

You may work with one partner on this assignment, submitting one report with both names, provided that both students contribute substantially to the work. Word-processed reports are preferred to hand-written ones. Please copy/paste relevant computer output into your report as appropriate.

Simpler CPR?

For many years, if a person experienced a heart attack and a bystander called 911, the dispatcher instructed the bystander in how to administer chest compression plus mouth-to-mouth ventilation (a combination known as standard CPR) until the emergency response team arrived. Some researchers believe that giving instruction in chest compression alone (CC) would be a more effective approach, in part because bystanders are often reluctant to administer mouth-to-mouth ventilation or do so incorrectly.

In the 1990's a study was conducted in Seattle involving 518 cases. In 278 of these cases (determined at random) the dispatcher gave instructions in standard CPR, and in 240 cases the dispatcher gave instructions in to CC alone. A total of 64 patients survived to discharge from the hospital: 29 in the group receiving standard CPR, and 35 in the group receiving CC alone.

- a) Identify the explanatory variable and the response variable in this study.
- b) Is this an observational study or an experiment? Explain how you know.
- c) Organize the data in a two-way table, with the explanatory variable in columns.
- d) Produce a segmented bar graph, and comment on what it reveals.
- e) Calculate the relative risk of survival between the CC group and the CPR group, and write a sentence interpreting its value.
- f) Explain why the relative risk is a better measure for comparing these groups than the difference in proportion of survivors.
- g) Calculate the odds ratio, and write a sentence interpreting its value.
- h) Determine the p-value for applying Fisher's exact test to the researchers' conjecture. Also submit a relevant Minitab graph to accompany this calculation.
- i) Summarize your conclusion from this study. Be sure to address the issue of causation as well as significance.