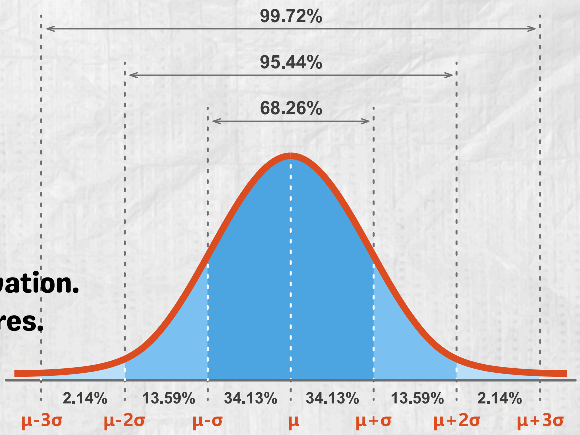
Lecture 5

HIGH YEILD

Normal Distribution curve
Gaussian Curve
Bell Curve



- All the observation are lying in area under the curve
- Average measures (mean Md, Mo) in the center of the observation.
- Rest of observations distributed around the average measures.
- in a homogenous form :

1. Half of them higher than the mean
2. Half of them lesser than the mean

SO

•the distribution of observation in NDC is symmetrical .

under the NDC divided by

1- measures of C.T

2-measures of variability S.D

By Measures of C.T $\overline{X}$

Divided the area under the curve into two equal halves of observation:

- 50% of observation their values less than X value
- 50% of observation their values higher than X value

By Measures of variability (S.D)

S.D and its multiplicity (one S.D, two S.D, three S.D divided the area under the NDC into small areas, each area

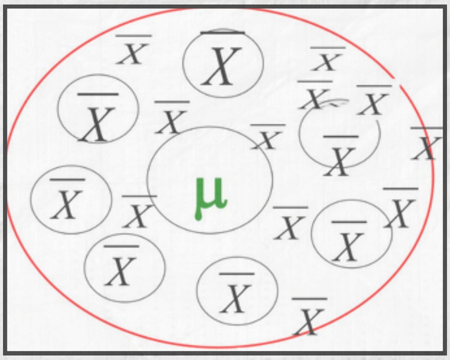
Characteristics of the NDC

1. Bell shape .
2. Symmetrical distribution of observations on both sides
3. Unimodal
4. Curving downward on both sides from the mean toward the horizontal, but never touch it.
5. Mean, Median and Mode of distribution are identical or coincide .
6. All the Medical, Biological phenomenon following its distribution .
7. Area under curve divided by Mean into two equal halves
8. Between X and certain multiplicity of S.D on either side an area containing fixed proportion of observation 68% 99% 95%

HIGH YEILD

- Different samples → different X

even if the samples size are equal
There is a variation in the Xs of different samples
This variation is due to **sampling variation**.



- There is a difference between sample statistics and

population parameters, this variation is called **Sampling Error**

The aim of Biostatistics is to have a sound generalized information about the population from which the sample has been drown, depending on evidence of this sample

Standard Error S.E

- It is the average deviation of the sample mean (X) from the true (population) mean (u) of the population.

$$S.E = \frac{S.D}{\sqrt{N}}$$

Distribution of samples means (Xs) around the population mean (4) in NDC area is similar to that of the distribution of X (values) around sample mean

- **SD** is a measure of spread of the data in a single sample.
- **S.E.** is a measure of spread in ALL sample means from a population.

Confidence Interval

- 95% chance that the error in as our estimate of X is not numerically grater than 1.96 S.E .
- In other word, if variable is normally distributed, then we may say within certainty that 95% of all observation
- will fall with a rang #1.96 S.E from the M,, or
- 95% certainty we have, that our sample mean

1. does not differ from population mean (u,) by not more than ‡1.96 S.E .
2. Only 5% of the sample mean X deport from u by more than 1.96 S.E.