



Strengthening of Health Surveillance of Working Populations

The Use of International Statistical Classification of Diseases (ICD-10) in Occupational Health

REPORT
of the WHO Meeting
Geneva, 8- 10 July 1998

Introduction

A WHO Meeting on Strengthening of Health Surveillance of Working Populations (The Use of International Statistical Classification of Diseases (ICD- 10) in Occupational Health) was convened in Geneva from 8 to 10 July 1998 to review the state of the art of health surveillance of working populations and to assist WHO in the development of Guidelines on the use of International Statistical Classification of Diseases in Occupational Health, (see Agenda in Annex 1).

Dr Richard Helmer Director, Division of Operational Support in Environmental Health, opened the meeting and welcomed the participants and the representatives of International Organizations (see List of Participants, in Annex 2). He mentioned that since the beginning of 1998 the Occupational Health Unit has been located in Environmental Health, but the future role of Occupational Health in the new strategy and organization would depend on the level of priority given to this programme by the new WHO administration.

Furthermore, Dr. Helmer emphasised that the present meeting has particular significance for Occupational Health, since its main objective is to explore at global level the use of the International Statistical Classification of Diseases in Occupational Health for the notification and coding of occupational diseases and injuries. The development of reliable and comparable national statistics of occupational diseases and injuries is in line with the new cluster areas to be represented in the new WHO structure, and he emphasised that this policy is of interest to all countries. Hence the wide geographical representation at this meeting, covering the rapidly industrializing countries of Asia, developing countries of Africa, developed countries and countries in transition.

The scope and the purpose of the meeting

An analysis of the situation, together with a resume of the scope and the purpose of the meeting was presented by Dr. M.I. Mikheev, Occupational Health Unit, WHO/EOS. He summarized the situation concerning occupational disease and injury notification and statistics in the WHO Member States. Of the 191 Member States, statistics of occupational diseases and injuries exist in 26 developed countries although they are not comprehensive. In 143 developing countries statistics are limited to a few diseases or do not exist. There are problems of comparability even between statistics of the developed Member States, which, however, cover the majority of the active workforce of these countries. In many of the developing countries, there are no reliable notification systems, and for most of them no more than 5 -10 % of the workforce is covered by occupational health services. According to expert assessment it can be estimated that a total of 250 million occupational injuries, 330,000 fatal occupational injuries and 160 million cases of occupational disease occur each year in the labour force of Member States. The economic losses are equal to 4 % of the world's GNP. The risk factors occurring at work and leading to the above conditions total 100,000 chemicals, which are widely used, 200 biological agents, 50 physical factors, 350 occupational carcinogens, 3000 allergic factors and several ergonomic, safety, psycho-social and organizational factors. Strengthening of health surveillance of working populations through the improvement notification and reporting system with the standardised and guided use of the ICD- 10, will enhance the quality of statistics on occupational diseases and injuries, making them compatible with national health statistics, whilst comparable at an international level.

Aim of the meeting

In May 1996 the World Health Assembly approved a Resolution on WHO Global Strategy for Occupational Health for All (WHA 49.12). Objective N8 of this Strategy required the establishment of registration and data systems in occupational health. Therefore the aim of the meeting is related to the above-mentioned objective implementation with special emphasis on the improvement of notification of occupational illnesses in the VY1110 Member States.

The main purpose of the ICD- 10 is to permit the systematic recording, analysis, interpretation and comparison of mortality and morbidity data collected in different countries or areas and at different times. The use of an ICD- - 10 established diagnosis, classification code and where possible the code of exposure will enhance the comparability of

occupational illness statistics. WHO in cooperation with NIOSH (USA) has prepared a draft document on the use of ICD-10 in Occupational Health. One of the main tasks of the meeting was to review the working document and suggest recommendations as to how it could be improved in order to create internationally acceptable Guidelines on the notification of occupational diseases and injuries. The final target of this process is to strengthen the health surveillance of working populations for the planning of preventive strategies.

General discussion on health surveillance and statistics of occupational diseases and injuries

The notification of occupational diseases and injuries is influenced by the national legislation and social security system, which usually create part of the motivation to report. From the point of view of both prevention and the use of ICD- 10 it was considered useful not to restrict the discussion and work of the meeting by any national legislative factors.

