

## AUTOMATION OF PUBLIC HEALTH NURSE REPORTS

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THE ACCELERATION of change in medical practice places a growing burden on the public health nurse to use the new techniques and procedures that will maintain and improve efficiency, thus enhancing the care of patients. Simplification of administrative tasks frees time for professional responsibilities, and when this benefit can be spread throughout the entire organizational structure of public health nursing, improvements may be significant.

The development of a new reporting system for public health nurses in New York State (excluding New York City) is aimed at simplifying and reducing routine paperwork. The system also expedites preparation of reports for various administrative levels and signals important changes in parameters of patient care rapidly and meaningfully.

In the New York State system there is but one basic form, used at the staff-nurse level by all participants. This form is unique in many respects. Almost every duty or function performed by the public health nurse is recorded on the simplified design, which is more comprehensive than any of the five different forms used previously in the manual data system. Information is recorded by placing lines in designated spaces adjacent to specified printed items (see chart). These marks are made with a standard lead pencil. A single sheet is prepared for each visit and each activity performed during the day. The forms are collected at suitable intervals and mailed to the computer center at

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Roswell Park Memorial Institute, Buffalo, where forms for the entire State are processed. To ease the burden of scheduling for machine processing, local departments send the completed material at no less than weekly intervals. In some areas where the volume of collected data is unusually high, packages are sent almost daily. Every effort is made to transmit the final material for each month shortly after conclusion of the reporting period so that accurate summaries can be prepared promptly.

At the computer center the sheets are processed as received at the rate of approximately 5,000 per day. Each is passed through an IBM 1232 optical mark page reader, a machine which transfers the data recorded on the form to punched cards. No manual key punching is necessary. Incomplete or ambiguous reports are rejected automatically. Obvious errors are corrected at the computer center; other rejects are returned to the nurse for reprocessing. The cards are read by a digital computer (IBM 1401), and the information is stored on magnetic tape. At the conclusion of each month the magnetic tape, containing all reports for the period, is passed through the computer once again, and reports relative to the activity of each nurse are prepared. This information is sent to supervisors in the local health departments through the distribution system of the New York State Department of Health.

At this level the utilization varies considerably, depending upon the organizational relationships within the local departments. Usually, the report reaches the individual nurse, providing comparable statistics for monthly planning and scheduling. New personnel can be guided to some extent by reviewing the reports of predecessors in the same assignments. More adequate and realistic distribution of the

**Simplified form adopted by the New York State Department of Health**

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## NURSING ACTIVITY REPORT

<b>I. SERVICE CLASSIFICATION (MARK ONE ONLY)</b>		
<input type="checkbox"/> PATIENT SERVICE	<input type="checkbox"/> INVESTIGATION	<input type="checkbox"/> CLASSES CONDUCTED
<input type="checkbox"/> NOT HOME - NOT FOUND	<input type="checkbox"/> COMMUNITY SERVICE	<input type="checkbox"/> SCHOOL SERVICES
<input type="checkbox"/> CLINICS	<input type="checkbox"/> STAFF DEVELOPMENT	<input type="checkbox"/> SPECIAL DATA
<input type="checkbox"/> OFFICE WORK	<input type="checkbox"/> PATIENT CENTERED CONFERENCE	<input type="checkbox"/> OTHER

<b>2. AGENCY NUMBER</b> 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9	<b>4. DATE</b> MONTH 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 DAY 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 YEAR 65 66 67 68 69
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<b>3. OPTIONAL</b> 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9
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### PATIENT INFORMATION

<b>5-PRINT PATIENT NAME</b> _____ <b>7-SEX</b> MALE <input type="checkbox"/> FEMALE <input type="checkbox"/> <b>9-AGE</b> UNDER 28 DAYS <input type="checkbox"/> 28 TO 364 DAYS <input type="checkbox"/> IF ONE YEAR OR OLDER, INDICATE: 0 1 2 3 4 5 6 7 8 9 TENS 0 1 2 3 4 5 6 7 8 9 YEARS UNITS 5 6 7 8 9 <b>10-PAYMENT CATEGORY</b> FULL FEE <input type="checkbox"/> WELFARE <input type="checkbox"/> PART FEE <input type="checkbox"/> FREE <input type="checkbox"/> INSURANCE <input type="checkbox"/> NO CHARGE <input type="checkbox"/>	<b>6-PLACE OF VISIT</b> HOME <input type="checkbox"/> OFFICE <input type="checkbox"/> <b>8-TYPE OF CARE</b> PSYCHIATRIC & MENTAL DISORDERS <input type="checkbox"/> UNDER CARE <input type="checkbox"/> NOT UNDER CARE <input type="checkbox"/> MENTALLY RETARDED <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PHYSICAL CARE <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> SPECIAL STUDY <input type="checkbox"/> OTHER <input type="checkbox"/> <b>11-CASE STATUS</b> DISCHARGED <input type="checkbox"/> N <input type="checkbox"/> FV <input type="checkbox"/> RA <input type="checkbox"/> RV <input type="checkbox"/>
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### 12.-PATIENT SERVICE, DISEASE, OR DISABILITY (MARK ONE ONLY)

