Sampling Designs & Data Collection

Synergy Medical Education Alliance

Research Design Core Curriculum

Sampling Designs and Data Collection

- Choosing the Study Subjects
- Designing Questionnaires & Data Collection Instruments

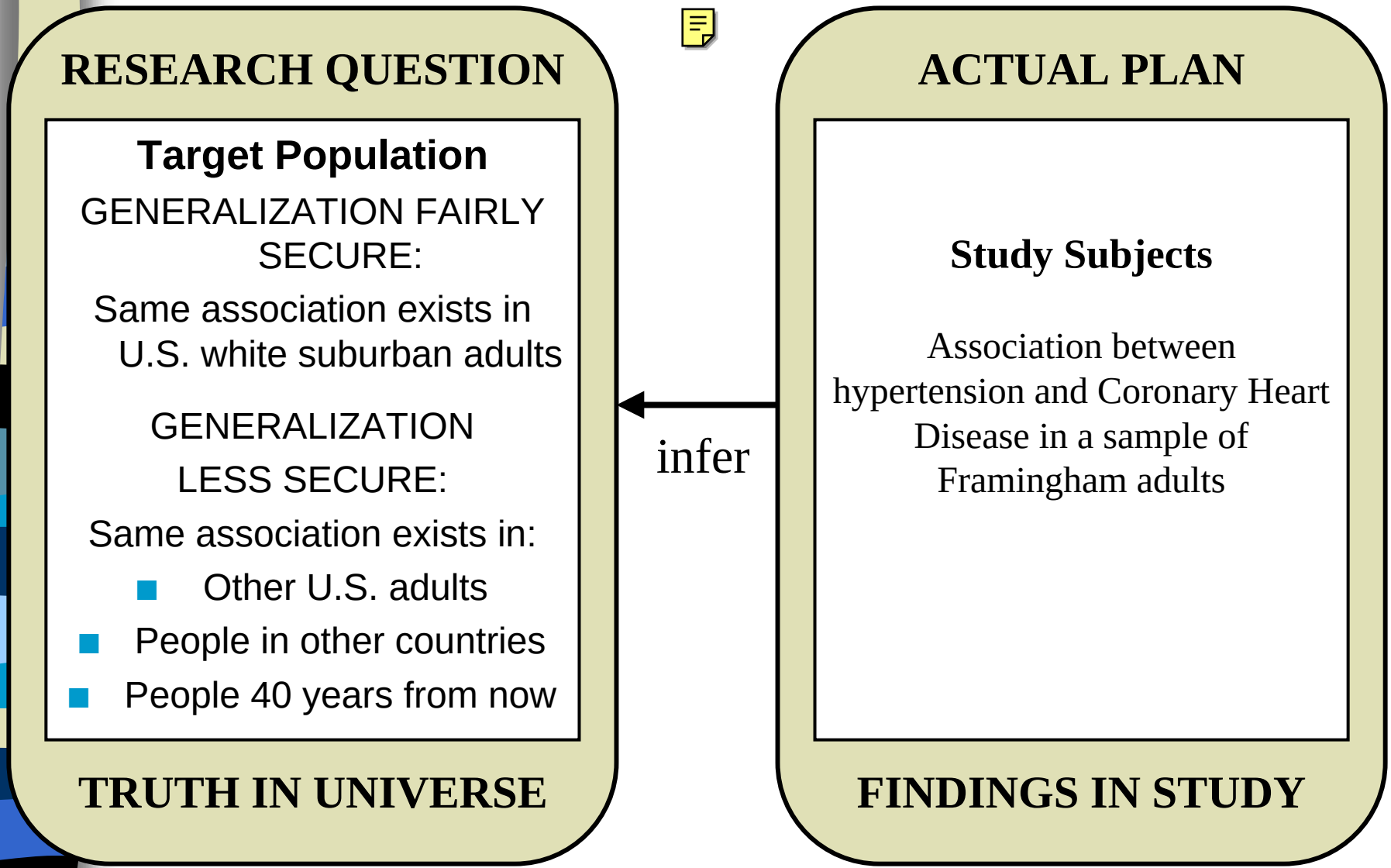
Choosing the Study Subjects

- Basic Terms and Concepts
- Selection Criteria
- Sampling - Convenience and Probability
- Subject Recruitment

