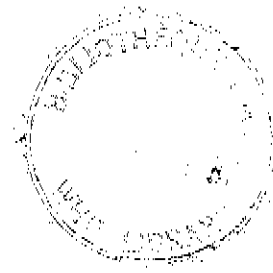




CONSULTATION ON DEFINITIONS AND STANDARDS RELATED
TO MATERNAL AND CHILD HEALTH AND THE PERINATAL PERIOD

14148

Washington, D.C., USA
30 March to 3 April 1987



REPORT

1. INTRODUCTION

- 1.1 The meeting was opened by Dr Harold A. Kaminetzky, Director, Practice Activities, American College of Obstetricians and Gynecologists (ACOG), on behalf of the host institution. Dr K. Kupka, Chief Medical Officer, Unit of Development of Epidemiological and Health Statistical Services, welcomed participants on behalf of the Director-General of WHO and, as Secretary of the meeting, invited Mr R. A. Israel to take the chair and appointed Mr A. L'Hours as Rapporteur.
- 1.2 In the interest of improving the comparability of national and international health statistics based on the International Classification of Diseases (ICD), the Preparatory Meeting on ICD-10 which met in Geneva in September 1983 and the first Expert Committee on ICD-10 held in San Francisco in June 1984 both recommended that the definitions and standards related to maternal and child health and the perinatal period be reviewed and revised in consultation with clinicians, epidemiologists, representatives of the United Nations Statistical Office, and other experts.
- 1.3 A first consultation had taken place in Geneva in December 1984 (Document ICD/PE/84.1) and a summary of the comments received on the recommendations of that meeting was presented to the Heads of WHO Collaborating Centres for the Classification of Diseases in April 1986 (Document WHO/DES/ICD/C/86.19). The Centre Heads noted the two major areas of disagreement, namely the change of concept from "fetal death" to the new concept of "deadbirth", and the definition of numerators and denominators for the calculation of perinatal and maternal mortality rates. In addition, there were a number of questions related to definitions of maternal mortality and the associated 42 day reference period. In view of the importance of these topics, the expressed interest of many countries, and the concerns of the United Nations Statistical Office of balancing the need for providing internationally comparable statistics with the need for promoting the availability of statistics, particularly in developing countries, the Centre Heads recommended that WHO convene a special meeting, with broad representation, devoted to problems of nomenclature, definitions and standards for maternal and child health in order to resolve the outstanding areas of disagreement.
- 1.4 The Consultation that is the subject of the present report was called in response to that request and prepared recommendations to be considered by the Centre Heads when they meet in June 1987 and by the second Expert Committee on ICD-10 which will be held in November 1987. The proposals will ultimately be submitted to the International Conference for the Tenth Revision in 1989 where the final decision will be taken as to whether all or some of the definitions and standards should be included in ICD-10.

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1.5 The present Consultation considered that the existing WHO definitions of livebirth and fetal death were open-ended and that no definition was available for a "non-birth" or abortion. An attempt to rectify those deficiencies had been rejected during the preparation of the Ninth Revision of the ICD on the grounds that the definitions had been incorporated into the laws of many countries and that the term abortion had wide and varying legal significance. WHO definitions were not in themselves legally binding on Member States. They did, however, have the scientific and medical authority as to the direction in which health care data collection should proceed. Politicians requested such guidance and leadership when they came to modify laws in order to meet changing health care requirements. If necessary, it was always possible to state that a recommendation was made merely for the purpose of health care data collection. Such a formula had previously been used by WHO in the collection of perinatal mortality statistics. Despite concerted efforts participants were unable to reach agreement on a recommendation for a definition of abortion.

2. DEFINITIONS AND RECOMMENDATIONS RELATED TO PERINATAL EVENTS

2.1 In considering the existing definitions and recommendations, and formulating suggestions for amendment, participants agreed that there was a need to make a clear distinction between the definition of an event, the reporting requirements for that event, and the recommendations for statistical analysis.

2.2.1 Birth

"Birth is the complete expulsion or extraction from its mother of a fetus, irrespective of the duration of the pregnancy. Each product of a birth is considered to be either a liveborn infant or a deadborn fetus".

2.2.2 Liveborn infant

"A liveborn infant is one which, after birth, breathes or shows evidence of life as demonstrated by 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".

