NOTE ON INTERNATIONAL STATISTICS OF OCCUPATIONAL DISEASES

Prepared by the International Labour Office

1. The subject of occupational diseases and the possibility of compiling international statistics concerning this subject has been discussed on a number of occasions during the meetings of different ILO committees. In 1930 the International Labour Office published a report treating the subject of statistics of occupational morbidity and mortality.\(^1\)

2. Reference should also be made to the ILO encyclopedia, "Occupation and Health" for example, to the topic Occupational Diseases.

3. The following considerations on the methodological difficulties met with in connexion with international comparisons are pertinent to this problem.

4. For complete basic analysis, statistics of occupational diseases should include the data necessary to calculate the following:

   A. Primary rates

      1. Rate of mortality (number of deaths per 1,000 persons exposed).
      2. Rate of morbidity (number of sickness cases per 1,000 persons exposed).
      3. Rate of days lost from sickness (number of days lost per 1,000 man-days worked).

   B. Secondary rates

      1. Fatality rates (number of deaths per 1,000 cases).

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\(^1\) "Methods of Statistics of Occupational Morbidity and Mortality". Studies and Reports, Series N (Statistics), No. 16.
2. **Average duration of sickness** (number of days lost per case of sickness).

5. These five rates should be given for each occupational disease and for each important occupation. In addition the absolute numbers of deaths, cases and days lost as well as frequency distributions for sickness duration should be available. Thus it is necessary to set up on the one hand a list of the specific occupational diseases, and on the other hand a list of occupations, or at least of those occupations known to involve the risk of death or sickness through an occupational disease.

6. Since mortality and morbidity vary with sex and age, as well as with marital status and other factors, and since, furthermore, distributions by sex and age, as well as according to the other characteristics mentioned, are often very different in different occupations, it is requisite, in order to have comparable rates, to be able to subdivide the population, the deaths and the sickness cases, into sex and age groups. This is necessary in order to be able to take into account differences in sex and age composition etc. in the different groups.

7. The sources of statistics of deaths, cases of sickness and population exposed to risk in relation to occupational diseases are as follows:

   I. **Official statistics of deaths, in comparison with population**

   (a) Practically all countries collect statistics of death by causes, and in most countries, death certificates have entries showing occupation and industry as well as sex, age, race etc., of the deceased. For purposes of calculating comprehensive death rates by occupations, it is essential that the population exposed to risk be available, classified according to the same occupations as the deaths: this can be done only on the basis of census results.

   In practice the only country which has solved in a measure the problems of comparing deaths with population to form occupational mortality rates is England and Wales. The Registrar General publishes summary analyses of these materials once in ten years in the Decennial Supplements to the Reports of the Registrar General of England and Wales showing death rates from all causes and from the principal causes or
groups of causes of death for the principal occupations. The latest report available covers the period 1930-32 in relation to the census of 1931.1/

The United States attempted a similar analysis for the period around 1930 but the results showed that the occupational data as given on death certificates were not sufficiently comparable with the occupational data obtained in the census to yield trustworthy results. A further attempt at such a classification will doubtless be made on the basis of the census of 1950 and the mortality statistics of 1949-1950.

Such materials, if trustworthy, would yield the most satisfactory and complete data on the influence of occupation on mortality and of the correlations existing between mortality and occupation. The data on deaths are classified according to the international list of causes of death and usually only major groups are shown in tables related to occupations as in the Decennial Supplements of the Registrar General. Thus specific occupational diseases such as lead poisoning, pneumoconiosis etc., are not shown separately in these general tabulations covering the entire occupied population.

(b) The international statistical classification of diseases, injuries and causes of death in its latest revision (1948) makes the following provision for occupational diseases.

(i) In the three digit classification the following rubrics are for diseases with mention of occupation:

"001 Respiratory tuberculosis with mention of occupational diseases of lung.

"523 Pneumoconiosis due to silica and silicates (occupational).

"524 Other specified pneumoconiosis and pulmonary fibrosis of occupational origin.

"724 Synovitis, bursitis, and tenosynovitis of occupational origin".

(ii) For the whole section "XVII Accidents, Poisonings and Violence" it is recommended that

1/ The Registrar General's Decennial Supplement, England and Wales, 1931, part II. /"as far as practicable
"as far as practicable, occupational accidents should be tabulated separately under each category of E and N classifications. (E-External cause; N-Nature of injury). Occupational accidents may be conveniently defined as all injuries and poisonings to gainfully employed persons while at work. 'Gainfully employed' includes self-employed, such as merchants and farmers, children of farmers working without compensation, and persons on government work-making projects. Accidents to persons whose occupation is directly connected with the cause of injury, even though unspecified that the person was at work at time of injury, are to be tabulated as occupational accidents. However, other definitions may be used, depending on the source or purpose of the statistics. For this reason it is important that the definition used be specifically stated."1/

Whether this recommendation is actually followed, can only be determined by a survey of the tabulations made in the different countries.

Two further points should be made.

First, many diseases which are not included either under the four rubrics cited above, or under External causes are of occupational character. For example, anthrax, formerly often called wool sorters' disease, may be acquired as a result of occupation; cancer of the skin may be caused by contact with coal tar derivatives etc., connected with occupation (chimney-sweeps' cancer); dermatitis; glass workers' cataract etc. No special provision is made in the classification of causes of deaths for showing the occupational character of these cases.

