## Contingency Table Construction and Analysis

Automobile Maintenance Data, Berrysville, 2002

| **Automobile Breakdowns** | None | **Automobile Maintenance** Regularly Scheduled | Total |
|---|---|---|---|
| No breakdown | 72 | 194 | 266 |
| Breakdown | 78 | 56 | 134 |
| Total | 150 | 250 | 400 |

The city council of Berrysville, California, has been under considerable pressure to economize. Last year, the council passed an ordinance authorizing an experimental program for the maintenance of city-owned vehicles. The bill stipulates that, for 1 year, a random sample of 150 of the city's 400 automobiles will receive no preventative maintenance and will simply be driven until they break down. The other 250 automobiles will receive regularly scheduled preventative maintenance. The council is interested in whether the expensive program of preventive maintenance actually reduces the number of breakdowns. After a year under the experimental maintenance program, the city council was presented with the data in Table 15.12, which summarizes the number of automobile breakdowns under the no maintenance and preventative maintenance conditions. Analyze the data for the city council, and help them by making a recommendation regarding whether the program should be continued (and/or expanded) or terminated.

Step 1: Determine which variable is independent and which is dependent and state as a hypothesis

Independent _____ Dependent _____
Hypothesis:

Step 2: Calculate percentages within the categories of the independent variable

Automobile Maintenance Data, Berrysville, 2002

| ***Dependent Variable:*** | ***Independent Variable:*** *Ind Var Category:* | *Ind Var Category:* |
|---|---|---|
| *Dep Var Category:* | (___ / ___) x 100 = _____% | (___ / ___) x 100 = _____% |
| *Dep Var Category:* | (___ / ___) x 100 = _____% | (___ / ___) x 100 = _____% |
| Total | (n = ) _____% | (n = ) _____% |

Step 3: Compare percentages for one of the categories of the dependent variable.

## Contingency Table Construction and Analysis

Automobile Maintence Data, Berrysville, 2002

| **Automobile Breakdowns** | None | **Automobile Maintenance** Regularly Scheduled | Total |
|---|---|---|---|
| No breakdown | 72 | 194 | 266 |
| Breakdown | 78 | 56 | 134 |
| Total | 150 | 250 | 400 |

The city council of Berrysville, California, has been under considerable pressure to economize. Last year, the council passed an ordinance authorizing an experimental program for the maintenance of city-owned vehicles. The bill stipulates that, for 1 year, a random sample of 150 of the city's 400 automobiles will receive no preventative maintenance and will simply be driven until they break down. The other 250 automobiles will receive regularly scheduled preventative maintenance. The council is interested in whether the expensive program of preventive maintenance actually reduces the number of breakdowns. After a year under the experimental maintenance program, the city council was presented with the data in Table 15.12, which summarizes the number of automobile breakdowns under the no maintenance and preventative maintenance conditions. Analyze the data for the city council, and help them by making a recommendation regarding whether the program should be continued (and/or expanded) or terminated.

Step 1: Determine which variable is independent and which is dependent and state as a hypothesis
*It's pretty obvious that automobile maintenance is expected to affect the number of breakdowns. Therefore, "maintenance" is the IV and "breakdowns" is the DV. Hypothesis: the greater the level of maintenance, the less the rate of breakdowns.*

Step 2: Calculate percentages within the categories of the independent variable

Automobile Maintenance Data, Berrysville, 2002

| *Dependent Variable:* ***Automobile Breakdowns*** | *Independent Variable:* ***Automobile Maintenance*** *Ind Var Category:* **None** | *Ind Var Category:* **Regularly Scheduled** |
|---|---|---|
| *Dep Var Category:* **No Breakdown** | (72 / 50) x 100 = 48% | (194 / 250) x 100 = 77.6% |
| *Dep Var Category:* **Breakdown** | (78 / 150) x 100 = 52% | (56 / 250) x 100 = 22.4% |
| Total | (n = 150) 100% | (n = 250) 100% |

Step 3: Compare percentages for one of the categories of the dependent variable.
*Although more that half (52%) of the automobiles that received no maintenance broke down during the 1-year experimental program, only 22.4% of the automobiles that received regularly schedule maintenance did so. This is a difference of 29.6%. Thus, automobile maintenance appears to make nearly a 30% difference in the rate of breakdowns. The data support the hypothesis. Recommendation: terminate the program.*