**Odds & ORs, Part 1:**

**when the explanatory variable is CATEGORICAL**

**Instructions:**

**Step 1:** Work alone or with the person next to you to answer all the parts of Question #1.

**Step 2:** Come up to the front of the room and check your answers with me.

…Then continue with Question #2. After completing Question #2, come up and check your answers with me. And so on with Question #3.

1. **Med School Acceptance: Gender**Open the **MedGPA** data set (from the Stat2Data package) in R and use ?MedGPA to learn about the data.
   1. Based on this sample of 55 students, what are the odds of a woman getting accepted to med school? (xtabs(), tally(), or table() will be helpful here!)
   2. Based on this sample of 55 students, what are the odds of a man getting accepted to med school?
   3. Interpret the value in part (b).
   4. What is the odds ratio of women to men?
   5. Interpret the odds ratio.
2. **ICU Survival: Infections**Open the **ICU** data set (from the Stat2Data package) in R and use ?ICU to learn about the data.  
   1. Make a table of survival status by presence of infection.
   2. Make a table of survival status by presence of infection, where the values in the table are the *proportion of each group (infected or not) who survived*. (That is, you should be able to look at the table and immediately know: \_\_% of infected individuals survived, \_\_% of non-infected individuals survived.)
   3. Does there appear to be a relationship between these two variables?
   4. Calculate the **odds** of survival for infected individuals and the odds of survival for non-infected individuals.
   5. Calculate the odds ratio of non-infected individuals to infected individuals.
   6. Interpret the odds ratio.
3. **Cancer data: Survival**Below is a table of various types of cancer, along with whether the patient survived at least a year.
   1. Fill out the rest of this table.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Breast | Bronchus | Colon | Ovary | Stomach |
| Died (within 1 year) | 2 | 14 | 8 | 3 | 9 |
| Survived (at least 1 year) | 9 | 3 | 9 | 3 | 4 |
| Odds of survival |  |  |  |  |  |
| Log(odds) of survival |  |  |  |  |  |

* 1. Interpret the odds of survival for ovarian cancer.
  2. Calculate the odds ratio of survival for colon cancer vs breast cancer, and interpret it.