

World Health Organization

Technical Report Series

No. 25

**EXPERT COMMITTEE
ON HEALTH STATISTICS**

Report on the Second Session

Geneva, 18-21 April 1950

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WORLD HEALTH ORGANIZATION

PALAIS DES NATIONS

GENEVA

OCTOBER 1950

EXPERT COMMITTEE ON HEALTH STATISTICS

Second Session

Members :

Dr D. Curiel, Chief, Division of Epidemiology and Vital Statistics, Ministry of Health and Social Welfare, Caracas, Venezuela

Dr P. F. Denoix, Chef des Services techniques et de la Section du Cancer, Institut national d'Hygiène, Paris, France

Dr H. L. Dunn, Chief, National Office of Vital Statistics (US Public Health Service), Washington, D.C., USA

*Dr M. Kacprzak, Professor of Hygiene, Director, State School of Hygiene, Warsaw, Poland

Dr P. Stocks, Chief Medical Statistician, General Register Office of England and Wales, London, United Kingdom (*Chairman*)

Representative of the United Nations :

F. E. Linder, Chief, Population and Vital Statistics Section, Statistical Office, Lake Success, N.Y.

Observer :

Dr M. de Viado, Social Security Section, ILO

Secretariat :

Dr M. Pascua, Deputy Director, Division of Health Statistics, WHO (*Secretary*)

Dr Marie Cakrtova, International Nomenclature of Diseases and Causes of Death Section, WHO

The report on the second session of this committee was originally issued in mimeographed form as document WHO/HS/26, 21 April 1950.

* Indicates member unable to attend.

EXPERT COMMITTEE ON HEALTH STATISTICS

Report on the Second Session¹

The Expert Committee on Health Statistics held its second session in Geneva from 18 to 21 April 1950.

In the absence of Dr Kacprzak, Dr P. Stocks was elected Chairman of the session.

1. Reports of Subcommittees

The Expert Committee on Health Statistics reviewed the work of its three subcommittees :

Subcommittee on the Definition of Stillbirth and Abortion, which held its first session in Paris from 27 February to 3 March 1950 ;

Subcommittee on the Registration of Cases of Cancer as well as their Statistical Presentation, which held its first session in Paris from 6 to 10 March 1950 ;

Subcommittee on Hospital Statistics, which held its first session in Geneva from 11 to 14 April 1950.

The reports of these subcommittees were adopted by the committee with minor amendments and some comments, and are annexed to this report.²

The committee adopted the following resolution :

The Expert Committee on Health Statistics

RECOMMENDS

1. that these reports be published and, in addition to routine distribution, be made available to the national committees on vital and

¹ The Executive Board, at its sixth session, adopted the following resolution :

The Executive Board

1. NOTES the report of the Expert Committee on Health Statistics on its second session, and

2. AUTHORIZES its publication.

(*Off. Rec. World Hlth Org.* 29)

² See Annexes 1, 2, and 3, pages 9, 17, and 29.

health statistics (or their equivalents), and to other organizations and persons having an interest in the subject matter contained in them ;

2. that the World Health Assembly adopt sections 1, 2, and 3, dealing with the definition of "live birth", "foetal death", and the "registration and tabulation of live births and infant deaths", from the report of the Subcommittee on the Definition of Stillbirth and Abortion, and section 1.1, dealing with the statistical definition of "cancer", from the report of the Subcommittee on the Registration of Cases of Cancer as well as their Statistical Presentation ;^[3]

3. that all other pertinent recommendations contained in the reports of these three subcommittees be submitted by WHO to the various nations for study and experimental use, with the aim of facilitating in the future an international review of the proposed procedures in the light of experience gained ;

4. that the following problems be suggested for study to national committees on vital and health statistics (or their equivalents) :^[4]

(1) in the field of statistics of infant and foetal deaths (Annex 1, section 9)

(a) special studies on live births and foetal deaths in relation to various factors (gestation period, birth-weight, single or multiple birth, etc.), to obtain a statistical basis for a satisfactory definition of immaturity

(b) classification of foetal deaths when more than one cause is stated

³ The Third World Health Assembly adopted the following resolution (WHA3.6) :
The Third World Health Assembly . . .

3. ADOPTS, as recommendations under Article 23 of the Constitution and Article 17 of Regulations No. 1 of the World Health Organization, the definitions of "live birth" and "foetal death", from sections 1 and 2 of the report of the Subcommittee on the Definition of Stillbirth and Abortion as well as the recommendations of that subcommittee made on "the registration and tabulation of live births and infant deaths" in section 3 of its report ;

4. ADOPTS also as recommendations under the said provisions of the Constitution and Regulations No. 1, the statistical definition of "cancer" given in the report of the Subcommittee on the Registration of Cases of Cancer as well as their Statistical Presentation ;

5. REQUESTS the Director-General to give these definitions as much publicity as possible with a view to their wide acceptance ;

⁴ The Third World Health Assembly adopted the following resolution (WHA3.6) :
The Third World Health Assembly . . .

6. AGREES to submit to the various nations for study and experimental use all the other pertinent recommendations contained in the reports of these three subcommittees and to suggest to national committees on vital and health statistics (or their equivalent) the studies mentioned in the said report (section 1, paragraphs 3 and 4 of resolution).

- (c) magnitude of loss of foetal lives at various periods of pregnancy
 - (d) better utilization of records of maternity and children's hospitals for medical-statistical research into the causes of foetal and infant death
- (2) in the field of cancer statistics (Annex 2)
- (a) collection of information concerning difficulties arising in the application of the *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death*⁵ in classifying neoplasms, and formulation of specific suggestions on this matter (section 1.2)
 - (b) study of the accuracy of diagnoses on death certificates, with particular reference to cancer (section 1.4)
 - (c) studies of mortality from cancer of different sites by geographical areas, and social and environmental factors (section 1.5)
 - (d) definitions of anatomical site and stage of the neoplasm (section 2.2)
- (3) in the field of hospital statistics (Annex 3)
- (a) adaptation of the International Statistical Classification to serve as an index of medical records by diagnosis (section 5 c)
 - (b) collection of information on the present definitions in use in hospital statistics which enter into the evaluation of hospital experiences by diagnosis (e.g., hospital, hospital bed, inpatient, outpatient, admission, discharge, patient-day, etc.) (section 4)
 - (c) study of methods for bridging the gap between hospital statistics; which are selective in character, and statistics which would be representative of the community from which the hospital patients are drawn (family type of survey, complete coverage of medical services, etc.)⁶
 - (d) study of morbidity of repeated hospitalizations (section 5 f)
 - (e) collection of statistics of mental disorders causing admissions to mental institutions according to various measurable factors reflecting upon etiology, and of statistics of the outcome of hospitalization (section 5 a)
 - (f) collection of statistics of tuberculosis patients admitted to tuberculosis sanatoria and institutions according to various measurable factors bearing upon the need for beds (section 5 b)

⁵ *Bull. World Hlth Org. Suppl. 1*, 1948-49, 2 vol.

