Summary of findings of the project's study phase

Better Use of Health Professionals in New York City Schools

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THERE ARE TWO basic methods of alleviating personnel shortages in the health field. One is to train more physicians, nurses, and other professionals; recruit extensively; and establish new schools and colleges to train persons in the health disciplines. This method is being followed, but it is a long-term approach. The second method is to make better use of available personnel. The need to use health workers more efficiently becomes greater as the requirements for their professional training increase.

Physicians and public health nurses, among others, are highly trained and scarce. If a public health nurse, for example, spends a third of her time doing work that could be done by a nonprofessional, this is waste. If this waste can be eliminated, it is tantamount to gaining new nurses because the nurses we have can do more of the work they were trained to do and want to do.

This report covers the factfinding part, or phase 1, of the school health personnel utilization project. Phase 1 enabled us to learn in detail how physicians, nurses, and other personnel in the school health program of New York City have been spending their working hours—on which tasks and at what levels. Phase 2 of the project is the introduction, on a pilot basis, of school health teams to achieve more efficient use of personnel.

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Personnel Shortages

In the United States, the yearly numbers of new graduates in most health disciplines are not enough to increase or maintain existing ratios of health personnel to population. Approximately 621,000 full-time and part-time professional nurses—319 nurses per 100,000 population—were practicing in the United States in 1966 (*1*). The Public Health Service's Division of Nursing estimated a current nationwide shortage of 125,000 nurses (*2*).

The number of physicians in the United States has about doubled since 1900, but the population has increased 2.5 times. In 1965 there were about 150 physicians per 100,000 persons. To maintain this ratio we shall need a total of 356,900 physicians in 1975. This would necessitate 10,000 physician graduates.

However, in 1965 the medical and osteopathic schools graduated only 7,890 physicians, and current estimates are that even by 1975 we will be graduating only a few more than 9,000 a year (*3*). To maintain the ratio of 150 per 100,000 will require an increased supply of U.S.-trained physicians or continued reliance on foreign-trained physicians to make up the deficit.

Continuing shortages of health professionals preclude planning within traditional concepts of budget and personnel. The most critical shortage facing health planners and administrators is not dollars, but people.

The New York City Department of Health in 1964 began a detailed study of the use of its professional personnel because a continuing critical shortage of nurses was a major deterrent to the initiation of new plans and to the expansion of current programs. The department had been unable to extend its school health program to approximately 118,000 students in 83 public or parochial academic high schools. However, in 1964 service was provided to 1,303,334 students in 1,323 public or parochial elementary, junior high, and high schools.

Efforts To Eliminate Shortage

The sharpest decline in the health department nursing staff (fig. 1) was among full-time public health nurses who were registered and had at least 30 credits for college study in public health practice. Despite vigorous efforts to retain their services, the number of full-time public health nurses in the department declined from 735 in 1953 to 335 in 1965, nearly 55 percent.

During these years the department of health created several new categories for the employment of nursing and subprofessional personnel. Public health nurses were recruited for 4-hour sessions beginning in 1956. Staff nurses were hired on a yearly basis at approximately the same time. The staff nurse is registered, does not have the additional training of a public health nurse, but is expected to study toward such qualifications. In 1961 the department began employing part-time staff nurses for 5-hour sessions, mainly for the schools.

The nonprofessional position of public health assistant, requiring a high school diploma plus a year's experience assisting a physician or nurse was created in 1948. The number of public health assistants in the department increased from 57 in 1948 to 466 in 1965.

In 1957 the health department began supplementing its nursing staff by purchasing nursing service through contracts with the Visiting Nurse Service of New York, the Brooklyn Visiting Nurse Association, and the Visiting Nurse Association of Staten Island. By 1964 these efforts yielded the equivalent of 706 full-time nurses, too few to meet the growing demand for nursing service.

Design of the Study

The health department in New York City administers the school health service. It serves not only the students, but through them, their families. In this study we decided to concentrate on the school health program primarily because the schools used more than half of all professional nursing time, 509,399 hours, or 54.3 percent, of the total of 938,124 hours for all services in the health department in 1964.

The study was limited to elementary and junior high schools because wide differences in program and organization exist between services for these schools and those for the high schools. Of the more than 1,000 public and parochial elementary and junior high schools, a representative sample of 335 were chosen.

