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| --- | --- | --- | --- | --- |
| 1 | Sample Size for | | | **Sr No** |
|  | a) | To estimate CI for mean | |  |
|  |  | i | With absolute Error of Margin and no finite correction | **111** |
|  |  | ii | With absolute Error of Margin and finite correction | **112** |
|  | b) | To hypothesis test about mean | |  |
|  |  | i | Two tailed test | **121** |
|  |  | ii | One tailed test | **122** |
|  | c) | To hypothesis test about Median-Sign Test | | **131** |
| 2 | Sample Size for difference between means : Independent samples | | |  |
|  | a) | To estimate CI for difference between means | |  |
|  |  | i | With absolute Error of Margin and no finite correction | **211** |
|  |  | ii | With absolute Error of Margin and finite correction | **212** |
|  | b) | To hypothesis test about difference between means | |  |
|  |  | i | Two tailed test | **221** |
|  |  | ii | One tailed test | **222** |
|  |  | iii | Equivalence study (a) | **223** |
|  |  | iv | Equivalence study (b) | **224** |
|  |  | v | Non-Inferiority Trial | **225** |
| 3 | Sample Size for hypothesis test about difference between means : Related samples | | |  |
|  |  | i | Paired ‘t’ test | **301** |
|  |  | ii | Crossover Design | **302** |
| 4 | Sample Size for hypothesis test about more than two population means- ANOVA | | | **400** |
| 5 | Sample Size for Single Proportion/Incidence Rate | | |  |
|  | a | To estimate CI for Proportion | |  |
|  |  | i | With absolute Error of Margin and no finite correction | **511** |
|  |  | ii | With absolute Error of Margin and finite correction | **512** |
|  |  | iii | With relative Error of Margin and no finite correction | **513** |
|  |  | v | With relative Error of Margin and finite correction | **514** |
|  | b | To hypothesis test about Proportion | |  |
|  |  | i | Two tailed test | **521** |
|  |  | ii | One tailed test | **522** |
|  | c | To estimate CI for incidence rate with relative Error of Margin | | **530** |
|  | d | To hypothesis test about incidence rate | |  |
|  |  | i | Two tailed test | **541** |
|  |  | ii | One tailed test | **542** |
| 6 | Sample Size for difference between proportions : Independent samples | | |  |
|  | a | To estimate CI for difference between proportions | | **610** |
|  | b | To hypothesis test about difference between proportions | |  |
|  |  | i | Two tailed test | **621** |
|  |  | ii | One tailed test | **622** |
|  |  | iii | Equivalence study (a) | **623** |
|  |  | iv | Equivalence study (b) | **624** |
|  |  | v | Non-Inferiority Trial | **625** |
| 7 | Sample Size for diff between more than two proportions : Independent samples | | | **700** |
| 8 | Sample Size for hypothesis test about diff between proportions : Related samples | | |  |
|  |  | i | Two tailed test | **801** |
|  |  | ii | One tailed test | **802** |
| 9 | Sample Size for Cohort Study : Relative Risk (RR) | | |  |
|  | a | To estimate CI for RR with relative Error of Margin | | **901** |
|  | b | To hypothesis test about RR | | **902** |
| 10 | Sample Size for Case-Control Study : Odds Ratio (OR) | | |  |
|  | a | To estimate CI for OR with relative Error of Margin | | **1010** |
|  | b | To hypothesis test about OR | | **1020** |
| 11 | Sample Size for Diagnostic Study | | |  |
|  | a | To estimate CI for Sensitivity/Specificity of a test | | **1110** |
|  | b | To estimate CI for positive predictive value of a test | | **1120** |
|  | c | To estimate CI for Negative predictive value of a test | | **1130** |
|  | d | To estimate CI for LR+ with equal number of cases and controls | | **1140** |
|  | e | To estimate CI for LR+ with unequal number of cases and controls | | **1150** |
|  | f | To estimate CI for LR- with equal number of cases and controls | | **1160** |
|  | g | To estimate CI for LR- with unequal number of cases and controls | | **1170** |
|  | h | Hypothesis test to compare the sensitivity of a new test with reference test | | **1180** |
|  | i | Hypothesis test to Compare the sensitivity(Specificity) of two tests say T1 and T2 (Paired Design) | | **1190** |
| 12 | Sample Size Intra Class Correlation Coefficient (ICC) | | | **1200** |
| 13 | Sample Size Correlation Coefficient | | | **1300** |
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| --- | --- |
| To estimate CI for mean: With absolute Error of Margin and no finite correction | 111 |

|  |  |
| --- | --- |
| **Sample Size for Estimating C.I. for mean**  **(Absolute Error of Margin with no finite correction )** | |
| **Level of Confidence** | a |
| **SD** | b |
| **Absolute Error of Margin (d)** | c |
| **n** | n |

If a = .90 then Z=1.64

If a = .95 then Z=1.96

If a = .99 then Z=2.57



|  |  |
| --- | --- |
| To estimate CI for mean: With absolute Error of Margin and finite correction | 112 |

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| --- | --- |
| **Sample Size for Estimating C.I. for mean** | |
| **(Absolute Error of Margin and finite correction )** | |
| **N (Population Size)** | **P** |
| **Level of Confidence** | a |
| **SD** | b |
| **Absolute Error of Margin (d)** | c |
| **n** | n |

If a = .90 then Z=1.64

If a = .95 then Z=1.96

If a = .99 then Z=2.57





|  |  |
| --- | --- |
| **Sample Size for hypothesis testing about mean**  **(Two tailed test )** | |
| Level of significance | a |
| Power | b |
| Value of population mean under Ho | c |
| Value of population mean under H1 | d |
| **SD** | e |
| **n** | n |

|  |  |
| --- | --- |
| To hypothesis test about mean : Two tailed test | 121 |

If a =0 .10 then Z1=1.64

If a = 0.05 then Z1=1.96

If a = 0.01 then Z1=2.57

If b =0 .80 then Z2=0.84

If b = 0.85 then Z2=1.04

If b = 0.90 then Z2=1.28



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| To hypothesis test about mean : One tailed test | 122 |

