

2009 AP[®] STATISTICS FREE-RESPONSE QUESTIONS

5. For many years, the medically accepted practice of giving aid to a person experiencing a heart attack was to have the person who placed the emergency call administer chest compression (CC) plus standard mouth-to-mouth resuscitation (MMR) to the heart attack patient until the emergency response team arrived. However, some researchers believed that CC alone would be a more effective approach.

In the 1990s a study was conducted in Seattle in which 518 cases were randomly assigned to treatments: 278 to CC plus standard MMR and 240 to CC alone. A total of 64 patients survived the heart attack: 29 in the group receiving CC plus standard MMR, and 35 in the group receiving CC alone. A test of significance was conducted on the following hypotheses.

H_0 : The survival rates for the two treatments are equal.

H_a : The treatment that uses CC alone produces a higher survival rate.

This test resulted in a p -value of 0.0761.

- Interpret what this p -value measures in the context of this study.
- Based on this p -value and study design, what conclusion should be drawn in the context of this study? Use a significance level of $\alpha = 0.05$.
- Based on your conclusion in part (b), which type of error, Type I or Type II, could have been made? What is one potential consequence of this error?