

Table 4. Numbers in the sample in each of the pass-fail classifications on the comprehensive work measure and national examination

Work measure composite	National examination	
	Fail	Pass
Pass	6	58
Fail	15	21

age of minimally competent practitioners who should be able to perform correctly each step of the practical examination. On the written examination, judges responded directly to the examination items. These percentages were then averaged across judges and items (steps) to arrive at the passing score.

Table 4 shows that there was a 73-percent correct classification of 100 persons taking both the written and all of the practical examinations. (Some attrition had occurred in the 128-person sample, due to missing data on one of more of the performance measures.) Correct classification would mean that both the practical and written examinations were passed or both failed. This percentage seems satisfactory, and it reflects the significant correlation between the written examination and the work performance measures.

Since passing points for the written and practical examinations were arrived at independently, and without explicit consideration of the proportion of the sample that would pass or fail each examination, a larger proportion of the sample "failed" the practical than "failed" the written. The differing pass-fail marginal distributions explain the seemingly large percentage of all persons who failed the practical, but passed the written. Were the passing point on the work performance measures lowered to fail

the same proportion of examinees as the written, the number of persons in the lower right-hand quadrant would also decrease.

Conclusions

There is a significant, but not perfect, level of correlation between the written examination and the practical job-related examination which should be indicative of job success.

The procedures used to develop and validate the written credentialing examination in environmental health should assure registration agencies that they have valid and legally defensible examinations with which to register or credential environmental health personnel.

References

1. Conant, R.A.: Credentialing concept. *J Environ Health* 41: 88-98 (1978).
2. Quatrano, L., and Conant, R.: Continuing competency for health professionals: caveat emptor. *J Environ Health* 44: 124-130 (1981).
3. Richardson, S.E., Jr., and Stuart, K.: Sunset laws and sanitarian registration. *J Environ Health* 41: 105-107 (1978).
4. Report on the role delineation project for practitioners in environmental health. Contract HRA 231-75-0211 with the National Environmental Health Association, Denver, CO, 1977.
5. Identification of the role performed by the sanitarian as a health professional. Final report. Contract HRA 231-77-0030 with the National Environmental Health Association, Denver, CO, 1978.
6. Examination development for environmental health personnel. Final report. Contract HRA 232-78-0146 with the Professional Examination Service, New York, 1980.
7. Ghiselli, E.E.: The validity of occupational aptitude tests. John Wiley & Sons, New York, 1966.
8. Cronbach, L.J.: Essentials of psychological testing. Ed 3, Harper & Row, New York, 1970, p. 135.

Collaborative Studies Program on Maternal and Child Health in New York State, 1981-83

ROSEMARY BARBER-MADDEN, EdD
LINDA RANDOLPH, MD, MPH

Dr. Barber-Madden is the Project Director of the MCH Collaborative Studies Program. She is also the Director of the Maternal and Child Health Program, and an Assistant Clinical Professor of Public Health, Center for Population and Family Health, Columbia University School of Public Health. Dr. Ran-

dolph is the Director of the Office of Public Health, New York State Health Department. She is also an Assistant Clinical Professor, Center for Population and Family Health, Columbia University School of Public Health.

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Tearsheet requests to Rosemary Barber-Madden, EdD, Center for Population and Family Health, 60 Haven Avenue, New York, NY 10032.

Synopsis

With the passage of the Omnibus Reconciliation Act and the establishment of the block grant system in 1981, responsibility for the direction of many public health programs shifted from Federal to State government. This shift, coupled with funding cutbacks and the constraints of the current economic status of the country, has had an impact on the ability of the service delivery network to maintain service delivery programs.

In the implementation of the Maternal and Child Health (MCH) Services Block Grant, collaboration among service, research, and training programs has been emphasized as an essential component to respond to the needs of service agencies and to provide relevant field experience for public health students.

A program of projects centered on joint collaboration and support is described in this paper. Two of the 13 projects implemented over a 2-year period are highlighted.

