

Quiz (Key) on Chap 6 (Incidence & Prevalence) & Chap 8 (Measures of Association)

1. Match each definitions below with one of the following terms:

- (A) Prevalence
- (B) Incidence
- (D) Risk Ratio
- (E) Risk Difference
- (F) Attributable Fraction

D_____ This statistic describes the excess in risk associated with an exposure in relative terms. When it is 1, there is no additional risk associated with the exposure.

A_____ This statistic describes the probability that someone selected at random from the population will have the disease in question.

E_____ This statistic describes the excess in risk in absolute terms. It shows the additional number of cases expected per m exposures.

B_____ This statistic is used to *estimate* the risk of acquiring a disease. It may be measured as a rate or a proportion.

2. A study starts with 5,000 people. Of these, 125 have the disease in question. What is the prevalence of disease *per 1000 people*? (Show work).

SOLUTION:

$$\text{Prevalence per 1000} = 125 / 5000 \times 1000 = 25$$

3. A study starts with 4,875 health people. (Think of these as the 5000 from problem 2 minus the 125 prevalent cases.) Over the next 2 years, 75 develop the disease. What is the incidence rate of disease over the study period? Show all work.

SOLUTION:

Rough (good enough solution): Incidence rate = $75 / (4875 \times 2 \text{ years}) = 75 / 9750 \text{ years} = 0.00769 / \text{year}$ (equivalently, 7.69 per 1000 person-years)

More-exact (better) solution: Incidence rate = $75 / [(4800 \times 2 \text{ years}) + (75 \times 1 \text{ years})] = 75 / 9675 \text{ years} = 0.00775 / \text{year}$ (equivalently, 7.75 per 1000 person-years)

4. A study assesses the association between talking on a cellular phone while driving and traffic accidents. It finds that people with cellular phones have accidents at a rate of 11.1 per 10,000 miles traveled. People who do not have cellular phones have accidents at the rate of 8.6 per 10,000 miles. Calculate the *rate difference* associated with cellular phone use. Then, in plain terms, *interpret* your results.

SOLUTION:

$$\text{RD} = 11.1 \text{ per } 10,000 \text{ miles} - 8.6 \text{ per } 10,000 \text{ miles} = 2.5 \text{ per } 10,000 \text{ miles}$$

Interpretation: We expect an additional 2.5 accidents per 10,000 miles while talking on the phone.