

Better Use of Health Professionals in New York City Schools

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PHASE 1 of the school health personnel utilization project covered a large factfinding study in more than 300 public and parochial schools in New York City (1, 2). This report on phase 2 describes the action that followed: the introduction and evaluation of a new health team in the school health program (3).

The intended third stage, beyond the project itself, is the extension of the new team concept to all public and parochial schools in New York City. We believe the team concept should be extended, and we are confident it will be done. In fact, funds were allotted in the New York

City budget for 1968-69 to permit extending the team concept to two of the city's five boroughs, and some progress has been made in this direction.

The basic motivation for undertaking the project was a desire to give the best possible health supervision to the children despite a worsening shortage of nurses. Although many varied actions were taken to recruit more nurses, employ part-time personnel, and create new classifications of personnel, the overall problem of staffing was becoming more acute. Clearly, while obtaining more personnel would be a solution, if it could be done, making better use of the personnel we had would be another.

The report on phase 2 begins, as it should, with a brief statement of the major findings of phase 1 (1), since it was on these findings that further action was based.

Findings and Recommendations in Phase 1

1. *Professional nurses spent about one-third of their time on nonprofessional activities.*

RECOMMENDATION: Use more ancillary personnel in the school health program to do the nonprofessional work done by nurses.

2. *Public health assistants only partly relieved nurses of nonprofessional duties.*

RECOMMENDATION: Revise duties of the public health assistants to relieve nurses of nonprofessional activities, particularly in technical areas.

3. *Public health nurses and staff nurses had essentially the same duties and responsibilities.*

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RECOMMENDATION: Reevaluate work assignments of public health nurses so that their services would be commensurate with their professional skills and training.

4. *Only 36 percent of all time of staff (including physicians, nurses, and public health assistants) was spent in direct services to children, 63 percent was spent on supportive activities, and 1 percent of reported activities could not be coded.*

RECOMMENDATION: Critically examine distribution of personnel time by program area giving primary consideration to changing priorities and perspectives in health services administration.

5. *More time was spent by health personnel on clerical operations than on any other single work classification.*

RECOMMENDATION: Examine clerical work generated by the school health program to determine whether the volume could be reduced by simplified systems, forms, and procedures.

Team Experiment and Evaluation Techniques

Phase 2 of the school health personnel utilization project consisted of demonstrating and evaluating a new team concept developed during phase 1. The concept was designed to respond to the first three recommendations. The demonstration began in January 1966 and continued through December 1966. The team concept was tested in three health districts selected on the basis of socioeconomic, ethnic, and population factors. The demonstration districts were fairly representative of the population served by the school health program. In the three districts are 95 elementary schools, public and parochial, and 12 junior high schools with a total pupil registration of 128,000—about 10 percent of the student population in New York City.

The team was designed to enable each member to devote the largest possible percentage of time on duties appropriate to his training and experience. In the demonstration a group of schools was served by a health team consisting of a physician, a public health nurse functioning as combined team leader and community nurse, a staff nurse to give the usual school nursing services, and a public health assistant to perform nonprofessional duties for the team.

The role of each team member and the techniques for improved intrateam communications were carefully delineated. The allocation of duties to each team member was based on the analysis made in phase 1 of the project. Functions and responsibilities of each team member are described in detail in the full report published on the project by the Medical and Health Research Association (3).

Although the demonstration changed the types of activities assigned to and performed by specific health workers, it did not alter the total school health program. Physical examinations, teacher-nurse conferences, immunizations, and other health services were carried out in the three demonstration districts as in the city's other health districts during the study year. Basic school health forms, procedures, and reports remained the same.

Since one goal was to test the team concept for possible extension to the entire school system, the demonstration was carried out under regular field conditions, including usual staff turnover, absences due to illness, and work problems such as crash immunization programs and special reports. By carefully defining the role of each team member, providing adequate public health assistant's time for each team, fixing responsibilities at the appropriate level, and retaining the same persons on each team, we expected to increase the proportion of time all professional employees spent working at their highest level of skills.

