26.1 Epidemiology and clinical evidence: evidence and transfer

Name: _____ Class: _____ Date: _____ **Total: 8 marks**

KEY WORDS incidence ( ) • prevalence

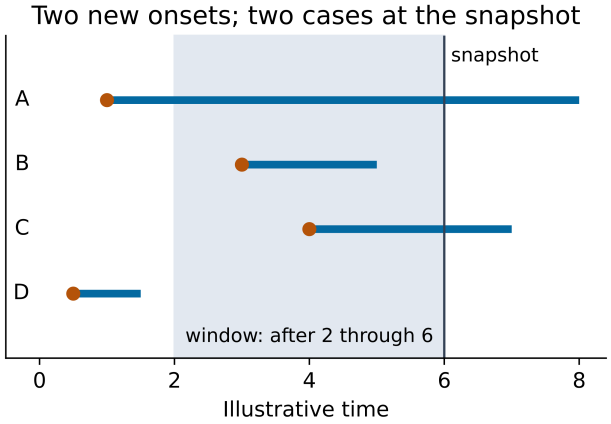
Objective

Distinguish incidence from prevalence and compute each; Evaluate clinical evidence by design strength; Interpret risk, screening and base rates in populations. Original practice and authored marking guidance.

1 Key knowledge and worked examples

incidence ( ): The number or rate of NEW cases arising in a period.
prevalence : The proportion of a population with the condition at a given time.

A cumulative incidence proportion uses new cases among people initially at risk over a specified period. An incidence rate uses person-time, while point prevalence counts existing cases at a specified time. Do not interchange their denominators or units. Design labels are guides, not an automatic quality ladder: a biased trial or weak meta-analysis can mislead. Relative risk reduction needs its baseline; absolute change and follow-up duration are necessary for interpretation.



Selected case histories only. Dots = onset; line ends = no longer a case.

Worked case. In a fictional closed cohort, 12 of 600 initially unaffected people develop a condition over one year, with complete follow-up. Compute cumulative incidence. If 30 of 750 people have it at a census, compute prevalence.

Cumulative incidence=new cases/initially at-risk population=12/600=.02, or 2% over one year. Point prevalence=existing cases/population at that time=30/750=.04, or 4%. The first is not a person-time incidence rate; the second includes old and new existing cases at the census.

2 Practice

2.1 A researcher counts the number of new schizophrenia diagnoses in a country during the past year. This statistic is the: [1]

A. prevalence B. incidence C. morbidity ratio D. base rate E. lethality

2.2 Which design follows exposed and unexposed groups forward in time to see who develops the outcome? [1]

A. case report B. case-control study C. cohort study D. cross-sectional survey E. meta-analysis

2.3 Revisit the worked case. State one conclusion its evidence supports and one stronger conclusion it does not support. Explain the difference. [2]

3 Exam-style questions

3.1 A fictional trial's risks over the same period are 4% in control and 3% in treatment. Compute relative and absolute reduction and NNT, then qualify. Give the interpretation, supporting reasoning, a relevant alternative or limitation, and an appropriate check. [4]