

## **MCH Indicators**

Health is difficult to measure directly, so we measure health indirectly by measuring rates, i.e. disease and death (morbidity and mortality rates).

Rate = Number of event in a defined time period / Number of the population at risk of the event during the same period of time per a defined unit of the population.

### **Mortality rates in children**

Infant mortality rate (IMR)

Perinatal mortality rate

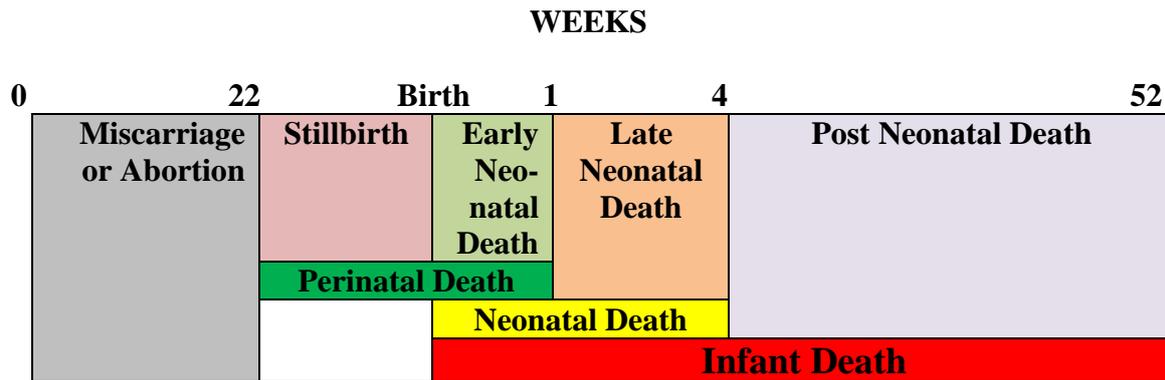
Childhood mortality rate

### **Infant Mortality Rate:**

Infancy is the first year of life, thus infant mortality rate (IMR) in a given period of time (usually a year) is the number of deaths among infants per 1000 live births in the same period.

For in fancy, the denominator of mortality rate is the number of live births during the same period as the deaths.

## Sub-divisions of Deaths in Infancy



Deaths occurring during different periods of infancy reflect different groups of causal factors.

### Causes of infant mortality :

#### **A- Neonatal Mortality:**

These deaths reflect conditions related to pregnancy and labour, so called endogenous causes, they include:

- 1-Low birth weight and prematurity.
- 2-Birth injury
- 3- Congenital abnormalities
- 4- Neonatal sepsis
- 5 - Neonatal tetanus still a cause in some developing countries.

#### **B- Post Neonatal Mortality:**

These deaths are predominantly a reflection of social and environmental factors, as indicated by higher rates in lower socio-economic groups (exogenous causes), and the causes of these deaths include (gastro-enteritis, respiratory infections, accidents, and under-nutrition). Another cause is congenital malformations, which does not show socio-economic differentials.

There is a wide variation in IMR ranging from 6/1000 in developed countries to 104/1000 in least developed countries. The marked decrease of IMR in the developed countries was mainly due to controlling the exogenous causes (improved environmental conditions, better nutritional standard, immunization, better education and improved medical care). While the higher rates, still existing in most developing countries, are due to uncontrolled environmental conditions, poor nutrition, poor education and low socioeconomic state.

### **Prevention of infant mortality rate:**

- 1-Adequate antenatal care, risk identification and management.
- 2-Encourage hospital deliveries and training of traditional birth attendants.
- 3-Improving obstetric and neonatal care.
- 4- Early initiation of breast feeding, and continue exclusive breast feeding for 6 months.
- 5-Early detection and treatment of childhood diseases.
- 6-Early detection and correction of malnutrition
- 7-Improving environmental sanitation and standard of living.
- 8-Improving maternal education.
- 9-Family planning measures.
- 10-Health education.

### **Perinatal Mortality Rate:**

This rate groups together stillbirths and deaths occurring during the first week of life. The reasons for calculating this rate are:

- 1-It is a sensitive indicator of antenatal, intranatal and postnatal maternal services.

2-This rate compares variations between different localities (hospitals, towns, cities, and countries) with respect to health care provision.

