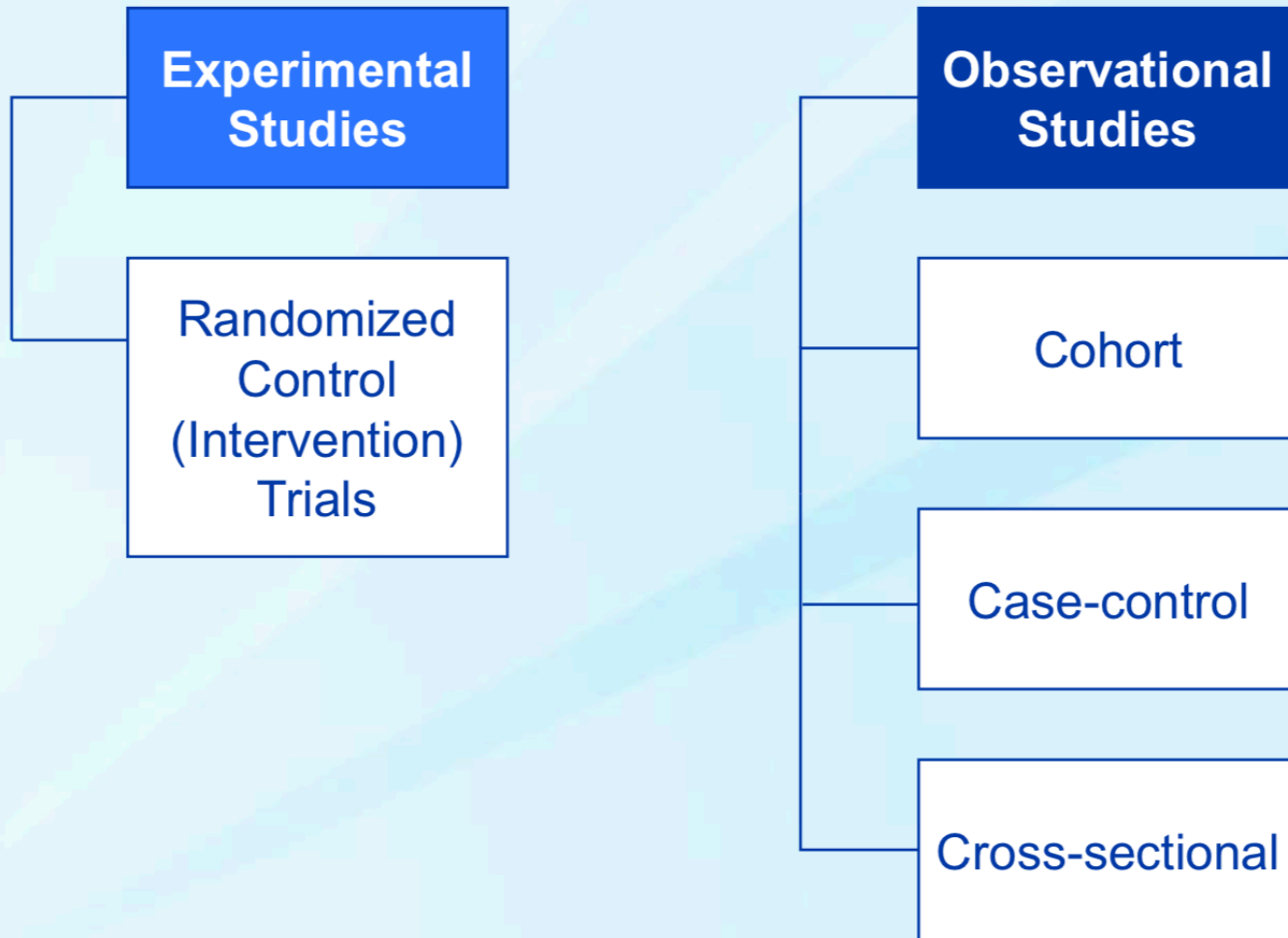


Cohort Studies

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Ecological Studies

Analytic Study Types



Cohort Studies

What is a cohort?

