

# Estimate & pattern of diseases

Unit-1

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- Part of epidemiology
- It is the study and analysis of the **distribution** (who, when, and where), **patterns** & determinants of health & disease conditions in defined populations
- It is concerned with the frequency and pattern of health events in a population
- Measures of disease frequency are used to describe how common an illness (or other health event) is with reference to the size of the population (the population at risk) & a measure of time

- Pattern refers to the occurrence of health-related events by time, place, and animal
- When a disease occurrence described in terms of clustering in place, time, then the disease occurs in following patterns:
  - a) **Sporadic**
  - b) **Endemic**
  - c) **Epidemic**
  - d) **Pandemic**

- **Sporadic:** When a disease appears only rarely or occasionally individuals of a given population
- Disease occur irregularly or haphazardly

Endemic: Disease which are indigenous to or normally present among the population of an area

- Constant presence of disease or infectious agent in a population within a given geographic area or population group
- Also refer to the usual or expected frequency of the disease

**Epidemic:** Disease is said to be an epidemic if its frequency in a given population during a given time interval is clearly in excess of its expected frequency.

**Outbreak** carries the same definition of epidemic, but is often used for a more limited geographic area

**Pandemic:** Epidemic that has spread over several countries or continents, usually affecting a large population

## Estimate of disease

- **Prevalence:** It measures the number of cases (new + old cases) in a population who have the disease at a given point/period of time
- **Point prevalence/ Period prevalence**

$$P = \frac{\text{No. of existing cases of disease (new + old)}}{\text{Total population at risk}}$$

- **Incidence:** It is the number of new cases that occur in a known population over a specified period of time.
- Two essential components of an incidence value are:
  - 1 . the number of new cases
  2. the period of time over which the new cases occur

- **Incidence rate:** Measures the rapidity with which new cases of disease develop over time

$$I = \frac{\text{No. of new cases of disease that occur population during a particular period of time}}{\text{Total population at risk during same time interval}}$$

## **Mortality rate**

M = number of deaths due to a disease that occur in a  
population during a particular period of time  
Total population

Death rate: it is the total mortality rate for all diseases

Case fatality (CF) =  $\frac{\text{Number of deaths}}{\text{Number of diseased animals}}$



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*Thank You!*