The definitions of occupational accident, occupational injury, fatal occupational injury and occupational disease were discussed based on the ILO definitions. The borderline between acute occupational diseases and injuries was found to be problematic. It was considered to be useful to separate from occupational diseases, diseases that result from occupational injuries. The ILO proposition that ill-health resulting from a single event would be defined as an injury, was considered reasonable however still has limitations. Nevertheless, the terminological definitions seem to contain some aspects typical of circular definition, which should be reconsidered. The borderline between injuries and diseases is also discussed in the chapter dealing with the use of ICD- 10.

The concept of health surveillance was characterised by the expression "close observation". The nature of active surveillance (workplace visits etc and passive surveillance (statistics etc was discussed. It is important that there is a motivation to notify. Basically this motivation originates from prevention prompted by notification of cases. A clear link between active and passive surveillance in both directions is crucial. Good documentation of any surveillance activities (active and passive) is important and standard classifications will be helpful in comparisons at all levels. Exposure to the harmful factor (chemical, mechanical etc is an inherent feature of occupational diseases and accidents. Therefore not only medical diagnosis and consequences, but also exposure factors should be well documented for preventive purposes. Physicians, unfortunately, are not usually well trained to identify, assess and evaluate such factors.

National experiences on health surveillance and statistics of occupational diseases and injuries

National experiences concerning Egypt, Finland, France, Germany, Lithuania, the Russian Federation, Thailand, Uganda and the United Kingdom were presented. The presentations mainly touched the notification/compensation schemes and the respective statistics. These experiences represent (1) systems with a long tradition, fairly extended coverage and detailed information, (2) systems currently being rebuilt and (3) systems still being planned. Problems concerning coverage of the workforce, under reporting, and lack of training of physicians occur in all national reporting systems. The international comparisons are further complicated by differences in legislation. It is preferable not to rely only on one source of information.

All the above countries use some version of ICD in the general health care system, and most of them are planning to use, if not already using ICD- 10. Interestingly, very few of the countries use ICD- 10 codes in their national registries of occupational diseases and none of them in national registries of occupational injuries. It is frequent practice to use national occupational disease codes, which are unique for each country.

The activities of the ILO Bureau of Statistics in the field of Occupational Health were presented by Mrs. Taswell . From the point of view of health surveillance, several needs for new standards were pointed out such as: lack of practical guidance, limited coverage of national statistics, lack of comparability at international level, outdated classification schemes and lack of classification schemes required for adequate analysis of accidents and injuries and how they occur. A proposal of a new comprehensive programme of statistics on occupational health will be made for the 16th ICLS in October 1998. A minimum data set will be defined, which would be feasible for current collection of data in most countries, while an extended data set will also be defined, which hopefully would guide and foresee the future improvements. Variables and classifications to be used will be defined. The experience on ICD-10 in the ILO Bureau of Statistics concerns mainly occupational injuries. While all the necessary elements for coding of injuries are included, the coding itself is problematic. One of the main reasons is that the type of injury and the injured body part/organ are included under the same code. ILO is developing alternative ways of coding based on elements of ICD- 10. So far there are no statistics of occupational diseases at the international level.

The experience presented by ILO on statistics of injuries as well as the Finnish and Lithuanian experience on occupational disease codings by ICD- 10 prompted a discussion. It was concluded that I CD- 10 should clearly be used for the coding of the medical diagnosis in occupational diseases, while another coding is needed for the causative agent/exposure. ICD- 10 offers some codes for the causes of diseases, but the list of such **codes is quite** limited. Information on the causative agent/exposure, occupation and industry is an essential part of the notification, and should be given for examples listed in the guidelines. The coding of the causative agent/exposure will be further discussed in the chapter dealing with the working document.

