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WORLD HEALTH ORGANIZATION

TECHNICAL REPORT SERIES

No. 133

EXPERT COMMITTEE ON HEALTH STATISTICS

Fifth Report

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WORLD HEALTH ORGANIZATION

PALAIS DES NATIONS

GENEVA

1957

EXPERT COMMITTEE ON HEALTH STATISTICS

Fifth Session

Geneva, 10-14 December 1956

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This report was originally issued in mimeographed form as document WHO/HS/89, 8 April 1957. That document is superseded by the present report, as is document WHO/HS/56 (fourth report of the Expert Committee on Health Statistics), which was not printed separately, but the substance of which was embodied in the Manual of the International Classification of Diseases, 1955 Revision.

EXPERT COMMITTEE ON HEALTH STATISTICS

Fifth Report *

The Expert Committee on Health Statistics met in Geneva from 10 to 14 December 1956. The Committee elected Dr H. F. Dorn as Chairman, Dr Julie E. Backer as Vice-Chairman, and Dr W. P. D. Logan as Rapporteur.

The Committee adopted the provisional agenda submitted to it.

1. MORBIDITY STATISTICS

1.1 Review of the implementation of the recommendations of the third session of the Expert Committee on Health Statistics

The Committee at the third session held in 1951¹ covered a wide area in the field of morbidity statistics and made important recommendations in this respect, which entrusted to the National Committees on Vital and Health Statistics or their equivalents some subjects for further study. At the present session, the Committee reviewed the implementation of the recommendations previously made, noted that on the basis of these recommendations numerous morbidity studies have since been carried out in various countries, and expressed its satisfaction at the progress made in a number of morbidity statistics subjects. After discussing in general some of the particular types and sources of morbidity statistics suggested at the 1951 meeting, both from the point of view of their coverage and particular advantages or deficiencies as sources of information, it discussed in some detail sickness surveys and the use of general practitioners' records as means of obtaining information concerning the extent of ill health in a population.

* The Executive Board, at its twentieth session, adopted the following resolution:
The Executive Board

1. NOTES the fifth report of the Expert Committee on Health Statistics;
 2. REQUESTS the Director-General to take into consideration the recommendations of the Expert Committee;
 3. THANKS the members of the Committee for their work; and
 4. AUTHORIZES publication of the report.
- (Resolution EB20.R9, *Off. Rec. Wld Hlth Org.*, 1957, 80, 3)

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1952, 53

1.1.1 *Sickness surveys*

The Committee noted with considerable interest the establishment of a National Health Survey Unit in the United States Public Health Service and considered it not only as an extremely important step towards acquiring a better knowledge of the morbidity characteristics in that country but also, in a more general way, as a means of getting experience in the variety of techniques and methods used in the morbidity survey field. It re-emphasized the importance of morbidity surveys as a useful means of obtaining morbidity data—in certain instances the only one—and it stressed the fact that the objectives of this type of survey should be clearly and narrowly defined and that as a rule such surveys should be limited in scope and in time.

1.1.2 *General practitioners' records*

The Committee also discussed the usefulness of the records of selected practitioners—participating *on a voluntary basis* in a morbidity enquiry—as a complement to other sources of morbidity statistics in getting a picture of the amount and types of illness prevailing in a community. The Committee was of opinion that provided the population covered is a representative sample of the general population from the geographic, demographic, social and economic points of view, provided also that the practices are indeed true general practices and are not unduly influenced by local conditions, general practitioners' records may well provide a more complete picture of morbidity from the less severe and non-disabling complaints than do hospital records. Practitioners' records can be analysed over a period of time, but it was agreed that a good deal of useful information could be obtained even by analysing the data for some selected days only in the year.

1.1.3 *Exchange of information between national committees on vital and health statistics*

The Committee, in reviewing WHO activities in the light of the recommendations of the 1951 session, expressed its satisfaction at the action taken by the focal unit set up to maintain liaison between the National Committees on Vital and Health Statistics in ensuring the exchange of information between these Committees and similar bodies.

Considering the importance of keeping these Committees or their equivalents informed of new developments in the field of morbidity statistics,

The Expert Committee on Health Statistics

RECOMMENDS that:

- (1) the programme for exchange of information should be expanded to provide in greater detail than at present information about developments in morbidity studies in different countries; and
- (2) WHO should continue to act as a clearing house for information on the concepts and techniques used in national morbidity studies.