⁶ For further comments of the Expert Committee on Health Statistics, see Annex 3, page 31, footnote 5.

(g) collection of statistics of obstetrical admissions reflecting upon the use of hospital beds, and outpatient and domiciliary facilities for deliveries (section 5 d)

(h) development of a statistical classification of operations and of anaesthetic procedures (section 5 e)

5. that the Subcommittee on the Registration of Cases of Cancer as well as their Statistical Presentation and the Subcommittee on Hospital Statistics each hold a second session to consider the items still pending of their programme, utilizing as much as possible information collected by the various national committees on the problems suggested for study in hospital statistics and registration of cancer cases.

2. Medical Certification and Classification of Causes of Death

After review of the present state of the problem of medical certification and the difficulties incident to the introduction of the International Statistical Classification of Diseases, Injuries, and Causes of Death (Sixth Revision) into the procedure of the various nations, the committee reaffirms the position adopted at its first session, held in Geneva from 23 to 28 May 1949,⁷ and urges that the work outlined in the pertinent recommendations be considered a primary and continuing responsibility of WHO, involving not merely the prompt publication of the *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death* in English, French, and Spanish but also the promotion of the use of the Classification by the nations.

The committee adopted the following resolutions :

I. The Expert Committee on Health Statistics

RECOMMENDS strongly an early implementation of the resolution adopted by the Second Health Assembly concerning the establishment of a clearing centre for problems arising in the application of the International Statistical Classification.⁸ The clearing centre should be an integral part of the regular and continuing activities of WHO, providing also a mechanism for collecting and preserving experience and suggestions of value for subsequent revisions of the classification.

II. The Expert Committee on Health Statistics

RECOMMENDS

1. that, drawing upon experiences available in some countries, WHO promote the education of physicians in the proper use of the international form of medical certificate of cause of death, by (a) preparing

⁷ *World Hlth Org. techn. Rep. Ser.* 1950, 5, 5

⁸ Resolution WHA2.38, *Off. Rec. World Hlth Org.* 21, 28

and circulating pamphlets and manuals, and (b) developing programmes and material for teaching physicians and medical students ;

2. that WHO actively promote the use of the International Statistical Classification by countries, by (a) preparing descriptive material and instruction manuals, and (b) stimulating and conducting training courses for morbidity and mortality coders within the educational and training programme of WHO.

3. Morbidity Statistics

The committee adopted the following resolution :

The Expert Committee on Health Statistics,

Considering the magnitude and complexity of statistical procedures in morbidity,

RECOMMENDS that the next session of the Expert Committee on Health Statistics be called early in 1951, to which co-opted members suitable for considering the matter of morbidity statistics should be invited, with the object of obtaining an orientation, evaluation, and selection of the projects requiring international action in this field. In preparation for this session, WHO is requested to ask national committees on vital and health statistics, and other appropriate national and international agencies, for a report on their present and planned activities in morbidity statistics, and also for their viewpoints as to what should be undertaken by WHO and other international organizations to develop and improve morbidity statistics.

4. National Committees on Vital and Health Statistics

The committee adopted the following resolutions :

I. The Expert Committee on Health Statistics,

Considering that, pursuant to the recommendation of the Expert Committee on Health Statistics, adopted at its first session,⁹ several nations have now organized national committees on vital and health statistics,

RECOMMENDS strongly an early implementation of the resolution adopted by the Second Health Assembly concerning the establishment of a focal unit for maintaining relationship with national committees (or other national equivalents).¹⁰

⁹ *World Hlth Org. techn. Rep. Ser.* 1950, 5, 3

¹⁰ Resolution WHA2.38, *Off. Rec. World Hlth Org.* 21, 28

II. The Expert Committee on Health Statistics

RECOMMENDS that WHO take steps to initiate an international conference of representatives of national committees, to be sent at the expense of their respective governments ; this meeting to be held early in 1952.

Annex 1

**SUBCOMMITTEE ON THE DEFINITION OF STILLBIRTH
AND ABORTION**

Report on the First Session

Paris, 27 February - 3 March 1950

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SUBCOMMITTEE ON THE DEFINITION OF STILLBIRTH
AND ABORTION

First Session

Members :

Dr D. Baird, Regius Professor of Midwifery, University of Aberdeen, United Kingdom (*Chairman*)

Dr M. A. van Bouwdijk Bastiaanse, Professor of Obstetrics and Gynaecology, University of Amsterdam, Netherlands

Dr E. F. Daily, Director, Division of Health Services, US Children's Bureau, Social Security Administration, Washington, D.C., USA (*Rapporteur*)

Dr L. Dérobert, Professeur agrégé à la Faculté de Médecine de l'Université de Paris, France

F. Fraser Harris, Director, Health and Welfare Division, Dominion Bureau of Statistics, Ottawa, Canada

Member of WHO Expert Committee on Health Statistics :

Dr P. Stocks, Chief Medical Statistician, General Register Office of England and Wales, London, United Kingdom

Secretary :

Dr M. Pascua, Deputy Director, Division of Health Statistics, WHO

The report on the first session of this subcommittee was originally issued in mimeographed form as documents WHO/HS/STDEF/9, 14 March 1950, and WHO/HS/STDEF/9 Rev. 1, 21 April 1950.

SUBCOMMITTEE ON THE DEFINITION OF STILLBIRTH AND ABORTION

Report on the First Session

The subcommittee on the Definition of Stillbirth and Abortion of the Expert Committee on Health Statistics was established by decision of the Executive Board at its fourth session,¹ in implementation of a request of the Second World Health Assembly.²

The subcommittee held its first session in Paris from 27 February to 3 March 1950.

