UNIFORM CLASSIFICATION OF JOINT CAUSES OF DEATH

JOHN O. SPAIN, FELLOW A. P. H. A.
Bureau of the Census, Department of Commerce, Washington, D. C.

Read before the Vital Statistics Section of the American Public Health Association at the Fifty-second Annual Meeting, Boston, Mass., October 9, 1923.

PRACTICALLY all statistics on causes of death are based on the principle that only one cause can be shown to represent the death of each decedent. Consequently such statistics are greatly influenced by the system followed in the selection of this cause from a group of two or more causes reported on a death certificate. Even in the limited number of reports in which it is found practical to show two causes, the necessity of making a choice remains in cases where three or more causes appear.

The extent to which the number of deaths from a stated cause may be increased or decreased because of a difference in classification, shows a wide variation dependent on the cause in question. In the majority of cases, however, it is great enough to affect the results materially.

The following illustrations will perhaps assist in emphasizing this point. The percentages used are based on returns for the registration area for a single year.

The terms included under International List No. 91, *Diseases of the arteries,* appear in combination with one or more other causes in 80 per cent or more of the total number of cases in which these terms are reported. Or inversely, these terms are reported singly in less than 20 per cent of the total number of cases, leaving more than 80 per cent in which a choice must be made in order to determine whether one of the terms included under this title, or a term appearing jointly with it and included under some other title, should be selected to properly represent the cause of death.

Biliary calculi, Title No. 123, appears in combination with one or more other causes in about 75 per cent of the total number of cases. Likewise, the terms included under *Meningitis,* Title No. 71, appear jointly reported in more than 70 per cent, and *Ulcer of the stomach,* Subtitle No. 111a, in more than 60 per cent of the total number of cases in which these causes appear. It can readily be seen that in considering the number of deaths to be assigned to each cause in cases such as those mentioned, much depends upon the system followed in making the assignment. Numerous other cases could be cited in which there is the same possibility of great variation in the number of deaths shown, because of a difference in the process of selecting a preferred cause. The causes mentioned show comparatively high percentages of jointly reported cases. Sometimes the amount of preference given a cause which shows a low percentage of jointly reported cases is very important. For instance, *Automobile accidents* appear jointly with some other cause in about 20 per cent of the total number of cases, the majority of which are collisions between automobiles on the one hand, and railway, street cars, or other vehicles on the other. Attention is very often called to differences which occur in the number of deaths attributed to this cause, said differences in most instances being due to a difference in the rules of assignment followed in the combinations just mentioned.

With the progress being made in medical science and improvement in the certification of causes of death, the percentage of cases reported jointly will more likely increase than decrease, thus presenting in the future a greater problem in the way of classification.

At the time of the adoption of the International Classification of Causes of Death, the argument was advanced that "It is much more important that deaths reported in the same terms shall everywhere be compiled under the same titles, than that the assignment be absolutely correct. Differences of opinion as to assignment should not be allowed to outweigh the manifest advantage of uniformity. Of course, it is the object of the classification to have each assignment as correct as possible." This evidently has reference primarily to the classification of single terms, but the same argument might well be used for the assignment of terms reported jointly, for if statistics on causes of death are to be made comparable a uniform system of classification of joint causes of death is needed as well as a uniform system of classification of single causes of death.

The system for the classification of joint causes of death should consist of some plan so arranged as to cover as nearly as possible every combination of causes and, at the same time, should be specific enough to permit of proper interpretation by anyone who wishes to use it.

In 1914 the Bureau of the Census published the Index of Joint Causes of Death, which has been and which is now being used by a great number of classifying agencies, and this Index has been instrumental in bringing about considerable progress toward a uniform classification. This list, with which probably most of you are familiar, is an arrangement of the names of two and sometimes three conditions which occur simultaneously or at least in combination with each other, and shows the number of the International List to which each combination should be assigned.

