

## CONCEPT OF HEALTH AND DISEASE

Kerala has demonstrated that, in a democratic system with a strong political commitment to equitable socioeconomic development, high levels of health can be achieved even on modest levels of income. Kerala can therefore be considered a **yardstick** for judging health status in the country (55).

Studies have shown that the efforts in the health field were simultaneously reinforced by developments in other sectors. Literacy (especially female literacy) has played a key role in improving the health situation. This was probably responsible for the high rate of utilization of health facilities. Long-standing programmes directed at social welfare raised not only educational levels of the population but also developed a social infrastructure, including a transport network which provided easy access to services. An effective programme of land reform had given poor people access to land resources for food production at the household level. Kerala has demonstrated that good health at low cost is attainable by poor countries, but requires major political and social commitment (35).

### HEALTH DEVELOPMENT

Health development is defined as "the process of continuous progressive improvement of the health status of a population" (56). Its product is rising level of human well-being, marked not only by reduction in the burden of disease, but also by the attainment of positive physical and mental health related to satisfactory economic functioning and social integration (57).

The concept of **health development** as distinct from the provision of medical care is a product of recent policy thinking. It is based on the fundamental principle that governments have a responsibility for the health of their people and at the same time people should have the right as well as the duty, individually and collectively to participate in the development of their own health.

Health development contributes to and results from social and economic development. Therefore health development has been given increasing emphasis in the policies and programmes of the United Nations system. One example is that of World Bank which is providing funds for the health component of economic development programmes. The UNDP has also shown a growing interest in health development as has the World Bank.

### INDICATORS OF HEALTH

A question that is often raised is: How healthy is a given community? Indicators are required not only to measure the health status of a community, but also to compare the health status of one country with that of another; for assessment of health care needs; for allocation of scarce resources; and for monitoring and evaluation of health services, activities, and programmes. Indicators help to measure the extent to which the objectives and targets of a programme are being attained.

As the name suggests, indicators are only an indication of a given situation or a reflection of that situation. In WHO's guidelines for health programme evaluation (58) they are defined as **variables** which help to measure changes. Often they are used particularly when these changes cannot be measured directly, as for example health or nutritional status (57). If measured sequentially over time, they can indicate direction and speed of change and serve to compare different areas or groups of people at the same moment in time (58).

There has been some confusion over terminology: **health indicator** as compared to **health index** (plural: indices or indexes). It has been suggested that in relation to health trends, the term **indicator** is to be preferred to **index**,

whereas **health index** is generally considered to be an amalgamation of health indicators (59).

### Characteristics of indicators

Indicators have been given scientific respectability; for example **ideal** indicators

- should be **valid**, i.e., they should actually measure what they are supposed to measure;
- should be **reliable** and objective, i.e., the answers should be the same if measured by different people in similar circumstances;
- should be **sensitive**, i.e., they should be sensitive to changes in the situation concerned,
- should be **specific**, i.e., they should reflect changes only in the situation concerned,
- should be **feasible**, i.e., they should have the ability to obtain data needed, and;
- should be **relevant**, i.e., they should contribute to the understanding of the phenomenon of interest.

But in real life there are few indicators that comply with all these criteria. Measurement of health is far from simple. No existing definition (including the WHO definition) contains criteria for measuring health. This is because health, like happiness, cannot be defined in exact measurable terms. Its presence or absence is so largely a matter of subjective judgement. Since we have problems in defining health, we also have problems in measuring health and the question is largely unresolved. Therefore, measurements of health have been framed in terms of illness (or lack of health), the consequences of ill-health (e.g., morbidity, disability) and economic, occupational and domestic factors that promote ill-health – all the antitheses of health.

Further, health is multidimensional, and each dimension is influenced by numerous factors, some known and many unknown. This means we must measure health multidimensionally. Thus the subject of health measurement is a complicated one even for professionals. Our understanding of health, therefore, cannot be in terms of a single indicator; it must be conceived in terms of a profile, employing many indicators, which may be classified as:

1. Mortality indicators
2. Morbidity indicators
3. Disability rates
4. Nutritional status indicators
5. Health care delivery indicators
6. Utilization rates
7. Indicators of social and mental health
8. Environmental indicators
9. Socio-economic indicators
10. Health policy indicators
11. Indicators of quality of life, and
12. Other indicators.

### 1. Mortality indicators

(a) **Crude death rate**: This is considered a fair indicator of the comparative health of the people. It is defined as the number of deaths per 1000 population per year in a given community. It indicates the rate at which people are dying. Strictly speaking, health should not be measured by the number of deaths that occur in a community. But in many countries, the crude death rate is the only available indicator of health. When used for international comparison, the usefulness of the crude death rate is restricted because it is influenced by the age-sex composition of the population. Although not a perfect measure of health status, a decrease in death rate provides a good tool for assessing the overall



health improvement in a population. Reducing the number of deaths in the population is an obvious goal of medicine and health care, and success or failure to do so is a measure of a nation's commitment to better health.

