

## Sample size calculation for RCT

$$n_1 = (Z_{1-\alpha/2} + Z_{1-\beta})^2 \frac{p_1(1-p_1) + p_2(1-p_2)}{(p_1 - p_2)^2}$$

Where,

$p_1$  = Proportion of outcome from group-1

$p_2$  = Proportion of outcome from group-2

$\alpha$  = Level of significance

$1-\beta$  = Power of test

$Z_{1-\alpha/2}$  = Z value corresponding level of significance

$Z_{1-\beta}$  = Z value corresponding level of power

$n_1$  = Sample size for one group

Difference % point =  $p_1 - p_2$

*SBP as a continuous outcome*

Box 1

Simplest formula for a continuous outcome and equal sample sizes in both groups, assuming: alpha = 0.05 and power = 0.80 (beta = 0.20) [1].

$n$  = the sample size in each of the groups

$\mu_1$  = population mean in treatment Group 1

$\mu_2$  = population mean in treatment Group 2

$\mu_1 - \mu_2$  = the difference the investigator wishes to detect

$\sigma^2$  = population variance (SD)

$a$  = conventional multiplier for alpha = 0.05

$b$  = conventional multiplier for power = 0.80

$$n = \frac{2 [(a + b)^2 \sigma^2]}{(\mu_1 - \mu_2)^2}$$