Discussion and recommendations concerning the working document: ICD-10 in Occupational Health

General comments

The comments were restricted to the application of ICD- 10 for the notification of occupational diseases and injuries. The expert group expects that the document could serve as a guideline for notification in countries which do not have a well-established notification system covering the full range of scientifically approved occupational diseases and injuries. It could also guide the coding of medical diagnosis in countries, already possess a well established notification system, but do not code the medical diagnosis according to ICD- 10. For the former purpose and especially in the case of occupational diseases, it would be preferable to include in the list only examples that are already notified in at least one country, unless the purpose of the list is otherwise clearly specified. For the latter purpose, it must be noted that the list cannot be made exhaustive, and each country will have to examine all the entities relevant to that country, while the list can guide the coding of the most important entities. The alternative would be to collect all the national lists to make an exhaustive evaluation of all possible diseases. The following general comments have arisen:

- the document is essentially a guideline for using ICD- 10 in notification of cases that already have a well-established medical diagnosis. Accordingly, the columns "Major symptoms" and "Diagnostic Criteria" given in the working document should be omitted. The main problem restricting notification seems to be the lack of knowledge among practising physicians as regards evaluation of exposures and their causative roles. Therefore, both industry/occupation and exposure/agent should be maintained in that document;
- the list should not be taken as exhaustive. Instead, only examples of frequently notified diseases in various countries should be listed;
- the guideline should be based on all the four characters of ICD- 10, with the indication that countries not being able to use such a detailed coding, could use 3-character level codes;
- the coding list cannot be exhaustive, therefore it might be useful to annex a list of selected ICD- 10 codes from the summary list presented in ICD- 10, Volume 1, pages 31-104. With such a list a physician already having some experience would not need to refer to the original ICD- 10 classification. It will make the guideline self-sufficient;
- the column of "industry/process or occupation" and the column "Agent/exposure" " (the word "exposure" was recommended to be added) should be more comprehensive to guide the physician or other person in notification;
- a general introduction on the coding of the last digit as guided by the ICD- 10, as well as the recommendations concerning the use of the index of ICD- 10 should be given at the beginning of the future guideline;
- the titles of codes should follow the exact wording according to ICD-10. This should be checked in order to avoid deviations from ICD- 10, which have been found in the working document;
- the introduction needs to underline the fact that the document is a list of examples concerning the most frequently occurring occupational diseases. It should not be taken as exhaustive even for the current situation and especially for the future. Periodical updating of the guideline should be foreseen.
- the introduction should guide an interested user to seek more detailed information on the occupational diseases and exposures from the national legislation concerning notification and recognition, from the national lists of occupational diseases as well as from international key publications. A list of key references should be given (including ICD-10 itself).

The working document was discussed chapter by chapter. Summarised comments on each chapter are given as follows:

Infectious diseases (AOO-B89).

The list should be divided into the following subcategories:

- bacterial (AOO-A79)
- viral (A80-B34)
- mycotic (B35-B49)
- parasitic (B50-B89)

Examples of important infectious diseases should be given for each of the above categories. It should be indicated that other infectious diseases of occupational origin can be included in each of the categories.

if the examples include groups of codes (e.g. tuberculosis), the most commonly occurring specific codes or a related recommendation should be given.

Malignant diseases (COO-C97)

The examples given should fulfil both of the following criteria: (1) they are occupational malignancies frequently notified in various countries, (2) they represent scientifically approved carcinogens (IARC, group 1).

Diseases with non-specific exposures and occupations or unknown agents should not be given as examples (e.g. C31 and C84.0 in the current version of the working document).

If C22 is given as an example it should, in addition to the current listings, include also the manufacturing of vinyl chloride monomer as a risk industry and arsenic as a causative agent. It is recommended to include all malignant neoplasms of the liver in the title of C22.

Examples of occupational cancers of the skin should be included.

Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism (D50-D89)

The general guideline of including only frequently notified diseases should be used.

The general guideline of using 4-characters should be used (e.g. in D59, only D59.8 is relevant, in D61 D61.2 is relevant).

Mental and behavioural disorders (F01-F99)

Cases of mental and behavioural disorders due to use of volatile solvents (F 18) usually occur together with neurological disorders. If they occur alone, F 18 could be used, otherwise G92 (Toxic encephalopathy) should be used. F 18 can be given as an example in this category. The list of industries etc. and the list of agents should be comprehensive.

It is proposed to exclude the example of F43.