In 1981, the MCH Collaborative Studies Program was established, linking Columbia University School of Public Health, the New York State Health Department, and MCH service providers in New York City in an effort to identify underserved MCH populations, assess the impact of funding cutbacks, and define new strategies for service delivery programs. Graduate research assistants are assigned to participating agencies to coordinate the activities of each project.

AMENDMENTS TO TITLE V of the Social Security Act in 1981 provide for the Maternal and Child Health (MCH) Services Block Grant, which consolidates several existing categorical programs into one entity. The programs are Maternal and Child Health Services (Title V), Crippled Children Services, Disabled Children's Services, Hemophilia, Sudden Infant Death Syndrome, Prevention of Lead Based Paint Poisoning, Genetic Diseases, and Adolescent Health Services (1).

A total of 85 percent of the appropriated funds are allocated as grants to States to conduct these programs. The remaining 15 percent of the funds are retained at the Federal level to provide a national focus and to support a program of Special Projects of Regional and National Significance (SPRANS). SPRANS includes projects for the development of new or improved services, services to meet special needs, development of regionalized or multi-State programs, studies related to identification of needs and methods for meeting them, technology development and transfer, limited purpose programs for development, and dissemination of information, training, and research.

Thus, while MCH block programs in each State provide the core of service programs, SPRANS provides the flexibility to focus on problems or issues, to support developmental programs, and to develop resources through research, demonstration, or training.

Collaboration between maternal and child health service and research and training programs has been emphasized as an essential component to respond to the needs of service agencies and to provide relevant field experience for trainees. Hence, it is not surprising that mutual interests and concerns have led to the development of a collaborative effort joining students, faculty, State health department officials, and MCH service providers in a team approach to problem solving in New York State.

Funding cutbacks over the past few years and the constraints of the current economic status of the region together have had an impact on the ability of the MCH service delivery network to maintain service delivery programs. Since 1981, the Center for Population and Family Health, Columbia University School of Public Health; New York State Health Department; and Medical and Health Research Association of New York have undertaken 13 projects collaboratively. The purpose of these projects is to identify underserved MCH populations, assess the impact of funding cutbacks, and define new strategies for service delivery programs. The focus of these special projects has been in New York City for a 2-year period.

This program has resulted in (a) the conduct of eight special MCH studies, (b) the preparation of three special reports and background papers, (c) the administrative coordination of two MCH-related projects, (d) the co-authorship of selected papers,

'The purpose of these projects has been to identify underserved populations, assess the impact of funding cutbacks, and define new strategies for service delivery programs.'

(e) the development of new preceptorships, and (f) team teaching efforts.

Maternal and Child Health Status Indicators

The current status of mothers, children, and families, along with many related issues of maternal and child health service delivery, has been reviewed extensively in the four volumes of "Better Health For Our Children: A National Strategy," the Report of the Select Panel for the Promotion of Child Health, (2). Any attempt to deal with these health care needs must face the issues examined in detail by the panel. In New York City, evidence has been marshaled that documents the needs of children and their families in a Foundation for Child Development publication, "The State of the Child: New York City II" (3).

Between 1970 and 1980, there was a significant change in the status of children in the State, according to the New York State Council on Children and Families. In 1970, this population decreased to 5.6 million (32 percent of the total population). In New York City, there was a decrease of 3 percent over the same 10-year period. There were 317,153 live births in 1970, for a rate of 17.3 per 1,000 population in New York State. By 1980, the number had decreased to 239,003, for a rate of 13.3 as compared with a national live birth decrease from 18.4 in 1970 to 16.2 in 1980. In New York City, there was a decrease from 18.9 in 1970 to 15.1 in 1980.

The majority of the State's population under 21 years is white. By contrast, the majority in New York City is nonwhite. Minorities constitute a larger percentage of the population in New York State than in the nation as a whole.

In New York State, there were more children living in poverty in 1980 than in 1970. More than half of these children lived in New York City. Nearly one in every five children in New York State lived below the poverty line in 1980, as compared with one in three children in New York City.

