Overview: Study Designing

Correlation study

Cross-sectional study

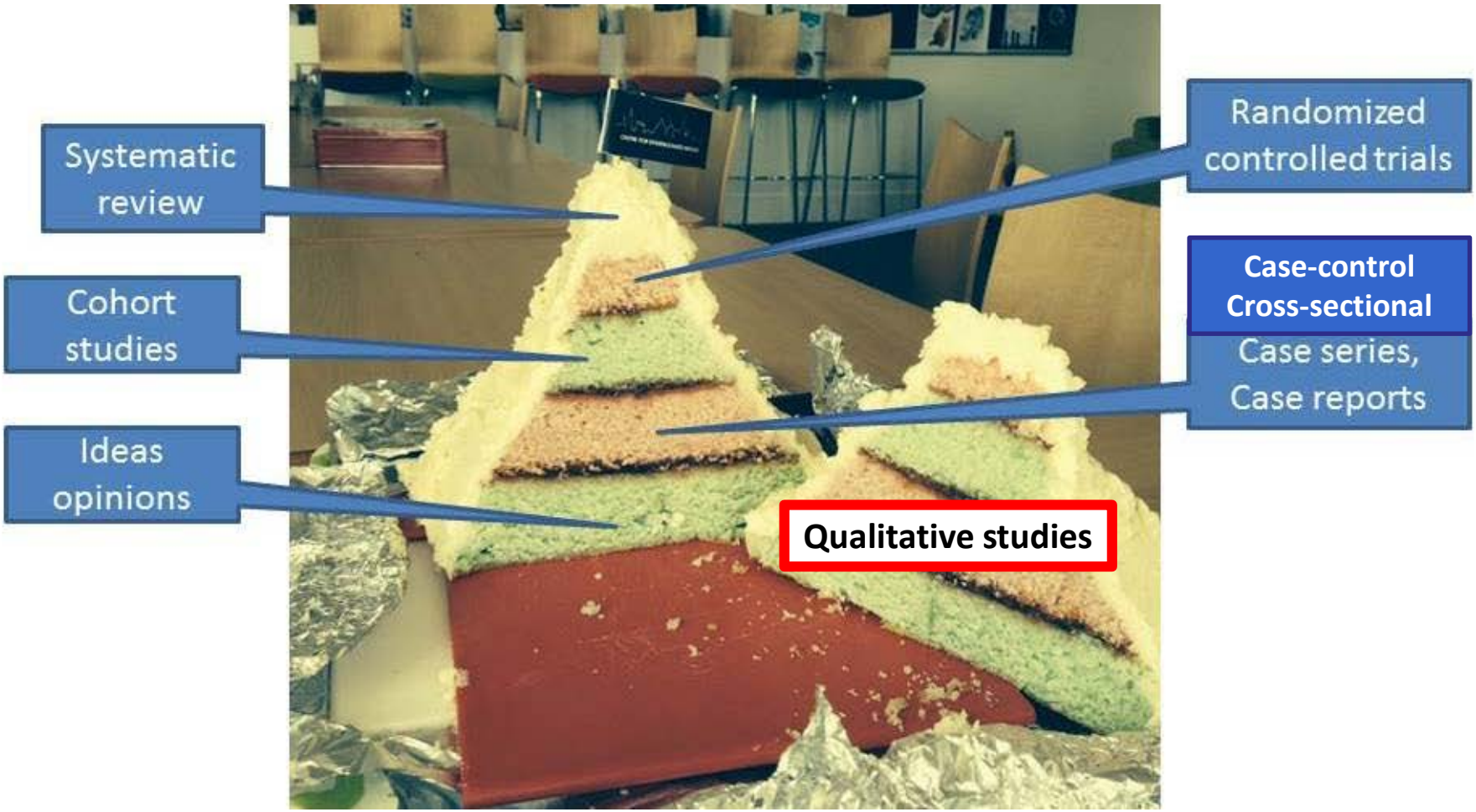
Case-control study

Cohort (follow-up) study

Intervention study (Clinical trials)

