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STATISTICS OF HEALTH PERSONNEL, HEALTH ESTABLISHMENTS
AND HEALTH SERVICES

by

WHO Secretariat

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I INTRODUCTION

Adequate health statistical services are an important part of national health services. Without proper statistical information the health administrator or health planner is working in darkness; he cannot measure the impact of various health measures and health programmes, with the risk of resulting waste of scarce funds and personnel.

The institution of statistics of health personnel and health agencies, and of health services rendered to the population, does not incur heavy expenses, since the data needed will most often be recorded for other purposes than statistical. Health manpower and health establishments will to a large extent already be recorded for pure administrative uses, and the medical personnel will need to diagnose and record diseases and other conditions in order to render proper medical care and to record preventive measures, in order to account for use of supplies and material and for work performed. Health statistics may, therefore, be regarded as a by-product from records and administrative documents already existing or needed for other purposes.

II STATISTICS OF HEALTH PERSONNEL

For the health administration and for health planning it is necessary at any time to have exact information on manpower engaged in medical care and in health services with distribution on such characteristics as type of worker, place and type of institution where employed, educational qualifications, sex, age, etc. It is also necessary to follow variations from time to time in manpower for health services and to be able to make estimates of manpower potentially available in the immediate and in the more distant future.

For these purposes the following is needed:

1. An individual file comprising all professional and auxiliary health workers.
2. Regular information for follow up of this file.
3. Tabulation of results.
4. Periodic studies of training activities and prospective output of trained persons.

1. File of professional personnel in health services

The first consideration concerns the groups of professions to include. This should, at any rate, comprise physicians, dentists, pharmacists, veterinarians, nurses of the various categories, midwives, health officials, dressers, sanitarians and possibly other groups.

A special file card should be devised, containing for each person the following items:

Name
Date of birth
Sex
Nationality
Professional education and training
Year of graduation
Post-graduate and other training
Address
Place of work.

If the total number of health personnel is quite limited, the same design of card may be used for all the categories with specification on the file card itself. With a larger number of health workers, it may be found expedient to use individual designs for each category of workers, or cards may be printed in different colours.

The file should be installed in the Health Statistical Unit. Work on setting it up can start on the basis of information which may be already available for administrative purposes, supplemented by special enquiries. In addition, it is necessary to design a special form to secure this information from Health Officers in charge of Provinces, Regions or other administrative units.

The file should comprise all persons of the specified professional groups, whether they are government employees, working outside government service or temporarily inactive.

2. Maintenance of information in file

The file should be an active one; this means that persons dying, retiring or otherwise leaving the profession should have their card removed from the file and likewise that a new card be made out as soon as a person enters the

profession in question.

Collaboration for this purpose should be established between the statistics office and the personnel and finance units of a Ministry of Health.

Also information on the file card should be kept up-to-date for such items as address and place of work. Space on the file card must be provided for recording such changes. The main source of this kind of information may be the monthly returns from the various medical units. Among these returns, a staff list as shown in Annex I may be included.

3. Tabulation of results

The content of the file may be tabulated at any time, when needed. A detailed tabulation of results should be made by the end of each year at least for inclusion in an annual report. This tabulation may be made by hand or by utilizing mechanical processing such as punch cards, depending on the size of the material.

4. Periodic studies of training activities for administrative or planning purposes

At intervals, say once a year, it will be useful to study the number of persons under training in the various health disciplines, within the country and abroad, for the purpose of calculating the expected supply of health workers in the near future. This will also be needed for programming of expansion of health services and specifically for planning in training activities. A study of another type for these purposes is to examine present activities of cohorts of trained persons. This will give information on preferences in professional work for various categories of personnel and may also contribute important information for use in the evaluation of training programmes.

III STATISTICS OF HEALTH ESTABLISHMENTS

Ready and complete information on material resources for health is of basic importance for public health administration. A file should, therefore, be set up with a card of each hospital, health centre, dispensary, specialized service, ambulatory service, etc. with at least the following information:

Location of medical unit

Type

Year of construction

Number of beds, by types

Equipment available

Diagnostic

Therapeutic

Transport

Kind of services rendered.