Poverty status is related to family composition. Nearly half of all single-parent families headed by

women were below the poverty line in 1980. Twenty-two percent of the persons under 18 in New York State were living in these households in 1980, as compared with 13 percent in 1970. More children were living in single-parent families headed by women in New York City (30.9 percent) than in the rest of the State (12.7 percent) (4).

The percentage of mothers with less than a high school education slowly decreased from 1978 to 1980, but the disparity is significant between New York City (32.6 percent) and the rest of the State (16.1 percent). The infant mortality rate in New York State is lower than in the past. In 1981, the rate was 12.3 deaths per 1,000 live births, as compared with a rate of 19.5 in 1970. According to the New York State Department of Health's Bureau of Health Statistics, the infant mortality rate in New York City was 14.5 in 1981, compared with 10.6 for the rest of the State. This was principally accounted for by the larger percentage of nonwhite births and the higher mortality rates among nonwhite infants (4).

The disparity between whites and nonwhites has not been greatly affected, with nonwhites having an infant mortality rate consistently higher. While the average infant mortality rate in 1981 was higher in New York City than the New York State average, the following rates in certain low income, minority areas of the city demonstrate the disparity.

Area	Per 1,000 live births
Central Harlem-Manhattan	21.1
Tremont-Bronx	22.3
Bedford Stuyvesant-Brooklyn	25.1
New York City Average	14.5
New York State Average	12.3

SOURCE: New York State Health Department, Improved Pregnancy Outcome Project.

It appears that the timely use of prenatal care services was decreasing from 1976 to 1979 and leveled off from 1979 to 1981. In 1976, 7.2 percent of women had late or no prenatal care as compared with 10.1 percent in 1979 and 10 percent between 1979 and 1981. By age, the highest percentage of late or no prenatal care was among the under-17 population (5).

Review of these indicators and the 1981 Report of the Governor's Conference for the Prevention of Developmental Disabilities and Infant Mortality (6) sparked the establishment of our program.

Program Approach and Activities

The MCH Collaborative Studies program features two components: the MCH special studies and

projects, aimed at the analysis of selected MCH problems and the development of relevant protocols for program monitoring, and the education component designed to provide MCH students with substantive experience in program planning, administration, policy- and decisionmaking, and evaluation.

The program has three objectives:

- To coordinate efforts to address State MCH priorities in service, research, and training.
- To increase the resources for effective collection, analysis, and use of information and data.

- To improve the quality of and increase the opportunities for MCH students to earn substantive experience in MCH programs.

The projects and studies are undertaken on the basis of the priorities established by the collaborating institutions each year. The projects undertaken between 1981 and 1983 are outlined in the accompanying box.

The program began with a request from the New York State Health Department for MCH students to assist in the implementation of three short-term

MCH Collaborative Projects, 1981-83

<i>Special projects</i>	<i>Collaborating agencies</i>	<i>Special projects</i>	<i>Collaborating agencies</i>
<i>Maternal and Child Nutrition</i>		<i>Child Health—continued</i>	
Assessment of family planning/nutrition programs	NYSHD/NYCRO, CPFH/CUSPH	Preparation of an annotated bibliography identifying variables which impact on utilization of health services	WRI, NYSHD/NYCRO, NYSHD/BMCH, CPFH/CUSPH
Comparative analysis of nutrition counseling methods in WIC programs	NYSHD/NYCRO, CPFH/CUSPH	Data collection, analysis and report preparation of principal and teacher surveys in a school health utilization study	WRI, NYSHD/NYCRO, NYSHD/BMCH, CPFH/CUSPH
<i>Maternal/Perinatal Health</i>		Design of a protocol for and conduct of site visits to 7 Children and Youth Projects in New York City. The protocol focuses on project physical plant, fee assessment policy and procedures, and grant reporting requirements	MHRA, NYSHD/NYCRO, CPFH/CUSPH
Analysis of patient origin data for program planning and evaluation at 2 MIC Centers	NYSHD/NYCRO, MHRA, CPFH/CUSPH	Analysis of dental health needs of school aged minority children in New York City	NYSHD/BMCH, NYSHD/NYCRO, CPFH/CUSPH, NYSHD/NYCRO, NYCHD, CPFH/CUSPH
Assessment of MIC Infant follow-up programs and development of criteria for formalized procedures for follow-up infant referrals after birth	NYSHD/NYCRO, MHRA, CPFH/CUSPH	Analysis of inter-organizational relations of public, private, and voluntary agencies serving the developmentally disabled in New York City	
Administrative coordination of the activities of the Steering Committee to Promote Breastfeeding in New York City	NYSHD/NYCRO, MHRA, CPFH/CUSPH	<i>Other</i>	
Analysis of birth tape data to identify populations at greatest risk, the source and nature of prenatal care to develop strategies for targeting services in Central Harlem	NYSHD/BMCH, NYSHD/NYCRO, CPFH/CUSPH	Design of an MCH advocacy and policy action project	NYSHD, CPFH/CUSPH
<i>Child Health</i>			
Preparation of a background paper on school health services evaluation methodology	NYSHD/NYCRO, CPFH/CUSPH		