The work-diary technique was chosen for the study. Physicians, nurses, and public health assistants kept chronological records or activity logs during their workday in the school health room. The large amount of detailed information derived through this type of reporting was culled from a total of 168,457 log entries. Coding of tasks into activity categories was accomplished centrally by college students working under the supervision of public health nurses.

It was important to select representative days for activity logs. These days had to include various activities typical of different times during the school year. A total of 15 days in February, May, and November of 1964 were chosen.

The American Nurses Association's "Functions and Qualifications for School Nurses" was used to develop program codes. Because duties of physicians and public health assistants as well as those of professional nurses were in-

cluded in the study, modifications of school nursing functions, as defined by the association, were required. Nine major areas of activity were selected for coding.

Code 1: Health appraisal and casefinding.
Code 2: Administration of immunizations and tests.
Code 3: First aid and emergency care.
Code 4: Guidance, counseling, health or safety education, and accident prevention.
Code 5: Referrals to community agencies and special health department or school resources.
Code 6: Administration of school health program and coordination between school and health department services.
Code 7: Maintenance, housekeeping, and facilitating (parent-substitute, monitorial, or escort) services.
Code 8: Clerical procedures.
Code 9: Incidental activities.

Each major code area was subdivided to denote more specific activities. For example, code 8.01 meant "Performed clerical activities related to health appraisal and casefinding functions," and code 8.02 meant "Performed clerical activities related to preparing for future doctor session." Eighty-three specific activity codes were developed for the study.

After the specific activity codes were grouped into areas, they were then classified into four functional levels designating which category of personnel should perform each duty.

1. Professional (duties of physicians and public health or staff nurses).
2. Technical (subprofessional, such as setting up or putting away equipment used by physicians or assisting physicians or nurses in administering immunizations).
3. Clerical (activities below the professional level).
4. Other (including duties that should be assigned to personnel outside the school health team).

