

## **MORTALITY AND MORBIDITY RATE OF CHILD**

Vital statistics are considered as indicators of health. Important vital statistics are birth rate and death rate. Child health status is assessed through measurement of mortality and morbidity. Morbidity data collected in specific survey can serve as indicators of comprehensive and specific health aspect. But morbidity data are scarce and poorly standardized. Measurement of growth and development is also an important indicator of child health status. Attention has been paid, recently, for systemic collection, interpretation and dissemination of data on growth and development.

In many countries, mortality rates are still the only sources of information about child health. The frequently used mortality indicators of child health care are perinatal, neonatal, post neonatal, infant and under 5 mortality rates.

### **perinatal infant and under 5 mortality rates.**

#### **Perinatal Mortality Rate**

World Health Organization (WHO) expert committee on prevention of perinatal mortality and morbidity recommended a precise formula of perinatal mortality rate, i.e. "Late fetal and early neonatal deaths weighing over 1000 gm at birth expressed as a ratio per 1000 live births weighing over 1000 gm at birth." It is calculated as:

$$\text{Perinatal mortality rate} = \frac{\text{Late fetal and early neonatal deaths weighing over 1000 g at birth}}{\text{Total live birth weighing over 1000 g at birth}} \times 1000$$

Perinatal mortality rate has assumed greater significance as a yardstick of obstetrics and paediatrics care before and around the time of birth. It gives a good indication of the extent of pregnancy wastage as well as quality and quantity of health care available to the mothers and children.

Perinatal mortality is a problem of serious dimensions in all countries. It now accounts for about 90 percent of all fetal and infant mortality in the developed countries. In India, the perinatal mortality rate was reported about 32 per 1000 total live births with about 35 for rural and 22 for the urban areas (2010) as per SRS estimates. The national goal was to achieve a perinatal mortality rate between 30 and 35 by the year 2000 AD.

A number of social and biological factors are known to be associated with perinatal mortality. The risk factors are low socioeconomic status, high or maternal age, high parity, short stature mother, bad obstetrical history, maternal malnutrition and severe anaemia, multiple pregnancy, etc. The causes of perinatal mortality are mainly antenatal, intranatal or postnatal asphyxia, LBW babies, congenital anomalies, birth injury and perinatal infections. Reduction and prevention of perinatal mortality can only be possible with better maternal and child health services.

#### **Neonatal Mortality Rate**

Neonatal deaths are deaths occurring during the neonatal period, i.e. from birth to 28 completed days of life. It is ,

$$\text{Neonatal mortality rate} = \frac{\text{Number of deaths of children under 28 days of age in a year}}{\text{Total live birth in the same year}} \times 1000$$

Neonatal mortality is most difficult part of infant mortality to change. In India, it was about 33 per 1000 live births (2010). About 70 percent of all infant deaths occur within neonatal period and approximately 80 percent of neonates die during the first week of birth and first 24 hours is the greatest risk time.

Neonatal mortality is greater in boys throughout the world due to more fragility of boys than girls. The common causes of neonatal mortality include LBW, perinatal asphyxia, birth injury, difficult labour, congenital anomalies, haemolytic diseases of new-born, conditions of placenta and cord, diarrheal diseases, ARI and tetanus. Neonatal deaths can be reduced by adequate antenatal and intra-natal care including essential neonatal care at all levels by preventing and managing the causes.

**Post- neonatal Mortality Rate**

Post- neonatal mortality rate is defined as the ratio of the post- neonatal death in a given year to the total number of live births in the same year, usually expressed as a rate per 1000. It is calculated as:

Post-neonatal mortality rate=Number of deaths of children between 28 days and one year of age  
in a given year)

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Total live birth in the same year ×1000

Post-neonatal mortality is dominated by exogenous factors, i.e. environmental and social factors. The main causes of death during post- neonatal period are diarrhoea and ARI. Malnutrition is the additional factor, which predisposes various infections. In developed countries, it is mainly caused by congenital anomalies. Post- neonatal deaths increase with birth order and the girl children die more frequently than boys due to neglected care to the female children in terms of nutrition and health care.