A well-defined group of individuals who share a common characteristic or experience

- Example: Individuals born in the same year

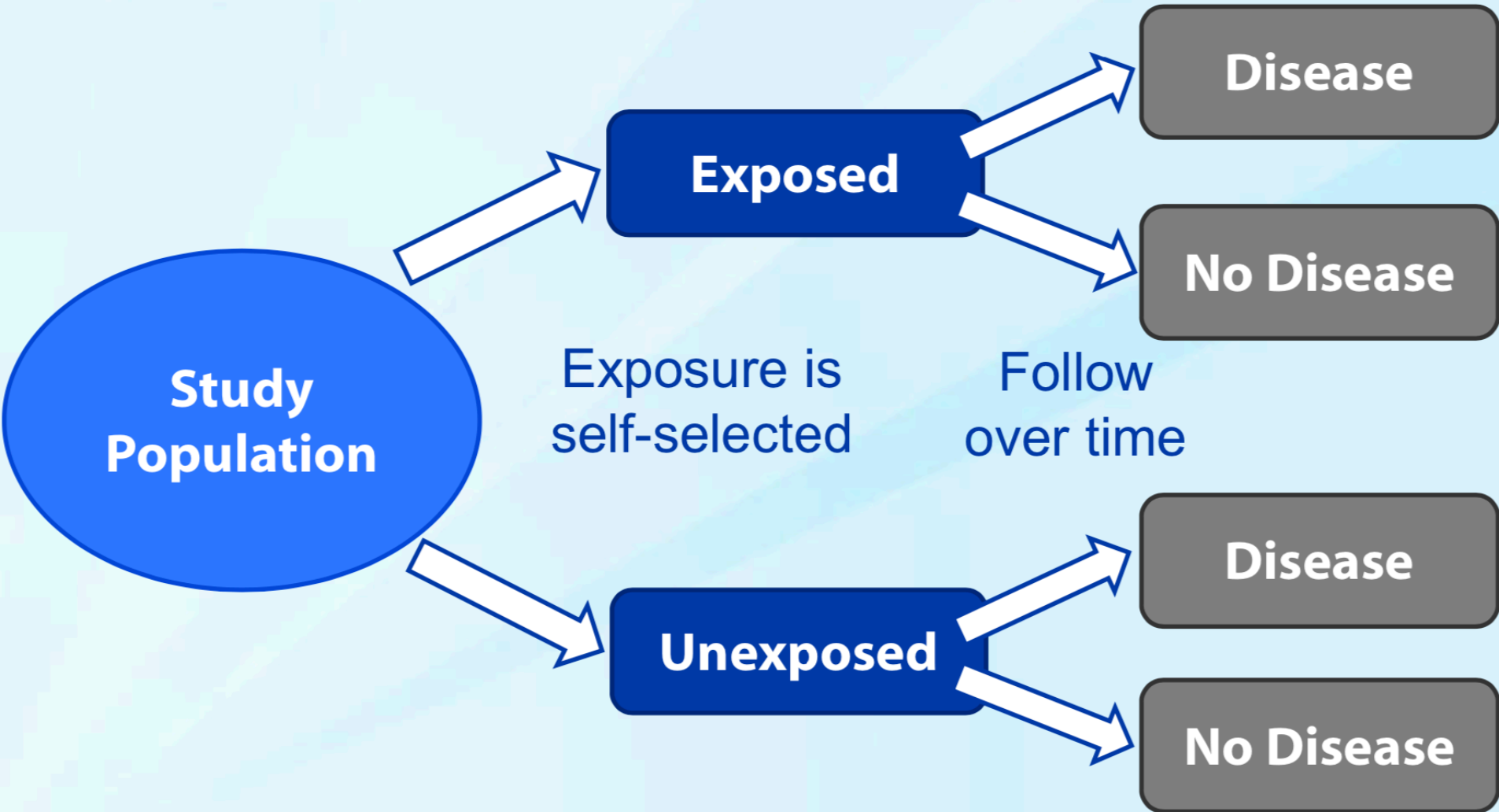
What are other examples of cohorts?

