MPH Exam Formula : 2013

$$SE_{\bar{X}} = \frac{s}{\sqrt{n}}$$

$$P(K \le x \mid n, p) = \sum_{k=0}^{\Delta} \binom{n}{k} p^k q^{n-k}$$

$$S^2 = \frac{\sum(x-\bar{X})^2}{n-1}$$

$$S_2{}^2 = \frac{\sum(x^2 - \frac{(\sum x)^2}{n}}{n-1}$$

$$t = \frac{\bar{X}-\mu}{\frac{s}{\sqrt{n}}}$$

$$t^2 = \frac{\bar{X}-\bar{X}_2}{S_p\sqrt{(1/n + 1/n_2}}$$

A 100 (1- α) % confidence interval (CI) for $\mu_1 - \mu_2$ is given by:
$$(\bar{x}_1 - \bar{x}_2) \pm t_{crit} \times \sqrt{\frac{s_p^2}{n_1} + \frac{s_p^2}{n_2}}$$

$$t = \frac{(\bar{x}_1 - \bar{x}_2) - (\mu_1 - \mu_2)}{\sqrt{\frac{{s_p}^2}{n_1} + \frac{{s_p}^2}{n_2}}}$$

$$z = \frac{(\hat{p}_1 - \hat{p}_2) - (p_1 - p_2)}{\sqrt{\overline{p}\overline{q}/n_1 + \overline{p}\overline{q}/n_2}}$$, Where: $\overline{p} = \frac{x_1 + x_2}{n_1 + n_2}$

$$Z = \frac{\bar{X}-\mu}{\frac{\sigma}{\sqrt{n}}}$$

$$S^2{}_P = \frac{(n-1)S^2 + (n-1)S_2{}^2}{n + n^2 - 2}$$

$$r = \frac{n\sum xy - \sum x \sum y}{\sqrt{[n(\sum x^2) - (\sum x)^2][n(\sum y^2) - (\sum y)^2]}}$$

$$b_0 = \bar{Y} - b_1\bar{X} \quad \chi^2 = \sum \frac{(O-E)^2}{E}$$

95% CI for a proportion $= p \pm 1.96\sqrt{\frac{p(1-p)}{n}}$ $\chi^2 = \sum \frac{(\,|O-E|-0.5)^2}{E}$

$$r = \frac{\sum(x-\bar{X})(y-\bar{Y})}{\sqrt{[\sum(x-\bar{X})^2 \sum(y-\bar{Y})^2]}}$$

$$t = r\frac{\sqrt{(n-2)}}{\sqrt{(1-r^2)}}$$

$$b = \frac{\sum(x-\bar{X})(y-\bar{Y})}{\sum(x-\bar{X})^2}$$

$$b_2 = \frac{\sum xy - \frac{(\sum x)(\sum y)}{n}}{\sum x^2 - \frac{(\sum x)^2}{n}}$$

$$SE_b = \frac{S}{\sqrt{\sum(x-\bar{X})^2}} \quad where\ S^2 = \frac{\sum(y-\bar{Y})^2 - b^2\sum(x-\bar{X})^2}{n-2}$$

MPH Exam Formula : 2013

$$n_1 = \frac{\left[z_{\alpha/2}\sqrt{(r+1)\bar{p}\bar{q}} + z_{1-\beta}\sqrt{rp_1q_1 + p_2q_2} \right]^2}{r(p_1 - p_2)^2},\ n_2 = r \times n_1$$

95% CI for OR = $e^{\ln(OR) \pm 1.96 \cdot \sqrt{\frac{1}{a} + \frac{1}{b} + \frac{1}{c} + \frac{1}{d}}}$

95% CI for RR = $e^{\ln(RR) \pm 1.96 \cdot \sqrt{\frac{b}{a(a+b)} + \frac{d}{c(c+d)}}}$