

Figure 7 (page 17) of study guide:

Number of disease events	4
Number present at start	10
Number of withdrawals (i.e. 'lost')	2
Number present at end of study	8
Follow-up period	12 months

Prevalence in June

Numerator = 3 cases of disease Denominator = 9 animals

Incidence risk = $3 \div 9$

Incidence risk = 33 cases per 100 animals

Prevalence in December

Numerator = 4 cases of disease Denominator = 8 animals

Incidence risk = $4 \div 8$

Incidence risk = 50 cases per 100 animals

Incidence risk

Accounting for withdrawals and assuming animal remains in population following disease event:

Numerator = 4 cases of disease Denominator = $\{[N_{\text{start}} + \frac{1}{2} N_{\text{new}}] - \frac{1}{2}(N_{\text{lost}})\}$

Denominator = $\{[10 + \frac{1}{2} 0] - \frac{1}{2}(2)\}$

Denominator = 10 - 1

Denominator = 9 animals

Incidence risk = $4 \div 9$

Incidence risk = 44 cases per 100 animals

Incidence risk (approximate)

Numerator = 4 cases of disease Denominator = 10 animals [i.e. the number present at the start of the study]

Incidence risk = $4 \div 10$

Incidence risk = 40 cases per 100 animals

Incidence rate (exact)

Numerator = 4 cases of disease

Denominator = 4 + 12 + 7 + 1 + 12 + 5 + 10 + 12 + 12 + 5 months

Denominator = 80 animal-months

Incidence risk = $4 \div 80$

Incidence risk = 4 cases per 80 animal-months at risk

Incidence rate (approximate)

Numerator = 4 cases of disease

Denominator = $\{[N_{\text{start}} + \frac{1}{2} N_{\text{new}}] - \frac{1}{2}(N_{\text{lost}} + N_{\text{cases}})\} \times t$

Denominator = $\{[10 + \frac{1}{2} 0] - \frac{1}{2}(2 + 4)\} \times 12$

Denominator = $(10 - 3) \times 12$

Denominator = 84 animal months

Incidence risk = $4 \div 84$

Incidence risk = 4 cases per 84 animal-months at risk

Would also be OK to ignore the contribution of cases to animal time at risk (as we did for the incidence risk calculation). This would result in $9 \times 12 = 108$ animal-months at risk for the denominator.