NOTE: NYSHD/NYCRO = New York State Health Department, New York City Regional Office. CPFH/CUSPH = Center for Population and Family Health, Columbia University School of Public Health. MHRA = Medical and Health Research Association of New York. NYSHD/BMCH = New York State Health Department, Bureau of Maternal and Child Health. WRI = Welfare Research, Inc. NYCHD = New York City Health Department.

projects in 1981. After 6 months, both the State health department staff and the Columbia MCH faculty agreed not only that the projects were successful, but also that the approach had even greater potential. Consequently, the program was expanded, other agencies were invited to participate, and a natural partnership evolved. It should be noted that several students have co-authored, together with agency staff and faculty, papers for presentation at professional meetings and for publication. As a result, their work has become known to agency staff and their presence welcomed in most cases.

Each year, MCH students are interviewed for graduate research assistantship (GRA) positions, and six students are selected annually. Every attempt is made to match the GRAs' interests with project priorities. Each GRA is assigned to work with a preceptor from the agency. In several cases, students who are not GRAs have been assigned to work on projects in a work study capacity.

Project proposals and workplans are drafted by the GRAs, preceptors, and faculty jointly. Where appropriate, several faculty members provide technical assistance on project design. The projects and special studies usually require 1 year for completion. The GRAs are responsible for carrying out the project. In the case of a study, this includes data collection, analysis, and preparation of a final report. Agency staff and faculty work closely with the GRA in all aspects of the project, but the major responsibility in most cases is the GRA's. Those who are assigned to coordinate a project have had considerable responsibility. Their role has included administrative coordination, grant writing, staffing committees, and preparation of committee reports.

The responsibility of supervising the graduate research assistants is shared between agency staff and MCH faculty. Regular meetings are held jointly to review progress on each project and to discuss problems encountered. The 1-year time frame for each project allows time for GRAs to become oriented to the agency as well as to complete academic requirements in a timely fashion. Data collection in some cases has presented a problem because of difficulties in gaining access, particularly when medical records are reviewed.

Upon completion of each project, a report containing results and recommendations is drafted by the GRA. Both agency staff and MCH faculty review the draft and make comments for the final report.

The project reports have been used by the participating agencies in several ways. For example,

the results of the comparative analysis of nutrition counseling methods in WIC programs provided the information necessary to make administrative decisions regarding the type of counseling that is most satisfactory to clients. The protocol for conducting site visits to Children and Youth projects was developed and field tested by the GRA and was subsequently adopted for agency use. The analysis of dental health needs of school-age minority children provided baseline information for the development of a health education program.

The program is funded jointly by the New York State Health Department, which provides support for the graduate research assistants, and the Center for Population and Family Health, which provides a tuition waiver for each of the GRAs.

Highlights of Collaborative Projects

The purpose of these projects has been to identify underserved populations, assess the impact of funding cutbacks, and define new strategies for service delivery programs. The following highlights demonstrate the different approaches and priorities.