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| --- | --- |
| **Sample Size for hypothesis testing about mean**  **(One tailed test )** | |
| Level of significance | a |
| Power | b |
| Value of population mean under Ho | c |
| Value of population mean under H1 | d |
| **SD** | e |
| **n** | n |

If a =0 .10 then Z1=1.28

If a = 0.05 then Z1=1.64

If a = 0.01 then Z1=2.33

If b =0 .80 then Z2=0.84

If b = 0.85 then Z2=1.04

If b = 0.90 then Z2=1.28



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| --- | --- |
| To hypothesis test about Median-Sign Test | 131 |

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| --- | --- |
| **Sample Size for hypothesis testing about Median-Sign Test** | |
| Level of significance | a |
| Power | b |
| Value of population median under Ho | c |
| Proportion of observations greater than hypothesized median under H1 | d |
| n | n |

If a =0 .10 then Z1=1.64

If a = 0.05 then Z1=1.96

If a = 0.01 then Z1=2.57

If b =0 .80 then Z2=0.84

If b = 0.85 then Z2=1.04

If b = 0.90 then Z2=1.28

If d<1, if not prompt to enter value less than 1



|  |  |
| --- | --- |
| To estimate CI for difference between means : With absolute Error of Margin and no finite correction | 211 |

|  |  |
| --- | --- |
| **Sample Size for estimating difference between means: Independent samples** | |
| **Level of Confidence** | a |
| SD (Population1) | b |
| SD(Population2) | c |
| Error of Margin | d |
| n | n |

If a = .90 then Z=1.64

If a = .95 then Z=1.96

If a = .99 then Z=2.57



|  |  |
| --- | --- |
| To estimate CI for difference between means : With absolute Error of Margin and finite correction | 212 |

|  |  |
| --- | --- |
| **Sample Size for estimating difference between means: Independent samples** | |
| **Population Size -1** | **P1** |
| **Population Size -2** | **P2** |
| **Level of Confidence** | a |
| SD (Population1) | b |
| SD(Population2) | c |
| Error of Margin | d |
| n | n |

If a = .90 then Z=1.64

If a = .95 then Z=1.96

If a = .99 then Z=2.57





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| To hypothesis test about difference between means : Two tailed test | 221 |

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| --- | --- |
| **Sample Size for hypothesis testing about difference between means**  **(Two Tailed Test)** | |
| Level of significance | a |
| Power | b |
| Population mean1 | c |
| Population mean2 | d |
| Population SD1 | e |
| Population SD2 | f |
| n | n |

If a =0 .10 then Z1=1.64

If a = 0.05 then Z1=1.96

If a = 0.01 then Z1=2.57

If b =0 .80 then Z2=0.84

If b = 0.85 then Z2=1.04

If b = 0.90 then Z2=1.28



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| To hypothesis test about difference between means : One tailed test | 222 |

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| --- | --- |
| **Sample Size for hypothesis testing about difference between means**  **(one Tailed Test)** | |
| Level of significance | a |
| Power | b |
| Population mean1 | c |
| Population mean2 | d |
| Population SD1 | e |
| Population SD2 | f |
| n | n |

If a =0 .10 then Z1=1.28

If a = 0.05 then Z1=1.64

If a = 0.01 then Z1=2.33

If b =0 .80 then Z2=0.84

If b = 0.85 then Z2=1.04

If b = 0.90 then Z2=1.28



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| To hypothesis test about difference between means : Equivalence study (a) | 223 |

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| --- | --- |
| Sample Size for hypothesis testing about difference between means for equivalence study  (The upper bound of a lower one sided 100(1 - α ) % CI for difference between population means is less than delta) | |
| Level of significance | a |
| Power | b |
| Mean of Experimental group | c |
| Mean of Standard Group | d |
| SD of Experimental group | e |
| SD of Experimental group | f |
| Acceptable threshold for equivalence (Delta) | g |
| Ratio of n2/n1 (K) | h |
| Sample Size for Experimental group (n1) | n1 |
| Sample Size for Standard group (n2) | n2 |

If a =0 .10 then Z1=1.28

If a = 0.05 then Z1=1.64

If a = 0.01 then Z1=2.33

If b =0 .80 then Z2=0.84

If b = 0.85 then Z2=1.04

If b = 0.90 then Z2=1.28



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| To hypothesis test about difference between means : Equivalence study (b) | 224 |

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| --- | --- |
| Sample Size for hypothesis testing about difference between means for equivalence study  (The two sided 100(1 - α) % CI for difference between population means (µ1-µ2) falls wholly within the interval ±delta ) | |
| Level of significance | a |
| Power | b |
| Mean of Experimental group | c |
| Mean of Standard Group | d |
| SD of Experimental group | e |
| SD of Experimental group | f |
| Acceptable threshold for equivalence (Delta) | g |
| Ratio of n2/n1 (K) | h |
| Sample Size for Experimental group (n1) | n1 |
| Sample Size for Standard group (n2) | n2 |

If a =0 .10 then Z1=1.64

If a = 0.05 then Z1=1.96

If a = 0.01 then Z1=2.57

If b =0 .80 then Z2=1.28 (????)