As for the manpower file, described above, the file may be established with already existing information as source, supplied with special enquiries. Detailed tabulation should be provided on health establishments. In addition, it is preferable to prepare an individual list. The list might give information also on staff, out-patient and in-patient information in a summary form, etc. Also a map showing the location of establishments, with broad visual designation of type, size, etc. might be prepared. This broad information should subsequently be included in an annual report.

The file or list of establishments will also be of basic necessity for checking the monthly reports on health services rendered as described below.

IV STATISTICS CONCERNING HEALTH SERVICES AND MEDICAL CARE

The object of these statistics is to evaluate the need for health services and to assess the expenditure connected with these services. They apply to institutions and establishments providing medical and health services, such as hospitals, dispensaries, health units, diagnostic laboratories, treatment centres.

The role of health service statistics is to provide health administrations and national health planners with the operational data that are required. Regardless of the level of development of medical and health services in a country, it is essential to know the amount and nature of services rendered; the utilization of resources and personnel; the efficacy of the work performed; and the cost of such services. These data are needed not only on the local level for operation of the individual establishment but also on higher administrative levels for the purposes of comparisons in order to detect maldistribution of resources and their inefficient utilization and to obtain a basis for corrective action. This type of analysis is required and feasible at any stage of development of the health services and may range from conclusions based on purely descriptive statistics to sophisticated studies qualifying under the term of operational research. By

relatively simple statistical procedures and tabulations, it is possible to collect an amount of useful information.

If detailed statistics on health services rendered is not available, provision for establishing this series of health statistical information should be made and, for planning purposes, an enquiry covering at least the number of patients' visits is needed.

Health services statistics should be made out separately for hospital in-patients and for all kinds of out-patient visits.

1. Statistics of Hospitals and In-patients

In its Eighth Report,¹ the Expert Committee on Health Statistics established a minimum general content of a hospital statistics programme which all countries could carry out, differentiating between two types of statistics, namely those based on the "hospital" and those relating to the "patient".

In respect of the "hospital", the Expert Committee recommended collection of data on:

- a. resources of the hospital, including beds and special diagnostic and therapeutic facilities (e.g. laboratory, radiology, operating room);
- b. utilization of bed facilities in terms of patient-movement and days of care;
- c. personnel with at least the following categories: professional medical, nursing, other professional and technical, and other, including administrative and general service staff;
- d. general financial aspects of hospital services.

In respect of statistics relating to the patient (hospital morbidity statistics) the committee recommended, as a minimum, account of patients discharged and of their hospitalization days, by diagnosis and sex.

Already such a basic type of statistics, especially through cross-tabulation of various items, is able to supply valuable data for effective administration of the individual hospital to provide proper care for its patients; for organization, co-ordination and planning hospital services in an administrative area; and for economic utilization of hospital facilities within the general health programme of the community, region or country. For instance, statistics of discharged patients by diagnosis and length of stay are useful in bringing out varia-

¹ Wld.Hlth.Org. Tech.Rep. Ser., 1963, 261.

tions between hospitals warranting further studies as to the possible reasons for the differences, such as insufficient bed facilities allowing only admission of serious cases; differential attitudes of hospital physicians; economic factors; lack of home nursing and other services outside the hospital. All these aspects require careful consideration and may call for corrective measures.

Applied to the range of other health services, current operational data provide the health administrator with a pool of information of direct use to him, and which he can obtain within the framework of the day-to-day health activities.

As an example of a hospital in-patient discharge record form, see Annex II.

2. Out-patient Statistics

In most developing countries, hospital in-service facilities are scarce, and the various kinds of out-patient services are therefore important sources of information on morbidity in the country.

As a minimum of information, monthly data should be made available on total number of visits to each out-patient service, with a breakdown between first visits and subsequent visits. Age and sex information may be simplified to include first visits of:

adult males
adult females
children under 15 years.

A new out-patient is a person who comes to the unit or who is visited at home for the first time, for a **certain** complaint or condition, or for a certain preventive action. All further visits for the same complaint, for treatment or for preventive action need not be classified, only the fact of the re-visit is to be recorded.

In order to be able to complete periodic report forms, it will be necessary to maintain daily recording of activities. This daily recording is for use of the out-patient unit only and should be kept there. The recording for daily use may be in the form of a book, where each page is headed as follows:

Month
Date
Registration number
If new patient: x
Male) mark x as
Female) relevant
Child

Name of patient
Reason for visit (diagnosis, complaint, vaccination, treatment, etc. as relevant)
Remarks (admitted as in-patient, further out-patient visit, completed, etc. as relevant)

A separate registration book should be kept exclusively for home visits, with an indication of treatments as for a visit to the out-patient unit.