2.2.3 Deadborn fetus (previously referred to as a fetal death)

"A deadborn fetus is one which, after birth, does not breathe or show evidence of life as demonstrated by 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".

2.3 Birthweight

2.3.1 "Birthweight is the first weight of a liveborn infant or deadborn fetus obtained within 24 hours of birth".

2.3.2 It was recommended that birthweight should be measured within the first hour of life before significant postnatal weight-loss has occurred.

2.3.3 While the recommendations for statistical tabulations included 500 g groupings for birthweight, weights should not be recorded in those groupings. The actual weight should be recorded to the degree of accuracy that it is measured.

2.3.4 In recommending the partitioning of "low birthweight" into "low", "very low", and "extremely low" for the purposes of detailed study, the Consultation emphasized that by definition these were not mutually exclusive categories. Below the set limits they were all-inclusive and therefore overlapped. This should be made clear for tabulation purposes.

2.3.5 Low birthweight

Less than 2500 g (up to, and including 2499 g).

2.3.6 Very low birthweight

Less than 1500 g (up to, and including 1499 g).

2.3.7 Extremely low birthweight

Less than 1000 g (up to, and including 999 g).

2.3.8 Heavy birthweight

Requests had been received that heavy birthweight should be defined but participants felt that this was a matter for individual countries. A category should however be provided in ICD-10 for "exceptionally large baby".

2.4 Gestational age

2.4.1 "The duration of gestation is measured from the first day of the last normal menstrual period. Gestational age is expressed in completed days or completed weeks (e.g. events occurring 280 to 286 completed days after the onset of the last normal menstrual period are considered to have occurred at 40 weeks of gestation)".

2.4.2 As gestational age is frequently a source of confusion when menstrual dates were used as a yardstick, it was considered appropriate to recall that the first day of the last normal menstrual period is day zero and not day one, that days 0-6 are week zero, days 7-13 are week one, and that "the 40th week of gestation" is synonymous with week 39. In order to avoid misunderstanding tabulations should indicate both weeks and days for explanation.

2.4.3 Pre-term

Less than 37 completed weeks (less than 259 completed days).

2.4.4 Term

From 37 completed weeks to less than 42 completed weeks (259 completed days to 293 completed days).

2.4.5 Post-term

42 completed weeks or more (294 days or more).

2.5 The perinatal period

2.5.1 "The perinatal period commences at 22 weeks of gestation (154 days) when the average birthweight is 500 g, and ends 7 completed days (168 hours) after birth".

2.5.2 The consultation also accepted the concept of the "extended perinatal period" which includes the remainder of the neonatal period (28 completed days).

2.5.3 It was considered appropriate at the present time to define the perinatal period as commencing at 22 weeks (500 g). It was further agreed that the criteria for deciding whether an event had taken place within the perinatal period should be applied in the order 1) birthweight, 2) gestational age, 3) crown-heel length. (see 4.1)

2.6 Neonatal period

From birth until 28 completed days of life.

3. PERINATAL MORTALITY STATISTICS

3.1 Perinatal mortality statistics may be identified as follows:

3.1.1 Deadbirth rate is defined as the number of deadborn fetuses per 1000 total births (deadbirths plus livebirths).

3.1.2 Neonatal mortality rate is defined as the number of deaths among liveborn infants during the first 28 completed days of life per 1000 livebirths.

3.2 Neonatal mortality may be further subdivided into early (first seven completed days (168 hours) of life) and late (after seven completed days but before 28 completed days of life) neonatal mortality rates.

3.3 Perinatal mortality rate is defined as the number of deadborn fetuses and early neonatal deaths per 1000 total births (deadbirths and livebirths).

4. NATIONAL AND INTERNATIONAL PERINATAL MORTALITY STATISTICS

4.1 It was recognized that legal requirements for registration purposes varied from country to country and even within countries. However, it was recommended that, wherever possible, national perinatal mortality statistics should include all fetuses and infants delivered weighing at least 500 g (or, when birthweight is unavailable, the corresponding gestational age (22 weeks), or body length (25 cm crown-heel)), whether alive or dead. Where these characteristics are unknown, the event should be included in, rather than excluded from, mortality statistics of the perinatal period. It was hoped that countries would arrange the registration and reporting procedures in such a way that the events required for inclusion in the statistics could be easily identified. It was further recommended that less mature fetuses and infants should be excluded from perinatal statistics unless there were legal or other valid reasons to the contrary.