A control group of schools was selected as a source of data for comparison with similar data from the experimental schools. The control group was selected to match the experimental schools on the basis of type, size, socioeconomic level of pupils, and amount of public health assistants' time allotted.

There were 107 schools in the experimental group—95 elementary and 12 junior high schools. The control group contained 150 schools—133 elementary and 17 junior high schools. The control schools were selected from different health districts than the experimental schools districts. They were so chosen to avoid or at least minimize the problem of district supervisory staff carrying over into the control schools some of the team concepts and practices used in the experimental schools. A fuller dis-

cussion of sample selection and selection factors will be found in the report on phase 2 (3).

The effects of the restructured team approach were evaluated by comparative studies of the following types of data from the experimental and control schools.

1. Activity log data to determine differences in personnel utilization practices.

2. Daily work tally sheets to document differences in the rate of work completion.

3. Students' school medical records to evaluate case management.

4. Employees' attitudes to determine satisfaction with work assignments and adequacy of performance.

It may be noted at this point that the findings on the activities of physicians and nurses in the control group in phase 2, even though the data were collected during different time periods and in a different sample of schools, were remarkably similar to the findings in phase 1. For example, school physicians in phase 1 spent 89.9 percent of their time on professional activities; in phase 2 physicians in the control schools spent 90.1 percent on such activities. Nurses spent 59 percent on professional level duties in phase 1 and 57.8 percent of their time on such duties in the control schools in phase 2.

A discussion of the statistical techniques used in the study may be found in the phase 1 report, appendix G (2).

Major Findings of Phase 2

1. The experimental school health team reduced time spent by nurses on nonprofessional activities. Nurses serving experimental schools spent 68 percent of their time on professional activities, while nurses in the control schools spent 58 percent of their time on professional activities. If observations in the experimental schools are compared with those in all schools in phase 1 of the project in 1964, the difference is even greater: 68 percent of nursing time devoted to professional activities in the experimental schools as compared with 55 percent for nurses in schools studied in phase 1.

2. School health personnel in both experimental and control schools still spent more time on supportive activities than on direct services to children. Members of the school health team, particularly professional nurses, spent slightly

more time on direct services in experimental schools than health personnel in control schools.

In the experimental schools, 33 percent of all the health staff's time was spent on direct services to children as compared with 31 percent of the health staff's time in the control schools. The greatest improvement in increased time spent in direct services to children was among professional nurses. In the experimental schools, nurses spent 46.3 percent of their time on direct services as compared with 40.6 percent in the control schools.

The largest amount of staff time used in supportive services was spent on clerical work. Professional nurses in control schools spent 21 percent of their time on clerical activities. Nurses in the experimental schools had reduced their clerical work to 14 percent of their time. A comprehensive study of clerical operations, including school health systems, forms, and records is now in progress and is supported by a Public Health Service grant.

3. The phase 2 experiment succeeded in developing a unique function for the public health nurse-team leaders, more suited to the level of their training than their former tasks. Public health nurses showed the most dramatic improvement in personnel utilization patterns. In the experimental schools they spent 72 percent of their time on professional activities as compared with the 58.3 percent they spent on such activities in the control schools (table 1). Public health nurses in the phase 1 study spent 56 percent of their time on professional activities (table 2).

Table 1. Percentage expenditure of time of nurses at different levels of professional work in New York City's experimental and control schools, 1966

Functional level	Experimental schools		Control schools	
	Public health nurses	Staff nurses	Public health nurses	Staff nurses
All professional.....	72.1	66.6	58.3	59.1
Public health nurse only.....	1.9	.7	.6	.7
Staff nurse only.....	5.1	12.9	11.0	11.5
Public health nurse or staff nurse.....	65.1	53.0	46.7	46.9

Public health nurse-team leaders in the experimental schools showed a major shift from the staff nurse type of work they had been found doing in phase 1. In phase 1 we observed little difference between the duties of staff nurses and public health nurses. In the experimental schools team leaders, all public health nurses, spent markedly more time than staff nurses in the control schools in guidance counseling, health education, community agency contacts, and administration and less time on health appraisal and casefinding, immunization, first aid, clerical procedures, maintenance, and housekeeping (table 3).

