

## Role of Statistics in Public Health

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### Introduction

Just as a doctor monitors the health of a patient by taking vital signs - blood pressure, heart rate and so forth, public health workers monitor the health of a community by collecting and analyzing health data. These data are called Health Statistics. Statistics are a vital part of public health's assessment function, used to identify special risk groups, detect new health threats, plan public health programs and evaluate their success, and prepare government budgets. All of public health, because it is concerned with population, relies on Statistics to provide and interpret data. The term Statistics refers to both the numbers that describe the health of population and the science that helps to interpret these numbers. The science of Statistics is a set of concepts and methods used to analyze data in order to extract information. Statistics makes possible the translation of data into information about causes and effects, health risks and cures.

### Collection of Data

Different agencies collect data which is used by Government in assessing the need for public health programs and evaluating public health progress. The Statistics collected by local, State and Central Governments are the raw material for research on environmental health, social and behavioral factors in health and the medical care system.

Information on public health includes collection of data through Vital Statistics i.e. number of births, deaths, infant mortality etc. Vital Statistics and their analysis are considered as 'the eyes and ears' of the public health administrator and serve as

powerful and valuable indicator. The data collected through Vital Statistics system and other methods must be converted into rates if they are to be useful for many public health purposes. The calculation requires information on the number of people in the population being referred to; the number that serves as the denominator when a vital statistic is the numerator. To calculate age-specific rate, it is necessary to know how many people are in each age-group. This information is obtained through the census. Without an accurate count of the population and all its characteristics, the Government's Health Statistics would not be accurate. The census provides information not only on the geographic distribution of the population but also on a wide variety of social and economic characteristics, including education, housing etc. Census data are vital for the operation of the nation's social, political, economic and industrial systems and essential for the practice of public health.

Other Government agencies collect health related data according to the focus of their responsibilities; for example, The National Family Health Survey (NFHS). The NFHS is a large-scale, multi-round survey conducted in a representative sample of households throughout India. The survey provides state-wise and national information for India on fertility, infant and child mortality, the practice of family planning, maternal and child health, reproductive health, nutrition, anemia, utilization and quality of health and family planning services. Each successive round of the NFHS has two specific goals: a) to provide essential data on health and family welfare needed by the Ministry of Health and Family Welfare and other agencies for policy and programme purposes and b) to

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provide information on important emerging health and family welfare issues.

### **Are so many data really necessary?**

While it seems that the Government collects enormous amount of information on its citizens, there is never too much. These data are critically important in making up the surveillance systems that form the basis of effective public health practice as well as the planning and evaluation efforts that are increasingly being used in public health programmes.

### **Areas of Application**

The Statistics collected by State and Central Government are used in all areas of public health. One of the chief functions of Statistics in the field of public health is to present numerical information that is relevant, reliable, complete, comparable and up-to-date. The need for public health intervention to control problems may not be obvious without an analysis of data. For example, a community may not recognize that it has a problem of high birth rate unless it analyses the birth records. Recognition of the problem might persuade the local public health leaders to

consider giving education to the community on the ill-effects of high birth rate. In any area of public health, problems are identified in terms of Statistics. The success of intervention programmes to confront a problem is evaluated by whether the programme improves the Statistics.

### **Conclusion**

Statistics are the vital signs of public health. Local, State and Central Government collect data on their citizens, starting with birth certificate and ending with death certificate. The census which is conducted every ten years provides information that allows the calculation of birth rates, death rates, infant mortality rates, life expectancies and other data that form the basis for public health's assessment function.

Health Statistics are used for all aspects of public health policy development and evaluation. Uses of the data include health need identification, analysis of problems and trends, epidemiologic research, program evaluation, program planning, budget preparation and justification, administrative decision making and health education.