Cohort Study

(longitudinal study, follow-up study)

- Participants classified according to exposure status and followed-up over time to ascertain outcome
- Can be used to find multiple outcomes from a single exposure
- Appropriate for rare exposures or defined cohorts
- Ensures temporality (exposure occurs before observed outcome)

Cohort Study Design



Types of Cohort Studies

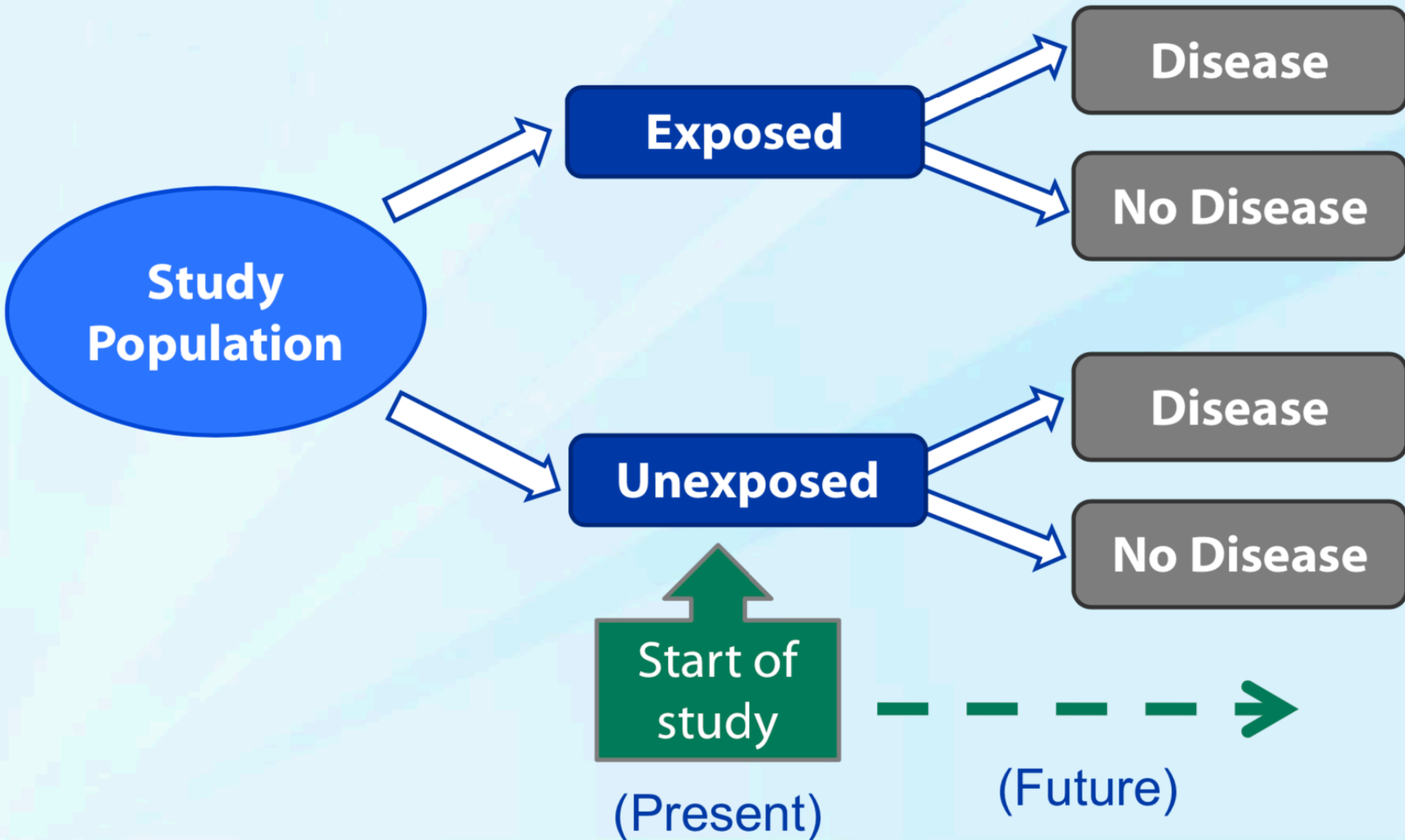
Prospective cohort studies

- Group participants according to past or current exposure and follow-up into the future to determine if outcome occurs