Access to prenatal care in Central Harlem. The purpose of this study was to identify patterns of hospital use and prenatal care among pregnant women in the Central Harlem Health District (CHHD) that may affect the pregnancy outcome. In 1981, there were 1,603 births to CHHD women; the infant mortality rate was 21.1 per 1,000, as compared with 14.5 for New York City. Phase 1 of the study was designed to examine hospital use by CHHD women for deliveries; prenatal care in CHHD by provider; age and area of residence of the mother; and related variables, including adolescent pregnancy, spontaneous fetal delivery, low birth weight, and infant mortality by health area in CHHD, using birth tape data.

Sixty-three percent of all the deliveries in CHHD in 1981 were to women who received early to middle-stage prenatal care. One-third (34 percent) received late or no care. Analysis of data on the 1,426 deliveries made in the five most utilized hospitals further revealed the following:

<i>Inception of prenatal care</i>	<i>Percent of deliveries</i>
Early or middle stage	61.6
Late	15.6
None	19.2
Unknown	3.6

SOURCE: New York State Health Department, Improved Pregnancy Outcome Project.

More than two-fifths (42 percent) of CHHD women with late prenatal care deliver at Harlem Hospital. And nearly 75 percent of CHHD women who had no prenatal care use that hospital, constituting nearly half the population of the hospital's deliveries that had no care. In only one of the other four hospitals, St. Luke's-Roosevelt, did CHHD deliveries with late or no prenatal care impact upon the percentage of total deliveries in those categories greater than 10 percent. For that hospital, the figures are 14 percent with late care and 16 percent with no care. (7).

Phase II of this project will be completed by another GRA. The hospital records of women delivering during the study year will be reviewed to determine the site of prenatal care and the number of visits during each trimester. These data will be used by the State health department staff to determine priority areas for targeting services and need for new types of services.

Breastfeeding promotion in New York City. Although the rates of breastfeeding have been rising nationally since 1970, low-income Hispanic, black and Southeast Asian women have significantly lower rates than white women. A recent study undertaken by the New York City Department of Health found that only 20.6 percent of babies discharged from maternity and newborn services were being breastfed, and an additional 9.5 percent were being fed a combination of breast milk and formula.

The Steering Committee to Promote Breastfeeding in New York City was formed in May 1982 initially to discuss infant feeding patterns in New York City and the need for more mothers to make the informed choice to give their babies the benefits of being breastfed. The need was recognized for a committee to take on the task of organizing and implementing specific strategies to promote breastfeeding. Based upon available evidence and the members' own considerable experience, the steering committee developed a comprehensive program to address this need. A graduate research assistant was assigned to coordinate the committee's activities administratively for a 2-year period.

Primarily, there was a consensus, confirmed by a review of the published literature, that a basic lack of information among both lay people and professionals concerning the benefits of breastfeeding accounted for the low rates in New York City. Lack of support for women who wished to breastfeed, together with antiquated maternity facility practices, were thought to be factors which contributed to the low rates. The committee agreed that the specific

barriers to successful breastfeeding were lack of knowledge and subsequent lack of emphasis on breastfeeding in professional training programs; hospital policies that do not lend themselves to the promotion of breastfeeding; prenatal and postnatal clinics that do not emphasize the importance of breastfeeding; and the pervasive notion that breastfeeding in public, at work, or elsewhere is not "normal," acceptable, or important.

Six groups were formed to address these barriers. A research group, using existing studies and data, has prepared several background papers on analysis of trends and issues related to infant feeding practices.

The project of the professional education group is to provide information for health professionals in hospitals on infant feeding choices and breastfeeding.

A set of guidelines for hospitals that would encourage and support early postpartum breastfeeding is being developed by the hospital practices group. Rooming-in and modifications in the staffing patterns of obstetrical units are the two major foci.

The prenatal and postpartum care task group is working on the development of recommendations and materials for facilities that provide health care prenatally and postnatally. The materials are designed to supply information to health providers and to mothers.

The public policy and legislative group monitors public and legislative issues as they relate to infant feeding and breastfeeding. One objective of this group is to develop guidelines for employers that will assist working women in gaining the right and physical possibility to breastfeed at work.