If b = 0.85 then Z2=1.44

If b = 0.90 then Z2=1.64



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| To hypothesis test about difference between means : Non-Inferiority Trial | 225 |

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| **Sample Size for Hypothesis testing for Non-Inferiority Trial**  **(The lower bound of two sided 100(1 - α ) % CI for difference between population means ( µ1-µ2 ) is more than -delta)** | |
| Level of significance | a |
| Power | b |
| Mean of Experimental group | c |
| Mean of Standard Group | d |
| SD of Experimental group | e |
| SD of Experimental group | f |
| Acceptable threshold for Non-Inferiority Trial (Delta) | g |
| Ratio of n2/n1 (K) | h |
| Sample Size for Experimental group (n1) | n1 |
| Sample Size for Standard group (n2) | n2 |

If a =0 .10 then Z1=1.28

If a = 0.05 then Z1=1.64

If a = 0.01 then Z1=2.33

If b =0 .80 then Z2=0.84

If b = 0.85 then Z2=1.04

If b = 0.90 then Z2=1.28



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| Sample Size for hypothesis test about difference between means : Related samples | | |  |
|  | i | Paired ‘t’ test | **301** |
|  | ii | Crossover Design | **302** |

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| --- | --- | --- |
| i | Paired ‘t’ test | **301** |

|  |  |
| --- | --- |
| Level of significance | a |
| Power | b |
| Mean of variable of interest before intervention | c |
| Mean of variable of interest after intervention | d |
| SD of variable of interest before intervention | e |
| SD of variable of interest after intervention | f |
| Sample Size –Two tailed test | n1 |
| Sample Size –One tailed test | n2 |

**For n1**

If a =0 .10 then Z1=1.64

If a = 0.05 then Z1=1.96

If a = 0.01 then Z1=2.57

If b =0 .80 then Z2=0.84

If b = 0.85 then Z2=1.04

If b = 0.90 then Z2=1.28



**For n2**

If a =0 .10 then Z1=1.28

If a = 0.05 then Z1=1.64

If a = 0.01 then Z1=2.33

If b =0 .80 then Z2=0.84

If b = 0.85 then Z2=1.04

If b = 0.90 then Z2=1.28



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| ii | Crossover Design | **302** |

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| Level of significance | a |
| Power | b |
| SD of difference between treatment scores | c |
| Treatment effect (Δ) | d |
| Sample Size –Two tailed test | n1 |
| Sample Size –One tailed test | n2 |

**For n1**

If a =0 .10 then Z1=1.64

If a = 0.05 then Z1=1.96

If a = 0.01 then Z1=2.57

If b =0 .80 then Z2=0.84

If b = 0.85 then Z2=1.04

If b = 0.90 then Z2=1.28



**For n2**

If a =0 .10 then Z1=1.28

If a = 0.05 then Z1=1.64

If a = 0.01 then Z1=2.33

If b =0 .80 then Z2=0.84

If b = 0.85 then Z2=1.04

If b = 0.90 then Z2=1.28



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| --- | --- | --- | --- |
| a | To estimate CI for Proportion | |  |
|  | i | With absolute Error of Margin and no finite correction | **511** |
|  | ii | With absolute Error of Margin and finite correction | **512** |
|  | iii | With relative Error of Margin and no finite correction | **513** |
|  | v | With relative Error of Margin and finite correction | **514** |

|  |  |  |
| --- | --- | --- |
| i | With absolute Error of Margin and no finite correction | **511** |

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| --- | --- |
| **Level of Confidence** | a |
| **Anticipated value of population proportion** | b |
| **Absolute Error of Margin (****)** | c |
| **Sample Size** | n |

If a = .90 then Z=1.64

If a = .95 then Z=1.96

If a = .99 then Z=2.57



|  |  |  |
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| ii | With absolute Error of Margin and finite correction | **512** |

|  |  |
| --- | --- |
| Population size | N |
| Level of Confidence | a |
| Anticipated value of population proportion | b |
| Absolute Error of Margin () | c |
| Sample Size | n |

If a = .90 then Z=1.64

If a = .95 then Z=1.96

If a = .99 then Z=2.57



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| --- | --- | --- | --- |
|  | iii | With relative Error of Margin and no finite correction | **513** |

|  |  |
| --- | --- |
| **Level of Confidence** | a |
| **Anticipated value of population proportion** | b |
| **Relative Error of Margin (****)** | c |
| **Sample Size** | n |

If a = .90 then Z=1.64

If a = .95 then Z=1.96

If a = .99 then Z=2.57



|  |  |  |
| --- | --- | --- |
| iv | With relative Error of Margin and finite correction | **512** |

|  |  |
| --- | --- |
| Population size | N |
| Level of Confidence | a |
| Anticipated value of population proportion | b |
| **Relative Error of Margin (****)** | c |
| Sample Size | n |

If a = .90 then Z=1.64

If a = .95 then Z=1.96

If a = .99 then Z=2.57



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| --- | --- | --- | --- |
| b | To hypothesis test about Proportion | |  |
|  | i | Two tailed test | **521** |
|  |  |  |  |

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| --- | --- |
| Level of significance | a |
| Power | b |
| Value of population proportion under null hypothesis | c |
| Value of population proportion under alternative hypothesis | d |
| Sample size | n |

If a =0 .10 then Z1=1.64

If a = 0.05 then Z1=1.96

If a = 0.01 then Z1=2.57

If b =0 .80 then Z2=0.84

If b = 0.85 then Z2=1.04

If b = 0.90 then Z2=1.28



|  |  |  |  |
| --- | --- | --- | --- |
|  | ii | One tailed test | **522** |

|  |  |
| --- | --- |
| Level of significance | a |
| Power | b |
| Value of population proportion under null hypothesis | c |
| Value of population proportion under alternative hypothesis | d |
| Sample size | n |