One disadvantage of a list so arranged is that it is practically impossible to show every combination of causes which might occur, thus leaving a considerable number of cases in which arbitrary decisions must be made. Another disadvantage is that the terms included under a specified title are so widely separated in this list that it is very difficult for any one, who is making a study of statistics on causes of death, to follow the mode of preference given each term under that title when reported in combination with the terms included under some other title, any study of this kind being a study of the total number of deaths from causes represented by all the terms included under a title or subtitle, and not of each individual term.

The Bureau of the Census is now compiling a list in the same form as that used by the late Doctor Bertillon. This list consists of an arrangement of title and subtitle numbers in combination for each title and subdivided title of the International List. The terms listed under some of these titles and subtitles represent causes of very marked difference of significance as factors in causing death. In such instances, these titles and subtitles will be subdivided in order that terms representing causes of a similar nature might be placed in the same class. Take for example, Title No. 90, *Other diseases of the heart*. The terms listed under this title represent causes of widely varying degrees of seriousness. This will necessitate the arrangement of these terms under several subtitles in order to provide for proper assignment in each case. In the same way each title or subtitle will be arranged into as many subdivisions as may be considered necessary in order to provide for proper classification.

In use, the ordinary assignment of each of two joint causes is first ascertained, and if subdivided for classification purposes, the subdivision to which each belongs. Then the paragraph corresponding to the smaller number is sought in the preferential list. If the other number appears in bold-faced type in that paragraph, it takes precedence in classification. Provision is thus made for a definite decision concerning any two titles or subtitles of the International List. Incidentally, these decisions, as do

those in the Index of Joint Causes, relate to entirely unconnected statements of causes of death. Very frequently the presence of such expressions as "following," "resulting from," "due to," etc., would change the selection of the preferred cause.

Two distinct advantages may be expected from the adoption of this plan:

First: Greater uniformity in classification should result as provision has been made for a definite decision in all cases of unconnected statements of causes of death.

Second: Better interpretation of the figures for any title or subtitle should result as the relative weight given to each title or subtitle is plainly shown in the joint cause assignments.

It is hoped that this list will be adopted by all registration offices and that it will be the means of bringing about a greater uniformity in the classification of joint causes of death.

□

THE STANDARDIZATION OF SCHOOL MEDICAL INSPECTION

CARL E. BUCK, DR.P.H., FELLOW A. P. H. A.

Epidemiologist, Detroit Department of Health

Presented before the Child Hygiene Section of the American Public Health Association at the Fifty-second Annual Meeting, Boston, October 8-11, 1923.

THAT some form of standardization of school medical inspection is necessary is obvious to any one who has ever attempted to compare the physical defects found in one city with those of another city or for that matter two or more parts of the same city.

As long ago as 1908, as a result of a joint investigation by the Bureau of Municipal Research of New York City and the New York City Health Department of the latter's school inspectors, the following statement was made:

"The conclusion was therefore unavoidable that physical examinations as conducted have been far from uniform, and that some plan must be devised for standardizing them. It is, of course, to be expected that diagnoses will disagree to some extent even in the face of effort to the contrary; but this disagreement must be confined within as narrow limits as possible if the department's reports and notifications are to have a reputation for reliability." [1]

With possibly a few exceptions the statement is equally true to-day. While school inspection has made rapid and noteworthy progress during the past ten or fifteen years there still remains a surprising lack of standardization. Generally speaking, there is no such thing as standardization of school inspection. The findings of medical inspectors in different cities as recently as the year 1921 show astounding variations. For example, tonsilar defects vary from 5.0 per cent in St. Louis to 39 per cent in Toronto. In St. Louis .1 per cent of those examined are reported as having enlarged cervical glands, in San Francisco 34 per cent. Mouth breathing varies from .4 per cent in Minneapolis to 24 per cent in Toronto. Defective vision varies from 3 per cent in Atlanta to 23 per cent in Milwaukee.

There may well be differences between the children of various cities but it is hardly conceivable that these differences could be as great as these figures would seem to indicate. The great variations are due for the most part to differences in personal opinion of the various medical inspectors engaged in the work which in turn are due to a lack of accurate definition of the conditions which we are looking for.

The cure lies in standardization which naturally gives rise to the question as to