In the following summary of findings, our

Figure 1. Nurses in New York City Department of Health, by category, 1953–64

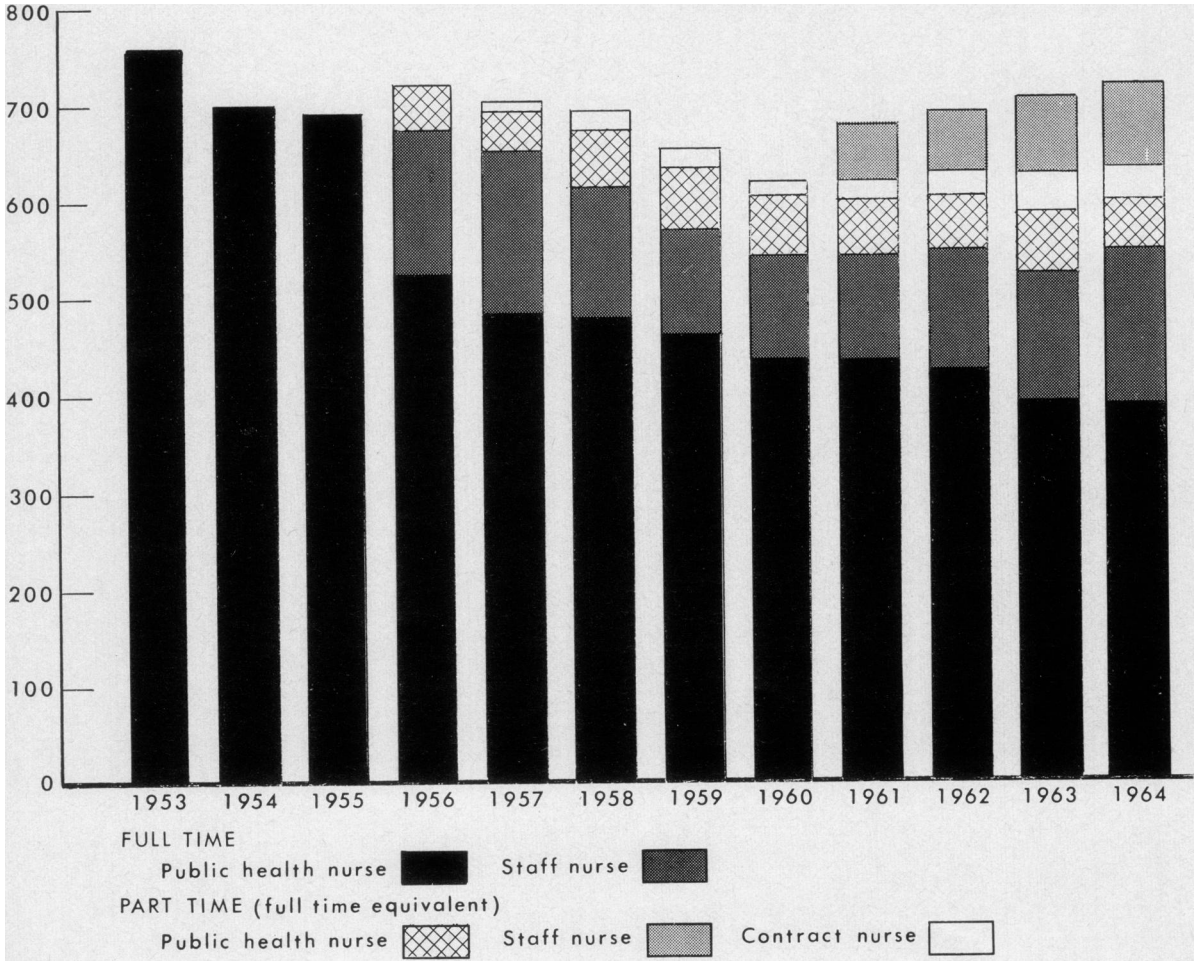
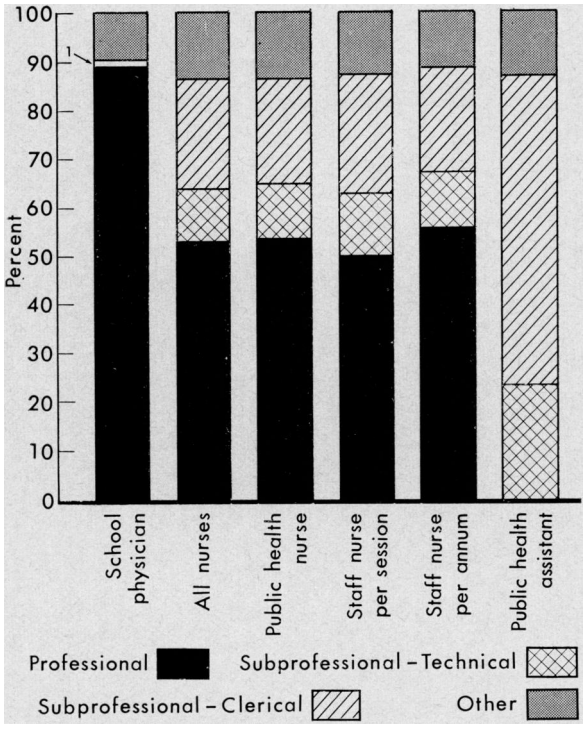


Figure 2. Expenditure of time (in percent) of health personnel, by functional level, New York City schools, 1964



[1] Technical (subprofessional), 0.6 percent; clerical, 0.5 percent.

data on 335 schools for 15 days of the school year have been extrapolated to the 1,051 elementary and junior high schools.

Findings and Recommendations

1. Professional nurses spent about a third of their time on nonprofessional activities. About 373,000 nursing hours were spent in the elementary and junior high school health rooms in 1964. During the study year 125,000 hours of nursing time were spent at tasks at a level below professional nursing skills (fig. 2). This number of hours is the equivalent of about 90 nurses working full time. (Additional hours were spent in programs for high schools and in home visits.) An increase of ancillary personnel in the school health program to do nonprofessional work was recommended.

2. Public health assistants only partly relieved nurses of nonprofessional duties. Nurses working without public health assistants spent 40 percent of their time on nonprofessional activities. Nurses employed in schools to which public health assistants were assigned 1 or more days each week spent 29 percent of their time on nonprofessional work.

Although regularly assigned public health assistants reduced the subprofessional work done by nurses, the reduction was mainly in clerical work. The assistants had little effect in decreasing the subprofessional technical work by nurses.

