

# COMMUNITY DIAGNOSIS

## A- Rates:

- A rate measures the occurrence of some particular event during a given time period, in a population at risk. The form is  $x/y \cdot k$  per unit of time. In a rate, all the events counted as  $(x)$  are derived from the population at risk  $(y)$ . but there should be a unit of time added to for fill the expression. so rate, it is the only measure that represent the risk. so rate =  $x/y \cdot k$  unit of time.
- $(y)$  :- is the pop. at risk, i.e; the group of people to whom the event expressed in  $x$  could occur.  $(x)$  :- The numerator, derived from  $(y)$  and equals the frequency of people having the out come.  $(k)$  :- constant.
- Unit of time :- the time of the period that is required to the event to occur.

## **B- Ratios**

- A ratio expresses a relation between a numerator (x) and a denominator (y) in which the events or items counted as (x) are not necessarily derived from (y) .EX-number of still birth per 1000 live birth .

## C- Proportions

- A proportion is an expression in which the numerator is always included in the denominator .

# 1- Fertility Rates

Fertility rates measure the rate of birth .

**a- Crude birth rate** is expressed as , ( number of live births reported during a giving time interval / estimated mid interval population per 1000 population .

## **b-General Fertility rate**

It represents the average annual number of live births per 1000 women in the reproductive age (15-49 years).

## **C. Marital specific fertility rate.**

It represents the average annual number of live births per 1000 married women in the reproductive age (15-49 years).

## 2- Morbidity Rates

- pertains to the sickness , disease , or disability within specific populations . The most commonly used measures include incidence and prevalence rates.

## **A- Incidence** ( measurement of risk ):

Is the rate that are concerned with occurrence of new cases of diseases in a specified period of time , over population at risk .

- note that:-
  - a- All the denominator are population at risk .
  - b- All the new cases are derived from denominator.
  - c- All the cases occur within that period of time



- Uses of incidence :-

**1- Useful in determining the risk to the population group .**

**2- Useful in determining the casual association by incidence studies.**

## **B- prevalence**

- **Measures the frequency of all existing cases of disease in a population at a specified time**
- **Existing cases include those previously diagnosed in other years and those diagnosed in the current year, or at the time of your survey or examination.**

- prevalence = number of existing cases of a disease / total population . k ( during a period or interval ) .
- prevalence study used to:
  - 1- estimate the burden of the disease on community .
  - 2- Helps the health administrator for control of the disease.

### **3- Mortality Rates**

Are important source of data for community health .

#### **1- Crude death rate**

total number of death / mid year estimation of population  $\times k$  .

- Disadvantage of crude death rate :- Is that , not informative or specific about age , sex , causes .

## 2- Specific death rate

Death rate can be specified by age , sex , race , occupation and causes . So it takes only the male or female in consideration , so it is sex specific . or may take certain age group ( age specific ) . or both age and sex specific , or may be cause specific .

it is useful in comparison because it give us an idea about death in specific groups.

- $EX = \frac{\text{NO. of death in male}}{\text{NO. of male population}}$  . (sex specific death rate ) .
- $EX = \frac{\text{NO. of death in age ( 25—35 ) years}}{\text{NO. of pop . between ( 25-35) X k}}$  ( age specific death rate ) .

### **3- Infant mortality rate .**

- **Number of deaths of infants under one year of age/ no. of live births X 1000**

**Among the population of the given geographic area during the same year .**

- **IMR , can give a reflection of the health and socioeconomic status of the whole community .**
- **It is classified into 2 categories:**
- **Neonatal and post neonatal Mortality Rates**

**a- Neonatal mortality rate** = Is Number of deaths of under 28 days of age in a year per 1000 total number of live births in the same year.

- **Early neonatal mortality rate**=

is number of deaths among infants aged 7 days per 1000 total number of live births in the same year

- **Late neonatal mortality rate**=

is number of deaths among infants aged between 7 days and 28 days per 1000 total number of live births in the same year

**b- Post-neonatal mortality rate:**

is number of deaths among infants aged between 28 days and 1 year per 1000 total number of live births in the same year

#### **4-Stillbirth rate:**

Is number of fetal deaths after 24 weeks of gestation occurring in a year per 1000 total births in the same year.

#### **5-Perinatal mortality rate :**

number of stillbirths + number of infant deaths in the first week after birth in a year per 1000 total number of total births in the same year



## 6- Maternal mortality rate

- Number of deaths of pregnant mother from causes related to pregnancy , delivery , and puerperium , which occurred among the female population of a given geographic area during a given year / number of total births (live births + stillbirth) which occurred among the population of the given geographic area during the same year x 100000 .
- Since it is difficult to know how many pregnant women , so we use in the denominator the number of total births because it is representative to pregnancy .

## 7- Proportional mortality rate ( ratio )

- Is the number of deaths due to single cause on the number of deaths due to all causes . As we see that the numerator is a part of the denominator but here it is not at risk so it is actually a ratio but sometimes it is called rate .
- EX= deaths due to CVA among all deaths .
- PMR= no. of deaths due to specific cause / total no. of deaths x 1000 .
- $$= \frac{\text{no. of deaths due to CVA}}{\text{total no. of deaths}} \times 1000 .$$

## 8- Case- fatality rate

Killing power of a disease , it is simply the rate of ,

- $CFR = \frac{\text{total no. of deaths due to a particular disease}}{\text{total no. of cases diagnosed with the same disease}}$  . So it is actually a rate , but it is suitable for acute illness , not for chronic disease that death occurs lately in the course of disease . ( other definition , the proportion of people with the disease who die from it ) .