VITAL STATISTICS

VITAL STATISTICS ARE DERIVED FROM INFORMATION OBTAINED AT THE TIME WHEN THE OCCURENCES OF VITAL EVENTS AND THEIR CHARACTERISTICS ARE INSCRIBED IN A CIVIL REGISTER.

VITAL ACTS AND EVENTS ARE THE BIRTHS, DEATHS, FETAL DEATHS, MARRIAGES AND ALL SUCH EVENTS THAT HAVE SOMETHING TO DO WITH AN INDIVIDUAL'S ENTRANCE AND DEPARTURE FROM LIFE TOGETHER WITH THE CHANGES IN CIVIL STATUS THAT MAY OCCUR TO A PERSON DURING HIS LIFETIME. RECORDING OF THESE EVENTS IN THE CIVIL REGISTER IS KNOWN AS VITAL OR CIVIL REGISTRATION AND THE RESULTING DOCUMENTS ARE CALL VITAL RECORDS.

STRUCTURE OF VITAL STATISTICS SYSTEM

Under Commonwealth Act(CA) , the Bureau of Census(now National Statistics Office) is mandated to generate general purpose statistics and to carry out and administer Act. No 3753. Under the same law the head of the NSO is also the Civil Registrar General(CRG) who directs and supervises the local civil registration activities in the country.

Uses:

• Analysis of demographic records., rates enable to measure the growth of the population

• Legal importance, records regarding birth, marriages, deaths are legal documents.

• Helps to protect the rights in property, insurance, etc.

•Helps in planning of health services.

•Planning of medical research and eradication of diseases.

•Uses in public administration

•Useful to actuaries. Mortality rates helps to estimate the life expectancy.

POPULATION ESTIMATION AND FORECASTING

ANALYSIS OF HEALTH TRENDS

PROGRAMME FOR PLANNING, MONITORING AND EVALUATION

OPERATIONAL AND ADMINISTRATION DECISION MAKING.

REGISTRATION AND SOURCES OF DATA

FOR THE REGISTRATION OF VITAL EVENTS AND SOURCE OF THE LOCAL CIVIL REGISTRY OFFICES(LCROS) WHICH ARE THE REGISTRATION UNITS IN THE COUNTRY AND HEADED BY THE CITY/MUNICIPAL CIVIL REGISTRATS(C/MCRS) ARE UNDER THE LOCAL GOVERNMENT UNITS(LGUS). THE HOSPITALS, CLINICS, RURAL HEALTH UNITS AND SIMILAR INSTITUTIONS INCLUSING BARANGAY SECRETARIES PRACTICING PHYSICIANS, MIDWIVES, NURSES, TRADITIONAL MIDWIFE, SOLEMNIZING OFFICERS FROM VARIOUS RELIGIONS SECTS AND DEMONSTRATION ARE REQUIRED TO ASSIST IN THE REPORTING OF VITAL EVENTS FOR REGISTRATION AT THE LCROS.

DEFINITIONS

Live Birth: It is a complete expulsion or extraction from the mother of the product of conception, irrespective of the duration of pregnancy, which after such separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached each product of such a birth is considered live birth.

Death: It refers to the permanent disappearance of all evidence of life at any time after live birth has taken place(postnatal cessation of vital function without capability of resuscitation).

Fetal Death: Refers to the death prior to the complete expulsion or extraction of product of conception from its mother, irrespective of the duration of pregnancy, the death is indicated by the fact that after such separation, the fetus does not breathe or show any other evidence of life such as beating of the heart, pulsation of the umbilical cord, and definite movement of voluntary muscles.

Early Neonatal Death: It refers to deaths a month live birth during the first 7 days of life.

Infant Mortality: Refers to deaths of infants under one year of age.

Perinatal Mortality: Referes to the deaths of fetus weighting atleast 500 grams or had 22 completed weeks of gestation and of infants 7 days of age.

Maternal Mortality: Refers to the deaths of woman while pregnant or within 42 days of termination or pregnancy, irrespective of the duration and the site of the pregnancy from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.

Neonatal Mortality: Refers to the deaths among live births during the first 28 completed days of life.

Crude Birth Rate(CBR): Refers to the number of live births per 1000 mid year population.

Crude Marriage Rate(CMR): It is a gross measure of the level of the relative frequency of marriages in an area for a given year. It expresses addition by the formal means of legal marriage being made to the married segment of the total population. This refers to eh number of marriages per 1000 mid year population.

Crude Death Rate(CDR) :Refers to the number of deaths per 1000mid year population.

Infant Mortality Rate(IMR): Refers to the number of infant death per 1000 live births in a given year.

Maternal Mortality Rate(MMR): Refers to the number of maternal deaths in a given year per 1000000 live births in that year.

Total Fertility Rate(TFR): Refers to the average number of children a women would have by the time she reached age of 50, if she were to experience the Average Specific Fertility Rates of a given year.

Age Specific Fertility Rate(ASFR): Refers to the number of live births born to women of a given age or age group by the mid year female population of the same age of age group during the same year. This refers to average number of births per 1000 females of specific age group.

Crude Rate of Natural Increase(CRNI): Refers to the difference between crude birth rate and crude death rate.

Natural Increase: Refers to the excess of births over deaths.

Birth Order: Refers to the numerical order of a child in relation to all previous pregnancies of the mother.

Period of Gestation: Refers to the number of completed weeks which have elapsed between the first day of the last normal menstrual period and the date delivery irrespective of whether the product of conception was live born or born without evidence of life.

Sex Ratio: Refers to the number of males per one thousand females.