The subcommittee reviewed at length the present international situation concerning the great diversity of definitions of live birth and foetal deaths (abortions and stillbirths) in use in different countries, which produces so many difficulties in the international comparability of demographic data. The subcommittee recognized the great importance of setting up uniform standards in this matter which might, by gaining a wide acceptance and application, improve considerably the reliability and comparability of vital statistics in the world.

The question of prematurity (immaturity) presents complex problems because of the absence of basic national information (weight, length, and other characteristics of the immature infant by period of gestation) essential for the purpose of establishing a definition of immaturity (prematurity) likely to be widely adopted.

After studying the various aspects of these problems, the subcommittee decided to present to the Expert Committee on Health Statistics the following recommendations and views.

1. Live Birth and Live Born

The subcommittee felt that consideration should first be given to the definition of "live birth", since it was not defined uniformly by all countries and as a result statistics directly or indirectly related to live birth were not comparable. Since the French language has no word corresponding to the English term "live birth", the definition was made to cover both "live birth" and "live born".

¹ *Off. Rec. World Hlth Org.* 22, 3

² Resolution WHA2.38, *Off. Rec. World Hlth Org.* 21, 28

The following definition is recommended for consideration by the Expert Committee on Health Statistics, and for adoption by the World Health Assembly :

Live birth is the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy, which, after such separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached ; each product of such a birth is considered live born.

2. Foetal Death

The subcommittee discussed the variety of definitions of stillbirth current in different parts of the world, the previous difficulties encountered when an international definition of stillbirth was proposed, and the need for data on total foetal wastage which could not be secured under any of the usual definitions of stillbirth. The subcommittee concluded that "foetal death" should be defined rather than the term "stillbirth", and that the definition of foetal death should be the reverse of the definition of live birth.

The following definition is recommended for consideration by the Expert Committee on Health Statistics, and for adoption by the World Health Assembly :

Foetal death is death prior to the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy ; the death is indicated by the fact that after such separation the foetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles.

3. Registration and Tabulation of Live Births and Infant Deaths

All live-born infants should be registered and counted as such irrespective of the period of gestation, and if they die at any time following birth they should also be registered and counted as deaths.

4. Tabulation of Live Births and Foetal Deaths

It was believed desirable to obtain as far as possible tabulations of live births and of foetal deaths by comparable periods of gestation, and

that there would be many advantages in having the reportable periods the same for all live births and foetal deaths.

The selection of the number of weeks of gestation to be included in the tabulations recommended was made after studying current data on foetal deaths and live births in various countries. Foetal deaths are now usually tabulated either after the 20th week or the 28th week of gestation. It was noted that very rarely are infants reported as being live born before the 20th week; at 28 weeks there are, in England, approximately three times as many live births as there are foetal deaths and, judging from this experience, this appears to be about the time when the live born begin to have a fair chance of survival. From the clinical standpoint, it was felt that dividing lines at the 20th and 28th weeks could reasonably be used since clinical conditions affecting live birth and foetal death change appreciably at about these periods.

The subcommittee recommended :

(a) Tabulation of all live births, irrespective of the period of gestation, by all countries, with at least the following groups :

Less than 20 completed weeks of gestation . . .	<i>Group I</i>
20 completed weeks of gestation but less than 28 . . .	<i>Group II</i>
28 completed weeks of gestation and over. . .	<i>Group III</i>
Gestation period not classifiable in groups I, II, and III	<i>Group IV</i>

(The period of gestation is measured from the beginning of the last menstruation)

(b) Tabulation of all foetal deaths is a desirable goal and should be attained as soon as possible.

(c) As a minimum all countries should register and tabulate all foetal deaths occurring after the 28th completed week of gestation.

(d) The following groups should be used in tabulations of foetal deaths :

Less than 20 completed weeks of gestation . . .	<i>Group I</i>
20 completed weeks of gestation but less than 28 . . .	<i>Group II</i>
28 completed weeks of gestation and over. . .	<i>Group III</i>
Gestation period not classifiable in groups I, II, and III	<i>Group IV</i>

(The period of gestation is measured from the beginning of the last menstruation)

Foetal deaths, group I, may also be described as "early foetal deaths".

Foetal deaths, group II, may also be described as "intermediate foetal deaths".

Foetal deaths, group III, may also be described as "late foetal deaths".

(e) For international statistical purposes, live births and foetal deaths should be classified into groups I, II, III, and IV as defined above.

(f) The term "abortion" as applied to a product of conception and the term "stillbirth" should be retained only if essential for internal use within a nation. The subcommittee did not attempt to define the term "abortion".

(g) The term "stillbirth" when used in the statistics of any country should be synonymous with group III (late foetal deaths).

It was realized that the term "stillbirth" would of necessity continue to be used by many countries for some time.

(h) Publication of foetal death statistics alongside of neonatal mortality data should be encouraged to facilitate comparative studies.

5. Registration of Foetal Deaths

Both birth and death certificates should not be required for registration of any foetal death; a single foetal death certificate should be sufficient.

6. Improvement of Reporting of Live Births and Foetal Deaths

The following steps are considered necessary to promote the reporting of all live births and foetal deaths:

(a) The importance of registration of foetal deaths and live births should be stressed to physicians, midwives, and civil registrars, and their co-operation should be sought.

(b) Laws and regulations concerning the registration of live births should be amended along the lines of section 3 in countries where such a registration depends upon the infant being still alive at the time of registration.

7. Foetal Death Certificate

The subcommittee felt that sufficient experience had not yet been gained to determine the best form for a foetal death certificate and that premature standardization might hinder rather than help the attainment of good statistics in the long run.

The subcommittee recommended that all causes shown in the certificate should be tabulated to provide guidance in subsequently designing an international standard form of certificate of foetal death.