<input type="checkbox"/> MATERNITY ANTEPARTUM	<input type="checkbox"/> ANEMIA	<input type="checkbox"/> DIABETES
<input type="checkbox"/> MATERNITY POSTPARTUM	<input type="checkbox"/> ARTHRITIS & RHEUMATISM	<input type="checkbox"/> OTHER NEURO. & SK. DISORDERS
<input type="checkbox"/> HEALTH GUIDANCE	<input type="checkbox"/> CANCER	<input type="checkbox"/> OTHER NON-C.D.
<input type="checkbox"/> TUBERCULOSIS	<input type="checkbox"/> CARDIOVASCULAR	<input type="checkbox"/> MENTALLY RETARDED
<input type="checkbox"/> ALL OTHER COMM. DISEASES	<input type="checkbox"/> CEREBRAL ACCIDENT	<input type="checkbox"/> PSYCH & MENTAL DISORDERS

### NURSE'S INFORMATION

<b>13-TRAVEL TIME (NEAREST 5 MINUTES)</b> 0 1 2 3 4 5 6 7 8 9 HUND-5 REDS 0 1 2 3 4 5 6 7 8 9 TENS 0 1 2 3 4 5 6 7 8 9 UNITS NONE	<b>14-ACTIVITY TIME (NEAREST 5 MINUTES)</b> 0 1 2 3 4 5 6 7 8 9 HUND-5 REDS 0 1 2 3 4 5 6 7 8 9 TENS 0 1 2 3 4 5 6 7 8 9 UNITS NONE
<b>15-NURSE'S IDENTIFICATION NUMBER</b> 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9	<b>16-ORGANIZATION</b> OFFICIAL <input type="checkbox"/> VOLUNTARY <input type="checkbox"/> <b>17-TITLE</b> PHN <input type="checkbox"/> RN <input type="checkbox"/> LPN <input type="checkbox"/> TRN <input type="checkbox"/> STN <input type="checkbox"/>

1. USE #2 LEAD PENCIL
2. MAKE MARKS HEAVY AND WITHIN BOXES
3. MAKE ALL ERASURES COMPLETE
4. DO NOT FOLD THIS SHEET

IBM H91447

_____ <b>18-NURSE'S NAME</b>
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workload can be made by evaluating the various categories of results which comprise the machine-generated report. Quarterly and annual reports similarly are prepared and distributed. This procedure reverses the previous practice in which the local health agencies assembled their own monthly reports and sent a quarterly report to the State health department.

At present the summary report does not reflect all of the information which is being collected on the individual visit sheets. Much of these data are being stored at the computer center for use when comprehensive studies are undertaken by various research personnel. Heretofore, such intensive analyses were impossible because of the magnitude of the information requiring manual processing. It is expected that study in depth with the examination of the various interesting interrelationships which exist now will be feasible. Among the first such studies will be a review of patient service, disease, and disability to relate them to the practical needs of the public health nurse for preparatory and continuing education. Other possibilities include cost determinations, organizational affiliation, professional training, and patient identification and classification computations.

Another important factor is the speed with which reports are assembled and available for analysis. Compared to the many months required a short time ago, only days pass now between the close of a period and the issuance of a report. Schedules, caseloads, and personnel assignments can be shifted quickly to respond to the demonstrated need. Arrangements for special educational presentations can be anticipated and based upon an alteration in the client structure of a district.

In the central office of the State department of health statistics now are reported in a comparable fashion from all districts. The information arrives opportunely and simultaneously.

The resolution and summation of many subsidiary documents have been eliminated completely, and almost no clerical work is needed for these duties. The facts are presented in a usable fashion. If a request is made for additional studies, the raw data are available on the magnetic tape at the computer center for analysis and interpretation.

The implementation of this reporting system has required special attention in some circumstances. In each district a 1-day course of instruction was held before the new system was started. Supervising nurses in attendance were expected to conduct classes of instruction for their areas. Special analysis programs were written for the computer to detect the most frequent kinds of errors in completing forms, and notices were sent to all nurses about them. The error level has fallen considerably since the report was first used, and the users have accustomed themselves to the changed format. A procedural change as broad as the new nursing activity report form inevitably requires close scrutiny and training commensurate with the complexity of the contemplated work.

In summary, the New York State Department of Health recently has adopted a system of reporting staff nursing activities which provides many advantages over the manual method used previously. A new data-processing machine, the IBM 1232 optical mark page reader, and an IBM 1401 computer are combined to accomplish the work of an automated data-processing system. Speed and accuracy, comparability of data, timeliness of reporting, and access to raw data for administrative and statistical purposes are some of the attractive features of the new system. Forms and reports have been simplified substantially. Clerical work at all levels has been eliminated or reduced impressively, and management responsibilities can now be undertaken with a firm grasp on meaningful information.