A public information group is working to create a more positive image and increased acceptability for breastfeeding through the media and posters in public places (8).

Discussion

In 1980, the Select Panel for The Promotion of Child Health noted a need to review the extent to which funds drawn from MCH programs were used to generate appropriate and useful evaluation research conducted by or for the States in order to improve the quality of MCH services they provide. It was recognized by the panel that one of the major reasons there has been so little change and improvement in the public program delivery system at the State level during the past few decades has been the lack of critical study at that level. The panel urged that special priority be given to developing a

range of new health outcome measures in order that the value and impact of services could be measured (2).

Although State governmental agencies often have professionals on staff who are trained to design such studies, these professionals have numerous administrative responsibilities, and few can therefore devote the full amount of time necessary for such evaluation research efforts. With the advent of block grants to the States replacing categorical Federal grants, it is likely that this situation will persist into the foreseeable future, as State priorities must be concerned with developing the mechanisms for administering the block grants.

As the direction of government has shifted from Federal to State, thus enhancing the role and responsibility of States, State health services evaluation and research has an obvious contribution to make in helping to evaluate the effectiveness of services to avoid unnecessary complexity and duplication. Similarly, health policy analysis can lend more coherence to the diversity of publicly financed programs for mothers and children, particularly, in these times of shrinking financial resources.

While the nature and extent of linkages between State service providers and schools of public health remain to be specified, we propose the arrangements described above as a model for such linkages.

In the coming years, it will be imperative to explore a broader range of possibilities for collaboration between schools of public health and State health departments. It has been suggested that State health department personnel will need to develop further skills in business and accounting, particularly in cost benefit analysis; in advocacy, to be able to mobilize support more effectively for the needs of mothers and children; in public administration, with a focus on understanding the process of government and how to use it; and in epidemiology as it relates to policy relevant research (9). These skills will be required to conduct needs assessments to target resources and monitor the effects of cut-backs. Further, it will be necessary for States to develop a research base in MCH. The role of schools of public health in the provision of training and transfer of technology to meet these needs cannot be underestimated. The accomplishment of such collaboration requires a reassessment of the methods used in training and technology transfer in the past. Building upon the traditional role of the State health department as a source of practical learning experiences, models of collaboration should be tested further and institutionalized.

With the decreasing financial resources for both

schools of public health and State health departments, new "bartering" options will have to be explored. The supervision of public health students in the State health department necessitates staff time to provide orientation and oversight of students while they implement the projects to which they are assigned. Since there is no reimbursement for the hours the person spends in this activity, agreements should be developed that exact faculty time for collaboration and consultation on these projects. This would assure a team approach to project development, ensure adequate student supervision, and provide needed faculty consultation at little cost.

Conclusion

Collaboration between the State health departments and schools of public health can mutually strengthen the educational objectives of the schools and the planning and evaluation of health prevention and health promotion services and activities. Such joint efforts can be successful when they are designed to meet objectives that are agreed upon mutually and when they are supported jointly. In view of the adjustments that have occurred in public health in the past few years, it is timely to design, implement, and assess new and cost-effective collaborative models.

References

1. Brandt, E. N.: Block grants and the resurgence of Federalism. *Public Health Rep* 96: 495-497, November-December, 1981.
2. Better health for our children: a national strategy. The report of the Select Panel for the Promotion of Child Health to the United States Congress and the Secretary of Health and Human Services, Vol. 1, Major findings and recommendations. DHHS (PHS) Publication No. 79-55071. U.S. Government Printing Office, Washington, DC, 1981, pp. 1-35.
3. Lash, T., Sigal, H., and Didzinski, D.: State of the child: New York City II. *Foundation for Child Development*, New York, NY, June 1980, pp. 2-49.
4. Trends: a statistical bulletin on the status of children and families in New York State. *New York State Council on Children and Families*, Albany, NY, January 1983.
5. Summary of vital statistics, 1981. The City of New York, Department of Health, Bureau of Health Statistics and Analysis, New York, 1982.
6. Prevention Action Plan. Report of the Governor's Conference for the Prevention of Developmental Disabilities and Infant Mortality, State of New York. Albany, NY, October 1981, p. 15.