1.2 Definition of some terms and rates used in morbidity statistics

The Committee noted that there are several factors which have to be taken into account in the interpretation of morbidity statistics and which are not relevant to mortality statistics. These include, for instance, that there is no clear demarcation between health and sickness, that the onset or termination of sickness may be indefinite, that sickness may last over widely varying periods of time and that it may recur in the same individual. These factors have rendered more difficult the task of identifying terms and rates to be used in the measurement of morbidity which could be recommended for international use, and the Committee felt that it would still be premature to make any extensive series of recommendations in this respect. At the same time, the Committee recognized that in recent years certain concepts have gained general acceptance in statistical circles and that the time was approaching when these might be considered for international adoption. As a step in this direction the Committee felt that the wide distribution of published reports giving definitions of terms based on national experience should be encouraged in order to promote the experimental use of such definitions and thus stimulate discussion on the subject and provoke constructive criticism. The Committee felt that the use of these terms should be encouraged so as to gain experience in their applicability in different areas of the world and as a preliminary step towards recommendations for international adoption of some of them.

Discussing the comparability of the statistical units involved in the compilation of morbidity statistics, the Committee agreed that these units will generally be either "persons", "illnesses" or "spells (or 'episodes' or 'periods') of illness". For instance, one patient may, within a given period of observation, e.g., a year, suffer from illness A twice and from illness B three times. If the spells of illness A and B occur at different times, this patient will have contributed one unit to statistics of "persons", two units to statistics of "illness" (i.e., "diagnoses" or "causes of illness") and five units to "spells". The Committee regarded it as essential that in the presentation of morbidity statistics it should be made clear to which of these three concepts of morbidity the statistics actually relate. Furthermore, the items of information upon which morbidity statistics are compiled,

in whichever of the above three classes they fall, will relate either to sickness *beginning* within the period of observation, to sickness *ending* during the period, to sickness *current at any time* during the period, to sickness *current at some particular point of time* during the period. Alternatively the statistics may relate to the *duration* of sickness current or ending during the period; these are widely used in the social security field. Great confusion can result from attempts to compare morbidity statistics based on sickness beginning, ending or current within a given period of observation with morbidity statistics in which the aspect of sickness measured is its duration. The Committee was not prepared to make recommendations at this time upon the actual titles that should be adopted to indicate which aspect of sickness is being dealt with but pointed out that:

(a) for statistics relating to sickness beginning during a stated period the terms "incidence rate", "inception rate" and "*taux de fréquence des cas nouveaux*" are in use;

(b) for statistics relating to sickness current during a given period the terms "prevalence rate" and "*taux de fréquence globale*" are in use, the prevalence rate being sometimes further distinguished either as prevalence at a given point of time, e.g., on a given day ("point prevalence rate") or as prevalence during a stated period ("period prevalence rate").

Morbidity statistics are sometimes broken down to indicate relative degrees of *severity* of sickness. The Committee regarded this as a useful break-down but, noting that there are a large number of criteria upon which the assessment of severity can be based, depending upon the source and purpose of the statistics, was not prepared to make specific recommendations as regards standards of severity.

The Committee likewise recognized that the distinction of first attacks or first admissions from recurrences, exacerbations, relapses, readmissions, etc., was often of value, but it did not feel that it could yet make specific recommendations as regards international standards for this particular purpose.

Frequently, though not exclusively, morbidity statistics will have as denominator the "number of persons at risk". The precise definition of persons at risk must depend upon the circumstances of each particular morbidity enquiry. As a suggestion of what may be regarded as persons at risk, the Committee draws attention to one definition that has been proposed: "The 'number of persons exposed to risk' at a given time should include all those persons who would, in the event of their becoming sick, be recorded as sick in the context of the particular enquiry; it should exclude any others."¹

¹England and Wales, Registrar General's Advisory Committee on Medical Nomenclature and Statistics, Statistics Sub-committee (1954) *Measurement of morbidity*, London, p. 3 (General Register Office, Studies on Medical and Population Subjects, No. 8)

The Committee also suggested that in published reports the terms "morbidity rate" or "sickness rate" should not be used except in a generic sense, i.e., in order to make a distinction from mortality rates. Otherwise in presenting morbidity statistics the terminology employed should indicate clearly which particular aspect of morbidity the statistics are designed to measure.

In summary,

The Expert Committee on Health Statistics

RECOMMENDS that in any published morbidity statistics the general principle be adopted to indicate clearly:

- (a) the purpose of the statistics and the definition of "sickness" employed;
- (b) whether the statistics relate to sickness beginning within the period of observation (e.g., incidence), to sickness current during this period ("point prevalence" or "period prevalence"), or to duration of sickness;
- (c) the particular disease or diseases to which the statistics relate;
- (d) the particular time at which a period of sickness is regarded as having begun or terminated, e.g., admission to or discharge from hospital, cessation or resumption of work;
- (e) the period of observation, e.g., one month, one year;
- (f) the denominator, e.g., the population at risk.