An alternative method for daily recording is the use of small paper slips with rubrics as for the heading of the book.

Immediately after the end of each month, the registration book may be used for filling in a report form for new out-patients, comprising both visits to and from the out-patient unit with appropriate diagnostic classification and one column each for adult males, adult females, children under 15 years and total.

In addition, the following summary should be tabulated, including in one figure both new patients and re-visits.

<u>Date</u>	<u>Total visits to unit</u>	<u>Total home visits</u>
1		
2		
3		
.		
.		
.		
<u>31</u>		
<hr/>		
Total for month		

A statistical service at the central health administration will consolidate the monthly reports from the out-patient facilities.

3. Vaccination statistics

A monthly return, shown as Annex III, may be completed. The source for completion is also the daily registration book. Copies may be made out and transmitted as for, and together with, monthly out-patient returns.

4. Statistics on laboratory and other services

Such statistics will normally be limited to hospitals and other health establishments with beds. A monthly report form, shown as Annex IV, may be used. It should be completed and transmitted as for the monthly out-patients' report.

V MONTHLY AND ANNUAL HEALTH STATISTICAL REPORTS

It is of paramount importance that health statistical information be available with as short a delay as possible after elapse of the point or period of time for which they are collected. The groups needing this information are:

Health administrators responsible for the programme

Other Government agencies

The persons who have collaborated in producing and transmitting basic data

The general public

National and international bodies concerned with health statistics.

In addition to the above groups, the information is needed for study and research purposes. It should, therefore, be properly filed, together with unpublished detail for future reference purposes.

The Statistical Office of the Ministry of Health may wish to publish the following series:

Monthly summary report

Detailed annual report

Results of special studies.

The monthly report may contain the consolidated reports of health services carried out in the various health units. It may be mimeographed for distribution to the persons most directly concerned with health administration.

The greatest care should be given to the annual report. It should contain a detailed analysis of statistical data on health personnel, health establishments, and health services with comparisons over time and presented in absolute figures and, wherever useful, with rates and charts. The report should also contain information from other agencies on items which are useful for studying health conditions such as climatic and demographic data, on health laws and regulations, on environmental conditions, etc.

Whenever special studies are carried out, a detailed report should be made of the study and summaries given in the annual report.

ANNEX I

Staff

Professional name	Post	Transfer to or from unit during month
Other category		

ANNEX II

Discharge Record

	Space for coding (leave empty)
Name of hospital or medical unit	xx
Locality	x
District	x
Region	x
Name of in-patient	
Sex Age	xxx
Usual residence of patient	
Disease or condition which caused hospitalization	xxxx
Underlying cause	xxxx
Other diseases diagnosed during stay	xxxx
Surgical interventions	xxx
Vaccination	xxx
Date of admission	
Type of admission: 1. From out-patient department 2. Transfer from other unit 3. Other	x
Date of discharge	
Type of discharge: 1. Treatment completed 2. Discharge against medical advice 3. Transfer to other unit 4. Death	x
Condition at discharge: 1. Cured 2. Improved 3. Not improved	x
Length of hospital stay	xx
In case of death: cause of death (international form)	xxxx
Signature of Head of Medical Unit	

ANNEX III

Prophylactic Vaccinations - Inoculations

Name	Adult males	Adult females	Children under 15	Total
a. 1-Smallpox (successful primary) 2- " (secondary)				
b. Yellow fever				
c. TAB				
d. Cholera				
e. Rabies (courses): vaccine serum				
f. Diphteria				
g. Whooping cough				
h. Tetanus: vaccine serum				
i. Poliomyelitis				
j. Other single vaccines (specify)				
k. Polyvaccines (specify)				

ANNEX IV

Laboratory and other Services

	<u>Number of tests</u>
1. Urine: Chemical and microscopical
Biological
Culture
2. Faeces: Microscopical
Chemical
Culture
3. Sputum: Microscopical
Culture
4. Urethral and vaginal discharges:
5. Other examinations: (specify)

X-ray pictures
Screens

Various therapy: (specify)

Comments of Director of Service