In India, post-neonatal mortality rate is estimated to be 20 in rural areas, 16 in urban areas and 19 per 1000 live births combined in rural and urban areas (2007).

**Infant Mortality Rate**

Infant mortality rate (IMR) is defined as "the ratio of infant deaths registered in a given year to the total number of live births registered in the same year, usually expressed as a rate per 1000 live births". It is calculated by the formula:

Infant mortality rate = 
$$\frac{\text{Number of deaths of children less than one year of age in a year}}{\text{Number of live births in the same year}} \times 1000$$

Infant mortality rate is universally regarded as a most important sensitive indicator of the health status of community. It is considered as an indicator of level of living of people and effectiveness of MCH services. There are wide variations between countries or regions in the level of infant mortality. The world average of IMR for 2004 has been estimated at about 54 per 1000 live births. The large worst rates were in Afghanistan (121.63) and the lowest IMR of less than 3 per 1000 live births in Japan, Sweden Hongkong, Singapore and Monaco.

India is still among high IMR countries, though it has come down to 44 per 1000 live births in 2011. There is state wise variation with highest in MP-59, and UP and Orissa-57 and Kerala as low as 12 per 1000 live births. National target is set to bring down the IMR to less than 28 per 1000 live births within the year 2015.

The principal causes of IMR in India are LBW, ARI, diarrheal diseases, congenital malformations, and infections, pre especially umbilical sepsis. There are several factors which by interact to cause infant mortality. Biological and socio economical factors influence more on the infant death. There is no single specific health program or a single set of action that can reduce IMR. As the etiology of IMR is multifactorial, so it requires multipronged approaches. Certain important measures to reduce IMR include lowest birth rate, highest die literacy rate, specially female literacy and improvement of Ne primary health care. Other preventive measures include Co prenatal nutrition, prevention of infections including six- 200 killer diseases, exclusive breastfeeding, growth monitoring, an family planning, environmental sanitation, simple hygienic measures and socioeconomic development.

### **Under-Five Mortality Rate (Child Mortality Rate)**

United Nations International Children's Emergency Fund (UNICEF) defines the under-5 mortality rate as the "annual number of deaths of children aged under 5 years, expressed as a rate per 1000 live births". The rate is computed by the formula:

Under 5 mortality rate=no of deaths of children less than 5 year sof age in given year

$$\frac{\text{No of live births in the same year}}{\times 1000}$$

Child mortality rate measures the probability of dying Under-5 in between birth and exactly 5 years of age. The UNICEF considered this rate as the best single indicator of social development and well-being rather than GNP per capita. It reflects nutritional status, income, health care and level of basic education of the population.

The global average for under-5 mortality rate in 2008 was 65 per 1000 live births. In developed countries the rate was 7as per 1000 live births and in least developed countries, it was 158 per 1000 live births in 2002.

In India, child mortality rate in 2010 was 59 per 1000 live births. It is about 34 percent of all deaths. It was 242 per 1000 live births in 1960 and has declined significantly during the past years due to decline in infant mortality. This reduction is The largely related to drop in deaths due to vaccine preventable diseases as well as drop in deaths from ARI and diarrhoea.

The major causes of child mortality among children under 5 years in developing countries are acute respiratory infections, neonatal and perinatal threats, diarrhoea, malaria, pertussis, neonatal tetanus, tuberculosis, measles, malnutrition, accidents and HIV related diseases.

The basic measure of infant and child survival is the reduction of under-five mortality. The difference in the survival rates of children in developed and developing countries is a grim pointer to the third world's need for preventive services. The child survival can be best achieved by breastfeeding, adequate nutrition, clean water supply, immunization coverage, oral rehydration therapy and birth spacing.

On the occasion of World Health Day, 2005, WHO reported that one child in twelve does not reach his/her fifth birthday. Each year 10.6 million children under the age of five years die from a handful of preventable and treatable conditions. Nearly all these deaths occur in low and

middle income countries. WHO, celebrated World Health Day on 7th April, 2005, with the theme "Healthy mothers and healthy children" and the slogan "Make every mother and child count", to make the health of women and children a higher priority and to improve survival, health and well-being of these precious group.