A sentence to be added indicating that notification and recognition of mental disorders is not well-established in any country. These disorders are a growing health problem, but more experience is needed before examples can be given.

Diseases of the nervous system (G00-G98)

In addition to the carpal tunnel syndrome (G56.0), examples of other mononeuropathies of the upper limb (G56) with relevant industries should be given. The description of the causative agent (cumulative trauma) could be more specific.

G58.8 can be omitted from the examples, as it is a non-specific disease

In G62.2, the examples should include only the frequently notified solvents, while examples of pesticides and relevant industries should be added. N-Hexane instead of Hexane. .

In G92, examples on solvents should be given. Mercury, instead of organic and inorganic mercury.

Diseases of the eye and adnexa (H00-H59)

Examples including (allergic) conjunctivitis (H10.8) and keratoconjunctivitis caused by UV light (H 16.1) should be given.

Diseases of the circulatory system (I00-I99)

In I73.0 only segmental vibration (not whole-body vibration) is relevant in the column of agents.

Diseases of the respiratory system (J00-J98)

- Occupational diseases of the upper respiratory tract should be included in the list. It should contain examples of occupational asthma (J45) rhinitis (J30), bronchitis (J42),
- emphysema (J43), laryngitis (J37-38) and of occupational respiratory infections.
- It should be indicated at the beginning of this chapter, that respiratory cancers are coded into the category of malignant diseases (C).
- J68 should include examples of relevant industries, agents and respective 4-character ICD-10 codes.
- Cannabinosis (J66.2) could be excluded. Instead one should include J66.8 (airway disease due to specific organic dusts) with examples and the indication that effects of upper respiratory tract (not alveolitis) caused by specific organic dusts (e.g. coffee) could be coded into this category.

Diseases of the liver (K70-K77)

Examples of Toxic liver diseases (K7 1) with relevant industries and agents should be given (e.g. K7 1.1 and carbon tetrachloride).

Diseases of the skin and subcutaneous tissue (L00-L98)

Category L25 could be omitted, as non-specific skin diseases are not good examples. Categories L23 and L24 include many relevant 4-character codes, it is obviously not possible to include examples of all of these, but on the other hand the physician should be able to find the correct code, which usually is identifiable by the name of the disease. It could be helpful to include a listing of all codes L23.0-L24.9 (code + title) and then give examples of the most typical ones (4-character ICD code + industry + agent).

Examples should be given for diseases in L50, L53, L58, L59, L60, while L59 can be omitted.

Diseases of the musculoskeletal system and connective tissue (MOO-M99)

Musculoskeletal diseases are missing. Many such diseases can be related to work, however only a few of them are considered to be occupational diseases by the national compensation systems. Most of these diseases are multifactorial and the etiological fraction of work-related factors should be stated case by case and the nature of exposure described if possible. Examples of the most commonly occurring ones that usually are considered as occupational diseases should be given.

Examples could include the following M34.2 (systemic sclerosis), M49.1 * (A23), (Brucella spondylitis), M65.4 (tenosynovitis), M70 (soft tissue disorders related to use, overuse and pressure).

Diseases of the genitourinary system (NOO-N99) and pregnancy with abortive outcome (000-008)

N46 and N97 could be omitted. Instead the following text should be given under this chapter: "Work-related female and male infertility, as well as work-related problems of pregnancy are an increasing health issue, but there is not enough experience in the national notification systems to mention any examples to guide the notification practice."

Injuries, poisoning and certain other consequences of external causes (SOO-T35)

The working document should be modified so that the user will be guided to code both the injured body part + type of injury (S00- T35) and the cause and type of the accident: (V01-V99) for transport accidents; (W00-X59) for other external causes of accidental injury. Typical examples should be given.

Toxic effects of substances chiefly nonmedicinal as to source (T51-T65)

it should be clarified as to when one uses the T-code and when a disease code is used. In general it would be recommended to use the T-code only when there is no information on the medical effects, which could be coded by a disease code. If the medical effect can be coded, as is usually the case in recognised cases, the disease code should be used. Examples should be included.

Other and unspecified effects of external causes (T66-T78)

It is recommended that other effects of external causes can be notified with these codes, but typical examples should be given.