(b) *Expectation of life* : Life expectancy at birth is "the average number of years that will be lived by those born alive into a population if the current age-specific mortality rates persist". Life expectancy at birth is highly influenced by the infant mortality rate where that is high. Life expectancy at the age of 1 excludes the influence of infant mortality, and life expectancy at the age of 5 excludes the influence of child mortality. Life expectancy at birth is used most frequently (60). It is estimated for both sexes separately. An increase in the expectation of life is regarded, inferentially, as an improvement in health status.

Life expectancy is a good indicator of socioeconomic development in general. As an indicator of long-term survival, it can be considered as a positive health indicator. It has been adopted as a global health indicator.

(c) *Infant mortality rate* : Infant mortality rate is the ratio of deaths under 1 year of age in a given year to the total number of live births in the same year; usually expressed as a rate per 1000 live births (59). It is one of the most universally accepted indicators of health status not only of infants, but also of whole population and of the socio-economic conditions under which they live. In addition, the infant mortality rate is a sensitive indicator of the availability, utilization and effectiveness of health care, particularly perinatal care.

(d) *Child mortality rate* : Another indicator related to the overall health status is the early childhood (1-4 years) mortality rate. It is defined as the number of deaths at ages 1-4 years in a given year, per 1000 children in that age group at the mid-point of the year concerned. It thus excludes infant mortality.

Apart from its correlation with inadequate MCH services, it is also related to insufficient nutrition, low coverage by immunization and adverse environmental exposure and other exogenous agents. Whereas the IMR may be more than 10 times higher in the least developed countries than in the developed countries, the child mortality rate may be as much as 250 times higher. This indicates the magnitude of the gap and the room for improvement.

(e) *Under-5 proportionate mortality rate* : It is the proportion of total deaths occurring in the under-5 age group. This rate can be used to reflect both infant and child mortality rates. In communities with poor hygiene, the proportion may exceed 60 per cent. In some European countries, the proportion is less than 2 per cent. High rate reflects high birth rates, high child mortality rates and shorter life expectancy (60).

(f) *Maternal (puerperal) mortality rate* : Maternal (puerperal) mortality accounts for the greatest proportion of deaths among women of reproductive age in most of the developing world, although its importance is not always evident from official statistics (61). There are enormous variations in maternal mortality rate according to country's level of socioeconomic status.

(g) *Disease-specific mortality rate* : Mortality rates can be computed for specific diseases. As countries begin to extricate themselves from the burden of communicable diseases, a number of other indicators such as deaths from cancer, cardiovascular diseases, accidents, diabetes, etc have emerged as measures of specific disease problems.

(h) *Proportional mortality rate* : The simplest measures of estimating the burden of a disease in the community is proportional mortality rate, i.e., the proportion of all deaths currently attributed to it. For example, coronary heart disease

is the cause of 25 to 30 per cent of all deaths in most western countries. The proportional mortality rate from communicable diseases has been suggested as a useful health status indicator; it indicates the magnitude of preventable mortality.

Mortality indicators represent the traditional measures of health status. Even today they are probably the most often used indirect indicators of health. As infectious diseases have been brought under control, mortality rates have declined to very low levels in many countries. Consequently mortality indicators are losing their sensitivity as health indicators in developed countries. However, mortality indicators continue to be used as the starting point in health status evaluation.

## 2. Morbidity indicators

To describe health in terms of mortality rates only is misleading. This is because, mortality indicators do not reveal the burden of ill-health in a community, as for example mental illness and rheumatoid arthritis. Therefore morbidity indicators are used to supplement mortality data to describe the health status of a population. Morbidity statistics have also their own drawback; they tend to overlook a large number of conditions which are subclinical or inapparent, that is, the hidden part of the iceberg of disease.

The following morbidity rates are used for assessing ill-health in the community (62).

- a. incidence and prevalence
- b. notification rates
- c. attendance rates at out-patient departments, health centres, etc.
- d. admission, readmission and discharge rates
- e. duration of stay in hospital and
- f. spells of sickness or absence from work or school.

## 3. Disability rates

Since death rates have not changed markedly in recent years, despite massive health expenditures, disability rates related to illness and injury have come into use to supplement mortality and morbidity indicators. The disability rates are based on the premise or notion that health implies a full range of daily activities. The commonly used disability rates fall into two groups: (a) Event-type indicators and (b) person-type indicators (15,63).

### (a) Event-type indicators :

- i) Number of days of restricted activity
- ii) Bed disability days
- iii) Work-loss days (or school loss days) within a specified period

### (b) Person-type indicators :

- i) *Limitation of mobility*: For example, confined to bed, confined to the house, special aid in getting around either inside or outside the house.
- ii) *Limitation of activity*: For example, limitation to perform the basic activities of daily living (ADL)—e.g., eating, washing, dressing, going to toilet, moving about, etc; limitation in major activity, e.g., ability to work at a job, ability to housework, etc.

**Sullivan's index**: This index (expectation of life free of disability) is computed by subtracting from the life expectancy the probable duration of bed disability and inability to perform major activities, according to cross-sectional data from the population surveys. For example, the expectation of life at birth for all persons in the USA in 1965 was 70.2 years, and the approximate expectation of life free of disability worked out to be 64.9 years. Sullivan's index is considered one of the most advanced indicators currently available.