky training

Subject	Mean attitude score ¹
Obstetrics and gynecology:	
Lectures.....	1. 25
Clinical experience.....	1. 50
Taking histories and doing pelvic examinations.....	2. 62
State hospital experience.....	3. 56
Frontier Nursing Service experience.....	1. 50
Demography and statistical lectures.....	3. 16
Indian training in IUD insertion.....	3. 87
Training in using audiovisual aids.....	1. 38
Language, area studies, role playing.....	1. 62
"I enjoy the work 50 percent of the time.".....	2. 25
The training program covered problems found in India.....	2. 38
"I am an effective volunteer as a result of the program.".....	2. 85
"The overall project was well planned and of positive value.".....	2. 14

¹ Attitude scale: 1=strongly agree, 2=agree, 3=neutral, 4=disagree, 5=strongly disagree.

that the nurses' performance was "average"; the composite scores were in the 3 rating range. The Frontier Nursing Service physicians were more positive in their appraisal, ranking the nurses better than the average Frontier Nursing Service nurse trainee, but their criteria for evaluation were not stated.

As part of the larger training program, the nurses were also exposed to cultural and social aspects of India. Lectures and seminars dealt with demography, epidemiology, data analysis and utilization, and community health evaluation. As part of a Peace Corps training group, each nurse was subject to final selection before departure to India. The results of this final process are also included in table 4. The final scores were 0 to 4; zero being used only for those not selected for overseas work, one being the lowest quartile, and four the top quartile. Although there were nurses in every quartile, no nurse was eliminated.

After 3 months in the Punjab the eight nurses responded to questions about the training program (table 5).

They felt that the program was of value in teaching relevant obstetrical and gynecologic material, in exposing the students to the Frontier Nursing Service, in teaching use of audio-

visual aids, in language, role playing, and area studies. Slightly positive feelings were expressed toward the overall project plan and the discussions of problems facing the volunteer in her assignment. The demographic and statistical material was of marginal worth. The training in IUD insertion in India and the Kentucky State hospital exposure were considered less than useful. The responses concerning the volunteer's level of effectiveness and job enjoyment indicates a slightly positive attitude.

The nurses' responses to the IUD training in India are related to Indian Government's policy changes regarding the device. These factors are discussed subsequently.

Discussion

To accomplish the goals of this program, the women were required to learn and use academic and practical knowledge of obstetrics and gynecology as it pertains to the various methods of family planning and birth control presently available in India. They required an understanding of Indian culture and some knowledge of the myriad socioeconomic factors that would work for and against the success of the program. They also needed enough language skill so that communication itself would not be a primary barrier in fulfilling their task. They required the ability to teach specific skills to Indian health workers.

Evaluating the stated objectives was not simple. Moreover, 3 months is too short a time in which to judge the achievement of the program's long range goals; it was possible to ascertain whether the trainees were prepared for the immediate problems they encountered.

The specifics of this study indicate that objectives must be clearly stated well in advance of training. Furthermore, the outcome must be in performance terms so that methods of evaluation may be designed and implemented concurrently with the more practical aspects of the program. This specification of process and outcome is vital if the appropriate information required for evaluation is to be accumulated while the program is in progress.

Our experiences indicate that factual knowledge could be tested at the outset and at the conclusion of the program. This material in-

cluded information on obstetrics and gynecology, the Indian sociocultural milieu, materials of audiovisual teaching, and language skills. The behavioral objectives also could be pretested and then reappraised upon completion of the training; these were the clinical skill with which the nurses handled patients and family planning problems, the ability of each volunteer to organize and present an educational lecture, and the capacity of each nurse to adjust to the complexities of a foreign, often hostile, environment so that she could carry out her assigned task.

In addition to these requirements for evaluation, the training staff must have sufficient funds to pay for the time and manpower resources necessary to design measurement tools. In some instances funds should be allocated to employ expert consultants to act as evaluators in determining behavioral change. Bias of the training personnel can result in nonequitable measurement of the trainees when subjective and nonquantitative tools are used.