(a) Foetal death certificates should always include at least the following data :

- (i) cause of foetal death
- (ii) number of weeks of gestation

(b) For those nations or States which can secure additional data on foetal deaths, whether on the registration certificate or by special study, the following information should be obtained from physicians and analysed :

<p>A. <i>Conditions which you believe may have contributed to the death of the foetus</i></p> <p>1. General health of the mother</p> <p>2. Conditions of pregnancy and labour</p> <p>3. Conditions of foetus, placenta, and cord</p> <p>B. <i>Foetal autopsy performed</i> : Yes or no</p> <p>Causes found at autopsy</p> <p>C. <i>Cause of foetal death, in your opinion</i></p> <p>D. <i>Additional data</i> :</p> <p>1. Duration of pregnancy (in weeks)</p> <p>2. Birth weight</p> <p>3. Time of death : Before labour : Yes or no</p> <p style="padding-left: 40px;">During labour : Yes or no</p> <p style="padding-left: 40px;">Uncertain</p> <p>4. (a) Normal labour : Yes or no</p> <p style="padding-left: 20px;">(b) Manipulative, instrumental, or other operative procedure for delivery</p> <p style="text-align: center;">.....</p> <p style="text-align: center;">(Give details)</p>
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8. Foetal Death Rates

Since registration and reporting of foetal deaths will be incomplete in varying degrees in different countries and the total number of pregnancies can be only roughly estimated, it would seem advisable that "foetal death rates" for international comparison be expressed by using as the denominator the number of live births rather than the estimated total number

of pregnancies or total number of births. This would not preclude the calculation of other rates for special purposes.

9. Resolutions

Resolution No. 1 : Immaturity

The subcommittee recommends to the Expert Committee on Health Statistics that national committees on vital and health statistics be urged to stimulate the special studies of live births and foetal deaths which will provide data needed to arrive at a satisfactory definition of immaturity. Such special studies will, of course, be carried out in selected areas or by sample techniques assuring adequate representativeness.

It is recommended that the inter-relation of the following factors at least be included in such studies :

- (a) gestation period (last completed week measuring from the beginning of the last menstruation)
- (b) birth weight (with groupings of not less than 250 g. difference, i.e., 250 to 500 g., 500 to 750 g., 750 to 1,000 g., ... 3,000 to 3,250 g., etc.)
- (c) whether single or multiple birth
- (d) whether a first pregnancy or not
- (e) sex
- (f) race
- (g) age and height of the mother
- (h) social data (such as occupation of the father or head of the family, and legitimacy)
- (i) if dead within one month, the number of days after birth when death occurred.

The influence of epidemic and other diseases upon the incidence of premature labour should also be studied.

Resolution No. 2

The loss of foetal lives at all periods of gestation is considered a public-health problem of great magnitude which should command the particular attention of all nations. It is recommended that the Expert Committee on Health Statistics request the several national committees on vital and health statistics to study :

- (a) Suitable classification of foetal deaths when more than one cause is stated.
- (b) Magnitude of loss of foetal lives at various periods of pregnancy.
- (c) Better utilization of records of maternity and children's hospitals for medical-statistical research into the causes of foetal and infant death.

Annex 2

**SUBCOMMITTEE ON THE REGISTRATION OF CASES
OF CANCER AS WELL AS THEIR STATISTICAL
PRESENTATION**

Report on the First Session

Paris, 6-10 March 1950

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**SUBCOMMITTEE ON THE REGISTRATION OF CASES OF CANCER
AS WELL AS THEIR STATISTICAL PRESENTATION**

First Session

Members :

Dr J. Clemmesen, Chief, Cancer Registry, Copenhagen, Denmark (*Chairman*)

Dr H. F. Dorn, Biometrics Section, National Cancer Institute, National Institutes of Health (US Public Health Service), Washington, D.C., USA (*Rapporteur*)

Members of WHO Expert Committee on Health Statistics :

Dr P. F. Denoix, Chef des Services techniques et de la Section du Cancer, Institut national d'Hygiène, Paris, France

Dr P. Stocks, Chief Medical Statistician, General Register Office of England and Wales; London, United Kingdom

Consultant :

Dr J. Heyman, Editor, *Annual Reports on the Results of Radiotherapy in Cancer of the Uterine Cervix*, Stockholm, Sweden

Secretary :

Dr M. Pascua, Deputy Director, Division of Health Statistics, WHO

The report on the first session of this subcommittee was originally issued in mimeographed form as documents WHO/HS/CANC/12, 10 March 1950, and WHO/HS/CANC/12 Rev.1, 21 April 1950.

SUBCOMMITTEE ON THE REGISTRATION OF CASES OF CANCER AS WELL AS THEIR STATISTICAL PRESENTATION

Report on the First Session

The Subcommittee on the Registration of Cases of Cancer as well as their Statistical Presentation of the Expert Committee on Health Statistics was established by decision of the Executive Board at its fourth session,¹ in implementation of a request of the Second World Health Assembly.²

The subcommittee held its first session in Paris from 6 to 10 March 1950.

The subcommittee reviewed the tentative agenda, and agreed to discuss the statistical problems arising in the study of cancer under the following headings in the order shown :

- (1) Mortality statistics
- (2) Morbidity statistics and cancer registration
- (3) Therapeutic statistics
- (4) *Annual Reports on the Results of Radiotherapy in Cancer of the Uterine Cervix* :

1. Mortality Statistics

1.1 *Statistical definition of "cancer"*

It was pointed out that there was no general agreement concerning the statistical definition of "cancer" in terms of the categories appearing in the *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death*.³ In previous editions of the International Lists of Diseases and Causes of Death, Hodgkin's disease, leukaemia and aleukaemia, mycosis fungoides (nos. 201, 204, and 205 respectively of the 1948 revision), and some other numerically unimportant conditions now included in code numbers 200-205, were not classified as cancer. In order to remove any doubt concerning the statistical definition of "cancer" and, at the same time, to provide statistics comparable with those of the past, the subcommittee recommends that :

(a) Total cancer deaths should be based upon nos. 140-205 of the International Statistical Classification (1948).

¹ *Off. Rec. World Hlth Org.* 22, 4

² Resolution WHA2.38, *Off. Rec. World Hlth Org.* 21, 28

³ See *Bull. World Hlth Org. Suppl.* 1, 1948, 1.

(b) For comparability with the past, the following subgroups should also be shown :

- (i) Cancer excluding Hodgkin's disease, leukaemia and aleukaemia—nos. 140-205, except 201 and 204
- (ii) Hodgkin's disease—no. 201
- (iii) Leukaemia and aleukaemia—no. 204

1.2 *Difficulties arising in application of section II—Neoplasms—of the International Statistical Classification (1948)*

Several members of the subcommittee pointed out that, in their experience, certain problems had arisen in the use of section II—Neoplasms—of the International Statistical Classification (1948). Among these were (a) lack of sufficient detail for certain sites, (b) inclusion of secondary sites in the same subsections as primary sites, (c) presentation of statistics, when cancer appears on death certificates along with other causes, and (d) some uncertainty concerning definitions of various sites in as much as the classification of neoplasms is based on a mixture of anatomical locations and histological types.

