Making Sense of Biostatistics: Incidence vs. Prevalence
By Melissa Pressman

Incidence and prevalence both describe the distribution of a disease within a population. Although their meanings are similar, the terms cannot be used interchangeably.

**Incidence**
Incidence is the number of new cases of a certain disease within a population within a defined period of time, divided by the number of persons at risk. It is typically used to measure the rate of *newly diagnosed* disease.

**Prevalence**
When assessing the impact of a problem within a population of individuals to determine their actual health care needs, we need more than just the rate of new disease occurrence. This is where prevalence comes in; prevalence is the total number of cases of a disease in a defined population during a specific period of time, divided by the number of persons at risk. This term takes into account *both new and old* cases.

**Example**
For example, let us consider tuberculosis, a disease with a long recovery period. Imagine that, in 2010, there was an epidemic of the disease on a small island in the Pacific Ocean; however, by 2011, the epidemic was under control and tuberculosis was no longer being contracted. The island’s population had a large incidence during 2010 (there was a large number of new cases) and a low incidence in 2011 (there were very few new cases). In 2011, the disease incidence (number of new cases) was thus low, but the prevalence (total number of cases — new and old) remains high because tuberculosis takes time to cure, and some of the population is still undergoing treatment.

**A Quick Recap**
Incidence refers to the number of *new* cases of a disease in a defined period of time, divided by the number of persons at risk.

Incidence is used to describe the rate at which a disease is spreading within a population.

Incidence can thus be used to determine the risk of a disease to a population.

Prevalence refers to the total (old and new) number of cases in a defined period of time, divided by the number of persons at risk.

Prevalence is used to describe how widespread a disease is within a population.

If you are recruiting subjects for a study of an acute disease like influenza, incidence is the important statistic. On the other hand, if you are recruiting for a study of a chronic disease like hypertension, prevalence is the important statistic.

**References**

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