Mortality Indicator:

Crude Birth Rate

$$\text{Crude Birth Rate} = \frac{\underline{\text{No of deaths during year}}}{\text{Mid year population}} \times 1000$$

Maternal Mortality Rate

$$\text{Maternal Mortality} = \frac{\text{Total no of female deaths due to complications of pregnancy child birth or within } \underline{\text{42 days of delivery in a year}}}{\text{Live births in a year}} \times 1000$$

Infant Mortality Rate = $\dfrac{\text{No of infant deaths in a yr}}{\text{No of live births during the year}} \times 1000$

Perinatal Mortality Rate = $\dfrac{\text{Late fetal deaths(still births)} + \text{Deaths under one week}}{\text{Live births in the year}} \times 1000$

Case Fatality Rate = $\dfrac{\text{No of deaths due to particular diseases}}{\text{No of cases of diseases}} \times 100$

Proportional Mortality Indicator :

$= \dfrac{\text{Deaths above 50 years of age}}{\text{Total deaths during years}} \times 100$

Specific Death Rate = <u>No of deaths in specific groups X</u> 1000

                    Total population in specific groups

Standardized Mortality Rate =

          = Observed Rate X Standardizing Factor

          = CDR Index X Rate

          = <u>No of deaths estimated to occur in the study

          population using the age specific deaths rate

          of the standard population</u>

          Population of the study area

Morbidity :

Incidence Rate = $\dfrac{\text{Number of new cases of a particular}}{\text{disease during a given time period}} \times 1000$

Population at risk

Prevalence Rate = $\dfrac{\text{Number of all current cases(old+new) of a specified disease existing at a given point/period in time}}{\text{Population at risk}} \times 100$

Secondary Attack Rate = $\dfrac{\text{No of susceptible contacts developing disease}}{\text{No of contacts susceptible}} \times 100$

Fertility Indicators :

Crude Birth Rate $\quad = \dfrac{\text{Total Liver Births}}{\text{Mid year population}} \times 1000$

General Fertility Rate $= \dfrac{\text{No of live births}}{\text{Women in reproductive age group(14-44 yrs)}} \times 1000$

Child – Women Ratio $= \dfrac{\text{No of children 0-4 yrs age}}{\text{Females of child bearing age}} \times 1000$

Demography and Family Planning :

Growth Rate   = CBR - CDR

Population Density = $\underline{\text{Total Population}}$

                                    Area in square km

Sex Ratio : It is the number of females per thousand

                male

                        = $\underline{\text{No of females }}$ X 1000

                        No of males

Couple Protection Rate =

$$\frac{\text{No of couples practicing contraception} \times 1000}{\text{Total number of eligible couples}}$$

Failure Rate(Pearl Index) =

$$\frac{\text{No of accidental pregnancies} \times 1000}{\text{No of months of contraception use}}$$

Problems

1. The midyear population of a city for given year is 40000. Prevalence rate of tuberculosis in this population is 2.5%. The crude death rate of the city is 20. The death from TB numbered 60 in the given year. Estimate Specific Death Rate for TB and Case Fatality Rate for TB.

2. The midyear population of a city for a given year is 60000. Prevalence rate of malaria in this population is 5%. The crude death rate of the city is 40. The deaths from malaria number 72 in the given year. Estimate Specific Death Rate and Case Fatality Rate for malaria.

3. In a town with mid year population of 80000 there were 4100 live births, 270 deaths, 110 still births and 200 death within 1 week after birth. Calculate Still Birth Rate and Perinatal Mortality Rate.

4. A town had mid year population of 70% and a death rate of l5.2 per 2000, the total births was 2000. Calculate the total number of deaths and the crude birth rate of the town.

5. During the year 1992 there were 426 deaths in a town A and 504 deaths in a town B. The estimated mid year population for 1992 for town A and B were 34080 and 42217 respectively. Calculate Crude Death Rate for the town.

6. In a town with population of 60000 the number of infant deaths in the year 2006 is 60 numbers of deaths in 0-28 days age is 30 and the number of live births is 1050. Calculate Infant Mortality Rate and Neonatal Mortality Rate.

7. In a village in the year 2003 the following events was occurred.

Mid year population 450000

No of live births 11250

No of deaths 4950

No of deaths of children within 1 year after birth 970

No of deaths of children within 28 days after birth 107

No of deaths due to measles 21

No of deaths in persons age less than 50 yrs 450

No of attacks due to measles 200

Still Births 124

Calculate crude birth rate, infant mortality rate, case fatality rate due to malaria, proportional mortality rate, perinatal mortality rate, neonatal mortality rate and post neonatal mortality rate.

8. In a town following events was occurred in the year 2003

Mid year population	300000
No of live births	72000
No of deaths	2100
No of still births	90
No of infants	1239
No of attacks due to malaria	1260
No of deaths due to malaria	20

 Calculate birth rate, death rate, infant mortality rate and case fatality rate due to malaria.

9. Below given the data of two cities A and B corresponding to the number of deaths occurs for different age groups , compute Crude Death Rate.

Age Group	City A		City B	
	No of deaths	Population	No of deaths	Population
Under 10	645	25000	542	30000
10-20	262	15000	382	28000
20-40	1340	56000	1450	81000
40-60	1145	35000	1235	39000
Above 60	521	12000	613	16000

10. Compute Crude Death Rate for the following data

Age Group	District A		District B	
	No of deaths	Population	No of deaths	Population
Under 10	385	28000	848	22000
10-20	468	16000	965	38000
20-40	1438	62000	1632	73000
40-60	1212	34000	639	18000
Above 60	425	18000	482	11000

11. Find the standardized rate for the following data

Age Group	Population A		Population B	
	Population	Age SDR	Population	Age SDR
0-5 yrs	15000	52	13000	18
5-15	11000	17	19000	16
15-50	29000	13	27000	11
Above 50	6000	59	9000	57