4. Public health assistants were more effective in reducing the subprofessional activities of nurses in experimental schools than in control schools. Although the time assignments for public health assistants were inadequate for their new and expanded duties, these assistants were notably more effective in releasing nurses from subprofessional activities, clerical and technical, in the experimental than in the control schools. Nurses in the experimental schools spent only 21 percent of their time on subprofessional activities, compared with 31 percent for those in the control schools (table 4). Subprofessional technical work took only 8.7 percent of nursing time in the experimental schools as against 12.2 percent in the control schools.

The function of the public health assistant was substantially changed in the experimental schools. In addition to her traditional clerical duties, increased emphasis was placed on technical responsibilities. Public health assistants aided physicians at medical sessions without a nurse. The public health assistants also carried special caseloads, without changing the subprofessional nature of their position, by extending this aspect to the issuance of forms for followup on children.

5. Despite the limited duration of the experiment, a review of the rates of successful case management showed some improvement in the experimental schools when compared with the control schools. We did not expect a 1-year trial to reveal such qualitative change in a program of the scope and complexity of the New York City school health services. Successes and

failures in case management will have to be observed over a longer period before a definite evaluation can be made.

However, the team approach resulted in placing a significantly higher percentage of new patients under satisfactory medical care than the procedures in the control schools. In the control schools, 56 percent of children listed as new patients were placed under satisfactory care, while in the experimental schools, 68.9 percent of the new patients were so placed. The experimental schools were significantly more effective in getting new patients under care (0.05 level of significance).

6. There was a reduction in the work units performed per staffing hour in the experimental schools compared with the control schools. The difference was small among the nurses and public health assistants, but for school physicians the difference in number of work units performed per staffing hour between physicians in experimental and control schools appeared significant. There is evidence, however, that toward the end of the study this difference was being overcome. We believe the difference was due chiefly to the need for personnel in the experimental schools to learn new procedures and approaches. The work unit study should be repeated after team members have been completely trained.

Table 2. Percentage expenditure of time of nurses in New York City's experimental and control schools, 1966, and in schools in phase 1, 1964, by level of activity

Categories of nurses and schools	Professional	Sub-professional	Incidental	Other
All nurses:				
Experimental schools.....	67.6	21.0	11.4	0
Control schools.....	57.8	30.8	11.3	.1
Schools in phase 1....	54.7	33.5	10.3	1.5
Public health nurses:				
Experimental schools.....	72.1	14.4	13.5	0
Control schools.....	58.3	30.4	11.2	.1
Schools in phase 1....	56.0	32.0	10.4	1.5
Staff nurses:				
Experimental schools.....	66.2	23.3	10.5	.1
Control schools.....	54.8	33.5	11.7	0
Schools in phase 1....	51.6	37.4	9.8	1.2

Table 3. Percentage expenditure of time of nurses, by activity, New York City's experimental and control schools, 1966

Activity	Experimental schools		Control schools	
	Public health nurses	Staff nurses	Public health nurses	Staff nurses
Health appraisal and casefinding.....	7.6	21.4	18.3	18.2
Administration of immunizations and tests.....	.9	.7	1.9	2.3
First aid and emergency care.....	.3	1.6	1.7	1.7
Guidance, counseling, health or safety education, and accident prevention....	31.6	21.5	18.5	17.8
Referrals to community agencies....	3.3	2.1	1.4	1.7
Administration of school health program.....	25.7	13.9	12.2	13.8
Maintenance, house-keeping, and facilitating services..	7.6	12.2	14.2	12.8
Clerical procedures....	9.2	15.2	20.1	19.8
Incidental activities....	13.5	11.0	11.1	11.3
Other.....	.3	.4	.6	.6

7. Restructured school health teams should be extended to other health districts, but this extension will require more public health assistants. An adequate number of public health assistants is crucial to extending the team concept. Phase 1 of the project showed that nurses serving schools without public health assistants spent 40 percent of their time on subprofessional activities that could be performed by public health assistants. Nurses in the experimental schools, working with public health assistants and following the team concept, spent only 21 percent of their time on such activities. This percentage can be reduced even further if sufficient public health assistants are available to carry relatively uncomplicated caseload responsibilities in addition to their regular subprofessional assignments.