FUKUSHIMA MEDICAL UNIVERSITY
Aya Goto

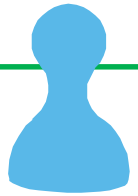
Levels of evidence



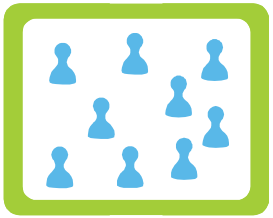
http://www.cebm.net/wp-content/uploads/2014/07/Slide11.jpg

Study design and occurrence of events

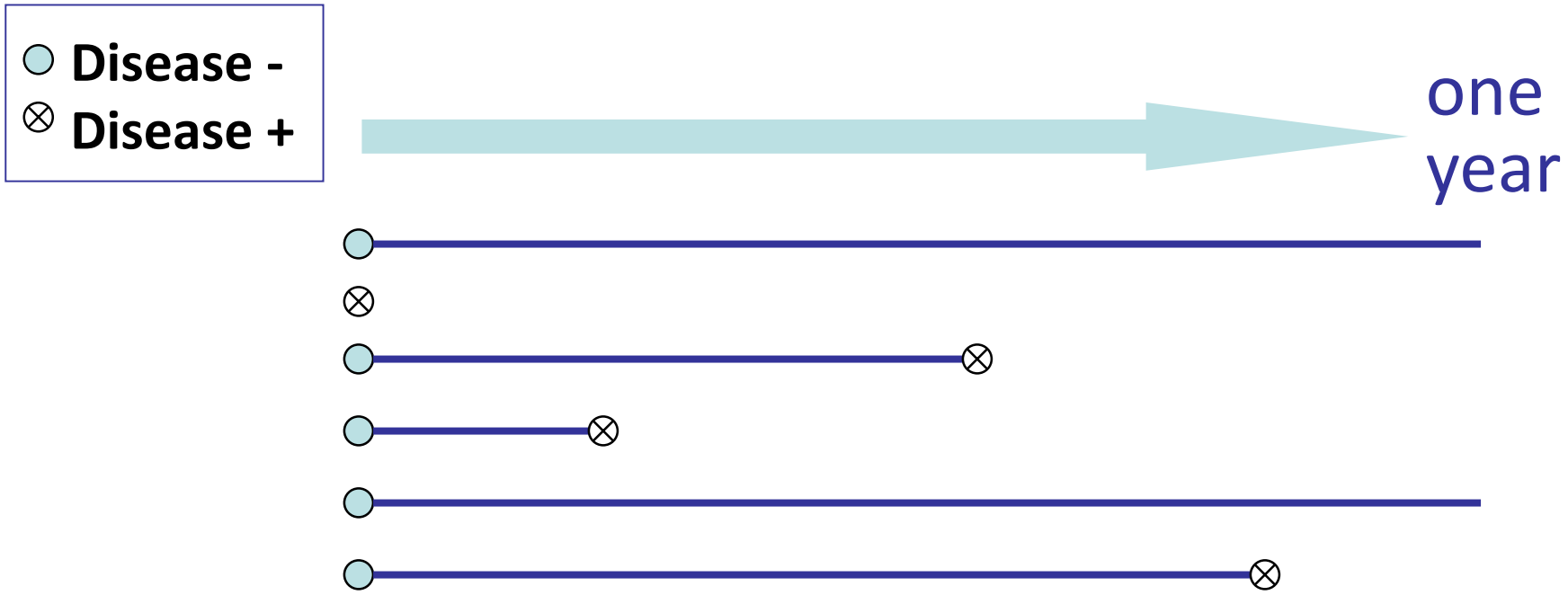
1. Cohort study → Incidence
2. Cross-sectional study → Prevalence
3. Qualitative study/open-ended question → Experiences



4. Secondary data analysis (eg. ecological study)



Incidence vs Prevalence



Prevalence at the starting point = ? / 6

(Cumulative) Incidence = ? / 5 during one year

Question

In recent years in Vietnam, we have observed a steep increase in prevalence of patients with diabetes?

What is happening?

Descriptive analysis of available data

Aya Goto, Quang Vinh Nguyen, et al. Prevalence of and Factors Associated with Reproductive Tract Infections among Pregnant Women in Ten Communes in Nghe An Province, Vietnam. Journal of Epidemiology. 2005; 15: 163-172.