2. NATIONAL COMMITTEES ON VITAL AND HEALTH STATISTICS

The establishment of national committees on vital and health statistics was recommended at the Conference for the Sixth Revision of the International Lists of Diseases and Causes of Death (Paris, 1948); this recommendation was endorsed by the First World Health Assembly.¹ The main purpose of these committees is to facilitate the exchange of information and views between the various national agencies responsible for the collection and analysis of vital and health statistics and their objectives were defined at the First International Conference of National Committees (London, 1953)² as:

(a) To help in assessing the needs for vital and health statistics, in evaluating the degrees to which the needs are met, and in providing vital

¹ *Off. Rec. Wld Hlth Org.*, 1948, 13, 304

² *Wld Hlth Org. techn. Rep. Ser.*, 1954, 85, 4

and health records and statistics satisfactory and useful to the individuals and groups who use such records and statistics.

(b) To help to achieve essential uniformity in records, methods, and tabulations for the production of the minimum core of comparable vital and health statistics needed for national or international purposes.

(c) To assure a free flow of information and exchange of views, so that the needs and preferences of producers and users of vital and health records and statistics, at all levels, are given full expression and receive due consideration.

(d) To relate the activities and functions of diverse agencies or organizations that produce statistics, so that they work as a co-ordinated whole, avoiding both wasteful overlapping of effort and important gaps in essential aspects of statistical data.

(e) To make vital and health statistics of greater practical use and appeal.

(f) To stimulate needed statistical studies by those persons or groups best able to undertake them.

(g) To stimulate the training and supply of an adequate number of skilled workers in the field of vital and health statistics, and to encourage the interest of the medical profession in the value of the statistical approach to their problems.

(h) To assist when desirable or necessary in the implementation of international recommendations in this field.

The Committee took cognizance of recent developments concerning national committees, expressed its satisfaction that 33 national committees have so far been established, and endorsed previous recommendations on this subject to the effect that countries which have not yet established a national committee or equivalent body should consider the desirability of doing so. Furthermore,

I. The Expert Committee on Health Statistics,

Considering that the National Committees on Vital and Health Statistics or their equivalents are among the best means of studying the variety of problems arising in the rapidly expanding field of morbidity statistics and of securing international comparability of data,

RECOMMENDS that the World Health Organization continue its efforts to foster the establishment of such committees, and at the same time expand the exchange of information between those already established.

II. The Expert Committee on Health Statistics,

Taking into account that problems involved in the collection of health statistics vary with local conditions: availability of medical personnel, administrative machinery, as well as local customs, etc.;

Realizing that these problems could be more usefully discussed on a regional or inter-regional basis between specialists from countries presenting comparable conditions than on a world-wide basis,

RECOMMENDS that regional or inter-regional conferences should be held periodically, with the technical co-operation of WHO headquarters and pertinent regional offices and the active participation of National Committees in the area.

3. COLLECTION OF HEALTH STATISTICS IN UNDER-DEVELOPED AREAS

Both the Expert Committee at its fourth session in 1954 and the Conference for the Seventh Revision of the International Lists of Diseases and Causes of Death in 1955 emphasized the desirability of developing methods of vital and health registration suited to the needs of areas in various stages of development.

The Committee accordingly noted with satisfaction the action taken in this connexion.

3.1 Review of the report of the African Seminar on Vital and Health Statistics

Under the joint auspices of the WHO Regional Office for Africa and the Commission for Technical Co-operation in Africa South of the Sahara (CCTA), a Seminar on Vital and Health Statistics was convened in Brazzaville in November 1956. Prior to and in preparation for the Seminar a comprehensive questionnaire on the availability and coverage of vital and health statistics was prepared by CCTA and sent to the administrations of the countries and territories in the area. The information received was complemented by a survey made by two WHO consultants. The main purposes of this Seminar were to review the existing situation in Africa in so far as the collection and publication of vital and health statistics are concerned and to give local statisticians the opportunity to meet and discuss problems of common interest. The main topics discussed were:

- (a) existing organizations and procedures for the collection of vital and health data in African territories;
- (b) methods suitable for the collection of vital and health data in areas at different stages of administrative development;
- (c) methods applicable to census enumeration and population estimates;
- (d) methods for estimating the natural growth of population;

(e) methods for estimating age in populations with no system of civil registration;

(f) training of personnel for the collection of vital and health data and the compilation of statistics;

(g) interpretation and publication of vital and health records.

The Committee reviewed with deep interest the Report of the African Seminar on Vital and Health Statistics¹ and expressed its satisfaction at the convening of this meeting as an important step towards the improvement of vital and health statistics in that continent.