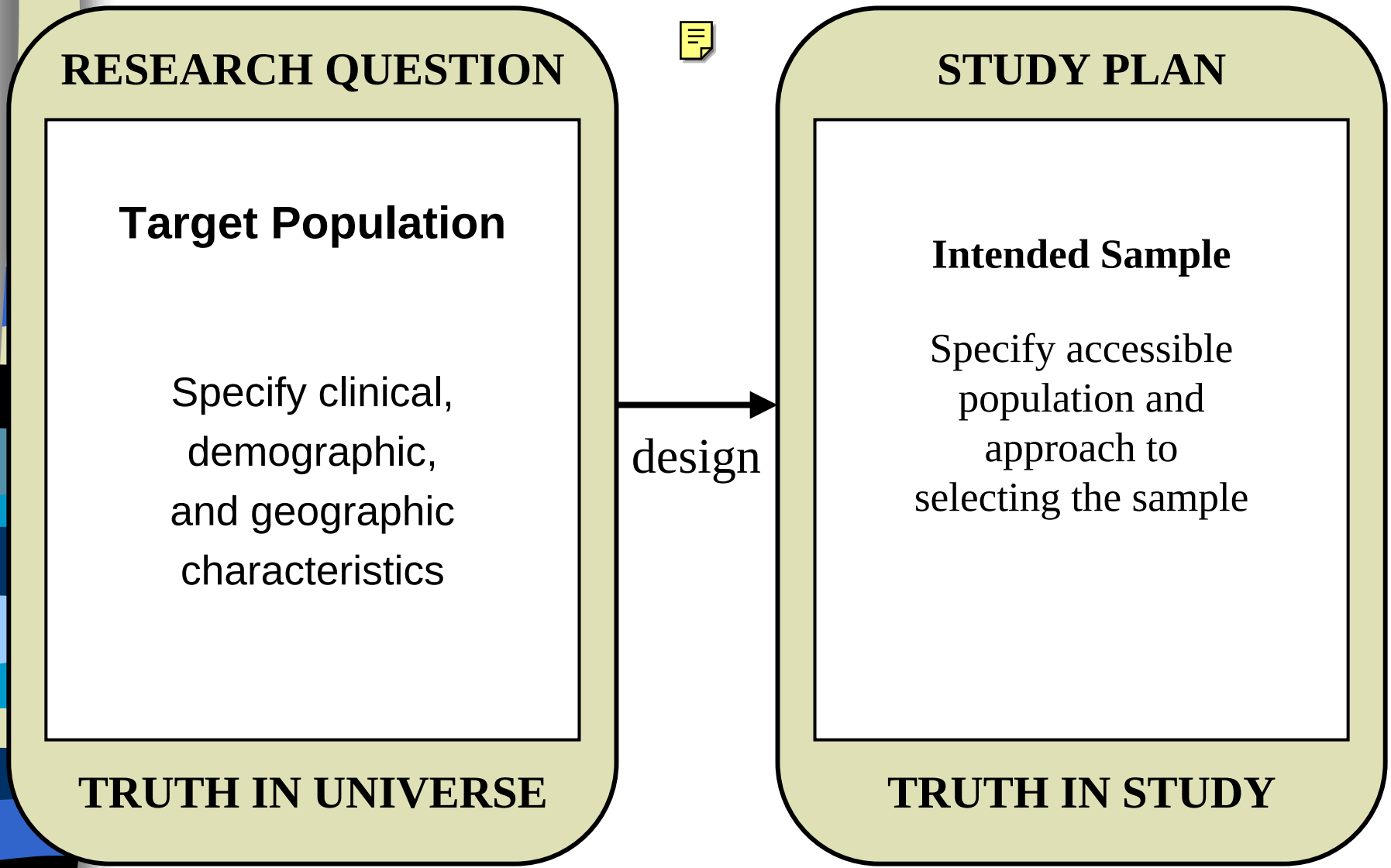
Basic Terms and Concepts

- Target Population
- Study Sample

Inferences in generalizing from the study subjects to the target population



Steps in designing the protocol for choosing the study subjects



Selection Criteria

- Establishing Inclusion Criteria
- Establishing Exclusion Criteria
- Clinical vs Community Populations

Establishing Inclusion Criteria

- Specifying characteristics that define populations that are relevant to the research question and efficient for study, including:
  - Demographics
  - Clinical Characteristics
  - Geographic Characteristics
  - Temporal Characteristics

Establishing Exclusion Criteria

- Specifying subsets of the population that will not be studied because of:
  - Likelihood of being lost to follow-up
  - An inability to provide good data
  - Being at high risk for side effects
  - Characteristics that make it unethical to withhold treatment

Clinical vs Community Populations

- Research questions involving patients with disease make hospitalized or clinic based patients easy to recruit.
- Non-clinical populations.

Sampling

- Convenience Samples
- Probability Samples
  - Simple Random Sample
  - Stratified Random Sample
  - Cluster Sample
  - Systematic Sample

Convenience Samples

- People who meet entry requirements that are easily accessible to investigators.
  - Consecutive Samples

Probability Samples

- Simple Random Sample
- Stratified Random Sample
- Cluster Sample
- Systematic Sample

Simple Random Samples

- Provide numerical values to units of the population and select a subset at random.
- Can use random number lists or generators to pick the sample

Stratified Random Sample

- Divide population into subgroups
  - According to age, gender, race, etc.
- Take a random sample from these strata
- Subsamples can be weighted to draw disproportionately from subgroups that are less common in the population but are of interest to the investigator.

Cluster Sample

- Random sample of natural groupings
- Useful when population is widely dispersed

Systematic Sample

- Similar to a simple random sample but it differs in that the sample is selected by a preordained process.
- Offers no advantage to a simple random sample and is rarely used.

Subject Recruitment

- Goals of Recruitment
  - Achieving a representative sample
  - Recruit sufficient numbers of subjects

Designing Questionnaires & Data Collection Instruments

- Designing Good Questions & Instruments

Designing Good Questions & Instruments

- Open-Ended & Close-Ended Questions
- Formatting
- Wording
- Avoiding Pitfalls

Open & Close-ended Questions

- Open-ended are useful when it is important to hear what participants have to say in their own words.
- Close-ended questions ask participants to choose from one or more pre-selected answers.

Formatting

- Forms should provide information on the purpose for the study
- Questions for major subjects should be grouped together
- Useful to begin with emotionally neutral questions
- Visual design

Wording

- Three things to take into account:
  - Clarity
  - Simplicity
  - Neutrality

Avoid Pitfalls

- Double-Barreled Questions
- Hidden Assumptions
- Question & Answer Options Don’t Match