4-3 WS Simpson’s Paradox

1. The following two-way table classifies hospital patients according to the hospital that treated them and whether they survived or died.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Hospital ABC | Hospital XYZ | Total |
| Survived | 800 | 900 |  |
| Died | 200 | 100 |  |
| TOTAL |  |  |  |

1. Calculate the percent of Hospital ABC’s patients who survived. \_\_\_\_\_\_\_\_
2. Calculate the percent of Hospital XYZ’s patients who survived. \_\_\_\_\_\_\_\_
3. Which hospital had the higher survival rate? \_\_\_\_\_\_\_\_\_\_\_

Suppose further data was taken from each hospital according to the patient’s condition. This is put in a two-

way table.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| FAIR CONDITION | Hospital ABC | Hospital XYZ | Total | . | POOR CONDITION | Hospital ABC | Hospital XYZ | Total |
| Survived | 590 | 870 |  | . | Survived | 210 | 30 |  |
| Died | 10 | 30 |  | . | Died | 190 | 70 |  |
| TOTAL |  |  |  | . | Total |  |  |  |

1. What percent of Hospital ABC’s FAIR patients survived? \_\_\_\_\_
2. What percent of Hospital XYZ’s FAIR patients survived? \_\_\_\_\_
3. Which hospital had the higher survival rate for FAIR patients? \_\_\_\_\_\_\_\_\_\_\_
4. What percent of Hospital ABC’s POOR patients survived? \_\_\_\_\_
5. What percent of Hospital XYZ’s POOR patients survived? \_\_\_\_\_
6. Which hospital had the higher survival rate for POOR patients? \_\_\_\_\_\_\_\_\_\_\_
7. Which hospital (ABC or XYZ) would you go to if you were ill? \_\_\_\_\_\_\_\_\_\_\_
8. Explain what causes the Simpson’s Paradox in this situation (what is the confounding/lurking variable?)