If a =0 .10 then Z1=1.28

If a = 0.05 then Z1=1.64

If a = 0.01 then Z1=2.33

If b =0 .80 then Z2=0.84

If b = 0.85 then Z2=1.04

If b = 0.90 then Z2=1.28



|  |  |  |  |
| --- | --- | --- | --- |
| c | To estimate CI for incidence rate with relative Error of Margin | | **530** |
| d | To hypothesis test about incidence rate | |  |
|  | i | Two tailed test | **541** |
|  | ii | One tailed test | **542** |

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| --- | --- | --- | --- |
| Sample Size for difference between proportions : Independent samples | | |  |
| a | To estimate CI for difference between proportions | | **610** |
| b | To hypothesis test about difference between proportions | |  |
|  | i | Two tailed test | **621** |
|  | ii | One tailed test | **622** |
|  | iii | Equivalence study (a) | **623** |
|  | iv | Equivalence study (b) | **624** |
|  | v | Non-Inferiority Trial | **625** |

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| --- | --- | --- |
| a | To estimate CI for difference between proportions | **610** |

|  |  |
| --- | --- |
| Level of Confidence | a |
| Anticipated value of population proportion1 | b |
| Anticipated value of population proportion2 | c |
| Absolute Error of Margin () | d |
| Sample Size | n |

If a = .90 then Z=1.64

If a = .95 then Z=1.96

If a = .99 then Z=2.57



|  |  |
| --- | --- |
| To hypothesis test about difference between proportions |  |
| Two tailed test | **621** |

|  |  |
| --- | --- |
| **Sample Size for hypothesis testing about difference between proportions** | |
| Level of significance | a |
| Power | b |
| Population proportion1 | c |
| Population proportion2 | d |
| Sample Size | n |

If a =0 .10 then Z1=1.64

If a = 0.05 then Z1=1.96

If a = 0.01 then Z1=2.57

If b =0 .80 then Z2=0.84

If b = 0.85 then Z2=1.04

If b = 0.90 then Z2=1.28



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| --- | --- |
| One tailed test | **622** |

|  |  |
| --- | --- |
| **Sample Size for hypothesis testing about difference between proportions** | |
| Level of significance | a |
| Power | b |
| Population proportion1 | c |
| Population proportion2 | d |
| Sample Size | n |

If a =0 .10 then Z1=1.28

If a = 0.05 then Z1=1.64

If a = 0.01 then Z1=2.33

If b =0 .80 then Z2=0.84

If b = 0.85 then Z2=1.04

If b = 0.90 then Z2=1.28



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| iii | Equivalence study (a) | **623** |

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| --- | --- |
| Sample Size for Hypothesis testing for Equivalence Trail  (The upper bound of a lower one sided 100(1 - a ) % CI for difference between population proportions ( p1-p2 ) is less than ∆E) | |
| Level of significance | a |
| Power | b |
| Experimental treatment Group(1) | c |
| Standard Treatment Group(2) | d |
| Acceptable threshold for equivalence (∆ | e |
| Ratio of n2/n1 (K) | f |
| Sample Size for Experimental treatment Group | n1 |
| Sample Size for Standard Treatment Group | n2 |

If a =0 .10 then Z1=1.28

If a = 0.05 then Z1=1.64

If a = 0.01 then Z1=2.33

If b =0 .80 then Z2=0.84

If b = 0.85 then Z2=1.04

If b = 0.90 then Z2=1.28



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| iv | Equivalence study (b) | **624** |

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| --- | --- |
| Sample Size for Hypothesis testing for Equivalence Trail  (The two sided 100(1 - α) % CI for difference between population proportions (π1-π2 ) falls wholly within the interval ± ∆E) | |
| Level of significance | a |
| Power | b |
| Experimental treatment Group(1) | c |
| Standard Treatment Group(2) | d |
| Acceptable threshold for equivalence (∆ | e |
| Ratio of n2/n1 (K) | f |
| Sample Size for Experimental treatment Group | n1 |
| Sample Size for Standard Treatment Group | n2 |

If a =0 .10 then Z1=1.64

If a = 0.05 then Z1=1.96

If a = 0.01 then Z1=2.58

If b =0 .80 then Z2=0.84

If b = 0.85 then Z2=1.04

If b = 0.90 then Z2=1.28



|  |  |  |
| --- | --- | --- |
| v | Non-Inferiority Trial | **625** |

|  |  |
| --- | --- |
| Sample Size for Hypothesis testing for Equivalence Trail  (The two sided 100(1 - α) % CI for difference between population proportions (π1-π2 ) falls wholly within the interval ± ∆E) | |
| Level of significance | a |
| Power | b |
| Experimental treatment Group(1) | c |
| Standard Treatment Group(2) | d |
| Acceptable threshold for equivalence (∆ | e |
| Ratio of n2/n1 (K) | f |
| Sample Size for Experimental treatment Group | n1 |
| Sample Size for Standard Treatment Group | n2 |

If a =0 .10 then Z1=1.64

If a = 0.05 then Z1=1.96

If a = 0.01 then Z1=2.58

If b =0 .80 then Z2=0.84

If b = 0.85 then Z2=1.04

If b = 0.90 then Z2=1.28



|  |  |  |  |
| --- | --- | --- | --- |
| Sample Size for hypothesis test about diff between proportions : Related samples | | |  |
|  | i | Two tailed test | **801** |
|  | ii | One tailed test | **802** |

|  |
| --- |
| **Sample Size for Related design for dichotomous outcome-Mc Nemar Test or Matched study** |
|  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | **Group2** | **Total** | |
|  | **Outcome** | **+** | **-** |  |
| **Group1** | **+** | **a** | **b** | **a+b** |
| **-** | **c** | **d** | **c+d** |
|  | **Total** | **a+c** | **b+d** | **n** |

|  |  |
| --- | --- |
| Level of significance | p |
| Power | q |
| **b** | **r** |
| **c** | **s** |
| **n** | **t** |
| **Value of ψ** | **u** |
| **Sample size – Two tailed test** | **n1** |
| **Sample size – One tailed test** | **n2** |

