CHAPTER I

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Data obtained from the measurement of community health or factors influencing it directly may be defined as "Health Statistics". The activities of health and administration are centred round the vital statistics relating to the registration of births and deaths, growth of population, human fertility age and sex composition of the population and a good deal of other numerical information on incidence of diseases and their notification, incidence and prevalence pattern of sickness etc.

Health Statistics - a more comprehensive term than vital statistics - includes also data required for day-to-day administration of health services planning of health programmes, diagnosis of community health problems and measurement of health status of the community.

Our knowledge of the incidence of diseases in India is general rather than accurate as the unreported cases are left out. Though we know the existence of many diseases in particular areas but we do not in all cases know the extent to which these diseases form the major problem of public health importance. The reason is quite obvious as no accurate statistics are available with us. The existence of the disease is known only through the notification returns and hospital records.
According to International conventions, six infectious diseases viz. Cholera, Small-Pox, Typhus, relapsing fever and yellow fever are notifiable. The countries are under obligation to bring to the notice of World Health Organisation the occurrence of any of these diseases in any part of their country. Fortunately for us, yellow fever is no problem at all. Cholera, Small Pox and Plague are with us for a longtime and they have symptoms which can easily be recognised by a layman. Therefore, mostly these diseases are reported to health authorities. Information however is deficient in respect of rural communities because many a time it reaches us very late, through a complicated administrative procedure. In case of typhus and relapsing fever it is difficult to diagnose by a layman and only those cases which attend to the hospitals or private practitioners are recorded. Hence one can say the data in respect of the above diseases are fragmentary.

In addition to the above six diseases some more are declared notifiable in different states of India. The responsibility of reporting the occurrence of those diseases lies on a number of personnel. The most important of them being the medical practitioner. Lack of diagnostic criteria in case of very large percentage of population, general apathy of the people to report occurrence of infectious diseases, complicated procedure of notification, lack of time with the medical practitioner and perhaps some disinclination on his part have made the orders regarding the notification of these diseases almost a dead letter. Notifications of cases of these diseases are received mostly from the Medical Institutions. The infor-
information is generally available with the district health authorities and in some cases with the State health authorities. It may be mentioned here that only diseases constituting public health hazard are declared notifiable and no eye disease is included in the list.

The patients seeking treatment in Medical Institutions in India are classified for statistical purposes according to a list of 150 diseases. This list includes trachoma, inflammatory diseases of the eye, cataract, and Glaucoma. The returns are compiled on a districtwise for a calendar year for inpatients and outpatients separately. In addition to these, data are also compiled for individual major hospitals. This information is available for most of the districts in the country. The percentage of cases of a particular disease to the total number of cases treated is being used as a rough guide about the incidence of the disease as a public health problem in a specified area.

Thus it can be seen that the statistical material available to us by way of notification and diagnostic returns is notoriously poor both in quality and quantity. These data at best may provide a crude and hazy outline of the health conditions in the country. To make up this deficiency special sample surveys will have to be conducted from time to time as has been done in cases of Malaria, T.B., Leprosy, Diet and Nutrition. Such kind of frequent studies involve in turn huge expenditure, labour and time. Therefore it is not worthwhile to conduct such surveys for each of a multitude of diseases affecting our people. A general morbidity survey systematically
and statistically planned and carried out is therefore a cheaper substitute for a multiplicity of such costly surveys so far as the detection and study of the prevalence of a disease is concerned.

Statistical studies on the prevalence of diseases provide knowledge and understanding of the relationships of various factors involved in the prevalence of the disease. If the duration of the disease is known by experience then it is possible to derive the incidence rate. Very often these studies provide information on how some of the public health problems can easily be tackled economically and effectively. Specific differences in morbidity and other characteristics may be observed to occur in surveys of population groups. By and large the purpose of such studies is to contribute to social and economic progress. It is necessary to investigate the existing levels of health and the demographic conditions and factors that influence them. In order to study this and for the study of trends and changes in health conditions factual knowledge is essential.

In the post war years in India not much has been done though the study of health statistics has become more and more important. Our country is still in the developing phase and the National Government is making its best efforts to raise the standard of living of the masses. Under these circumstances a large number of diseases general or ocular can be expected to prevail in the country resulting from such factors as a low standard of living, poor environmental sanitation, lack of
personal hygiene, mal-nutrition, illiteracy and age old superstitions and beliefs.

The only source of data on the prevalence of eye diseases has been the records of Government hospitals, private practitioners, health welfare centres, maternity homes, educational institutions and from the various other social organisations. Most of these records are deficient. This is inherent because the registration officials and reporting agents are overburdened with other duties and so lack of interest in statistical work is expected (48). Moreover these records are of a highly selective in nature and contain a certain amount of bias. It usually happens that a patient attending hospital for some general complaint and also having an eye disease will incidentally be given treatment for the latter. Though the case is recorded under only the general complaint, the eye disease which has been treated does not appear in the record.