One difficulty in many training programs is lack of time after the program goals are stated to allow for careful design of objective evaluative tools. Another problem we faced was the lack of previous studies to guide us in establishing reasonable objectives in terms of numbers of procedures performed and in acquisition of clinical skills.

Recognizing the many shortcomings of our methods, we attempted without extra expense to appraise the program using objective, subjective, and attitudinal methods available to us. We used semiquantitative and nonquantitative tools since quantitative measures do not exist for all facets of the training regimen. Specific tests and adequate controls to quantify each section were not possible. In the two instances in which we used "controls," the results only demonstrated a trend indicative of success.

The objective data do point to certain achievements. The nurses acquired gynecologic information during the training, as evidenced by the results of the examination given before and after the program. An increase from 28.8 to 41.0 out of a maximum grade of 50.0 represents a significant difference, particularly impressive since each nurse improved. The results on the Wishik test of clinical skill also indicate

a high level of medical judgment in this area. When compared with the other nurses in the obstetrics and gynecology clinic or with the other trainees, the Peace Corps nurses performed admirably, scoring better than the other two groups.

In two of the three quantifiable areas of success, the nurses did well. In the third, the number of pelvic examinations, Papanicolaou smears, and histories performed was below the initial goals. Each woman had the opportunity to insert one IUD in Lexington, but few did insertions in India. No previous studies indicate how many pelvic examinations are necessary before a medical assistant or nurse can develop the requisite skill to separate women with normal pelvic conditions from those with abnormalities. Our work indicates that 30 examinations under close supervision may be sufficient. A recent report (4) from Pakistan indicates that 30 closely supervised pelvic examinations seem acceptable in the context of that training program.

The subjective measures used by the investigators were an attempt to overcome the inherent bias of instructors acting as evaluators of their own students, by clearly stating the criteria for measurement in advance. That the nurses did achieve a modicum of success in these areas is heartening, but once again this success only indicates some positive values in the training rather than a clear demonstration of success.

The most encouraging finding in the evaluation is that the trainees' attitudes toward the program remained positive 3 months after they were placed in the field. The fact that each nurse was conducting educational sessions in Punjabi for Indian health workers points to achievements in this aspect of the training. But the failure of the Indian training to include an adequate number of IUD insertions is a disappointment; this stipulation was part of the initial contract.

Part of the reason for this failure was a change in the Indian Government's commitment to the IUD. Our program was designed during a period of interest in the device, but subsequently the IUD fell into disfavor, and condoms and sterilization were being emphasized. Recent reports from India indicate a shift back to the IUD, but this change has not

been fully demonstrated to date. Changes in commitment further complicate the design and evaluation of international training programs.

Conclusions

During 3 months of training, nurses can acquire skills in cross-cultural communications, learn a foreign language, and develop skill in teaching family planning methods. These facts indicate the potential for training medical assistants in this country and abroad.

The specific level of achievement of the nurses toward the initial project objectives could only be measured roughly. The tools of measurement were not sufficiently fine to conduct a rigid evaluation.

Training is necessary to fill gaps in medical manpower, and evaluation of training is the only rational way to improve the graduates of training programs. Improved manpower rests on improved evaluation techniques.

Our data demonstrate partial achievement of the project goals. Nine registered nurses increased their knowledge of reproductive physiology, learned some clinical and educational skills, and acquired a minimal knowledge of Punjabi and the Punjab. Whether or not the eight who went to India will be able to carry out family planning training programs in India based on the material they learned is unclear.

If the training of paraprofessionals is necessary to offset the shortage of physicians, the honing of evaluative tools is mandatory to assure that the efforts spent in training do, indeed, create the desired output.

Summary

Eight registered nurses were trained at the University of Kentucky Center for Developmental Change as Peace Corps family planning extension workers in India. They were taught factual knowledge of the anatomy, physiology, and elementary pathology of reproduction. They acquired specific technical skills in taking obstetrical and gynecologic histories, in performing pelvic examinations, in recognizing normal and abnormal pelvic conditions, and in transmitting technical information to others in a foreign language.