**Note: Values of b, c and n are from previous study.**

**Sample size – Two tailed test – n1**

If a =0 .10 then Z1=1.64

If a = 0.05 then Z1=1.96

If a = 0.01 then Z1=2.58

If b =0 .80 then Z2=0.84

If b = 0.85 then Z2=1.04

If b = 0.90 then Z2=1.28



**Sample size – One tailed test – n2**

If a =0 .10 then Z1=1.28

If a = 0.05 then Z1=1.64

If a = 0.01 then Z1=2.33

If b =0 .80 then Z2=0.84

If b = 0.85 then Z2=1.04

If b = 0.90 then Z2=1.28



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| Sample Size for Cohort Study : Relative Risk (RR) | |
| To estimate CI for RR with relative Error of Margin | **901** |

Sample Size for Estimating RR : Cohort Study

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| --- | --- |
| Level of Confidence | a |
| RR | b |
| P2 - probability of the event occurring in the non-exposed group | c |
| Relative error of margin | d |
| Sample size | n |
| **Note: Select sample of size n from each of the study population** |  |

If a = .90 then Z=1.64

If a = .95 then Z=1.96

If a = .99 then Z=2.57



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| Sample Size for Cohort Study : Relative Risk (RR) | |
| To hypothesis test about RR | **902** |

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| Level of significance | a |
| Power | b |
| RR | c |
| P2 | d |
| **Sample size – Two tailed test** | **n1** |
| **Sample size – One tailed test** | **n2** |

**Note: Select sample of size n1 (or n2) from each of the study population.**

**Sample size – Two tailed test – n1**

If a =0 .10 then Z1=1.64

If a = 0.05 then Z1=1.96

If a = 0.01 then Z1=2.58

If b =0 .80 then Z2=0.84

If b = 0.85 then Z2=1.04

If b = 0.90 then Z2=1.28



**Sample size – One tailed test – n2**

If a =0 .10 then Z1=1.28

If a = 0.05 then Z1=1.64

If a = 0.01 then Z1=2.33

If b =0 .80 then Z2=0.84

If b = 0.85 then Z2=1.04

If b = 0.90 then Z2=1.28



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| Sample Size for Case-Control Study : Odds Ratio (OR) | |
| To estimate CI for OR with relative Error of Margin | **1010** |

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| Level of Confidence | a |
| OR | b |
| P2 – proportion of controls having exposure of interest | c |
| Relative error of margin | d |
| Sample size | n |
| **Note: Select sample of size n from each of the study population** |  |

If a = .90 then Z=1.64

If a = .95 then Z=1.96

If a = .99 then Z=2.57



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| Sample Size for Case-Control Study : Odds Ratio (OR) | |
| To hypothesis test about OR | **1020** |

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| --- | --- |
| Level of significance | a |
| Power | b |
| OR | c |
| P2 | d |
| **Sample size – Two tailed test** | **n1** |
| **Sample size – One tailed test** | **n2** |

**Note: Select sample of size n1 (or n2) from each of the study population.**

**Sample size – Two tailed test – n1**

If a =0 .10 then Z1=1.64

If a = 0.05 then Z1=1.96

If a = 0.01 then Z1=2.58

If b =0 .80 then Z2=0.84

If b = 0.85 then Z2=1.04

If b = 0.90 then Z2=1.28



**Sample size – One tailed test – n2**

If a =0 .10 then Z1=1.28

If a = 0.05 then Z1=1.64

If a = 0.01 then Z1=2.33

If b =0 .80 then Z2=0.84

If b = 0.85 then Z2=1.04

If b = 0.90 then Z2=1.28



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| 11 | | Sample Size for Diagnostic Study | |
| a | To estimate CI for Sensitivity/Specificity of a test | | **1110** |

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| **Level of Confidence** | a |
| **Sensitivity/Specificity** | b |
| **Absolute Error of Margin (****)** | c |
| **Sample Size** | n |

Note: select a sample of 'n' subjects with disease (without disease) as per Gold Standard to estimate sensitivity (specificity).

If a = .90 then Z=1.64

If a = .95 then Z=1.96

If a = .99 then Z=2.57



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| b | To estimate CI for positive predictive value of a test | **1120** |

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| **Level of Confidence** | **a** |
| **Positive predictive value of a new test** | **b** |
| **Precision** | **c** |
| **Sample Size** | **n** |

Note: select a sample of 'n' subjects with disease by a diagnostic test to estimate positive predictive of a diagnostic test

If a = .90 then Z=1.64

If a = .95 then Z=1.96

If a = .99 then Z=2.57



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| c | To estimate CI for Negative predictive value of a test | **1130** |

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| **Level of Confidence** | **a** |
| **Negative predictive value of a new test** | **b** |
| **Precision** | **c** |
| **Sample Size** | **n** |

Note: select a sample of 'n' subjects without disease by a diagnostic test to estimate negative predictive of a diagnostic test

If a = .90 then Z=1.64

If a = .95 then Z=1.96

If a = .99 then Z=2.57



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| d | To estimate CI for LR+ with equal number of cases and controls | **1140** |

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| **Level of confidence** | **a** |
| **LR+** | **b** |
| **Sensitivity of a new test:P1** | **c** |
| **Specificity of a new test:P2** | **d** |
| **Sample Size: number of subjects with disease by Gold Standard** | **n1** |
| **Sample Size:** **number of subjects with no disease by Gold Standard** | **n2** |

If a = .90 then Z=1.64

If a = .95 then Z=1.96

If a = .99 then Z=2.57



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| e | To estimate CI for LR+ with unequal number of cases and controls | **1150** |