In the discussion of these and other problems, the desirability of collecting information on the current experience of other users of the International Statistical Classification was emphasized. Accordingly, the subcommittee recommends :

that measures should be initiated for the collection, through the various national committees on vital and health statistics, or other appropriate agencies, of information concerning difficulties arising in the use of the section on Neoplasms of the International Statistical Classification (1948), together with specific suggestions for overcoming them, and that this information be referred to the subcommittee for study and recommendation.

1.3 *Tabulation of multiple causes of death*

The desirability of annual tabulations of multiple causes of death, especially if cancer is one of the certified causes, was discussed. Although general agreement existed on this point, it was believed that many countries would consider annual tabulation too expensive. Nevertheless, it was felt that countries which could afford to do so should be encouraged to make frequent tabulations of multiple causes of death following the form suggested in the *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death*. Such tabulations could be obtained from representative samples of all deaths. The subcommittee recommends :

that countries should be encouraged to prepare, annually or as frequently as possible, tabulations showing multiple causes of death.

1.4 *Accuracy of diagnoses on death certificates*

The subcommittee emphasized the importance of continuous efforts to evaluate and improve the accuracy of diagnoses entered upon death certificates, with particular reference to cancer; it felt that too few studies of the reliability of diagnoses on death certificates have been made in recent years. Much of the value of an international statistical classification is lost if the diagnoses as coded are unreliable. Accordingly, the subcommittee recommends:

that national committees on vital and health statistics, and other appropriate agencies, be urged to study the question of the accuracy of diagnoses entered on death certificates, with particular reference to cancer, by comparing such diagnoses with the results obtained from postmortems and from other relevant sources of information.

1.5 *Studies of geographical variation*

The subcommittee reviewed studies which had been made in England and Wales of geographical variation in mortality from cancer of specific sites. It agreed that such studies might well reveal significant variations in mortality from cancer which could form the basis for investigations of etiological factors. Before such studies are made, variation due to differences in age composition of the various populations should be allowed for, and, if studies are made for rural and urban populations, appropriate adjustments should be made for deaths of non-residents. The subcommittee recommends:

that national committees on vital and health statistics, and other appropriate agencies, be encouraged to sponsor studies of geographical variations in mortality from cancer of specific sites, especially with regard to the corresponding variation of social and environmental factors, and that, if urban and rural areas are used for this purpose, definitions of rural and urban areas and the adjustments made to allow for non-residence be indicated clearly. As a basis for such studies, cancer mortality statistics should be tabulated for a series of years, showing, for States, provinces, regions, counties, or other appropriate territorial subdivisions of the nations, the number of deaths for at least each site detailed in the Intermediate List of the International Statistical Classification (1948) and in accordance with WHO Regulations No. 1, Article 6 (b).

2. **Morbidity Statistics and Cancer Registration**

2.1 *Procedures*

The subcommittee reviewed the information concerning existing projects for the study of morbidity from cancer and the establishment of

cancer registration systems in various countries. It was agreed not to recommend that cancer be made a reportable disease by law.

The subcommittee considered the progress achieved in the various projects already established (*a*) for registration and follow-up of cancer patients at hospitals and similar institutions in Canada, England, France, and other countries, (*b*) for ascertainment of total cancer morbidity in selected cities and counties of the USA, and (*c*) for combining these two aims in Denmark, Norway, and certain areas of the USA.

Such projects were believed to be of great value (*a*) for improving the possibility that patients developing cancer shall in the future receive the earliest and best treatment available, (*b*) for increasing knowledge of cancer morbidity and of its relationship with social and environmental factors, (*c*) for providing indications for scientific studies on particular points of the etiology of cancer, and (*d*) for ascertaining the prospects of survival and apparent recovery with a view to measuring in the future the value of steps taken to secure earlier and better treatment. The subcommittee recommends :

(1) that efforts be made to determine the total incidence of cancer in populations of sample areas within several countries during a year or period of years, using for that purpose all available sources of information (e.g., doctors, pathologists, hospitals, death certificates) ;

(2) that cancer-registration projects aiming at ascertainment of follow-up histories of patients should be encouraged with a view to eventual inclusion in such registration systems of all persons affected by cancer, thus eliminating selective bias, so as to arrive at true morbidity, survival, and apparent-recovery rates.

2.2 *Definition of anatomical site and stage*

The subcommittee recognized that, in order to achieve greater precision in and to improve the comparability of studies of morbidity and of therapeutic statistics of cancer, there should be common agreement on (*a*) the anatomical delimitations of the sites, and (*b*) the definition of the stages of disease, that is, the extension of the neoplasm. Although it realized that many years might elapse before these objectives could be achieved, due to the complexity of these problems and to the absence of general agreement at the present time, nevertheless, the subcommittee considered it highly desirable that a start should be made.

Accordingly, the subcommittee recommends :

that national committees on vital and health statistics, and other appropriate agencies, in consultation with cancer specialists, be requested to prepare definitions, illustrated by diagrams if possible, of (*a*) some or all of the principal anatomical sites affected by cancer, and (*b*) the stages

of disease, that is, the extension of the neoplasm, and to submit these definitions to WHO for reference to the subcommittee for study and recommendation.

2.3 *Code for histological type*

The subcommittee noted that the US National Committee on Vital and Health Statistics was co-operating with a number of professional medical societies in the development of a standard code for histological type of neoplasms. The subcommittee expressed interest in this project, and agreed to postpone any action with reference to the development of a code of this nature until the one now being prepared in the USA could be completed and made available for study.