Certain early complications of trauma (T79)

Several important conditions can be notified with these codes. Examples should be given.

The chapters XVIII, XXI and the codes Y85 to Y89 are not pertinent to the purpose of occupational health. However Y96, Y97 and Y98 could be considered.

CONCLUSIONS AND RECOMMENDATIONS

1. It is of crucial importance for the planning and guiding of preventive strategies to create surveillance and notification systems for occupational diseases and injuries at national and international levels.

2. The use of ICD- 10 coding for medical diagnosis in the notification of occupational diseases and occupational injuries will help and encourage at a national level to identify the real magnitude of work-related illness in public health, its health and economic impact, and at the international level to build up comparable statistical data to guide global and regional strategies and policies.

3. Problems concerning the lack of a notification system, coverage of the workforce, under-reporting due to lack of knowledge among physicians, and the lack of standard international classifications and diagnostic criteria are the major constraints of achieving reliable and comparable data on occupational health. Therefore the expert group recommends that data are collected from various sources (statistics from

notification and compensation schemes, questionnaire surveys, etc) in order to get the most reliable and comprehensive information. This will also require further improvement and harmonisation in the definition of occupational disease and occupational injury. WHO is encouraged to initiate the process in collaboration with ILO and other international organisations concerned..

4.The expert group having examined the WHO document draft guiding the use of ICD 10 in occupational health, has subsequently provided various recommendations to improve the document. However, due to the continuous increase in the number and types of new exposures and the consequent national changes in the recognition of occupational diseases, the coding document (guidelines) should be periodically revised (every 2-3 years) according to national experiences. Further training through national, regional and interregional courses, as well as seminars on the use of ICD- 10 in occupational health is recommended before the field application.

5.Since exposure to the causative agent is indispensable information for the recognition of occupational disease and injury as well as for prevention them, an international standard classification detailed enough yet simple for the coding of causative agents/exposures is needed for the notification of occupational diseases and injuries.

6.The expert group encourages continuing work, including research, aiming at developing the above-mentioned classifications system **for the cause of the accident** leading to occupational injuries that are as relevant as possible from the point of view of prevention.

7.The committee encourages countries to initiate a pilot study on the use of ICD- 10 in coding occupational diseases and injuries, in order to assess its feasibility. The committee also strongly encourages any comprehensive study to tend to improve the knowledge on the real statistics of occupational diseases and occupational injuries. Technical assistance of WHO may be requested.

8.The expert group stressed the importance of the strengthening of health surveillance of working populations due to the high economic and health impact of occupational injuries, occupational diseases and other work-related ill-health as declared by the Secretary General of the United Nations'. Accordingly, maintenance and strengthening of the Programme on Occupational Health in the new WHO structure is strongly recommended by the experts.

† Kofi A. Annan Occupational health and safety, a high priority on the global, international and national agenda. Editorial. *African Newsletter on Occupational Health and Safety*, Vol. 7, no. 3, December 1997. Published by the Finnish Institute of Occupational Health, Helsinki, Finland.

**WHO CONSULTATION ON STRENGTHENING
OF HEALTH SURVEILLANCE OF WORKING POPULATIONS**

**THE USE OF THE INTERNATIONAL CLASSIFICATION
OF DISEASES (ICD-10) IN OCCUPATIONAL HEALTH**

Geneva, 8-10 July 1998

AGENDA

1. Opening of the meeting
2. Election of Chairman and Rapporteur
3. Adoption of the Agenda
4. General discussion on approaches for Strengthening of Health Surveillance of Working Populations

5. Working document, structure and content
6. Issues related to national statistics of occupational diseases and injuries
7. Problems of developing countries related to the notification and reporting of occupational diseases and injuries
8. Working document, use of ICD-10 in Occupational Health
9. Conclusions and recommendations
10. Adoption of the Report

ANNEX 2

**WHO CONSULTATION ON STRENGTHENING OF HEALTH SURVEILLANCE
OF WORKING POPULATIONS**

**THE USE OF THE INTERNATIONAL CLASSIFICATION
OF DISEASES (ICD-10) IN OCCUPATIONAL HEALTH**

Geneva, 8-10 July 1998

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