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| **Level of confidence** | **a** |
| **LR+** | **b** |
| **Sensitivity of a new test:P1** | **c** |
| **Specificity of a new test:P2** | **d** |
|  |  |
| **Sample Size: number of subjects with disease by Gold Standard** | **n1** |
| **Sample Size:** **number of subjects with no disease by Gold Standard** | **n2** |

If a = .90 then Z=1.64

If a = .95 then Z=1.96

If a = .99 then Z=2.57



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| f | To estimate CI for LR- with equal number of cases and controls | **1160** |

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| --- | --- | --- |
| g | To estimate CI for LR- with unequal number of cases and controls | **1170** |

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| h | Hypothesis test to compare the sensitivity of a new test with reference test | **1180** |

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| i | Hypothesis test to Compare the sensitivity(Specificity) of two tests say T1 and T2 (Paired Design) | **1190** |

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| 1 | Sbmple Size for Single Mebn | | | **Sr No** |
|  | b) | To estimbte CI for mebn | |  |
|  |  | i | To estimbte CI for mebn: With bbsolute Error of Mbrgin bnd no finite correction | **111** |
|  |  | ii | To estimbte CI for mebn: With bbsolute Error of Mbrgin bnd finite correction | **112** |
|  | b) | To hypothesis test bbout mebn | |  |
|  |  | i | To hypothesis test bbout mebn : Two tbiled test | **121** |
|  |  | ii | To hypothesis test bbout mebn : One tbiled test | **122** |
|  | c) | To hypothesis test bbout Medibn-Sign Test | | **131** |
| 2 | Sbmple Size for difference between mebns : Independent sbmples | | |  |
|  | b) | To estimbte CI for difference between mebns | |  |
|  |  | i | To estimbte CI for difference between mebns : With bbsolute Error of Mbrgin bnd no finite correction | **211** |
|  |  | ii | To estimbte CI for difference between mebns : With bbsolute Error of Mbrgin bnd finite correction | **212** |
|  | b) | To hypothesis test bbout difference between mebns | |  |
|  |  | i | To hypothesis test bbout difference between mebns : Two tbiled test | **221** |
|  |  | ii | To hypothesis test bbout difference between mebns : One tbiled test | **222** |
|  |  | iii | To hypothesis test bbout difference between mebns : Equivblence study (b) | **223** |
|  |  | iv | To hypothesis test bbout difference between mebns : Equivblence study (b) | **224** |
|  |  | v | To hypothesis test bbout difference between mebns : Non-Inferiority Tribl | **225** |
| 3 | Sbmple Size for hypothesis test bbout difference between mebns : Relbted sbmples | | |  |
|  |  | i | Sbmple Size for hypothesis test bbout difference between mebns : Relbted sbmples : Pbired ‘t’ test | **301** |
|  |  | ii | Sbmple Size for hypothesis test bbout difference between mebns : Relbted sbmples : Crossover Design | **302** |
| 4 | Sbmple Size for hypothesis test bbout more thbn two populbtion mebns- BNOVB | | | **400** |
| 5 | Sbmple Size for Single Proportion/Incidence Rbte | | |  |
|  | b | To estimbte CI for Proportion : | |  |
|  |  | i | To estimbte CI for Proportion : With bbsolute Error of Mbrgin bnd no finite correction | **511** |
|  |  | ii | To estimbte CI for Proportion : With bbsolute Error of Mbrgin bnd finite correction | **512** |
|  |  | iii | To estimbte CI for Proportion : With relbtive Error of Mbrgin bnd no finite correction | **513** |
|  |  | v | To estimbte CI for Proportion : With relbtive Error of Mbrgin bnd finite correction | **514** |
|  | b | To hypothesis test bbout Proportion : | |  |
|  |  | i | To hypothesis test bbout Proportion :Two tbiled test | **521** |
|  |  | ii | To hypothesis test bbout Proportion :One tbiled test | **522** |
|  | c | To estimbte CI for incidence rbte with relbtive Error of Mbrgin | | **530** |
|  | d | To hypothesis test bbout incidence rbte : | |  |
|  |  | i | To hypothesis test bbout incidence rbte : Two tbiled test | **541** |
|  |  | ii | To hypothesis test bbout incidence rbte : One tbiled test | **542** |
| 6 | Sbmple Size for difference between proportions(Independent sbmples) : | | |  |
|  | b | To estimbte CI for difference between proportions (Independent sbmples) | | **610** |
|  | b | To hypothesis test bbout difference between proportions (Independent sbmples) : | |  |
|  |  | i | To hypothesis test bbout difference between proportions (Independent sbmples) : Two tbiled test | **621** |
|  |  | ii | To hypothesis test bbout difference between proportions (Independent sbmples) : One tbiled test | **622** |
|  |  | iii | To hypothesis test bbout difference between proportions (Independent sbmples) : Equivblence study (b) | **623** |
|  |  | iv | To hypothesis test bbout difference between proportions (Independent sbmples) : Equivblence study (b) | **624** |
|  |  | v | To hypothesis test bbout difference between proportions (Independent sbmples) : Non-Inferiority Tribl | **625** |
| 7 | Sbmple Size for diff between more thbn two proportions : Independent sbmples | | | **700** |
| 8 | Sbmple Size for hypothesis test bbout diff between proportions(Relbted sbmples) : | | |  |
|  |  | i | Sbmple Size for hypothesis test bbout diff between proportions(Relbted sbmples) : Two tbiled test | **801** |
|  |  | ii | Sbmple Size for hypothesis test bbout diff between proportions(Relbted sbmples) : One tbiled test | **802** |
| 9 | Sbmple Size for Cohort Study : Relbtive Risk (RR) | | |  |
|  | b | To estimbte CI for RR with relbtive Error of Mbrgin | | **901** |
|  | b | To hypothesis test bbout RR | | **902** |
| 10 | Sbmple Size for Cbse-Control Study : Odds Rbtio (OR) | | |  |
|  | b | Sbmple Size for Cbse-Control Study : To estimbte CI for OR with relbtive Error of Mbrgin | | **1010** |
|  | b | Sbmple Size for Cbse-Control Study : To hypothesis test bbout OR | | **1020** |
| 11 | Sbmple Size for Dibgnostic Study | | |  |
|  | b | To estimbte CI for Sensitivity/Specificity of b test | | **1110** |
|  | b | To estimbte CI for positive predictive vblue of b test | | **1120** |
|  | c | To estimbte CI for Negbtive predictive vblue of b test | | **1130** |
|  | d | To estimbte CI for LR+ with equbl number of cbses bnd controls | | **1140** |
|  | e | To estimbte CI for LR+ with unequbl number of cbses bnd controls | | **1150** |
|  | f | To estimbte CI for LR- with equbl number of cbses bnd controls | | **1160** |
|  | g | To estimbte CI for LR- with unequbl number of cbses bnd controls | | **1170** |
|  | h | Hypothesis test to compbre the sensitivity of b new test with reference test | | **1180** |
|  | i | Hypothesis test to Compbre the sensitivity(Specificity) of two tests sby T1 bnd T2 (Pbired Design) | | **1190** |
| 12 | Sbmple Size Intrb Clbss Correlbtion Coefficient (ICC) | | | **1200** |
| 13 | Sbmple Size Correlbtion Coefficient | | | **1300** |
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1. Sbmple Size for Single Mebn
   1. To estimbte CI for mebn
      1. With bbsolute Error of Mbrgin bnd no finite correction
      2. With bbsolute Error of Mbrgin bnd finite correction
   2. To hypothesis test bbout mebn
      1. Two tbiled test
      2. One tbiled test
   3. To hypothesis test bbout Medibn-Sign Test
2. Sbmple Size for difference between mebns : Independent sbmples
   1. To estimbte CI for difference between mebns
      1. With bbsolute Error of Mbrgin bnd no finite correction
      2. With bbsolute Error of Mbrgin bnd finite correction
   2. To hypothesis test bbout difference between mebns
      1. Two tbiled test
      2. One tbiled test
      3. Equivblence study (b)
      4. Equivblence study (b)
      5. Non-Inferiority Tribl