Secondly, the value of data from this source depends on the quality of reports of causes of death, including their relation to occupation. The physician in attendance, or other person who fills in the cause of death on the death certificate, may or may not be informed with regard to the occupation of the deceased and may or may not consider it his obligation to judge whether the death was or was not occupational in character. Furthermore, the diagnosis of cause of death on the death certificate often leaves much to be desired. This would be especially true in the case of new, or relatively unknown diseases, especially those dependant upon newly developed industrial processes.


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II. The second source of the statistics of deaths and of causes of sickness from occupational diseases is the data obtained in connexion with social insurance provisions.

(a) In many countries occupational diseases are compensable under the provisions of industrial accident insurance or workmen's compensation laws.

There are difficulties in the way of utilizing these data for a comprehensive view of occupational mortality and morbidity. Whether occupational diseases are compensable under the industrial accident compensation legislation depends on the provisions of the law. In some cases occupational diseases are excluded from compensation provisions. In other cases compensation is provided for a list of named diseases, in still others for "occupation diseases", leaving it to administrative or judicial interpretation to determine what diseases are covered. The reporting of cases and deaths from such diseases may depend upon separate accident reporting laws. The scope of the data thus depends upon the provisions of the law and their interpretation.

Statistics of occupational diseases compensated under industrial accident legislation were available before the war for a number of countries, for example, Germany, Austria, Switzerland, certain States of the United States etc.

In general, the number of such cases as reported in the statistics was very small in comparison with the number of industrial accidents.

In Germany, for example, during the period from 1927-1936, some 12,204,787 industrial injuries were reported including 577,505 on the way to and from work; in contrast there were only 84,262 cases of occupational disease. In relation to the total of industrial injuries, only 0.7 per cent were occupational diseases. The percentage of occupational diseases among fatal compensated cases was considerably larger; for example, in the year 1936, of a total of 8,486 fatal cases due to industrial injuries, 249 or 2.9 per cent were classed as due to occupational diseases.

In order to utilize this source of data for international tables, much work needs to be done towards the international standardization of /these statistics
these statistics. As a preliminary step, a survey is needed covering the existing provisions of law with reference to compensation of occupational diseases, the reporting of occupational diseases, the definition and scope of the diseases or the list of diseases characterized as occupational, as well as the statistics available under existing arrangements. After such a survey of the field has been made, the next step would be to determine what steps towards standardization are feasible. Collaboration with the World Health Organization would be necessary. As noted below, steps have already been taken for a preliminary survey of the field in this sense.

(b) Records of cases of sickness compensated under sickness insurance include data on specific occupational diseases. So far as available information goes, however, little use of the records of such sickness funds has been made for the purpose of determining the incidence and prevalence of occupational diseases. The data on sickness in general would not afford a basis for morbidity rates from occupational diseases without an analysis of the exposure classified according to occupation. Such an analysis of exposure would involve difficult and extremely expensive tabulations.

III. A third possible source is statistics of notifications of cases of disease. For this source to be useful, the notifications must of course be compulsory. A certain number of countries have made a list of occupational diseases notifiable, usually in connexion with compensation provisions. Where notification is in connexion with compensation, the statistics may be considered as already covered in the preceding third paragraph under II (a). Apart from notifications in connexion with compensation, the records of notifiable diseases are often notoriously incomplete and since the value of such statistics varies with each disease, upon the willingness of the physician to report, the interest of the physician and of the public in the requirement, as well as on the methods of enforcement, this source (except as noted in connexion with compensation laws) is not a promising method of obtaining data on occupational diseases.

IV. Other possible statistical sources include periodic medical examinations of all workers. No general provision for such examinations is made at present.
at present in any country; nor would they yield satisfactory results without standardization of methods and standards of diagnosis, the value of the results varying with the different diseases.

Another possible source is hospital records. The latter are subject to at least two major difficulties: first, that the records may not contain the necessary specific information on occupations for use in connexion with the morbidity or fatality data, and secondly, that hospital data cannot be compared to exposure to risk and hence satisfactory rates cannot be calculated.

V. Another source, which is, however, not of general character, is the health records of industrial establishments. These might include records of physical or medical examination of workers exposed to particular hazards; they might include records of morbidity from specific occupational diseases as well as from all causes. Since the materials are derived from particular establishments, difficulties as to exposure as well as of the definition of occupational data would be eliminated. So far as such records go, therefore, this should be a most promising source of data. Various reports of the United States Public Health Service for example, show the possibilities of this type of statistics. Unfortunately, the materials tend to be limited to those industrial establishments with good health departments and with an adequate system of morbidity records.

VI. A different approach to the whole subject is that of legislative prohibition and regulation of the conditions of exposure. This path has been followed in the past with regard to certain outstanding occupational diseases. Phosphorus poisoning due to the use of "white phosphorus" in the manufacture of sulphur matches, for example, has been eliminated by legislative prohibition in one country after another as well as by an international convention against the use of this substance in its dangerous forms. In this case the remedy of prohibition was the more easily successful since another phosphorus compound which does not give rise to the occupational hazard is equally useful in industrial processes. The result of successful prohibition of such hazards is that cases and deaths from the-occupational-disease concerned no longer appears in the statistics.
8. In summary, the available statistics of occupational diseases are extremely fragmentary and unsatisfactory.

9. In this connexion, the seventh International Conference of Labour Statisticians in October 1949 adopted a resolution requesting the Governing Body of the International Labour Office to instruct the Office "to place the subject of statistics of occupational diseases on the agenda of the next session of the International Conference of Labour Statisticians".

10. As already noted, the first step is the preparation of a survey of the existing materials on the reporting of occupational diseases, together with an analysis of the available statistics.