This session

1. Review of case-control and cohort studies designs

2. What is a biobank?

3. Small group activity: case-control and cohort designs
   Exercise (30 minutes)
   Presentation (30 minutes)

4. Review of STAT 1-3 MCQs

Observational studies

Observational studies

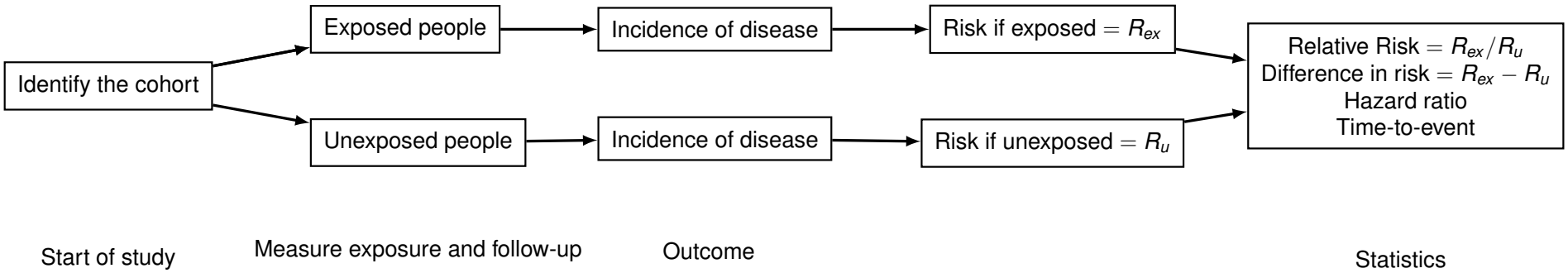
- The investigator simply observers...
- ...but has control over:
  - **choice of subjects**
  - **follow subjects prospectively or retrospectively**
  - **size of the sample**

Randomised controlled trials

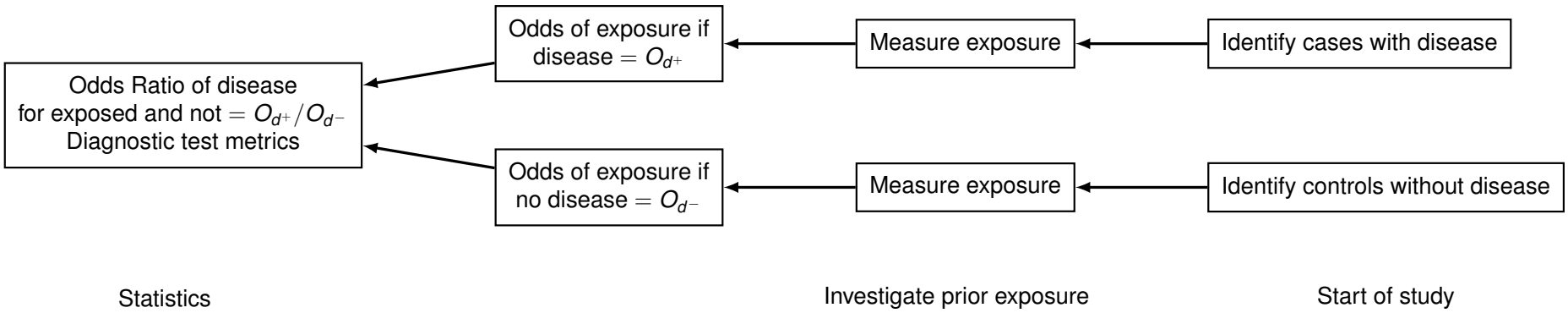
Examine the relative efficacy of treatments or **interventions** in human subjects.

Case-control and cohort studies

Cohort study



Case-control study



Measuring outcomes

- Cohort study: Relative Risk
- Case-control study: Odds Ratio

Risk factor	Cases with disease	Controls without disease
Exposed	a	b
Not exposed	c	d

Table: $OR = \frac{a/c}{b/d}$

Developed the disease	Exposed	Not exposed	Total
Yes	a	b	a+b
No	c	d	c+d

Table: $RR = \frac{a/(a+c)}{b/(b+d}$

What is a biobank

A new kind of large cohorts

Biobanks: large biomedical databases containing data on participants from traditional questionnaires, in addition to biological samples, for instance to help evaluate the association between genetic variation, environmental exposures for risk of disease.

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  - Large numbers of healthy control blood (also urine and saliva).

Question 1

Which study design is appropriate?

How would you design a study to investigate whether or not a proposed biomarker (or a combined panel of biomarkers) is an effective tool for identifying those at high risk of pancreatic cancer, in order to enable early detection of pancreatic cancer?

Question 2

How measure?

What summary measure of risk associated with the biomarker could you use for each study?

Main research question

We've got funding!

Assume that Cancer Research UK is going to fund **two different studies** to investigate **whether your research group's biomarker panel can help stratify risk of pancreatic cancer**, and enable early detection that might lead to improvements in public health outcomes. One will be a **case-control study**, that will report its results within 3 years and the other will be a **cohort study** which will report its results within 13 years.

Review of MCQ from STAT1 - STAT3

Join the menti quiz:

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`https://www.menti.com/zc2nq3h3mq`

Or go to `https://www.menti.com` and use the code **2106 7080**.