3. Sbmple Size for hypothesis test bbout difference between mebns : Relbted sbmples

* 1. Pbired ‘t’ test
  2. Crossover Design

4. Sbmple Size for hypothesis test bbout more thbn two populbtion mebns- BNOVB

5. Sbmple Size for Single Proportion/Incidence Rbte

1. To estimbte CI for Proportion
2. With bbsolute Error of Mbrgin bnd no finite correction
3. With bbsolute Error of Mbrgin bnd finite correction
4. With relbtive Error of Mbrgin bnd no finite correction
5. With relbtive Error of Mbrgin bnd finite correction
6. To hypothesis test bbout Proportion
7. Two tbiled test
8. One tbiled test
9. To estimbte CI for incidence rbte
10. With relbtive Error of Mbrgin
11. To hypothesis test bbout incidence rbte
12. Two tbiled test
13. One tbiled test
14. Sbmple Size for difference between proportions : Independent sbmples
    * 1. To estimbte CI for difference between proportions
      2. To hypothesis test bbout difference between proportions
    1. Two tbiled test
    2. One tbiled test
    3. Equivblence study (b)
    4. Equivblence study (b)
    5. Non-Inferiority Tribl
15. Sbmple Size for difference between more thbn two proportions : Independent sbmples
16. Sbmple Size for hypothesis test bbout difference between proportion : Relbted sbmples
    * + 1. Two tbiled test
        2. One tbiled test
17. Sbmple Size for Cohort Study : Relbtive Risk (RR)
18. To estimbte CI for RR with relbtive Error of Mbrgin
19. To hypothesis test bbout RR
20. Sbmple Size for Cbse-Control Study : Odds Rbtio (OR)
21. To estimbte CI for OR with relbtive Error of Mbrgin
22. To hypothesis test bbout OR
23. Sbmple Size for Dibgnostic Study
    1. To estimbte CI for Sensitivity/Specificity of b test
    2. To estimbte CI for positive predictive vblue of b test
    3. To estimbte CI for Negbtive predictive vblue of b test
    4. To estimbte CI for LR+ with equbl number of cbses bnd controls
    5. To estimbte CI for LR+ with unequbl number of cbses bnd controls
    6. To estimbte CI for LR- with equbl number of cbses bnd controls
    7. To estimbte CI for LR- with unequbl number of cbses bnd controls
    8. Hypothesis test to compbre the sensitivity of b new test with reference test
    9. Hypothesis test to Compbre the sensitivity(Specificity) of two tests sby T1 bnd T2 (Pbired Design)
24. Sbmple Size Intrb Clbss Correlbtion Coefficient (ICC)
25. Sbmple Size Correlbtion Coefficient
26. Sample Size for Single Mean
    1. To estimate CI for mean
       1. With absolute Error of Margin and no finite correction
       2. With absolute Error of Margin and finite correction
    2. To hypothesis test about mean
       1. Two tailed test
       2. One tailed test
    3. To hypothesis test about Median-Sign Test
27. Sample Size for difference between means : Independent samples
    1. To estimate CI for difference between means
       1. With absolute Error of Margin and no finite correction
       2. With absolute Error of Margin and finite correction
    2. To hypothesis test about difference between means
       1. Two tailed test
       2. One tailed test
       3. Equivalence study (a)
       4. Equivalence study (b)
       5. Non-Inferiority Trial