The Expert Committee on Health Statistics,

Aware of the paramount importance of collecting vital and health statistics, which are urgently needed in a number of fields besides public health, and notwithstanding the great problems encountered in the African territories and the difficulties involved in their solution,

RECOMMENDS that efforts to improve the collection of vital and health statistics where some kind of administrative machinery is already available should be supplemented by attempts to establish registration areas in places where no information whatsoever exists. The fact that in a number of areas a complete and adequate registration system cannot be established for the time being should not deter the establishment, whenever possible and even on a very modest scale, of a simple registration system which could at least give information on the natural growth of the indigenous populations.

With reference to the collection of morbidity statistics, the Committee reviewed the different sources available, such as hospitals, dispensaries, and the field mobile units which are operating in some countries and which deal mostly with a few specified diseases. The possibility was stressed of using these units in securing basic demographic data and also in studying the prevalence of other diseases which in the future may become important, by attaching to them small teams of specialists.

The Committee endorsed previous recommendations on the establishment of short lists of causes of death suitable for use in areas where semi-medical personnel exist as well as lists to be used in places where only lay sources of information are available, e.g., officers of religion or administrative officials. It expressed its appreciation of the experimental use being made of some lists of this kind and considered that the matter should be reviewed in the future in the light of the experience gathered.

¹ Unpublished document CCTA/WHO/STATS.SEM./35 Rev. 1

3.2 Review of activities of the Latin American Centre for the Classification of Diseases

The Latin American Centre for the Classification of Diseases was established in 1955 in Caracas under the joint auspices of the Government of Venezuela and the Pan American Sanitary Bureau (PASB), which serves as the WHO Regional Office for the Americas. The general aim of the Centre is to consider the problems arising in the application of the Spanish edition of the *Manual of the International Statistical Classification of Diseases, Injuries and Causes of Death* and to promote the completeness, accuracy and comparability of mortality statistics in the Americas. It works in close co-operation with WHO headquarters, PASB and the WHO Centre for the Classification of Diseases in London.

The Committee was informed of the activities of the Caracas Centre which include a training programme for coders, as well as the publication of booklets of instructions, pamphlets and special studies on mortality. The Committee expressed its strong support of the Centre and considered that its establishment marked an important step in the improvement of the certification of causes of death in the Americas and the comparability of mortality statistics within the Region.

3.3 Review of the situation in the regions

The Committee was informed by the statistical advisers of the Eastern Mediterranean and Americas Regions of the situation concerning the collection of vital and health statistics in their respective areas. It expressed its appreciation of the work being carried out by the two Regional Offices in improving the collection and reliability of statistics through provision of training courses, consultants, fellowships, etc.

The Expert Committee on Health Statistics,

Considering that it is only through the knowledge of the local conditions prevailing in different areas of the world that the most constructive statistical advice can be given,

RECOMMENDS that efforts should be made to place statistical advisers on the staffs of those regional offices which still do not have the benefit of such officials.

3.4 Types of health statistics needed in countries at different stages of development (principles and methods)

In addition to the general recommendations on this subject which are embodied in the pertinent sections of the report, the Committee recognized that, in the wide variety of conditions prevailing in different areas of the

world, it is difficult, except in a general way, to determine the most suitable methods to be used and that each case should be considered on its own merits. However, it appears essential that the minimum information which should be obtained is a census of the population and a registration—even if rudimentary—of births and deaths. If a complete enumeration or registration should not be possible for the time being, enumeration on a sampling basis or the establishment of small registration areas within a particular territory would still give a good deal of useful information. At a later stage, and as soon as feasible, certification of causes of death and morbidity statistics could be introduced, again not necessarily—although desirably—on a national scale. The goal should be the organization of statistical services in agreement with internationally recommended principles. In this connexion, the Committee expressed its appreciation of the work done by the United Nations in the publication of the *Principles for a Vital Statistics System*¹ and the *Handbook of Vital Statistics Methods*.²

The Expert Committee on Health Statistics,

Considering that many countries have areas where the degree of completeness of vital recording and of certification of causes of death varies, and that the mixing of data of varying degrees of accuracy decreases the value of the data as a whole,

RECOMMENDS that, in those countries where the basic data for vital and health statistics are of varying degrees of accuracy, such data should be sorted into homogeneous groups, and that, if published, each set of data should be accompanied by a frank statement of their degree of reliability and a clear indication of the population groups (geographical, racial, or other) to which they refer.