It was recommended that the duties of public health assistants be revised to increase the assistants' technical work and thereby relieve nurses of nonprofessional activities.

3. Public health and staff nurses had essentially the same duties and responsibilities. Public health nurses spent about 17.5 percent of their time working at staff nurse level, 37.4 percent on duties appropriate for either public health nurses or staff nurses, but only 1.1 percent on functions considered suitable only for public health nurses. Public health nurses were spending 32.6 percent of their time on subprofessional tasks. Staff nurses employed on a yearly basis or by the session were doing essentially the same work as public health nurses although they were not trained for some aspects of it.

Reevaluation of assignments of public health nurses in the school health service was recommended so their services would be used at a level commensurate with their professional skills and training. Public health nurses were to be relieved of duties that could be fully entrusted to staff nurses, some duties appropriate for either staff nurses or public health nurses, and most of the subprofessional work.

4. Only 36 percent of all time of staff, including physicians, nurses, and public health assistants, was spent in direct services to children. Direct services to children included health appraisal and casefinding, immunizations, first aid, guidance counseling, health education, and referrals to community agencies and special resources. Supportive activities, which included administration, clerical work, maintenance and housekeeping, and incidental work, consumed 63 percent of staff time. Activities which could not be coded required 1 percent of staff time. The time distribution varied by class of personnel.

School physicians spent 73 percent of their time on direct services for children and 26 percent on supportive activities. The most time-consuming duties for physicians were health appraisal and casefinding. These services accounted for 50 percent of the physicians' time in the schools.

Nurses, however, spent 57 percent of their time on supportive activities and 42 percent on direct services. This time pattern was about the same for both public health and staff nurses, whether employed on a yearly or per session basis.

Clerical procedures, the largest single activity component for nurses, required approximately 23 percent of their time in the schools. About 21 percent of the nurses' time was devoted to health appraisal and casefinding. Only 3 percent of the public health assistants' time was spent on direct services; 96 percent was used on supportive activities.

The time of all school health staff was distributed in the following manner.

Activity	*Time spent (percent)*
Clerical procedures	31.8
Health appraisal and casefinding	19.3
Maintenance, housekeeping, and facilitating services	13.9
Guidance counseling, health education, safety education, and accident prevention	11.8
Incidental activities	10.1
Administration of school health programs and coordination between school and health department services	7.0
Administration of immunizations and tests	2.6
Uncodeable activities	1.4
First aid and emergency care	1.2
Referrals to community agencies and special health department or school resources	.9

Distribution of personnel time by program area was critically reviewed by administrators of the school health service. Primary considerations were the basic goals and objectives of the program in the light of changing priorities and perspectives in health services administration.

5. Clerical operations required more time than any other classification of work. Clerical services, which consumed 31.8 percent of all personnel time, absorbed 61.5 percent of the time of public health assistants and 22.7 percent of all nursing time. Of all the clerical operations studied, the largest amount of staff time was spent on record file maintenance. This chore took 17 percent of all staff time, 8 percent of all nursing time, and 46 percent of all public health assistant time.

A study of clerical work generated by the school health program was recommended to determine whether the volume could be reduced by simplified systems, forms, and procedures. Particular attention was given to record file maintenance.

Conclusion

A revised school health staffing pattern, designed to enable all personnel to work at their highest level of skills, has been developed for pilot use and evaluation. Based on analyses of data collected during the study phase of this project, the pattern incorporates concepts and suggestions of the bureau of public health nursing, the bureau of school health, and the project's work and policy committees.

In phase 2 a new team approach is being tested in 110 schools in three New York City health districts. A team usually consists of a school physician, a public health nurse as nursing team leader and community nurse, two staff nurses with the regular range of school nursing skills, and two public health assistants to do the teams' subprofessional work.

By carefully defining the role of each team member, providing adequate public health assistant time for each team, fixing responsibilities at the proper functional level, and maintaining so far as possible the same group of persons assigned to each team, we anticipate that the time spent by all employees working at their optimum level of skills will be increased.

Preliminary reports are extremely encouraging. The restructured pattern is expected to lead to improvement in all the personnel utilization practices found deficient in phase 1 of this project.

REFERENCES

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