

# Biostatistics

- Collection
- Estimation
- Presentation of data

Consist of

- Break to
1. Descriptive (clarify data, for purpose of conclusion)  
focus on essential features—reduce information.... —organizing, summarizing....
  1. Inferential

data

Table

- First step
- The simplest
- Title above
- Labeled by arabic number

Graph

- Easier for non numerical reader
- Powerful impact on imagination
- Better for trends, relationships, contrasts
- Title below
- Labeled by latin number

Charting

Pie

- Nominal, ordinal
- %
- ☹️ just 1 variable

Bar

- Simple 1V
- clustered more V
- stacked more V

- Nominal, ordinal, discrete
- Width :same
- Space between bars :equal to bars /half
- height of bar is opposite to freq /RT freq /% on Y axis

Line

- Time :continuous V
- On X axis

Freq polygon

- Continuous V+Simple, Complex table
- Single point: opposite to freq on Y axis+opposite to mid point on X axis
- Single points join together

Dotplot

Histogram

- continuous
1. Bell, symmetrical normal
  2. uniform (rectangle)
  3. Skewed\* right, left\*
  4. Bimodal

Calculation

Grouped frequency distribution

( Frequency, cumulative freq, RT cumulative, % cumulative)

- Continuous
1. Construct table
  2. Count number of class interval

Central Tendency

Mode

- Counting
- Highest freq
- Exist(yes+no)
- Unique(yes+no)
- Nominal, ordinal, discrete
- ☹️ no continuous

Median

- Middle value in ordered data
- Exist (yes)
- Unique (yes)
- All variable
- Skewness, outliers: not affected\*
- ☹️ discard other values
- 1 position: odd number
- 2 position: even number
- Median =  $(n+2)/(1$

Mean

- average
- Exist(alway)
- Unique (always)
- discrete, cont V
- Skewness, outliers :is affected
- $\bar{X} = \text{Sum } X/N$

Weighted Mean

Average of number of means with frequencies  
 $WM = (w_1x_1 + w_2x_2 + w_3x_3) / (w_1 + w_2 + w_3)$

Simple frequency

(% , Frequency, relative frequency)

- Nominal, ordinal

Data

- Values of observations
- Raw material
- Little, no meaning...further steps... Information

1. 15-5
2. Not overlapping
3. No gabs
4. Each observation in only one class
5. Class mark (mid point) =  $(H+L) \text{ of class } / 2$
6. All classes :same width =  $\text{Range of values} / ((N_{gol})1+3.322)$