The Committee stressed that the quality of the statistical material should be a primary concern and that regularity in publication, although always desirable, should not be allowed to impair its quality. It is preferable to publish statistics that are trustworthy occasionally than to distribute data open to criticism regularly.

4. TRAINING OF STATISTICAL WORKERS : ROLE OF WHO

4.1 Types of statistical workers needed in areas at different stages of development

The Committee endorsed previous recommendations on the matter, underlining again the need for teaching statistics to medical students.

¹ Statistical Papers, Series M, No. 19, 1953

² Studies in Methods, Series F, No. 7, 1955

It felt that such an important subject as the role of WHO in the training of statistical workers deserved and required a more thorough and lengthy discussion than it was able to undertake at the present session and suggested that a sub-committee should be convened to make specific recommendations on this subject.

In the meantime, recognizing that, broadly speaking, there are three main types of statistical workers:

(1) statisticians with comprehensive university training, including special training in health statistics;

(2) "intermediate" staff, such as record keepers, local registrars, heads of small vital and health statistical units, hospital statisticians, etc.; and

(3) clerical staff;

the Committee felt that, in order adequately to assist countries at different stages of development, a careful balance should be sought between these three types and that the needs of particular areas should be ascertained by survey before appropriate plans for training are made.

As regards personnel of type (1) the Committee felt that national and international planning might with advantage give consideration to the granting of fellowships to specialized centres of learning abroad. Concerning personnel of type (2), the organization of international regional training courses—the trainees of which could in turn teach junior local personnel of types (2) and (3)—might be the most useful way of meeting the need.

4.2 Methods of training which WHO can effectively employ or to which WHO can contribute: fellowships, training courses, training handbooks

The Committee was informed of the training activities sponsored by WHO in co-operation with the United Nations.

The Expert Committee on Health Statistics,

Considering the paramount importance of training in improving the collection and interpretation of vital and health statistics,

RECOMMENDS that:

(1) the present WHO activities in this field be expanded;

(2) WHO should prepare handbooks on such subjects as coding for mortality and morbidity statistics, reporting of communicable diseases, principles of health statistics systems; and recommended procedures for hospital statistics, including the application or adaptation of the International Classification of Diseases.

5. CANCER STATISTICS AND REGISTERS

5.1 Statistics of treatment

An important consideration in assessing the value of the different types of treatment is a precise classification of tumours by site, histological type and stage. The Committee noted that this subject is being given increasing attention by professional organizations in this field and by WHO.

The Expert Committee on Health Statistics,

Recognizing the need for expanding the work so far done,

RECOMMENDS that:

- (1) WHO should expand the publication of statistical studies on different types of cancer;
- (2) WHO should increase the distribution of available information to interested bodies, particularly on statistical methodology applicable to the field; and
- (3) WHO in co-operation with the appropriate professional organizations should continue its efforts to improve the classification of tumours.

It is realized that in order to assess the results of treatment on a wide or national scale, the maintenance of a cancer register is essential. The main objectives of these registers should be to obtain information on the incidence of cancer according to the site and type of the primary growth and to follow up the patients suffering from cancer to ascertain their period of survival. For an adequate follow-up of the patients, close co-operation has to be maintained between the hospitals treating these patients and the statistical departments recording the causes of death.

The Expert Committee on Health Statistics,

Having reviewed the existing situation in the countries which have for some years maintained cancer registers and recognizing that under the variety of conditions prevailing in different areas of the world a standard system cannot be suggested at this time,

RECOMMENDS

- (1) that the different systems and methods of cancer registration be kept constantly under review by WHO so as to ascertain the best organizational structure to meet the basic purposes of cancer registers; and
- (2) that the information at present available be widely distributed by WHO among national committees on vital and health statistics and similar bodies.

The Committee was informed of the convening in 1957 by WHO of a Study Group on Epidemiology which will consider, among other subjects, the epidemiological aspects of chronic diseases, and it suggests that the epidemiology of cancer be included in the discussions of this group.

5.2 Terms of reference of the Subcommittee on Cancer Statistics which will meet in 1957

The Committee noted the previous work of the Subcommittee on Cancer Statistics as presented in its two reports¹ and recognized as useful the recommendations made on various methodological aspects of cancer statistics. It reviewed the developments which have taken place since the Subcommittee last met and noted, *inter alia*, the number of cancer registers set up in various countries; the international co-operation under the aegis of the International Union against Cancer (UICC) in the field of histological classification of neoplasms leading to the compilation of a statistical code of human tumours; the progress in the clinical-stage classification of malignant neoplasms and the trials now being undertaken in various countries using the stage classification of UICC relating to malignant tumours of the larynx and the breast; the development and application of various techniques in ascertaining the incidence and prevalence of cancer in the population; the expansion of statistical studies of the etiology of cancer by relating morbidity and mortality statistics to ethnic, climatic, nutritional and other environmental factors; and the changes introduced in the International Classification of Diseases at the seventh revision (1955).