Physicians' Response to the Experiment

The new arrangements were not primarily aimed at effecting changes in the work of school physicians, since it had been found in the phase 1 study that, on the whole, their professional skills were being appropriately used. Neverthe-

less, physicians were affected in the following ways.

1. Since physicians were now members of teams, each team covering a specific group of schools, physicians' assignments were stabilized to a much greater degree than before. Outside the study districts, an effort is made to keep each physician in certain schools. There is, however, considerable variation from this ideal, whereas within the study districts almost no variation was permitted.

2. Under the experimental system, school physicians had many work sessions at which only the public health assistant was present. These sessions were for routine work with the children who had no health problems. The nurse was present only at sessions where children with known health problems requiring her services were under consideration; previously, she had been present at practically every physician session.

3. The physicians, as team members, participated in the regular team conferences at which the total workload was reviewed and organized, and individual cases were discussed. This kind of conference is not held regularly in other districts.

The physicians' reactions to all of these changes were favorable. Physicians felt that stability of assignment made them significantly more familiar with school staff as well as permitting them to followup individual children more efficiently. Physicians responded well to

Table 4. Percentage expenditure of nurses' and public health assistants' time for subprofessional activities, New York City's experimental and control schools, 1966

Categories of personnel and schools	All sub-professional activities	Clerical activities	Technical activities
All nurses:			
Experimental schools..	21.0	12.3	8.7
Control schools.....	30.8	18.6	12.2
Staff nurses:			
Experimental schools..	23.3	13.8	9.5
Control schools.....	33.5	21.4	12.1
Public health assistants:			
Experimental schools..	86.0	63.5	22.5
Control schools.....	85.2	60.1	25.1

working with the public health assistants, finding them capable of handling the workload, setting up sessions, and assisting in the examinations. Finally, physicians liked the team conferences, reporting that a better picture of the work of all team members and the academic personnel evolved from the conferences. Physicians developed a better perspective on the kind of public health work they themselves were doing, and they felt that, by participating in the conferences, they were using their medical skills at a higher level and in a broader scope.

There were, of course, wide variations in the response of individual physicians, and a minority at the completion of the study still felt that the old system was preferable. But most physicians considered the experiment an advance which they welcomed. Informal followup nearly 2 years later indicates that all the physicians have accepted the new plan as routine and are, on the whole, satisfied with their part on the team, preferring it to the former arrangement.

The Nurses' Attitudes

The new team approach to school health required a major orientation and staff training effort. The two groups who required the more intensive work were the public health nurses and the public health assistants. This need was understandable since under the team concept their functions changed more markedly than those of the regular staff nurses.

Previously, the public health assistant's duties in the school health program were largely clerical—recording, filing, checking transfers in and out, and other routines. Now she was being asked to carry a caseload of her own, an uncomplicated caseload to be sure, but still a great deal of supervisory assistance was needed to help her to move from recordkeeping to personal involvement with the child.

The broadened scope of the public health nurse's services as the community nurse with responsibility for the overall health program in several schools and for a specific caseload requiring her skills created mixed reactions—from marked enthusiasm in some nurses to frank, outright resistance in others. Interestingly enough, the marked enthusiasm was equally divided between the young nurses and those who had been with the agency for some

time. The resistance encountered was not due to opposition to the team concept but to uncertainties brought on by a change from limited functions to markedly increased community responsibilities.