3. Therapeutic Statistics

The subcommittee reviewed various plans for the presentation of therapeutic statistics, and arrived at the following conclusions :

3.1 *Intervals for follow-up*

In view of the fact that

(a) the absence of any commonly agreed method of calculating survival and apparent-recovery ("cure") rates for cancer leads to great confusion and prevents correct comparisons of the results of different therapeutic procedures,

(b) a single fixed interval before results are recorded, five years for example, although appropriate for certain types of cancer, is not necessarily of general application for all kinds of neoplasms,

(c) after the lapse of three or four years, rates based upon the total interval for follow-up become increasingly defective owing to such factors as normal mortality and inability to keep patients under continuous observation, and

(d) an annual follow-up examination, especially in the years immediately subsequent to treatment, is in the interest of the patient,

the subcommittee recommends that survival and apparent-recovery rates should be calculated at the end of one year, two years, three years, etc., from the beginning of the observation, rates for the first five years being based on the total number of cases. For subsequent annual intervals the denominator of the rate should be the number still at risk at the beginning of that interval, cumulative rates for periods after five years being obtained by the multiplication of consecutive annual rates.

3.2 *Definitions and rules*

(a) The starting point of the first 12-month interval should always be specified. For the comparison of different methods of treatment, the date of first treatment for cancer may be the starting point ; for the study of the efficiency of medical care or for public-health purposes the date of first diagnosis of cancer may be the starting point ; for cases diagnosed in a hospital this will be considered to be the date of the visit or of the admission during which diagnosis is made.

(b) It is very important for accurate evaluation of therapeutic results to achieve a complete follow-up of all patients, and every effort should be made to trace each patient. Those who cannot be traced after each 12-month interval should be assumed, for purposes of uniformity and comparability, to have died of unknown causes during that interval.⁴

(c) All cases diagnosed as cancer, whether treated or not, should be included with the exception of patients referred for diagnosis only.

(d) It is desirable that all diagnoses be confirmed histologically, but every patient diagnosed as having cancer should be included whether or not the diagnosis has been verified histologically. For special purposes those not so verified may be studied separately.

(e) Patients should be classified according to the site of cancer originally diagnosed. If another primary cancer develops, it should be considered as an intercurrent disease.

(f) It is desirable that the condition of patients classified as alive with no evidence of the disease should be established through examination by the reporting physician or hospital.

⁴ The Expert Committee on Health Statistics wishes to stress the fact that the only way to obtain accurate survival- and recovery-rates which will be beyond criticism is to keep the numbers of patients who are lost sight of and of patients whose condition is uncertain so small that it makes no appreciable difference what assumption is made about them. Nevertheless, since that aim often cannot be completely realized, it is important for purposes of comparability to formulate rules for dealing with the uncertain groups and to agree to use them. From the nature of the problem, it is not possible to devise rules which are perfectly satisfactory both from the theoretical and practical aspects ; and the best that can be done is to suggest a formula which takes account of both aspects as far as possible, and ask that it be used for uniformity's sake even by those who may object to some detail of it.

If patients who are lost sight of could be regarded as an unbiased sample, theoretical considerations would require their omission from both numerator and denominator of the rates ; but since it is known that in practice the group tends to be overloaded with patients who have died, and since such bias tends to improve the rates of survival and apparent recovery, the committee agrees, although this may introduce a slight bias in the opposite sense, that it is safer to regard all the untraced patients as dead of unknown causes at the end of the annual interval. If later any such patients are found to be alive, the annual rate should then be recalculated accordingly. This will provide a strong incentive to institutions to reduce this group to the absolute minimum by persistent and continued efforts.

(g) Patients should be classified according to their condition at the end of each reporting 12-month interval, whether or not they have been successfully treated for a recurrence.

3.3 Classification of patient's condition

For the calculation of the rates, the condition of each patient at the end of each 12-month period should be recorded and tabulated as follows :

A = number known to be alive

A_o — with no evidence of the disease

A_c — with cancer present

A_x — with presence of cancer uncertain

D = number known to be dead

D_o — with no evidence of the disease

D_c — with cancer present

D_x — with presence of cancer uncertain at death

L = number untraced at end of year

3.4 Definition of rates

The subcommittee recommends that the survival-rates for each of the periods considered be defined as follows :

Crude survival-rate is the number of persons known to be alive at the end of the period considered divided by the total number who were alive at the beginning of this period.

$$SR_{\text{cru}} = \frac{A}{A + D + L}$$

There are, of course, different methods of correcting the crude rate to allow for natural mortality, of which the following is one :

Corrected survival-rate is the crude rate as defined above divided by the probability of not dying within a comparable period from any cause other than cancer of the site in question, in a population having the same age distribution as the patients comprising the group. For most sites, this probability (p) does not usually differ appreciably from the probability of not dying from any cause.

$$SR_{\text{cor}} = \frac{SR_{\text{cru}}}{p}$$

Crude apparent-recovery rate in the first year from the starting point is the number of persons alive with no evidence of the disease at the end of 12 months, divided by the total number who were alive at the start.

$$RR_{\text{cru}} = \frac{A_0}{A + D + L}$$

For periods of two, three, four, or five years the denominator of the fraction is the same as that used at the end of the first year; but for annual intervals after five years it is changed to the number alive with no evidence of the disease at the beginning of the interval.

There are also different methods for adjusting the crude apparent-recovery rate, of which the following is one:⁵

Adjusted apparent-recovery rate in the first year is the crude rate as defined above modified to allow for the patients whose condition at the end of the interval was uncertain, and to allow for the duration of life with no evidence of the disease experienced during the 12 months by those who died:

$$RR_{\text{adj}} = \frac{A_0 \left(1 + \frac{A_x}{A_0 + A_c} \right) + \frac{D_0}{2} \left(1 + \frac{D_x + L}{D_0 + D_c} \right)}{A + D + L}$$

For periods after the first year, proceed as for the crude rate.

3.5 *Graphic presentation of statistics*

The subcommittee reviewed with interest the form for the graphic presentation of therapeutic statistics developed by the Institut National d'Hygiène, France, and wishes to call attention to an example of its use appearing in the *Bulletin de l'Institut National d'Hygiène*.⁶ It strongly endorsed the view that therapeutic statistics should be presented in a clear and unequivocal manner, and wished to encourage all efforts for the accomplishment of this purpose. The subcommittee felt that various forms equally satisfactory for the graphic presentation of therapeutic statistics might be devised, and did not believe it desirable, at this time, to recommend any particular pattern. It wishes to call attention, however, to the form used by the Institut National d'Hygiène in the hope that it may stimulate other institutions or persons to develop similar methods for the diagrammatic presentation of therapeutic statistics.