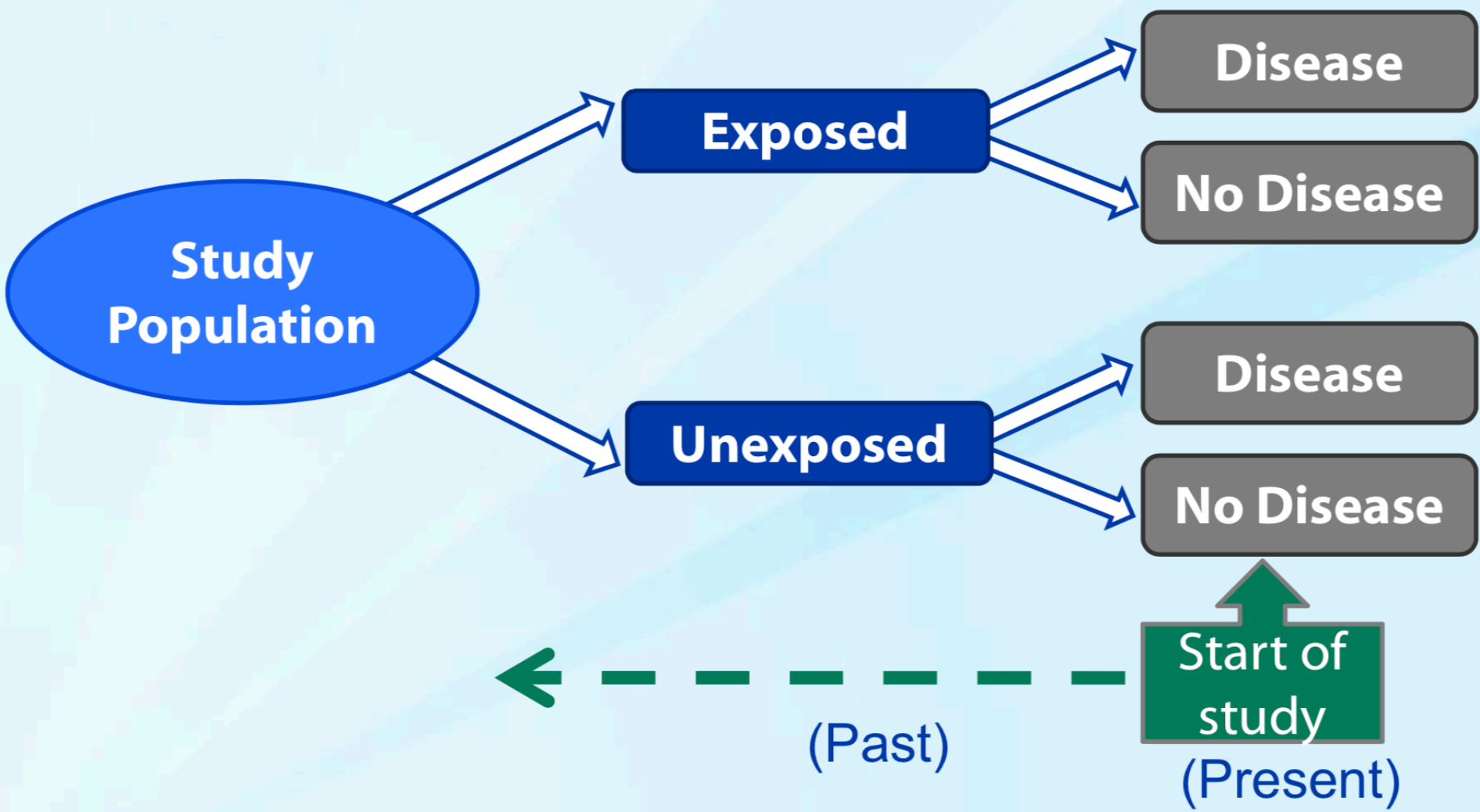
Retrospective cohort studies

- At the time that the study is conducted, potential exposure and outcomes have already occurred in the past

Prospective Cohort Studies



Retrospective Cohort Studies



When to Conduct a Cohort Study

When the exposure is rare and the outcome is common

- Agricultural pesticide use and cancer events

To learn about multiple outcomes due to a single exposure

- Health effects of a nuclear power plant accident

Analysis of Cohort Studies

Risk:

Quantifies probability of experiencing the outcome of interest in a given population

- Calculation: Number of new occurrences of outcome/population at risk

Example:

- 29 new cases of diabetes in a community
- 100,000 people in the community at risk for diabetes
- What is the risk of diabetes? $29/100,000$

Analysis of Cohort Studies: Person-Time, Rate

Quantifies occurrence of outcome in population by time

Calculation:

$$\frac{\text{number of new cases during follow-up period}}{\text{Sum of time each study participant was followed and at risk of disease}}$$

Example: 1,212 tunnel workers

160 deaths among tunnel workers

24,035 person-years at risk

Mortality rate = $160 / 24,035$

= 6.7 deaths per 1,000 workers per year