In addition to attending formal lectures, the nurses examined patients at the outpatient ob-

stetrics and gynecology clinic of the University of Kentucky Medical School and did pelvic examinations and took Papanicolaou smears of patients in State chronic disease hospitals. They spent 1 week working with the staff of the Frontier Nursing Service. They completed a total of 267 pelvic examinations, 360 Papanicolaou smears, 199 gynecologic histories, and nine IUD insertions.

To evaluate the success of the 3-months' training, the nurses were tested on their factual knowledge and language skills before and after the program. Evaluators subjectively rated their teaching skills and clinical competence. The value of the training in their subsequent experiences in India was explored by an attitude questionnaire administered 3 months after they began fieldwork in the Punjab.

Although the methods used to evaluate the training were admittedly crude, the results of the tests, subjective evaluations, and the questionnaire indicated partial success in achieving the goal of producing medical assistants skilled in specific tasks.

REFERENCES

- (1) Miller, G. E., et al.: Teaching and learning in medical schools. Harvard University Press, Cambridge, Mass., 1962, pp. 193-290.
- (2) Cummins, G. T. M., and Vaillant, H. W.: The training of the nurse midwife for a national program in Barbados combining the IUCD and cervical cytology. *In* Family planning and population programs, edited by Bernard Berelson. University of Chicago Press, 1966, ch. 37, pp. 451-455.
- (3) Beasley, W. B. R.: The nurse-midwife as a mediator of contraception. *Amer J Obstet Gynec* 98: 201-207, May 15, 1967.
- (4) Jafarey, S. A., Hardee, J. G., and Satterthwaite, A. P.: Use of medical-paramedical personnel and traditional midwives in the Pakistan family planning program. *Demography* (special issue). Progress and problems of fertility control around the world. 5: 666-677 (1968).
- (5) A report on the Peace Corps training program, India, 51, for rural family planning in Bihar. CDC Project Report No. 5. Center for Developmental Change, University of Kentucky, Lexington, 1967.
- (6) Understanding. Ortho Pharmaceutical Company, Raritan, N.J., 1967.
- (7) Methods of contraception control. Ortho Pharmaceutical Company, Raritan, N.J., 1965.
- (8) Nicholls, L., Sinclair, H. M., and Jelliffe, D. B.: Tropical nutrition and dietetics. Bailliere, Tindall, and Cox, London, 1961.
- (9) Venkatachalam, P. S., and Rebello, L. M.: Nutrition for mother and child. Special Report Series No. 41. Indian Council of Medical Research. Nutrition Research Labs, Hyderabad, India, 1962.
- (10) Diet atlas of India. Special Report Series No. 48. Indian Council of Medical Research. Nutrition Research Labs, Hyderabad, India, 1964.
- (11) Food for peace around the world. International Development Agency, Washington, D.C., October 1962.
- (12) Ayyroyd, W. R., Copalan, O., and Balasubramanian, S. C.: Nutritive value of Indian foods and planning of satisfactory diet. Special Report Series No. 42. Indian Council of Medical Research. Nutrition Research Labs, Hyderabad, India, 1963.
- (13) May, J. E.: The ecology of malnutrition in the Far and Near East. Hafner Publishing Company, New York City, 1961.
- (14) Jelliffe, D. B.: Child health in the tropics. Williams & Wilkins Company, Baltimore, 1962.
- (15) A Report on the Peace Corps training program, India 63, family planning in Punjab. CDC Project Report No. 6. Center for Developmental Change, University of Kentucky, Lexington, 1968.
- (16) Wishik, S. M., and Hulka, J. F.: Casebook for the intrauterine contraceptive device. International Institute for the Study of Human Reproduction, Columbia University, New York, and the Carolina Population Center, University of North Carolina, Chapel Hill, May 1968.

Tearsheet Requests

J. B. Weisbuch, M.D., Department of Community Medicine, Boston University School of Medicine, 80 East Concord St., Boston, Mass. 02118

Program Notes

Progress in War on Rats

"War on Rats" workers in Washington, D.C., hauled 30 truckloads of trash, junked appliances, and garbage out of model cities neighborhoods in the Shaw area on June 13. This removal was part of a special concentrated effort to clean away rat-harboring debris. Responding to earlier publicity, the neighborhood residents put out so much trash for the trucks that the workers had to return another day to finish collecting it.