The Committee felt that it would be timely for the Subcommittee to review and evaluate these recent developments, to analyse, summarize and evaluate the experiences of the past years, and to consider what international action might be indicated.

6. HOSPITAL MORBIDITY STATISTICS

6.1 Design of forms for collecting hospital morbidity data

The Committee considered that it was not in a position for the time being to make recommendations on the types of form needed to ensure international comparability of hospital morbidity data. However,

The Expert Committee on Health Statistics,

Recognizing the increasing importance of hospital morbidity statistics and the need for standardizing their presentation at the international level,

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1950, **25**, 17; 1952, **53**, 43

RECOMMENDS that WHO study the systems at present in use in different parts of the world as a preliminary step to a future and thorough examination of the subject.

6.2 Definitions of some terms and rates used in hospital morbidity statistics

At its third session in 1951, the Expert Committee recommended that national committees on vital and health statistics should prepare, discuss and evaluate definitions of the terms in current use in morbidity statistics, including special terms used in hospital statistics.¹ At the present session the Committee reviewed the work done by some national committees in this respect.

The Expert Committee on Health Statistics,

Considering that a further study of this matter is required,

RECOMMENDS that WHO should collect the definitions of terms and rates at present used in the different countries and should analyse them with a view to suggesting at a later date those on which general agreement is likely to be reached.

6.3 Use of hospital morbidity records as a measure of morbidity in a community

The limitations of hospital morbidity statistics are well recognized; basically, they are: (1) that the population exposed to risk may not be known; and (2) that the hospital population is biased in the sense that the types of disease treated in hospitals are not necessarily representative of the total morbidity of the community. The usefulness of hospital records as a fruitful source of morbidity statistics depends upon the purposes for which such statistics are desired. Consequently, the first step is to decide the purpose for which morbidity data are needed, the type of data required and the most efficient and practicable method of obtaining them. The extent to which existing records, such as those of hospital in-patients, may be utilized can then be determined.

However, for some areas of the world, hospital records are perhaps the only source of information, and provided due caution is used, a good deal of knowledge of the prevalence of sickness in a community can be obtained from them.

The Expert Committee on Health Statistics,

With a view to increasing the usefulness of morbidity statistics based on hospital records,

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1952, 53, 19

RECOMMENDS that in the collection of hospital statistics distinction be made between the residents and non-residents of an area so as to relate more closely the data with the population at risk.

The Committee was informed of the one-day census of hospital patients used in Japan and considered this procedure an economic way of getting some useful information on the medical and other characteristics of the population receiving hospital care.

**7. HEALTH INDICATORS FITTING WITH
THE UNITED NATIONS STUDY ON DEFINITION AND
MEASUREMENT OF STANDARDS AND LEVELS OF LIVING
(i.e., AS MEASURES OF THE COMPONENT
“HEALTH, INCLUDING DEMOGRAPHIC CONDITIONS”)¹**

At the request of the Economic and Social Council, in 1953, the United Nations, in collaboration with ILO and UNESCO, convened a joint committee of experts to prepare a report on the most satisfactory methods of defining and measuring standards of living. This committee “was led to the conclusion that the most satisfactory approach to international measurement of levels of living would be through the measurement of clearly delimited aspects or parts of the total life situation that are amenable to quantification and reflect international aims”.² These aims refer to particular fields—such as health, nutrition, housing, employment conditions, education, transportation, etc. It restricted its analysis to the problems of definition and measurement of actual levels of living, and in this connexion listed 12 components of levels of living for which indicators were to be sought. Of these components “Health, including demographic conditions” was placed first on the list.

The United Nations Statistical Commission at its eighth session³ recommended that a study be undertaken by the specialized agencies, each in its own field, on the adequacy of the indicators proposed by the Joint Committee of Experts for measuring levels of living as well as on the availability

¹ The fourth report of the Committee, relating to the session held in September 1954 and issued as document WHO/HS/56, was not published as it was largely a preparatory paper for the Conference for the Seventh Revision of the International Lists of Diseases and Causes of Death. Observations of permanent value made by the Committee in 1954 in regard to health indicators are therefore incorporated in this section.

