DISCUSSION

Although the concepts of Epidemiology and Health Statistics are surely familiar to most of you, I have considered it convenient to start these few comments by referring to them, to assure a better understanding of what I shall say thereafter.

1. What is the present concept of Epidemiology?

Historically, Epidemiology had its origin in the study of the great epidemics of the past (cholera, the plague, smallpox, etc.). The methods which were then developed were rapidly applied to all infectiuos diseases, without considering whether or not they were epidemic.

In developed countries other types of disease have gained importance and constitute the major health risks which originate, to a large extent, in the great environmental changes and modes of living imposed by industrialization and the consequent migration of the population to cities, as well as the considerable numerical and proportional increase of population groups of a more advanced age. Among these diseases which now prevail in many countries are cancer, hipertension, the coronary diseases, diabetes, peptic ulcer, mental disorders, etc. Kerr L. White has pointed out recently that the application of the concepts, methods and principles of Epidemiology to the fields of administration and research of health services constitutes an extension of their application to other problems of health and diseases.

Within the present epidemiological landscape, a group of phenomena stand out on account of their magnitude, their transcendence and their diffusibility. Among them are violence, delinquency, rape, crime, and the phenomena of evasion such as alcoholism, drug addiction and, suicide.

There exist numerous definitions of Epidemiology. For some it is the study of the states of health in human populations, as its area of interest is not confined to disease, but comprises also other biological processes such as growth, multiple pregnancy, fertility, etc.

The broadest definition which we have found is the following: "It is the scientific method applied to the study of the health of a human group".

2. Health Statistics

An international agreement has not yet been reached for defining Health Statistics. In their broadest sense, one could say, that consists of the application of the statistical method which provides the techniques for collection, elaboration and analysis of information relating to the health of a population. This information refers to the state of health of populations, to the conditioning factors of that state of health, such as physical, environmental and social conditions, and to the resources and activities of health services.

A series of generally organized systems on a

national scale, allow for the qualifcation of a series of aspects which reflect on health, is considered within this type of statistics. Some systems which, even though they pursue manifold ends, are employed for health objectives, are so included in Health Statistics. A non-exhaustive list of the systems which Health Statistics comprises, are the following:

- 2.1 Population statistics obtained from census figures.
- 2.2 Vital statistics obtained from the Civil Registration services, specially dealths, fetal deaths and births.
- 2.3 Morbidity statistics.
- 2.4 Health resources statistics.
- 2.5 Health care statistics.
- 2.6 Statistics which refer to the physical, cultural, social, economic, etc., environment.

It can be generally stated that all statistical information refers to a community can be considered, in a broad sense, as falling within the realm of Health Statistics, when this information is used for the purpose of finding out about health characteristics of the population, and the measures adopted for health promotion, protection, restoration and rehabilitation.

So far we have referred to Health Statistics as being a set of statistical systems; this is, however, only one of their aspects. A second aspect is the application of the statistical method to specific problems in the health field. This is the investigation in Health Statistics.

 The Application of Health Statistics to Epidemiology

Here we must distinguish both aspects of Health Statistics:

3.1 Use of data supplied by statistical systems. The information resulting from these systems has numereous applications such as the analysis of behaviour in time of mortality, morbidity, fertility, etc. Study of the quantity and type of health services available to the population, as well as the efficiency of specific medical care resources. These and other problems belonging to the scope of Epidemiology may be studied by taking advantage of the information which has been gathered and processed in the different systems which make up Health Statistics. They have the advantage of national coverage of this type of information in most countries, of the fact that collection and processing are normalized, and that they are of a continuous character. They are used mainly in epidemiologic studies of a descriptive type. Their major drawbacks are the limitation of the

data which may be analyzed, which is precisely determined in each system, and the not always satisfactory quality of information gathered.

Epidemiology uses not only the already processed information, but also the basic documents of these systems, a procedure which makes for greater flexibility. There exist numerous research studies which use as their data source medical death certificates which permit the analysis of mortality characteristics (studies of causes of death according to sex, age, geographical distribution, socio-economic level, etc.). Other basic documents of health systems which are used for epidemiological purposes are statistical reports of hospital patient discharges, which give information on hospital morbidity, as well as daily registration forms of medical consultations in clinics of health institutions, which contain data on ambulatory morbidity.

3.2 Research in Health Statistics

We have defined research in Health Statistics as the application of the statistical method to the study of specific health problems. This is a controversial field, as the statistical method is only an instrument of the scientific method; it is, therefore, this last method which is really used for research in the health of populations. This is an ambiguous ground on which Epidemiology and Health Statistics become confused. The discussion which arises on whether Health Statistics include Epidemiology, or vice-versa, is not strange. In fact, many of the pioneers in medical statistics, such as FARR, GREENWOOD and PEARL, dealt with problems which are now classed as epidemiological.

Health Statistics and Epidemiology superpose each other in their areas of application. Epidemiology, as the study of the health of a population, makes use of many tools, one of which is statistics. Statistics, as a discipline which is applied to observations of groups of individuals, has many uses in different branches of science, one of which is Epidemiology.

In short, both types of disciplines coincide in their objective, which is the study of health, in the employment of the scientific method, and in the scope of study, the community. The same methods of statistical analysis are also used (differnt types of regression, life tables, nonparametric methods, parametric and non-parametric analysis of variance, etc.).

The discussion about whether the study of the health of populations is a question to be dealth with by Statistics or Epidemiology is only a matter of academic importance, what seems to be really important, is the collaborative work among those who cultivate both of these disciplines. This not only redounds upon the technical quality of the investigations undertaken, but also upon a greater knowledge and experience for both types of of professionals.