Epi 3 Lab Warm-up

At the beginning of each in-person lab session, students will complete a warm-up together as a class using a series of interactive poll questions that provide immediate feedback. These activities will not be graded. However, participating gives students an opportunity to self-assess their comprehension and ask questions.

NOTE: Although I want these to be questions that generate discussion, it has been my experience that using more than one or two “short answer” type questions can sort of gum up the works. Instead, it’s best if you can create multiple-choice or T/F questions that are a little bit tricky and discussion generating. Or, even if the question itself isn’t tricky, following up with “why is that the right answer” can generate some good discussion.

[Socrative](https://b.socrative.com/teacher/#edit-quiz/44227640)

| Question Template | | |
| --- | --- | --- |
|  | Placeholder |  |
|  |  |  |
| X |  | Answer/source |
|  |  |  |

| When are we generally interested in absolute measures vs. relative measures of disease association? | | |
| --- | --- | --- |
| X | We're generally more interested in absolute differences when our goal is to plan or evaluate public health activities. | Measures based on absolute differences are often preferred when public health or preventive activities are evaluated, as their main goal is often an absolute reduction in the risk of an undesirable outcome. In contrast, etiologic studies that are searching disease determinants (causes) usually rely on relative differences in the occurrence of discrete outcomes,  Szklo, Moyses,Nieto, F. Javier. Epidemiology (Kindle Locations 2345-2347). Jones & Bartlett Learning. Kindle Edition. |
|  | We're generally more interested in absolute differences when our goal is to investigate the causes of disease or other negative outcomes. |  |
|  | We're generally more interested in absolute differences when our goal is to predict the occurrence of a disease or other negative outcomes. | Answer/source |
|  | Our interest in absolute vs. relative measures is totally dependent on the disease or outcome we are studying. |  |

| Suppose we did a cohort study comparing the risk of cancer among people who were exposed to a chemical agent and those who were not exposed to a chemical agent. Which 2x2 table below is arranged in the recommended way? | | |
| --- | --- | --- |
|  | |  | Agent + | Agent - | | --- | --- | --- | | Cancer + |  |  | | Cancer - |  |  | |  |
| X | |  | Cancer + | Cancer - | | --- | --- | --- | | Agent + |  |  | | Agent - |  |  | |  |
|  | |  | Cancer - | Cancer + | | --- | --- | --- | | Agent - |  |  | | Agent + |  |  | |  |
|  | |  | Agent - | Agent + | | --- | --- | --- | | Cancer - |  |  | | Cancer + |  |  | |  |

| The odds ratio is a biased estimate of association. | | |
| --- | --- | --- |
|  | TRUE |  |
| X | FALSE | “Regardless of whether the odds ratio can properly estimate the relative risk, it is, as mentioned previously, a bona fide measure of association. Thus, a built-in bias can be said to exist only when the odds ratio is used as an estimate of the relative risk.”  Szklo, Moyses, Nieto, F. Javier. Epidemiology (Kindle Location 2491). Jones & Bartlett Learning. Kindle Edition.  I think of it like this. The temperature and the humidity are measuring different things, but both provide me with information about the way I’m likely to feel when I go outside. |

| If OR is just the RR plus a bias term, why don’t we always just use the RR? | | |
| --- | --- | --- |
| X | In some cases, it isn’t possible to estimate the RR. | The odds ratio is especially valuable because it can be measured in case-control (case–noncase) studies and is directly derived from logistic regression models (see Chapter 7 , Section 7.4.3 ). In addition, unlike the relative risk, the odds ratio of an event is the exact reciprocal of the odds ratio of the nonevent.  Szklo, Moyses, Nieto, F. Javier. Epidemiology (Kindle Locations 2493-2495). Jones & Bartlett Learning. Kindle Edition. |

| The data below is from a theoretical cohort study that investigated the association between the use of an artificial sweetener and diabetes. Artificial sweetener is our exposure of interest and diabetes is our outcome of interest.   |  | Diabetes + | Diabetes - | | --- | --- | --- | | Sweetener + | 10 | 90 | | Sweetener - | 4 | 396 |   The odds of diabetes among people who used artificial sweetener was 0.111. Interpret the number 0.111. | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Approximately 11% of people who used artificial sweetener developed diabetes during the study period. | This is the interpretation of risk |
|  | Odds of developing diabetes were approximately 11% higher among people who used artificial sweetener. | This is the interpretation and odds ratio. |
|  | The proportion of people in this cohort that end up with diabetes is approximately 11 times higher when they use sweetener. |  |
| X | 0.111:1.0 = 1:9, so among people who used artificial sweetener, 1 person developed diabetes for every 9 people who did not develop diabetes. |  |

| The data below is from a theoretical cohort study that investigated the association between the use of an artificial sweetener and diabetes. Artificial sweetener is our exposure of interest and diabetes is our outcome of interest.   |  | Diabetes + | Diabetes - | | --- | --- | --- | | Sweetener + | 10 | 90 | | Sweetener - | 4 | 396 |   Based on this data, about 10% of people in the exposed group and about 1% of people in the unexposed group developed diabetes. Therefore we would expect the OR to do a fairly good job of approximating the RR. | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| X | True | “Both odds and proportions can be used to express “frequency” of the disease. An odds approximates a proportion when the latter is small (e.g., less than 0.1).”  Szklo, Moyses, Nieto, F. Javier. Epidemiology (Kindle Locations 2192-2193). Jones & Bartlett Learning. Kindle Edition. |
|  | False |  |