> According to the outpatient record of the Nghe An MCH/FP Center in 2002, around 40% of the gynecological patients were diagnosed with vulvitis, vaginitis or cervicitis and treated without identifying the pathogens. The results from a situational analysis of the reproductive health services in Nghe An Province revealed that the RTI treatment given was based mainly on clinical symptoms.[10] The information suggests a lack of proper laboratory techniques and standardized case management in the region.

Summary

- Def.

  Study that compares disease (health related event) frequencies between different populations based on some factor of interest.
- Strengths

  Utilize existing data. →Quick and inexpensive.

  Can draw a hypothesis.
- Limitations

  Provide data not on individuals.

  Can not control for confounding factors.

FMU Students' presentation

- Introducing Fukushima

- Introducing FMU

- Descriptive analysis examples from students' biostatistics and epidemiology courses

Cross-sectional study

pregnancy delivery 6 months

Follow-up (cohort) study

Prevalence of and factors associated with reproductive tract infections (RTIs) among pregnant women in Nghe An

Research team

The research team goes to a target community to:

1) interview pregnant women

2) examine them for RTIs.

Research protocol and tools are available on our project website.

Target community

Analysis

1. Descriptive analysis:

   - Prevalence of RTI

2. Analytical analysis:

   - Factors associated with RTI

Advantage

Cross-sectional study is very useful for health policy development.

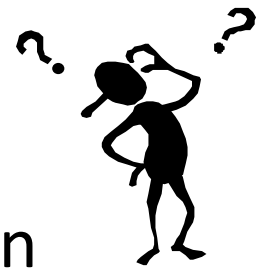
30% were Hep B positive in Nghi Thuy → Urgent need of Hep B prevention!

3% were Hep B positive in NamThanh → Hep B is not a serious problem

Limitation

Example result:

Douching was associated with endogenous infections.



Douching → Change in normal flora → RTI infection

RTI infection → Discomforts → Douching

Summary

Def.

Study that assesses both the exposure and disease status of an individual at a specific point in time.

- Strengths

  Data on individuals.

  Important for public health planning, because it can assess prevalence.