Evidence of rats appears to have been reduced by an average of 20 percent in some parts of the model cities areas, according to the District of Columbia Health Services Administration. In some inner city areas that were surveyed, 34 percent of the houses showed evidence of rats, but this figure represents a drop from 55 percent the previous year. In parts of one area where the cleanup and rat poisoning has gone on the longest, the drop was from 72 to 26 percent and from 47 to 12 percent.—*Washington Post* (D.C.), June 14, 1970.

Clinic on Wheels for Rural Poor

A comprehensive health program for children from low-income families in Albemarle County, Va., is delivered in footlockers. Equipment is dismantled in the pediatrics department of the University of Virginia Hospital and moved in eight trunks and a Volkswagen bus to poor, rural neighborhoods. The footlockers are unloaded and the equipment reassembled in borrowed headquarters, perhaps in a volunteer fire department building or an old whistlestop railway station.

The clinic teams, headed by Dr. Sharon Hostler, include a nurse, social worker, and a home economist for each satellite. Medical students also rotate through the service, and a psychologist provides consultation when needed.

The overall program at the university is among 67 such endeavors around the nation financed by the Department of Health, Education, and Welfare. It is the only one in Virginia and is believed to be the only one of the 67 aimed at the rural poor.—*Washington Post* (D.C.), April 23, 1970.

Missed Chance for Disease Control

May 3, 1970, had been set as the target date for a massive antirubella campaign in San Francisco in the style of the Salk vaccine program. Absence of sufficient financial support, however, from governmental or private sources, forced a cancellation. The campaign has been tentatively rescheduled for October 18.—*MR Coordinator* (San Francisco Coordinating Council on Mental Retardation), May 1970.

Tuberculosis Rates Declining

In 1969, for the second successive year, New Mexico's tuberculosis and mortality rates were slightly below the averages for the nation as a whole. In 1960, the rate of new active cases in the State was 48 per 100,000 population, compared with a national rate of 30.8. The comparative State and national rates of death from tuberculosis in 1960 were 7.8 in New Mexico and 6.0 in the United States. Figures for the successive years in the decade, however, indicate a steady decline both in the State and the nation, but with a wider margin of decline occurring in the State.

The status of each registered case of tuberculosis in New Mexico, both active and inactive, is followed by means of a central case register, maintained by the State health and social services department.

One in 16 Trained in Self-Help

One of every 16 persons in Maryland has been trained in Medical Self-Help according to O. Eugene Trivits, chief of the division of

emergency health services of the Maryland State Department of Health. More than 56,468 Marylanders completed such training in 1969.

Medical Self-Help is a program designed to provide information and training that will help prepare people for survival in a natural or national crisis when services of a physician or other allied health personnel are not available. More than 10 million people in the United States have graduated from the national program.

Employee to Patient Ratios

The ratio of employees to patients in the four regional psychiatric hospitals of Maryland has more than doubled since 1950. In 1969, there were about 59 authorized employees for every 100 patients in these State hospitals, compared with 22 in 1950.

This ratio reflects a continuing increase in the number of employees; the average number of patients was about 10 percent lower in 1969 than in 1950. In part, this reflects improving hospital conditions and shorter working hours. Primarily, however, this ratio reflects a rising proportion of patients hospitalized for short-term treatment of acute disturbances. Short-term patients require greater service from the staff than do chronic patients under extended care.

In 1950, the proportion of all beds in the four hospitals occupied by patients who had been hospitalized 5 years or more was 65 percent, as compared with 45 percent in 1969. Twenty percent of the patients had been hospitalized 1 to 5 years in 1950; 25 percent in 1969. Persons who had been hospitalized less than 1 year comprised 15 percent of the patients in 1950 and 30 percent in 1969.—*Mental Hygiene Statistics Newsletter* (Maryland Department of Health and Mental Hygiene), February 10, 1970.

Items for this page: Health departments, health agencies, and others are invited to share their program successes with others by contributing items for brief mention on this page. Flag them for "Program Notes" and address as indicated in masthead.