

Evidence-based health care Special lecture I

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<http://minato.sip21c.org/ebhc.html>

Types of study

- Problem finding
 - Pilot study
 - Case report
 - Descriptive research: eg. Estimating incidence rates
 - Problem formulation: esp. Qualitative research
- Problem solving: Usually sample study and the appropriate design including sample size (using power analysis) is essential.
 - Hypothesis testing
 - Sampling -> Data -> Graph -> Estimating confidence intervals, Testing null-hypothesis | Finding significant difference / correlation / fitting models, etc.
 - Intervention study: Typically RCT (Randomized Controlled Trial)

Approach to the data

- Interview / Questionnaire: Usually in problem finding study
 - Structured / semi-structured / non-structured (free styled)
- Observation, including measurements
- Experiment, including animal experiment and RCT: Usually done in problem solving study
- Meta-analysis with systematic review

Sample size consideration

- Whole population study (not sample)
 - Usually done in problem finding study
 - Popular statistical methods are not directly applicable
- Sample study
 - Appropriate sampling is essentially required in hypothesis testing, animal experiments, and intervention study.
 - In some clinical settings, ideal sample size cannot be satisfied. In such cases, sample size is determined as all patients with informed consent within a study period. It's just a compromise.
 - In principle, calculating sample size as study design is needed (usually required in ethics committee). Usually the software like PS or EZR is used.
 - In animal experiments or intervention study, sample size calculation is especially important ("Not significant" result due to small sample size cannot be allowed as excuse).