Although it is too early to speak with total assurance about nurses' attitudes regarding the team approach in school health, we can say with some confidence that after a preliminary period of adjustment most nurses in the experimental schools were pleased and satisfied with their new functions. The public health nurses liked the flexibility in arranging their own work schedules. These nurses enjoyed being relieved of some of the clerical and subprofessional work, thus permitting them to spend more time with the families of school children and with community organizations. Public health nurses also felt that they were able to make a more significant contribution to the total school health program than before the advent of team practice.

For the staff nurse the sharper definition of duties and responsibilities helped to clarify her status and duties. She was freed from many routine duties and chores, and she was no longer chiefly responsible for children with complex medical or social problems or both. The staff nurse was asked to perform nursing duties at a professional level but within the limitations of her academic preparation and training.

It has not been easy to determine the views and attitudes of the majority of public health assistants. They seem to enjoy working closely with physicians and also appear to welcome more direct involvement with children. Assistants' responsibilities and workloads have increased, and they have expressed concern that they may not have sufficient time to do all that is being asked of them. Program administrators will need to work out appropriate work schedules for the health assistants and to staff the program adequately so the concerns expressed will be met by effective action. With proper work schedules, public health assistants, like the other major participating groups, will strongly favor the team concept.

Conclusion

The school health personnel utilization project is one of the largest of its kind. In phase 1 we studied 335 public and parochial elementary and

junior high schools, covering 31.9 percent of the total elementary and junior high school population in New York City. In its implications, this study goes beyond solving immediate problems.

Some advances in modern medicine are now so costly—not just in dollars but in the use of professionals who require years of training—that there are doubts as to how universally these advances may be applied. Of course, a partial answer is to shift the emphasis of medical practice to the prevention of disease or to early detection, since preventing or treating disease in its early stages is almost always less costly than treating a condition after it has become acute or chronic.

Whatever course is followed, we shall inevitably have to make better use of the health professionals we have. We simply cannot afford to have physicians and nurses waste time on chores that can easily be performed by technicians or aides. This study has demonstrated beyond question that meaningful change in professional practices can be effected if the proper foundation for change has been constructed.

This study deals with a school health service, but the findings should throw some light on the use, or misuse, of professionals in other programs. While studies of this type are not common in the health professions, industry often uses such studies with great effectiveness.

The study is of interest because of the wide applicability of its techniques and because of its success in demonstrating how judicious use of nonprofessional workers can free scarce professionals for the more skilled tasks which only they can handle.

Summary

In phase 2 of New York City's school health personnel utilization project, activities of school health teams in 107 experimental schools in three health districts were compared with those of conventionally organized personnel in 150 control schools in different districts. The demonstration ran from January through December 1966.

Findings on the activities of professionals in the control group in phase 2 were remarkably similar to the findings in phase 1. In phase 2, 68 percent of nursing time in the experimental

schools was devoted to professional activities as compared with 55 percent for nurses in the schools studied in phase 1.

The phase 2 experiment succeeded in developing a unique function for the public health nurse-team leaders which was more suited to their level of training than their former tasks. Public health nurses showed a dramatic improvement in personnel utilization patterns. In the experimental schools they spent 72 percent of their time on professional activities as compared with 56 percent of professional work in phase 1.

In the experimental schools, 33 percent of all health staff's time was spent on direct services to children as compared with 31 percent in the control schools. Staff nurses, freed from routine duties, were asked to perform nursing duties at a professional level but within the limitations of their academic preparation. Public health assistants' traditional clerical duties were expanded to include technical duties, special case-loads, and aid to physicians at medical sessions without a nurse.

In the experimental schools, nurses spent 46.3 percent of their time on direct services to children as compared with 40.6 percent in the control schools. Nurses in the experimental schools spent only 21 percent of their time on subprofessional activities compared with 31 percent for those in the control schools.

There was a reduction in the work units completed per staffing hour in the experimental schools compared with the control schools. In the control schools 56 percent of the children listed as new patients were placed under satisfactory care, while in the experimental schools, 68.9 percent of the new patients were so placed.

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