⁵ Many different methods can be suggested for adjusting the crude apparent-recovery rate, but all are necessarily imperfect and open to some criticism. Whilst recognizing certain defects of the "adjusted apparent-recovery rate", the Expert Committee on Health Statistics is unable for the time being to improve upon it, and advocates its trial for a period of years in the interests of comparability, emphasizing at the same time that the aim must be to so improve follow-up services that L, A_x, and D_x all approximate to zero, at which point the need for adjustment disappears. If subsequently any patients classed as A_x or D_x are found to have been in one of the defined groups, the rate should be recalculated accordingly.

⁶ *Bull. Inst. nat. Hyg.* 1950, 5, 44

4. Annual Reports on the Results of Radiotherapy in Cancer of the Uterine Cervix

The subcommittee considered the *Annual Reports on the Results of Radiotherapy in Cancer of the Uterine Cervix* edited by Dr J. Heyman and originally issued by the League of Nations Health Organization. In view of the fact that the subcommittee has recommended that WHO adopt standard rules and procedures for the calculation and presentation of therapeutic statistics and promote their general use in order to bring about comparability, thus implicitly endorsing their value; and noting the opinion that the publication of the *Annual reports* referred to above, in spite of certain deficiencies, has stimulated various efforts to improve the presentation of therapeutic results; and, furthermore, believing that the systematic collection and presentation of therapeutic statistics in accordance with standard rules and procedures undoubtedly will encourage the betterment of methods of treatment of persons with cancer; the subcommittee recommends that these *Annual reports* continue to be published if at all possible.

The subcommittee, with specific reference to the *Annual Reports on the Results of Radiotherapy in Cancer of the Uterine Cervix*, recommends:

(a) that their scope be broadened to include all cases of cancer of the uterine cervix whatever the method of treatment;

(b) that the rules and methods of calculation and presentation of therapeutic statistics proposed by this subcommittee be followed in the preparation of the *Annual reports*, and that the advice of the subcommittee be sought if any difficulties should arise in this connexion;

(c) that the report of a given institution should be accepted for publication only if it includes every case of cancer of the uterine cervix examined at the institution, the only exception being patients referred to it for diagnosis only;

(d) that a careful review should be made of the arrangement of the contents of the published volume with a view to reducing the space allotted to each report by omitting the presentation of very small frequencies, by reducing the amount of detailed statistics already published in previous reports, and by other similar means;

(e) that a concise, analytical summary, illustrated with appropriate graphs, of the principal conclusions to be drawn from the statistics should be a regular feature of each volume.



Annex 3

SUBCOMMITTEE ON HOSPITAL STATISTICS

Report on the First Session

Geneva, 11-14 April 1950

SUBCOMMITTEE ON HOSPITAL STATISTICS

First Session

Members :

Dr E. L. Crosby, Director, Johns Hopkins Hospital, Baltimore, Md., USA

*Dr P. Foltz, Medical Director, Ospedale San Giovanni di Torino, Turin, Italy

Dr Marie Lindhardt, Head, Statistical Section, National Health Service, Copenhagen, Denmark (*Chairman*)

Professor J. Rasuhin, Professor of Social Medicine, University of Zagreb, Yugoslavia

Member of WHO Expert Committee on Health Statistics :

Dr P. Stocks, Chief Medical Statistician, General Register Office of England and Wales, London, United Kingdom

Observer :

Dr M. de Viado, Social Security Section, ILO

Secretariat :

Dr M. Pascua, Deputy Director, Division of Health Statistics, WHO (*Secretary*)

Dr Marie Cakrtova, International Nomenclature of Diseases and Causes of Death Section, WHO

The report on the first session of this subcommittee was originally issued in mimeographed form as documents WHO/HS/Hosp.Stat./7, 18 April 1950, and WHO/HS/Hosp.Stat./7 Rev.1, 21 April 1950.

* Indicates member unable to attend.

SUBCOMMITTEE ON HOSPITAL STATISTICS

Report on the First Session

The Subcommittee on Hospital Statistics of the Expert Committee on Health Statistics was established by decision of the Executive Board at its fourth session,¹ in implementation of a request of the Second World Health Assembly.²

The subcommittee held its first session in Geneva from 11 to 14 April 1950.

The terms of reference of the subcommittee are indicated in the following recommendation adopted by the Expert Committee on Health Statistics during its first session :

The Expert Committee on Health Statistics

RECOMMENDS

(1) that a subcommittee of the Expert Committee on Health Statistics be set up in order to initiate the proper action to be taken by the committee in the field of hospital statistics, primary attention being given to the application of the new *International Statistical Classification of Diseases, Injuries, and Causes of Death* and related subjects, and appropriate questions being decentralized for study by national committees on health statistics ;³

The subcommittee considered the complexities of the problems of hospital statistics and hospital morbidity statistics, many of which are outlined in a note prepared by the Secretariat.⁴ The subcommittee discussed also the limitations of utilizing hospital experience, since the selective character of hospital admissions generally precludes drawing conclusions with regard to the prevalence and distribution of morbid conditions in the community as a whole.⁵

¹ *Off. Rec. World Hlth Org.* 22, 3

² Resolution WHA2.38, *Off. Rec. World Hlth Org.* 21, 28

³ *World Hlth Org. techn. Rep. Ser.* 1950, 5, 8

⁴ Unpublished working document WHO/HS/Hosp. Stat./6

⁵ In view of the selective character of hospitalized illness, the Expert Committee on Health Statistics stresses the need for investigating methods and possibilities of bridging the gap between hospital statistics and statistics representative of the community from which the patients of the hospital are drawn. The committee believes that the family type of survey or the complete coverage of medical-care services might offer the means of opening hospital statistics to broader interpretation and of enhancing their usefulness for public-health purposes.

In its deliberations, full cognizance was taken of the various classifications of diseases as well as of the purposes of classifying diseases. The *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death*⁶ was considered at length, particularly with regard to its applicability to hospital statistics.