² United Nations (1954) *Report on international definition and measurement of standards and levels of living*, New York, p. 8 (Document E/CN.3/179—E/CN.5/299)

³ United Nations, Statistical Commission (1954) *Report of the eighth session (5 to 22 April 1954) (Economic and Social Council. Official records: eighteenth session. Supplement No. 5)*, New York, p. 10 (Document E/2569—E/CN.3/192)

and accuracy of the statistics relating to those indicators. In pursuance of this recommendation the WHO Expert Committee on Health Statistics, at its fourth session in 1954, commented on the following indicators which had been proposed by the Joint Committee for the component "Health, including demographic conditions":

- (1) Expectation of life at birth
- (2) Infant mortality rate (number of deaths of infants under one year of age per 1000 births per annum)
- (3) Crude annual death rate (deaths per 1000 population per annum)
- (4) Number of hospital beds in relation to the population
- (5) Number of physicians in relation to the population

Inasmuch as the report on the fourth session of the Expert Committee on Health Statistics is not to be published, the relevant comments are quoted below:

1. More importance is attached to the first two indicators "expectation of life at birth" and "infant mortality rate" than to the others on the list. It should be recognized, however, that while indicator (1), "expectation of life at birth", provides an index which avoids, to some extent, the problems associated with the crude death rate, it is affected significantly by the level of the infant mortality rate. In order to maintain a greater independence among the indicators, preference might be given to "expectation of life at age 1 year" if indicator (2), "infant mortality rate", is retained on the list.

In regard to indicators involving the expectation of life, attention was called to the fact that such indices are not available for many countries and territories of the world, more particularly so for under-developed areas. Also, even for those countries where such values are usually available, their calculation is not generally made annually by the competent authorities, but at intervals of ten or more years.

2. As is well known, the infant mortality rate (deaths under one year of age per 1000 live births) has been traditionally regarded as a good measure of the sanitary situation of a country or area. Nevertheless, the accuracy and reliability of this rate in numerous territories of the world—contingent as it is in its validity and significance on the completeness of the registration of births and infant deaths—might be open to some question.

3. The "crude annual death rate" (number of all deaths in relation to 1000 population) should be included in the set of proposed "Health" indicators, as manifesting the overall intensity of mortality in a certain community or country. However, when the crude death rate is used for purposes of international comparison, its value would be limited because of the influence of the sex and age structure of the population on the level of the crude death rate. This index will usually be the indicator most commonly available as demographic information, and in fact available in very many areas where (1) and (2) will not be. Examination of its reliability, particularly for many under-developed areas, should not, of course, be overlooked when adopting it as a measure of some aspect of the "Health" component.

4. In discussing indicators (4) and (5) pertaining to the number of hospital beds and number of physicians in relation to population, the Committee, after commenting on the lack of international comparability of quality of medical care facilities, expressed the view that they could not be considered as fully representing the most decisive factors for determining health. Attention was called to problems arising from the concentration

of medical care facilities in urban areas. The number of hospital beds and the number of physicians per 1000 population for the territory as a whole would conceal the existence of higher levels of medical care available in the urban centres of many of the under-developed countries. It also expressed the view that an index of sanitation showing for instance the proportion of the population enjoying clean water supplies and/or safe excreta disposal will likely be highly correlated with general mortality. Such indices would have to be obtained through specialists in sanitation and their significance duly investigated under a variety of conditions. The Committee did not feel in a position to express final recommendations in this respect.

The Committee reviewed other important demographic or public-health indices which could eventually be used as "indicators" of the "Health" component, such as the number of deaths from infectious and parasitic diseases in relation to deaths from all causes, or the number of deaths under five years of age in relation to deaths at all ages. The Committee felt, however, that further studies should be carried out by WHO, taking into account the basic reliability of the data in question and their availability in the statistical documentation of the world before any judgement can be made on their adequacy and usefulness as "Health" indicators in the sense proposed by the Joint Committee's Report.

The Committee examined the present situation of morbidity statistics in regard to any possible use of them as "indicators" in comparability. With the growing interest in health surveys, the Committee felt that data on illness in the general population would become increasingly available. However, at the present time, no unified body of such statistics exists. Even the statistics on notifiable diseases are heterogeneous in respect to quality depending on the availability of medical care and the efficiency of the public health administration of the country or territory.

The Committee considered it desirable, in view of the complex nature of the issues involved, that further consultations be held with specialists in particular branches of public health statistics regarding the possibility of establishing other "indicators" for "Health".

The Joint Committee of Experts also advised encouraging "family living studies" and for this purpose a committee of experts was convened in September 1955 by ILO which has been traditionally concerned with family living studies, in general from the point of view of family budgets. At the ILO meeting, which was attended by representatives of WHO, the possibility of taking advantage of enquiries by household to obtain some simple yet valuable information on the health conditions of the family, was considered and recommendations made accordingly. In the review of the component approach the ILO committee of experts also accorded the first place to "Health, including demographic conditions" among components of levels of living.