"Trachoma" is a specific contagious disease of the Conjunctiva in man. Once it was known as "Egyptian ophthalmia." It is a serious form of follicular conjunctivitis which is responsible for the blinding of enormous numbers of people in places where it is endemic. Tracing the historical summary on the prevalence of trachoma, the epidemiological and vital statistics report of the World Health Organization (1949) draws the following conclusions:

"Trachoma a disease of poverty and promiscuity" (Sergent, Foley & Parrot (57) is always perhaps as ancient as promiscuity and poverty themselves. In 2679 B.C., during the
regain of the emperor Huang Ti Nei Ching, a Chinese medical treatise described the treatment of trichiasis (H.T.P.). The disease was known among the Egyptians 1,500 years before our era (Ebers' Papyrus). Two centuries before Christ, Helleodorous of Alexandria devoted a work to it. Judging by the writings as well as by the medical instruments which have been found, the disease appears to have existed several millennia before the Christian era, at the dawn of the most ancient civilizations (H. Moutinho). Some authors (e.g. Mac Callan) think it originated in Mongolia, others in Egypt. The Moslem conquests lead to the spread of the disease in Europe as early as the 8th century A.D.; it was imported into America by European immigrants as well as by those from the Near East and now occurs in every part of the world, but even today it is generally agreed that the Egyptians, Arabs, Indians and Chinese still remains those most affected." It was endemic in most parts of the world, particularly in Eastern and Central Europe (Russia, Poland, East Russia, Hungary), the Middle East (Egypt, Syria, Persia and Palestine), Central and Eastern Asia (Persia, India, China and Japan) Central Africa and Central America (33). Generally any person suffering from trachoma does not complain and has a few symptoms in the early active stages and only goes to the hospital for treatment in the advanced stages or of the later complication. Even in well developed areas it is a common knowledge that, except for a population within a small radius of the curative institutions, people in rural areas generally seek treatment only for painful conditions and ailments
that keep them off from work. The disease left to itself can
go to spontaneous cure or may in some advanced cases go to
complications. Ultimately many of them may result in blindness.
Apparently also little immunity is generated by an attack of the
disease since it has been shown that the single individual can
be reinfected with the same strain (5) of trachoma virus. This
disease is very prevalent in the north and north western parts
of India and exists in endemic form. Similarly many eye diseases
in the rural parts of the country escape the notice of the
doctors, and the poor innocent people either suffer from acute
pain or go blind in the long run. Most of these eye diseases,
particularly trachoma can be prevented if only people are made
to realise the magnitude of the problem and to seek the medical
aid immediately. Poverty, crowded living conditions, dirty bound
atmosphere, unhygienic surroundings are commonly considered as
contributory factors for the high prevalence of trachoma.

Poleff (1946) 38, while stressing the need for an Inter-
national study centre of trachoma has made the following statement
"Among infectious diseases of epidemic character trachoma which
inspite of taking the first place according to the great number
of victims caused through it and inspite of the fact that it
concerns the most important organ of the body i.e. sight, is
comparatively little served as far as scientific researches are
concerned. Moreover the disease is not reduced but is on the
contrary spreading more and more all over the world. About 90%
of inhabitants in the largest countries having a population of
several hundred million souls (China, E. Indies etc.) a
considerable percentage of few other countries suffer from this disease which presents, in the absolute number a principal source of blindness." He has rightly stressed the need for scientific research on the epidemiological problem of trachoma facing many countries of the world.

It is estimated that quarter of the world population suffers from Trachoma (57). Between 1925 and 1935 various enquiries carried out by the League of Nations Health Organization gave some idea of the extent of geographical distribution of the disease. Following this enquiry by W.H.O. in 1948-49 (Sidkey M.A. & Feyche M.S. (1949) published a monograph on this subject based on replies from Government and on the medical literature in recent years. It is also considered as a major cause of blindness in most countries of Africa, Middle East and South East Asia. It has also been recently estimated by workers, (46), in the field of trachoma that 15% of world population are trachoma sufferers. Taking the world population as approximately 3300 millions, the approximate number of global trachoma sufferers on the above percentage works out to be 495 million. W.H.O. got interested in this world wide problem of trachoma and a start was made in Taiwan with the initiation of a W.H.O. assisted Trachoma Project in 1952. Similar W.H.O. assisted projects soon followed in Morocco, Tunisia etc. At present W.H.O. and UNICEF are assisting about twenty countries including India in the control of Trachoma and associated bacterial infections.
Realising the extent of disability and blindness caused by the corneal and lid complications of trachoma and associated infections specially in north and north western states of India, Indian Council of Medical Research convened a meeting of leading ophthalmologists of India at Baroda in 1954. Dr. Maxwell Lyons, trachomatologist of the W.H.O. Geneva office was also present. In this meeting a decision was taken by the Indian Council of Medical Research Committee to advise the Government of India to launch a trachoma control operation in India (18).

As no systematic study had been done till 1956, about the geographical distribution of trachoma and other common eye diseases in rural parts of India, Government of India with the assistance of World Health Organization and UNICEF conducted this study under the administrative control of Indian Council of Medical Research. The project is the first and only one of its kind in India which started in 1956 the trachoma control operations after studying the magnitude of the problem in some parts of the country.

A great deal of the statistical data collected during 1956 to 1963 has been studied over the past three years by me at the Trachoma Control Pilot Project India of the Indian Council of Medical Research, where I had the opportunity of planning, recording and evaluating the statistical survey data obtained from various states of the country.

This thesis is an attempt to survey and to study statistically the public health and epidemiological problems of trachoma in various parts of rural India.
and to make aware the magnitude of the problem to the public health authorities, bio-statisticians, ophthalmologists and other private practitioners who come in contact with many cases of trachoma often in its early stages. The early recognition of trachoma is one of utmost importance to the patient, to the community and to the state. Early treatment can prevent significant scarring and pannus and so reduce a major but hitherto insufficiently recognised cause of blindness. Similarly other common eye diseases like cataract, ocular lesions due to small-pox, xerosis, Pterygium, squint and others in most cases can either be prevented or treated if proper surgical or otherwise treatment is given at the right time.