4.2 The inclusion of fetuses and infants weighing between 500 g and 1000 g in national statistics was recommended both because of their inherent value and because their inclusion improved the completeness of reporting at 1000 g and over. Inclusion of this group of extremely low birthweight births in statistics for international comparison would however be disruptive because of differences in national practices concerning their registration. Another factor affecting international comparisons was that all liveborn infants, irrespective of birthweight, were included in the calculation of rates and ratios but some countries applied a lower limit of maturity for the inclusion of fetuses born dead.

4.3 In order to eliminate these factors, it was recommended that countries should present, for the purposes of international statistical comparisons, standard perinatal statistics in which both the numerator and the denominator of all rates and ratios were restricted to fetuses and infants weighing 1000 g or more (or where birthweight was unavailable, the corresponding gestational age (28 completed weeks) or body length (35 cm crown-heel)).

4.4 Countries were encouraged to provide the following rates, or as many of the rates as their data collection systems permit:

4.4.1 Deadbirth rates

Traditional: $\frac{\text{Deadborn fetuses}}{\text{Liveborn infants}} \times 1000$

Refined: $\frac{\text{Deadborn fetuses}}{\text{Total (live and dead) births}} \times 1000$

Standard weight-specific:

$\frac{\text{Deadborn fetuses weighing 1000 g and over}}{\text{Total (live and dead) births weighing 1000 g and over}} \times 1000$

4.4.2 Early neonatal mortality rates

Standard: $\frac{\text{Early neonatal deaths}}{\text{Liveborn infants}} \times 1000$

Standard weight-specific:

$\frac{\text{Early neonatal deaths of infants weighing 1000 g and over at birth}}{\text{Liveborn infants weighing 1000 g and over}} \times 1000$

4.4.3 Perinatal mortality rates

Traditional: $\frac{\text{Deadborn fetuses and early neonatal deaths}}{\text{Liveborn infants}} \times 1000$

Refined: $\frac{\text{Deadborn fetuses and early neonatal deaths}}{\text{Total (live and dead) births}} \times 1000$

Standard weight-specific:

$\frac{\text{Deadborn fetuses weighing 1000 g and over plus early neonatal deaths of infants weighing 1000 g and over at birth}}{\text{Total (live and dead) births weighing 1000 g and over}} \times 1000$

4.4.4 Neonatal mortality rates

Standard: $\frac{\text{Neonatal deaths}}{\text{Liveborn infants}} \times 1000$

Standard weight-specific:

$\frac{\text{Neonatal deaths of infants weighing 1000 g and over at birth}}{\text{Liveborn infants weighing 1000 g and over}} \times 1000$

5. INFANT MORTALITY

5.1 An infant death is defined as the death of a liveborn infant under the age of one year.

5.1.1 Two infant mortality rates were recommended by the Consultation.

Standard: $\frac{\text{Infant deaths}}{\text{Liveborn infants}} \times 1000$

Standard weight-specific:

$\frac{\text{Infant deaths among liveborn infants weighing 1000 g and over at birth}}{\text{Liveborn infants weighing 1000 g and over}} \times 1000$

6. MATERNAL MORTALITY

6.1 Maternal deaths may be subdivided into three groups:

6.1.1 Direct obstetric deaths: those resulting from complications of pregnancy, childbirth, or the puerperium including interventions, omissions, incorrect treatment, or from a chain of events resulting from any of the above.

6.1.2 Indirect obstetric deaths: those resulting from previous existing disease or disease that developed during pregnancy, childbirth, or the puerperium which were not due to direct obstetric causes but which were aggravated by the physiologic effects of pregnancy.

6.1.3 Non-obstetric deaths: those resulting from accidental or incidental causes not related to pregnancy, childbirth, or the puerperium (usually considered to be 42 days) but occurring during that period.

6.2 The Consultation also considered the category of "delayed maternal death" as a death due to direct or indirect obstetric causes but occurring after the end of the puerperal period. It was recommended that provision should be made in ICD-10 for the classification of such cases.