In October 1955, WHO convened a Study Group on the Measurement of Levels of Health. This group considered that health indicators may be classified in three groups: ¹

(1) those measuring the health status of persons and populations in a given area (vital statistics, nutrition, etc.);

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1957, 137, 10

(2) those relating to physical environmental conditions [such as water supply and excreta disposal] having a more or less direct bearing on the health status of the area under review; and

(3) those concerning health services and activities directed to the improvement of health conditions (availability and use of hospitals, physicians and other health personnel).

It was clear, also, from the discussions of this Study Group that the choice of an indicator should satisfy the following conditions:

(1) records should be available on a national scale;

(2) terms and procedures used in recording, classifying and tabulating data should be comparable;

(3) the indicator should reflect the effect of as wide a variety of factors influencing health as possible;

(4) if a choice is to be made from several indicators (in terms of (3) above), preference should be given to the most sensitive, i.e., the one which will best reflect variations.

In regard to health indicators based on available statistics, the WHO Study Group distinguished between comprehensive and specific indicators. In this connexion the Study Group took note of the investigations carried out by the WHO Secretariat on the development of suitable indicators and expressed the opinion that the new indicator suggested for use by S. Swaroop and K. Uemura,¹ namely, the proportional mortality ratio above 50—i.e., the percentage of deaths at ages 50 years and over to total deaths—looks promising. This indicator would have the advantage that the primary data are comparatively simple to collect and the method of construction is straightforward. However, the Study Group felt, as indeed did the authors themselves, that further critical studies (both in the laboratory and in the field) on the validity and range of applicability of the proportional mortality ratio would be necessary before it could be definitely accepted as a comprehensive indicator. The Study Group recommended that such studies should be continued.

The Committee briefly reviewed the contributions made by previous committees and study groups in regard to the developing of both comprehensive and specific indicators. It reiterated the opinion that the "expectation of life at birth, at 1 year, or at any other age" was theoretically the best of all, but that this is available for only a small number of countries and even then at infrequent intervals. The crude death rate may be the only indicator that can be obtained in some countries or cities but the Committee

¹ To be published in the *Bulletin of the World Health Organization*.

recognized that it is deeply influenced by the age composition of the population and so could not validly be used except for comparisons over a short period of time within a country. The Committee concluded that for the special purposes envisaged by the Joint Committee of Experts the best comprehensive health indicator that has been suggested up to now is the proportional mortality ratio. Therefore,

The Expert Committee on Health Statistics

RECOMMENDS that the proportional mortality ratio, i.e., the percentage of deaths at ages 50 years and over to total deaths, be employed as a comprehensive health indicator on an experimental basis until its usefulness can be better judged in the light of experience gathered.

Referring to specific indicators, the Committee emphasized the value of the infant mortality rate, and in particular the late infant mortality rate (from 1 to 11 months), because the latter is less influenced by pre-natal and intranatal causes of death. The Committee recognized however that it was not so widely available as the ordinary infant mortality rate. It also discussed the value of the death rate from communicable diseases ("infective and parasitic diseases" composing section I of the Detailed List¹) but considered that because medical certification of causes of death is not available or is not reliable in many areas, the usefulness of this rate is rather limited for the purposes of measuring levels of living. Alternatively, the total death rate in the 1-4 age-group might be tried as a specific indicator where accuracy of age-recording justifies its use.

The Committee also took note of the work initiated by ILO and WHO on family living studies and family health surveys as a means of providing valuable data which in the future could be used for the local measurement of levels and trends of health.

8. MISCELLANEOUS

8.1 Holding of international conferences

The Expert Committee on Health Statistics,

Considering the good results achieved by holding international conferences on specific subjects after adequate preliminary work, as, for example, the conferences for the revision of the International Statistical Classification of Diseases,

¹ World Health Organization (1948) *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death*, Geneva, Vol. 1, pp. 3, 45. A new edition of this Manual, incorporating the Seventh Revision of the International Lists of Diseases and Causes of Death, has been published in 1957.

RECOMMENDS that international conferences on morbidity subjects, such as definitions of terms and rates used in morbidity statistics, cancer registration systems, hospital statistics, etc., should be convened periodically by WHO.

8.2 Expert committee meetings

The Committee expressed its satisfaction that the regional advisers in statistics for the Americas and the Eastern Mediterranean Regions were able to attend the session and hoped that regional advisers might be able to attend future sessions, so as to enable the Committee to have a better understanding of the statistical problems in the various regions. This would also make it easier for the regional statistical advisers to give countries in their Regions the benefit of the Committee's discussions and recommendations.

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