The subcommittee fully recognized :

(1) the urgent need for data concerning types of illness treated in outpatient and inpatient departments and the durations of stay for different illnesses, so as to permit a review of the distribution and utilization of existing hospital facilities, and to provide a basis for future planning with a view to securing the most effective and economical use of the hospital beds and staff available ;

(2) the beneficial effect on patients, physicians, hospitals, and public health of producing accurate diagnostic records ;

(3) the possibilities of relating disease incidence to climatic, social, economic, occupational, and biological factors by appropriate statistics derived from diagnostic records of patients ;

(4) the possibilities of studying the results of different methods of treatment ;

(5) the complexity of studies of hospitalized illness because of variations in definitions, not only of sickness in its various categories, but also of different units of services rendered.

The subcommittee considered the purposes which could be served by statistics of :

(1) patients classified according to diagnosis in

(a) all hospitals, or special hospitals, measured in relation to the population at risk (e.g., data for whole countries or parts of countries or for classes of the population eligible for medical care, such as veterans, members of the armed forces, and patients covered by sickness-insurance schemes) ;

(b) selected hospitals without possibility of measuring the population at risk ;

(2) utilization of hospital beds and facilities, including outpatient departments, according to the types of hospitals and their divisions, and to the social and economic status of the patient, without regard to diagnosis.

⁶ *Bull. World Hlth Org. Suppl. 1, 1948, 1*

The subcommittee presents the following considerations and recommendations to the Expert Committee on Health Statistics :

(1) The subcommittee, concluding that the International Statistical Classification would generally serve the needs of hospitals better than any other classification for the compilation of statistics of illness causing hospitalization, recommends that it be used whenever such compilations of morbidity statistics are made.

(2) The subcommittee felt that certain selected countries and areas with a definable population at risk, and selected hospitals, should be encouraged to compile hospital morbidity statistics routinely. Such compilations should be fostered by national health administrations and national committees on vital and health statistics (or their equivalents). The subcommittee is of the opinion that routine compilation of hospital morbidity statistics in all countries and all hospitals is neither necessary nor advisable.

(3) The subcommittee recommends that the following form of individual report and principles of collection be used and followed when statistics of patients admitted with diseases other than mental are to be compiled :

The section of the report relating to diagnosis should be completed by the physician himself or under his direction. Having considered both the British and US procedures for recording the diagnosis, the subcommittee decided to recommend the one at present in use in England and Wales, subject to further discussion and agreement by the Expert Committee on Health Statistics. This grouping is as follows :

I. Principal disease, injury, or other condition which led to admission.

II. Principal complication(s) of I (stating the most important one first and whether present at admission).

III. Principal accessory acute condition (stating whether present at admission).

IV. Principal accessory chronic condition.

The underlying cause should be entered in I if a complication in II was also present at admission, even though the admission was due to that complication ; and in tabulation of statistics according to the principal cause of admission common combinations of an underlying cause should be distinguished from a complication.

The section relating to identifying data should be recorded by medical record or registration officers, and should include as a minimum : name, type, and location of the hospital ; the patient's name, national identity number (if any), hospital registration number, race, sex, and date of birth, admission, and discharge ; information on service referring patient (general practitioner, consultant, other hospital, etc.).

A special section of the record should be provided for deaths; this should indicate whether or not an autopsy was performed, and the cause of death exactly as entered on the death certificate. In addition, it is recommended that the final autopsy findings, when completed, should be linked with the other information for the purposes of comparing clinical and autopsy diagnoses.

The subcommittee emphasizes that, even if statistics are completed on tabular forms by the hospitals, provision should be made in the compilation of hospital statistics for counting numbers of individuals — admissions or discharges — and of principal diagnoses of various kinds.

(4) The subcommittee realized the necessity for uniform definitions of what constitutes a hospital, hospital bed, inpatient, outpatient, admission, discharge, patient-day, duration of stay, etc., but was not able in the time available to study this question in detail. The subcommittee suggests to the Expert Committee on Health Statistics that the problem of uniform definitions be further studied, and calls attention to the recently completed *Handbook on accounting, statistics and business office procedures for hospitals*, section I,⁷ of the American Hospital Association, which contains a set of such definitions.

(5) The subcommittee recommends that the following special problems in hospital statistics be referred and definitely assigned to appropriate national health-administrations or national committees on vital and health statistics (or their equivalents).

(a) *Mental hospitals*

Statistics of mental disorders causing admissions to mental institutions should be collected in several countries with a view to increasing knowledge of the incidence of hospitalized disorders of different types in populations according to sex, age, civil state, occupation, duration of disorder, family history, and other measurable factors concerned in etiology, and also statistics of the immediate outcome of hospitalization. These statistics should, if possible, be supplemented by sample studies of mental disorders in the population as a whole.

(b) *Tuberculosis hospitals*

Statistics of tuberculosis patients admitted to tuberculosis sanatoria and institutions should be collected in several countries with a view to increasing knowledge of the incidence of different types of tuberculosis and its treatment according to race, sex, age, occupation, duration of

⁷ American Hospital Association (1950) *Handbook on accounting, statistics and business office procedures for hospitals. Section I. Hospital statistics and uniform classification of accounts*, Chicago

illness, and other measurable factors bearing upon the need for beds and related to the immediate outcome of hospitalization.

(c) *Diagnostic cross-index*

The subcommittee believes that the International Statistical Classification is capable of being subdivided for purposes of indexing medical records by diagnosis and to meet the particular needs of special hospitals or localities. It emphasized that where elaborations are made they should be indicated by letters added to the published code numbers of which the new title forms a subdivision. It was felt that a proper project for a national committee on vital and health statistics would be the development of such an extension of the International Statistical Classification, to serve as a diagnostic cross-index.

(d) *Obstetrics*

In view of the fact that obstetric departments in hospitals have been able to develop mechanisms for collecting precise data relative to child-birth, and that considerable differences exist in various countries as to the use of hospitals for maternity cases, the subcommittee recommends that information be collected concerning the use of hospital beds, and out-patient and domiciliary facilities for deliveries.

(e) *Operations and anaesthetics*

The subcommittee recommends that efforts be made to develop a code, similar to the International Statistical Classification, for the purpose of tabulating statistics of operations, with the idea that such a code could be extended for use as an index to the medical records according to operation. It was felt that, since anaesthesia is definitely associated with operative procedures, the question of a classification of anaesthetical procedures should also be studied.

(f) *Multiple admissions*

The subcommittee recommends that the problems involved in the re-admission of an individual during a given period of time for the same or another illness be investigated by a national committee on vital and health statistics.

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