6.3 Recommendations for calculating the following maternal mortality rates were made for each category and in combination.

Maternal mortality rates

Traditional: $\frac{\text{Maternal deaths}}{\text{Liveborn infants}} \times k$

Refined: $\frac{\text{Maternal deaths}}{\text{Total (live and dead) births}} \times k$

where k may be 1000, 10 000 or 100 000 but is left to the discretion of the country.

- 6.3.1 Countries are encouraged to present both maternal mortality rates. Although in some countries high rates of maternal mortality are associated with high fetal mortality, registration of deadborn fetuses may either not be required or be extremely incomplete. In order to have comparable statistics for as many countries as possible it is therefore important, wherever possible, to calculate rates using both denominators.
- 6.4 The Consultation expressed the hope that the need for information to calculate the risk of maternal mortality would encourage policy-makers to promote the collection of data concerning deadborn fetuses in countries where this information is not already available.

7. LETHAL MALFORMATIONS

- 7.1 In 1974 a WHO Scientific Group on Health Statistics Methodology Related to Perinatal Events had recommended that efforts should be made to identify perinatal deaths due to lethal malformations. A number of initiatives had since been undertaken, notably by the International Federation of Gynecology and Obstetrics (FIGO) in 1982.
- 7.2 With the progressive improvement of perinatal health and care, and the reduction of preventable deaths at that time of life, it was inevitable that an increasing proportion of the residual mortality would comprise of infants with severe malformations. Such infants may be incapable of independent life. In some centres in more developed countries severe malformation was already responsible for 30-40% of perinatal mortality and this proportion was likely to continue to rise. In using perinatal mortality statistics to evaluate the effectiveness of perinatal care it was clearly important to be able to distinguish such infants from those that were born without lethal malformation. This separation was also desirable when perinatal mortality statistics were used to assess and compare perinatal care in different countries, for the incidence of lethal malformation varied widely from region to region, in part from 'natural' causes and in part due to prenatal screening.
- 7.3 Although the proposal made in 1974 and the more recent FIGO initiative had not been given any detailed attention by WHO in their proposals for the Tenth Revision, it was hoped that it was not too late to give them consideration.
- 7.4 The recommendation was made that WHO accept the FIGO definition of a lethal (congenital) malformation, which is:

"A lethal malformation is defined as a congenital morphological anomaly (see International Classification of Diseases, Ninth Revision, Chapter XIV) regarded to be the primary cause of death during the fetal and neonatal period."

When a malformation was thought to have led to a train of events leading to death the fetus or infant should be classified under this heading. In other words, an infant with diaphragmatic hernia who died during surgery would be deemed to have died as a result of a lethal malformation. On the other hand, an infant with a hare lip that died of meningitis would not.

- 7.5 It was further recommended that in reporting perinatal statistics the number of deaths due to lethal malformation should whenever possible be identified and reported in relation to deadborn and liveborn infants and in relation to birthweight of 500-999 g and 1000 g or more. Neonatal deaths due to lethal malformation should be subdivided into early and late deaths. The availability of this information enables the production of total and standard perinatal and neonatal mortality statistics to be reported with or without the deaths from lethal malformation.

8. REPORT OF THE FIGO SUBCOMMITTEE ON PERINATAL EPIDEMIOLOGY AND HEALTH STATISTICS ON THE METHODOLOGY OF MEASUREMENT AND RECORDING OF INFANT GROWTH IN THE PERINATAL PERIOD
- 8.1 A broad overview of this document which was the report of a workshop held in Cairo, Egypt in November 1984 was given to the Consultation. The workshop had formulated recommendations concerning: components of growth; duration of pregnancy; maternal anthropometry; placental weight; infant measurements at birth; assessment of fetal growth; and a perinatal standard reference for international comparison. The report had been distributed to all 89 member countries of FIGO and had appeared in the FIGO and the International Pediatric Association journals. The Consultation commended the amount of work that had obviously gone into the preparation of the report and particularly appreciated the chart for infant growth in the perinatal period which could be used as a standard for international reference.
- 8.2 The Secretariat undertook to investigate the possibility of publishing the report in the National Committee series of documents together with a request for comments and observations on the recommendations.

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