

Exercise - measures of health

Navicular disease

In a prospective cohort study 1000 thoroughbred horses were followed for 5 years. At the end of the follow-up period it was found that 23 had developed navicular disease. What was the incidence risk of navicular disease in this group?

Answer

What was the incidence risk of navicular disease?

Numerator: 23 cases of navicular disease
Denominator: 1000 horses

The incidence risk of navicular disease was 2.3 cases per 100 horses for the 5-year follow-up period.

Bronchopneumonia

A total of 2000 dogs were followed for 6 months. Thirty-six cases of bronchopneumonia were diagnosed. What was the incidence rate of bronchopneumonia?

Answer

What was the incidence rate of bronchopneumonia?

Numerator: 36 cases of bronchopneumonia
Denominator: $(2,000 \times 6) = 12,000$ dog-months
Incidence rate: 36 cases per 1,000 dog-years
Incidence rate: 0.04 cases per dog-year

The incidence rate of bronchopneumonia in this group of dogs was 0.04 cases per dog year for the 6-month follow-up period.

Anoestrus

You consult to a herd comprised of 200 hundred dairy cows. All animals received a reproductive examination at 8 weeks post calving: 10 cows were found to be in anoestrus. Two weeks later the same group were checked and another 30 cows were found to be anoestrus.

1. What was the prevalence of anoestrus at 8 weeks post calving?
2. How many were at risk of developing anoestrus at 8 weeks post calving?
3. What was the incidence risk of anoestrus in this group for the 2 week follow-up period?
4. Estimate the total number of cow-days at risk for the 2 week follow-up period
5. What was the incidence rate of anoestrus in this group?

Answer

1. What was the prevalence of anoestrus at 8 weeks post calving?

The prevalence of anoestrus at 8 weeks post calving was $(10 \div 200) = 5$ cases per 100 cows.

2. How many were at risk of developing anoestrus at 8 weeks post calving?

There were $(200 - 10) = 190$ cows at risk of developing anoestrus at 8 weeks post calving.

3. What was the incidence risk of anoestrus in this group for the 2 week follow-up period?

$$N_{\text{start}} = 190, N_{\text{new}} = 0, N_{\text{cases}} = 30, N_{\text{lost}} = 0$$

$$\text{Cows at risk} = N_{\text{start}} + [0.5 \times N_{\text{new}}] - [0.5 \times (N_{\text{cases}} + N_{\text{lost}})]$$

$$\text{Cows at risk} = 190 + [0.5 \times 0] - [0.5 \times (30 + 0)]$$

$$\text{Cows at risk} = 175 \text{ cows}$$

The incidence risk of anoestrus was $(30 \div 175) = 17$ cases per 100 cows for the 2 week follow-up period.

4. Estimate the total number of cow-days at risk for the 2 week follow-up period.

$$N_{\text{start}} = 190, N_{\text{new}} = 0, N_{\text{cases}} = 30, N_{\text{lost}} = 0$$

$$\text{Cows at risk} = N_{\text{start}} + [0.5 \times N_{\text{new}}] - [0.5 \times (N_{\text{cases}} + N_{\text{lost}})]$$

$$\text{Cows at risk} = 190 + [0.5 \times 0] - [0.5 \times (30 + 0)]$$

$$\text{Cows at risk} = 175 \text{ cows}$$

$$\text{Cow-days at risk} = 175 \times 14 \text{ days}$$

$$\text{Cow-days at risk} = 2450$$

The estimated total number of cow-days at risk for the 2 week follow-up period was 2450.

5. What was the incidence rate of anoestrus in this group?

Numerator: 30 cases of anoestrus

Denominator: 2450 cow-days

Incidence rate: 30 cases per 2450 cow-days

Incidence rate: 1.2 cases per 100 cow-days

The incidence rate of anoestrus for the 2 week follow-up period was 1.2 cases per 100 cow-days at risk.