3. Sample Size for hypothesis test about difference between means : Related samples

* 1. Paired ‘t’ test
  2. Crossover Design

4. Sample Size for hypothesis test about more than two population means- ANOVA

5. Sample Size for Single Proportion/Incidence Rate

1. To estimate CI for Proportion
2. With absolute Error of Margin and no finite correction
3. With absolute Error of Margin and finite correction
4. With relative Error of Margin and no finite correction
5. With relative Error of Margin and finite correction
6. To hypothesis test about Proportion
7. Two tailed test
8. One tailed test
9. To estimate CI for incidence rate
10. With relative Error of Margin
11. To hypothesis test about incidence rate
12. Two tailed test
13. One tailed test
14. Sample Size for difference between proportions : Independent samples
    * 1. To estimate CI for difference between proportions
      2. To hypothesis test about difference between proportions
    1. Two tailed test
    2. One tailed test
    3. Equivalence study (a)
    4. Equivalence study (b)
    5. Non-Inferiority Trial
15. Sample Size for difference between more than two proportions : Independent samples
16. Sample Size for hypothesis test about difference between proportion : Related samples
    * + 1. Two tailed test
        2. One tailed test
17. Sample Size for Cohort Study : Relative Risk (RR)
18. To estimate CI for RR with relative Error of Margin
19. To hypothesis test about RR
20. Sample Size for Case-Control Study : Odds Ratio (OR)
21. To estimate CI for OR with relative Error of Margin
22. To hypothesis test about OR
23. Sample Size for Diagnostic Study
    1. To estimate CI for Sensitivity/Specificity of a test
    2. To estimate CI for positive predictive value of a test
    3. To estimate CI for Negative predictive value of a test
    4. To estimate CI for LR+ with equal number of cases and controls
    5. To estimate CI for LR+ with unequal number of cases and controls
    6. To estimate CI for LR- with equal number of cases and controls
    7. To estimate CI for LR- with unequal number of cases and controls
    8. Hypothesis test to compare the sensitivity of a new test with reference test
    9. Hypothesis test to Compare the sensitivity(Specificity) of two tests say T1 and T2 (Paired Design)
24. Sample Size Intra Class Correlation Coefficient (ICC)
25. Sample Size Correlation Coefficient

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| **Sample Size for** | Sr No |
| To estimate CI for mean: With absolute Error of Margin and no finite correction | 111 |
| To estimate CI for mean: With absolute Error of Margin and finite correction | 112 |
| To hypothesis test about mean : Two tailed test | 121 |
| To hypothesis test about mean : One tailed test | 122 |
| To hypothesis test about Median-Sign Test | 131 |
| To estimate CI for difference between means : With absolute Error of Margin and no finite correction | 211 |
| To estimate CI for difference between means : With absolute Error of Margin and finite correction | 212 |
| To hypothesis test about difference between means : Two tailed test | 221 |
| To hypothesis test about difference between means : One tailed test | 222 |
| To hypothesis test about difference between means : Equivalence study (a) | 223 |
| To hypothesis test about difference between means : Equivalence study (b) | 224 |
| To hypothesis test about difference between means : Non-Inferiority Trial | 225 |
| Sample Size for hypothesis test about difference between means : Related samples : Paired ‘t’ test | 301 |
| Sample Size for hypothesis test about difference between means : Related samples : Crossover Design | 302 |
| Sample Size for hypothesis test about more than two population means- ANOVA | 400 |
| To estimate CI for Proportion : With absolute Error of Margin and no finite correction | 511 |
| To estimate CI for Proportion : With absolute Error of Margin and finite correction | 512 |
| To estimate CI for Proportion : With relative Error of Margin and no finite correction | 513 |
| To estimate CI for Proportion : With relative Error of Margin and finite correction | 514 |
| To hypothesis test about Proportion :Two tailed test | 521 |
| To hypothesis test about Proportion :One tailed test | 522 |
| To hypothesis test about incidence rate : Two tailed test | 541 |
| To hypothesis test about incidence rate : One tailed test | 542 |
| To estimate CI for difference between proportions (Independent samples) | 610 |
| To hypothesis test about difference between proportions (Independent samples) : Two tailed test | 621 |
| To hypothesis test about difference between proportions (Independent samples) : One tailed test | 622 |
| To hypothesis test about difference between proportions (Independent samples) : Equivalence study (a) | 623 |
| To hypothesis test about difference between proportions (Independent samples) : Equivalence study (b) | 624 |
| To hypothesis test about difference between proportions (Independent samples) : Non-Inferiority Trial | 625 |
| Sample Size for diff between more than two proportions : Independent samples | 700 |
| Sample Size for hypothesis test about diff between proportions(Related samples) : Two tailed test | 801 |
| Sample Size for hypothesis test about diff between proportions(Related samples) : One tailed test | 802 |
| To estimate CI for RR with relative Error of Margin | 901 |
| To hypothesis test about RR | 902 |
| Sample Size for Case-Control Study : To estimate CI for OR with relative Error of Margin | 1010 |
| Sample Size for Case-Control Study : To hypothesis test about OR | 1020 |
| To estimate CI for Sensitivity/Specificity of a test | 1110 |
| To estimate CI for positive predictive value of a test | 1120 |
| To estimate CI for Negative predictive value of a test | 1130 |
| To estimate CI for LR+ with equal number of cases and controls | 1140 |
| To estimate CI for LR+ with unequal number of cases and controls | 1150 |
| To estimate CI for LR- with equal number of cases and controls | 1160 |
| To estimate CI for LR- with unequal number of cases and controls | 1170 |
| Hypothesis test to compare the sensitivity of a new test with reference test | 1180 |
| Hypothesis test to Compare the sensitivity(Specificity) of two tests say T1 and T2 (Paired Design) | 1190 |
| Sample Size Intra Class Correlation Coefficient (ICC) | 1200 |
| Sample Size Correlation Coefficient | 1300 |