### **Causes of perinatal mortality:**

- 1- Antenatal causes: systemic diseases such as (hypertension, diabetes, heart diseases, Rh iso-immunization), pelvic causes (endocrine tumors, ovarian tumors), intra-uterine growth restriction, anatomical defects of genital tract, endocrine causes, others.
- 2-Intranatal causes: birth injury, birth asphyxia, prolonged labour.
- 3-Postnatal causes: respiratory distress syndrome, hypothermia, sepsis.
- 4-Other causes: lack of family planning, high maternal age, lack of spacing, poor obstetric history, malnutrition, severe anemia, cultural factors, multiple pregnancies, and maternal smoking.

Whereas other factors related to the health services may also play a role, which are:

1. Inadequate antenatal care
2. Inappropriate management during delivery
3. Lack of neonatal care

### **Prevention of perinatal mortality:**

Some important steps towards reducing perinatal mortality that can be implemented at various stages are:

- Antenatal period: antenatal registration, efficient care, immunization, good nutrition, referral.
- Intranatal period: efficient obstetric care, aseptic delivery practice, trained birth attendants.
- Postnatal period: efficient new born care, resuscitation, family planning, adequate spacing.

## **Childhood Mortality:**

Mortality rates during childhood are measured in relation to the population in the same age group.

**Age Specific Death rate**= the number of deaths among persons of a given age group in a year / the average (midyear) population in the specified age group in the same year per 10,000 population.

Leading causes of childhood mortality:

- Diarrheal diseases.
- Acute respiratory infections
- Malnutrition
- Accidents
- injuries

The reduction is due to the decrease in the incidence and fatality of infectious diseases (better socio-environmental factors, nutrition, housing, sanitation, immunization and advances in therapy). As a result, other causes of death have emerged and became targets for prevention such as accidents and childhood cancers (leukaemias). There are still inequalities between countries and between social classes within the same country.

## **Maternal Mortality:**

### **Definitions:**

**Maternal Death (MD):** The death of a woman while pregnant or within 42 days of termination of pregnancy from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes.

**Direct MD:** Deaths resulting from obstetrical complications of the pregnancy, labour, or puerperium, and from interventions, omissions, incorrect treatment, or a chain of events resulting from the above.

**Indirect MD:** Deaths resulting from previous existing disease or a disease that developed during pregnancy, labour or puerperium and aggravated by the maternal physiological adaptation to pregnancy.

### **Main Causes of Maternal Deaths:**

#### ***A- Direct causes:***

The main killers in developing countries are: haemorrhage (antepartum and postpartum), infection (sepsis), hypertensive diseases of pregnancy, obstructed labour leading to rupture of the uterus and unsafe criminal abortion may also lead to death due to haemorrhage and sepsis. Ectopic pregnancies, unsafe operative procedures and pulmonary embolisms are other causes.

#### ***B: indirect causes:***

About 20% of maternal deaths results from previously existing diseases aggravated by pregnancy such as anemia, hepatitis, pneumonia, heart diseases, ....

***C- other factors related to the health services (organizational factors)*** may also play a role, which are:

- Unavailability of blood transfusion facilities.
- Deficient medical treatment of complications.
- Lack of essential supplies and trained personnel.
- Lack of, or poor referral services.
- Inadequate antenatal care.
- Lack of facilities for emergency transport.
- Lack of access to maternity services.

- Inappropriate management during delivery
- Lack of postnatal care

**D- Reproductive factors:**

The main *maternal characteristics* for being at risk of having a maternal death are:

- Very young or very old mothers
- First birth and Fifth birth or over
- Cigarette smoking
- Small stature
- Hypertension

**E- Social factors:**

- Low social class
- Malnutrition
- Poverty
- Poor environmental conditions.

Maternal deaths are tragic events and they cause social and economic losses. Those women are usually young and are responsible for the health and well being of the family.

Pregnancy is not a disease, and pregnancy related morbidity and mortality are preventable or avoidable.

***Avoidable Maternal deaths:*** Are deaths which can probably be prevented, if the patient had received ideal care under ideal conditions.

**Prevention of Maternal Deaths:**

- 1-Emergency obstetric care
- 2-Skilled birth attendants.

3-Availability of maternal health care services (antenatal, natal and postnatal) in rural as well as urban areas.

4- Convenient calling and transportation to medical facilities if complications arise.

5-Asepsis and sterilization system.

6-Chemoprophylaxis and therapy, for prevention and management of infection and sequelae, especially puerperal sepsis.