The aim of any clinical trial is to review the key measures and to monitor the results.

Different kind of reports will be used to observe and understand the data.

Graphs and Summary statistics reports play important role in explaining and evaluating the data. It helps to analyze the information in better fashion.

As a statistical programmer, we need to optimize i.e. try to extract maximum information from available data with minimum
Why Box Plot......???

- Box plot gives a lot of information at one glance.
- The data which is kind of continuous, it is well suited option.
- Box-Plot helps to have a quick examination of one or more sets of data graphically.
- Typical Box plot.
Box-Plot

- Box-Plot will give the wealth of information at one glance.
- Box plot by default will give all central statistic values for the data. i.e. minimum, maximum, median, 25th and 75th quartiles.
- As per the requirement, we can show mean, geo-mean, Mean(+-)SE in the plot along with minimum and maximum.
- In short this a pictorial presentation of summary statistics.
Different graph used in clinical trial analysis

- **Scatter plot:**
  - To understand the overall pattern/trend if exists.
  - To know if any outlier.

- **Longitudinal plot/Error graph:**
  - Gives the visual understanding about the variability.
  - Comparison can be done for all other data points in terms of mean and variability.

- **Spaghetti Plot:**
  - It will give the pictorial information about trend within each subject across time.

- **All this Information can be EXTRACTED in BOX- PLOT**
Comparison with different plots

Scatter Plot

Box-Plot
Comparison with different plots

- Scatter plot
- Box-Plot
Comparison with different plots

- Mean+/- SE
- Box-Plot
Comparison with different graphs

- **Sphaggetti**

- **Box-Plot**
Other advantages of box-plot

- Box-Plot along with scatter plot will give the good idea about the variability.
- When we have different treatment plots side-by-side, we can get clear picture about within treatment, and between treatment variability.
- Box plot will give you the idea about the shape of the distribution.
Different ways to create the Box-plot

3 procedures are available in SAS

1. **proc univariate**
   Syntax:  
   ```plaintext
   ods select ssplots ;
   proc univariate data = xxx plot ;
   var  yyy;
   by zzz ;
   run;
   ```

2. **proc boxplot**
   Syntax:  
   ```plaintext
   proc boxplot < options > ;
   PLOT analysis-variable*group-variable < (block-variables ) >
   < =symbol- variable > < / options > ;
   INSET keywords < / options > ;
   INSETGROUP keywords < / options > ;
   BY variables;
   ID variables;
   run;
   ```

3. **proc gplot**
   Syntax:  
   ```plaintext
   goptions reset = all interpol = boxt ;
   symbol value = dot h = 0.4  i = boxtf  width = 3  bwidth = 5  co = BL cv=TAN ;
   proc gplot <DATA=input-data-set> <UNIFORM> ;
   PLOT plot-request(s) </option(s)> ;
   quit;
   ```
THANK YOU