

2009 Q5

$$(a) \hat{p}_{\text{CC+MMR}} = \frac{29}{278} = .1043 \quad \hat{p}_{\text{CC}} = \frac{35}{240} = .1458$$
$$\hat{p}_{\text{CC}} - \hat{p}_{\text{CC+MMR}} = .1458 - .1043 = .0415$$

The p-value of .0761 means that if the survival rates for the two treatments were actually equal, there is a probability of .0761 of having samples with as large a difference as in this experiment (.0415) or larger, just due to chance.

(NOTE: always answer in context.)

(b) with $\alpha = .05$, p-value = .0761 is high, so we fail to reject H_0 . We do not have sufficient statistical evidence to conclude that the treatment that uses CC alone produces a higher survival rate.

(c)

	H_0 actually	
	T	F
decision	R	I
	NR	II

We failed to reject H_0 , so if this was in error it would be a Type II error.

One potential consequence of this error would be continuing to use MMR+CC instead of switching to the (actually) more effective CC alone treatment, losing some patients who would have been saved with the better treatment.