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:

Prevalence per 1000 = 125 / 5000 × 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 × 2 years) = 75 / 9750 years = 0.00769 / year (equivalently, 7.69 per 1000 person-years)

More-exact (better) solution: Incidence rate = 75 / [(4800 × 2 years) + (75 × 1 years)] = 75 / 9675 years = 0.00775 / 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:

RD = 11.1 per 10,000 miles − 8.6 per 10,000 miles = 2.5 per 10,000 miles
Interpretation: We expect an additional 2.5 accidents per 10,000 miles while talking on the phone.