Data Collection Defined

• Process by which the researcher collects the information needed to answer the research question
• Task of data collection begins after a research design has been defined
• Involves gathering relevant data to answer a stated problem
• Data is observable and measurable

Source: Prinha Bhandari, Scribbr Methodology, https://tinyurl.com/y684458d
Methods and Tools

• Methods - steps or strategies
• Techniques - means of gathering data with the use of specific tools
• Instruments and Tools - measures the concept that researchers use to collect data

Source: University of Wisconsin Eau Claire Lib Guides, https://tinyurl.com/24ucxav9
Selection of Methods

- Phenomenon - any problem, issue, or topic that is chosen as the subject of an investigation
- Type of research subjects
- Type of research study - randomized control trial, cohort, case-control, and qualitative
- Size of sample and distribution of target population
- Time frame of study
- Availability of resources

Source: Elise Paradis, University of Toronto, Journal of Graduate Medical Education, May 1, 2016
Data Collection Methods

**Primary** - critically analyze answers to research questions

- Qualitative
  - Interviews
  - Focus Groups
  - Observation
  - Case Studies

- Quantitative
  - Correlation
  - Regression

**Secondary** - data previously published in journals

Source: Benedictine University LibGuides, https://tinyurl.com/2kv2adf
Quantitative Data Collection Methods

Source: Question Pro, https://tinyurl.com/48z2kuyh
Qualitative Data Collection Methods

Source: Question Pro, https://tinyurl.com/ytmv4wf
Clinical Research Sampling Methods

- Target Population - whole population
- Sample Population - study population
- Sampling Types
  - Probability - all subjects have equal chance of being selected
  - Non-probability - non-equal chance of being selected

Probability Sampling Method

• **Simple Random Sampling** - whole population is accessible

• **Stratified Random Sampling** - populations are divided into smaller subgroups based on shared characteristics, and then randomly selected among these groups to form the final sample

• **Systematic Random Sampling** - subjects included in sample using a fixed interval

• **Cluster Sampling** - large population divided by geographical location into clusters

Source: Scribbr.com, Probability sampling method, https://tinyurl.com/ycyfj7t
Non-Probability Sampling Method

- **Convenience Sampling** - widely used in clinical research, investigators enroll subjects according to their availability and accessibility
- **Judgmental Sampling** - subjects are selected by choice
- **Snowball sampling** – used when existing study subjects recruit future subjects, as the sample builds up like a snowball, enabling more data to be gathered

Source: Scribbr.com Non-Probability Sampling, https://tinyurl.com/3dpryydf
<table>
<thead>
<tr>
<th>Random sampling</th>
<th>Non-random sampling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple</td>
<td>Convenience</td>
</tr>
<tr>
<td>Sample chosen randomly from a population. Equal possibility of being selected.</td>
<td>Subjects chosen by availability/presence (e.g. patients on a particular day).</td>
</tr>
<tr>
<td>Systematic</td>
<td>Purposive or Theoretical</td>
</tr>
<tr>
<td>Population is ordered or ranked. Sample at regular intervals (e.g. every 10th) until the sample size is reached. Does not give an equal chance of selection.</td>
<td>Snowballing</td>
</tr>
<tr>
<td>Stratified</td>
<td>Volunteer</td>
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<tr>
<td>Population grouped by a characteristic (e.g., male/female, inpatient/outpatient). Sample randomly and equally from groups. Avoids unequal representation or bias.</td>
<td></td>
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<tr>
<td>Quota</td>
<td></td>
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<tr>
<td>Stratified with specific numbers per group. Groups may be unequally represented.</td>
<td></td>
</tr>
<tr>
<td>Cluster</td>
<td></td>
</tr>
<tr>
<td>Population divided into sub-populations or clusters (e.g. electorate, health service). Randomly select clusters as needed. Include all individuals in selected clusters.</td>
<td></td>
</tr>
</tbody>
</table>

Source: Tony Smith, *Journal of Medical Radiation Sciences*, 2009