

[Logit Link Transformation]

$$\rightarrow \text{logit}(p_i) = \log\left(\frac{p}{1-p}\right) = \beta_0 + \beta'x = \beta_0 + \beta_1x_1 + \dots + \beta_kx_k$$

$$\rightarrow p = \frac{\exp(\beta_0 + \beta_1x_1 + \dots + \beta_kx_k)}{1 + \exp(\beta_0 + \beta_1x_1 + \dots + \beta_kx_k)}$$

$$\rightarrow \hat{p} = \frac{\exp(\hat{\beta}_0 + \hat{\beta}_1x_1 + \dots + \hat{\beta}_kx_k)}{1 + \exp(\hat{\beta}_0 + \hat{\beta}_1x_1 + \dots + \hat{\beta}_kx_k)}$$

[Odds Ratio]

$$\text{Odds}_A = \frac{p_A}{1-p_A}, \text{Odds}_B = \frac{p_B}{1-p_B}$$

$$\text{Odds Ratio} = \frac{\text{odds}_A}{\text{odds}_B}$$