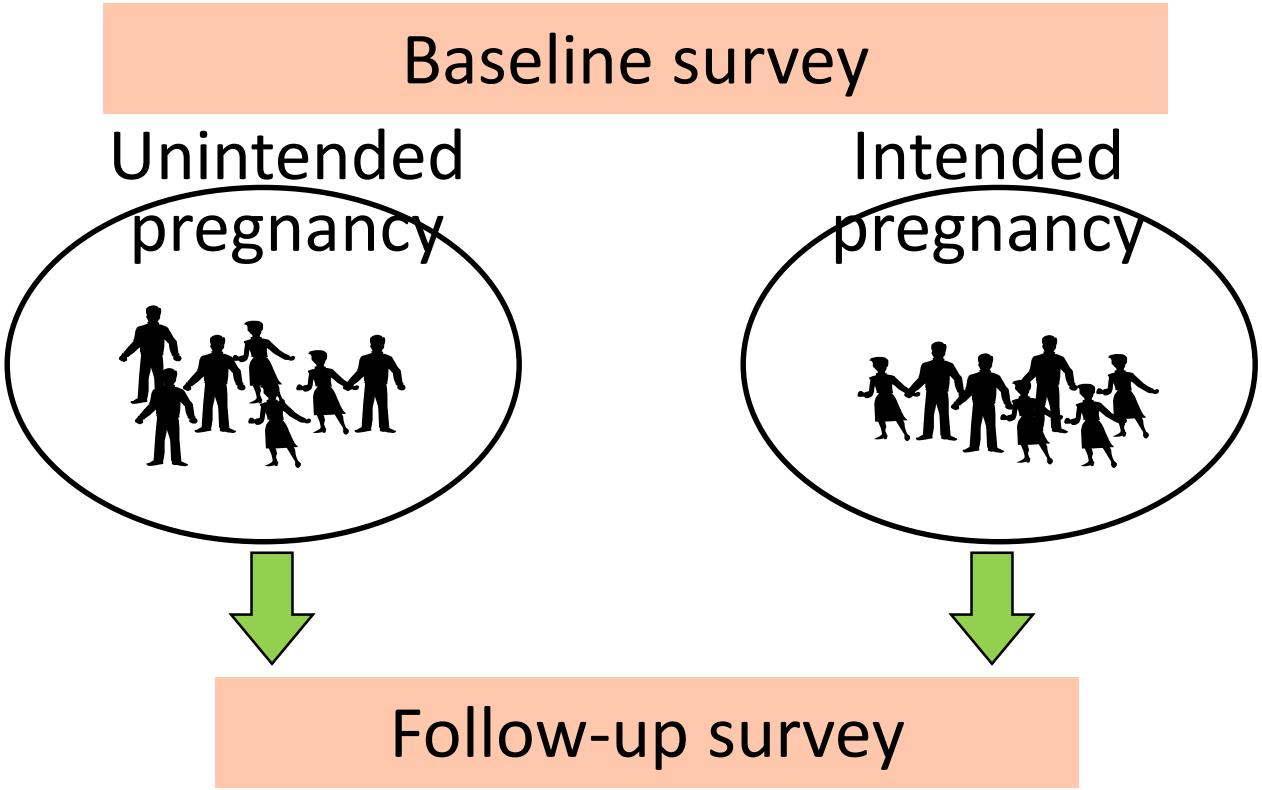
- Limitations

  No temporal sequence.

  Can not assess incidence.

Follow-up (cohort) study

Influences of pregnancy intention on parenting



(Follow and observe parenting outcomes)

Summary

Def.

Subjects who are free from studied disease/event are selected, classified based on exposure status, and followed to observe disease development.

Strengths

- Can observe temporal relationship.
- Can examine multiple outcomes.
- Can assess incidence.
- Can minimize bias.

Limitations

- Not useful when the disease is rare.
- Expensive and time consuming.
- Losses to follow-up may occur.

Case-control study

Factors associated with induced abortion among primigravid women in Ho Chi Minh City

Cases
(Abortion clients)

Controls
(Antenatal care attendants)

Ask about PAST reproductive related behaviors

Summary

Def.

Subjects are selected based on disease/event status and previous exposure status is assessed.

Strengths

- Useful when the disease is rare.
- Can examine multiple exposures.
- Quick and cheap.

Limitations

- Can not assess incidence and prevalence.
- Prone to bias, especially selection, observer, and recall bias.

Intervention study

Effectiveness of a parenting support for mothers with poor psychological status

Baseline survey

Intervention group
(Program participants)

Control group
(Non-participants)

Follow-up survey

Question 1

Dr. Y is in the second year of a PhD course. He would like to investigate how well a newly introduced PWV can predict occurrence of stroke. He works at a tertiary general hospital with a health checkup center. This will be his thesis work. How would he design his study?

Question 2

Mr. Y is in the third year of a PhD course. He would like to find ways to promote parenting support among fathers. He works at a health care center as a public health nurse. Specifically, he is interested in a frequency of paternal depression and its association with parenting behaviors. How would he design his study?

Question 3

Let's interpret results from a study about parenting.

- What is this study design?
- What is the main result?
- What are limitations of the study?
- What type of research is needed in future?

Association of pregnancy intention with parenting difficulty in Fukushima, Japan.

Goto A, Yasumura S, Yabe J, et al. J Epidemiol. 2005; 15(6): 244-6.

BACKGROUND: Our prior study revealed that nearly half of the Japanese women between the ages of 35 and 49 years experience an unintended pregnancy, many of which are carried to term. The present study is intended to investigate the association of the intention to become pregnant with parenting difficulty after birth.

METHODS: We distributed self-administered questionnaires to mothers of 317 randomly selected children aged 3 to 18 months who resided in Sukagawa City, Fukushima. The extent to which the unintended pregnancy is associated with the risk of negative attitude in parenting was examined by using multiple logistic regression analysis.

RESULTS: The response rate was 69% and the proportion of births, the outcome of an unintended pregnancy, 22%. When the pregnancy was unintended, the mother may not deny her feelings toward child abuse (odds ratio [OR] = 5.2). She was unlikely to have discussion about child rearing with her husband (OR=3.1) or family (OR=3.3); or the husband rarely participate in child rearing (OR=1.9).