7. Chase, Y., Medvesky, M., Barber-Madden, R., and Randolph, L.: The improved pregnancy outcome project for the Central Harlem Health District, New York City, Phase I, Access. Report to New York State Health Department, New York City, August 1983.
8. Berkeley, L., Michaels, B., Randolph, L., and Barber-Madden, R.: Task force to promote breastfeeding in New York City. Presented at the American Public Health Association annual meeting, Dallas, TX, Nov. 7, 1983.
9. Butler, J.: The political gestalt. Presented at the Association of Directors of Maternal and Child Health and Crippled Children's Services Workshop on Mothers and Children—Providing the Services, Preparing the Leadership. Washington, DC, Jan. 22, 1982.

The Accuracy of Tuberculin Skin Tests: Self-Assessment by Adult Outpatients

NANCY L. RISSER, RN, MN
 DONALD W. BELCHER, MD
 JAMES B. BUSHYHEAD, MD, MPH
 BARBARA M. SULLIVAN, RN, MSN

Ms. Risser is Respiratory Clinical Nurse Specialist at the Seattle Veterans Administration Medical Center and Lecturer in the Family Nurse Practitioner Program, Community Health Care Systems Department, of the University of Washington School of Nursing. Dr. Belcher is Associate Professor of Medicine and Dr. Bushyhead is Clinical Assistant Professor, Departments of Medicine and Health Services, University of Washington. Ms. Sullivan was formerly Adult Nurse Practitioner at the Seattle VA Medical Center.

The research was supported in part by VA Health Services Research and Development funds. Results of the study were presented at the 17th Annual Communicating Nursing Research Conference, sponsored by the Western Society for Research in Nursing, in San Francisco, May 4, 1984.

Tearsheet requests to Nancy L. Risser, RN, MN (152-HPC), Health Promotion Clinic, Seattle VA Medical Center, 1660 S. Columbia Way, Seattle, WA 98108.

Synopsis

Tuberculin skin testing is an accurate, inexpensive screening procedure for detecting tuberculosis infection. The return visit needed to interpret the reaction is inconvenient, costly, and may contribute to under-utilization of the test. Although some clinicians ask patients to read their own purified protein derivative (PPD) test results, patient accuracy and the degree of teaching needed to learn this skill are unclear.

This study evaluated the accuracy with which 145 outpatients read their own Mantoux skin test (PPD) reactions and reported by postcard after brief training by nurse practitioners. A total of 89 instructed patients returned postcards and also returned for clinician readings; 46 submitted postcards without returning; 7 returned but did not complete postcards; and 3 neither returned postcards nor returned for readings. Ten of 135 postcards were uninterpretable.

For 81 subjects with both interpretable tuberculin self-assessment postcards and clinician readings, overall PPD classification agreement was 88 percent; $Kappa_w = +0.905$ ($P < .001$). Compared to clinician readings, 1 of 53 patients falsely reported a positive reaction (≥ 10 mm) and 2 of 25 patients falsely reported negative PPD readings (0–4 mm).

There was 100 percent agreement between postcard readings and clinician classifications in a subgroup of patients ($N = 26$), prospectively identified by nurse practitioners as capable of accurate tuberculin self-assessment. Inter-clinician reading agreement ($N = 37$) was 89 percent; $Kappa_w = +0.943$ ($P < .001$).

The brief standardized teaching protocol described can enable most patients to measure and report their PPD results. Study results suggest that postcard reports, especially negative ones, from a subgroup of patients selected for their skill in measuring their initial PPD wheal and ability to paraphrase instructions, might be substituted for clinician readings.

TUBERCULIN SKIN TESTING, A WIDELY ACCEPTED SCREENING procedure for detecting tuberculosis infection, is recommended on entry into the health care system for selected high-risk patients (1–4).

Periodic purified protein derivative (PPD) tuberculin testing is also used in surveillance of negative persons likely to be exposed to tuberculosis (5). Despite these recommendations, tuberculin skin