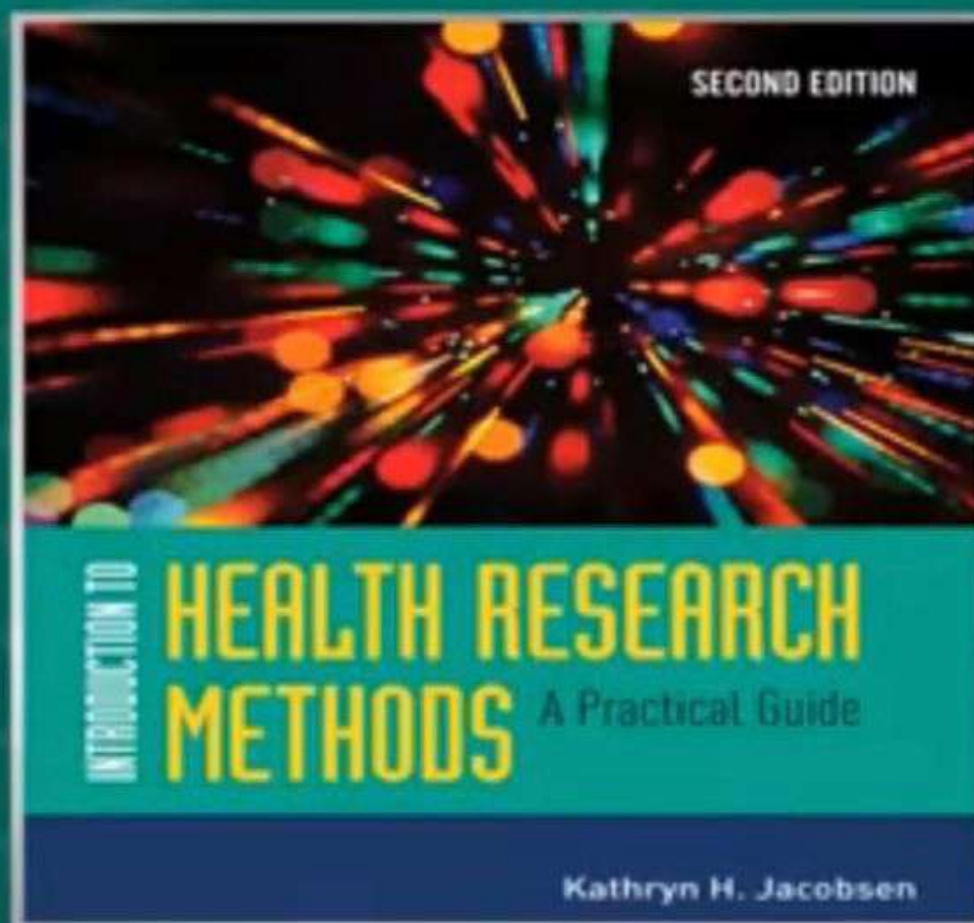# SCIENTIFIC MEDICAL RESEARCH

Week 8

Surveys & Interviews

Chapter 19

19.1 Interviews vs. Self-Administered Surveys

- Interviews may promote accuracy & completeness but may be expensive because of personnel costs.

- Self-administered surveys may yield a higher sample size, be more cost-effective, and be preferable for sensitive questions.

Figure 19-1: Examples of Methods for Collecting Data

Interview

A member of the research team asks questions of participants and records their responses

In-person (face-to-face) interview	Telephone interview

Self-Administered Survey

Participants are provided with a set of questions and record their own answers

Completion in presence of researchers	Mail (postal) survey	Email/ internet-based survey

19.2 Recruiting Methods

- The goal is to <u>maximize the participation rate</u> among sampled individuals.

- The recruitment methods are often paired with the data collection method (e.g., using online methods to recruit for an Internet-based survey).

- Provide multiple opportunities to participate (e.g., follow-up mailings).
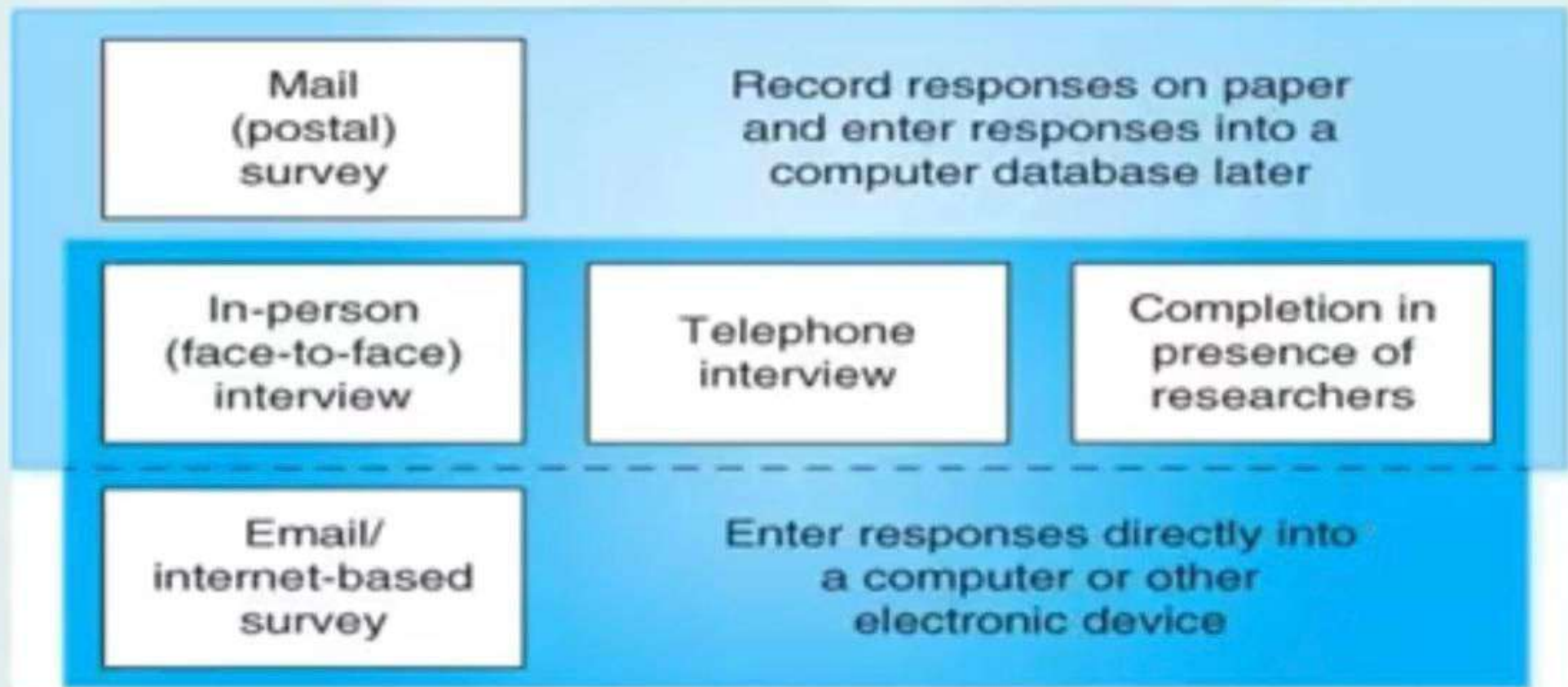
- Consider appropriate incentives.

Figure 19-2: Examples of Methods for Contacting Members of the Sample Population
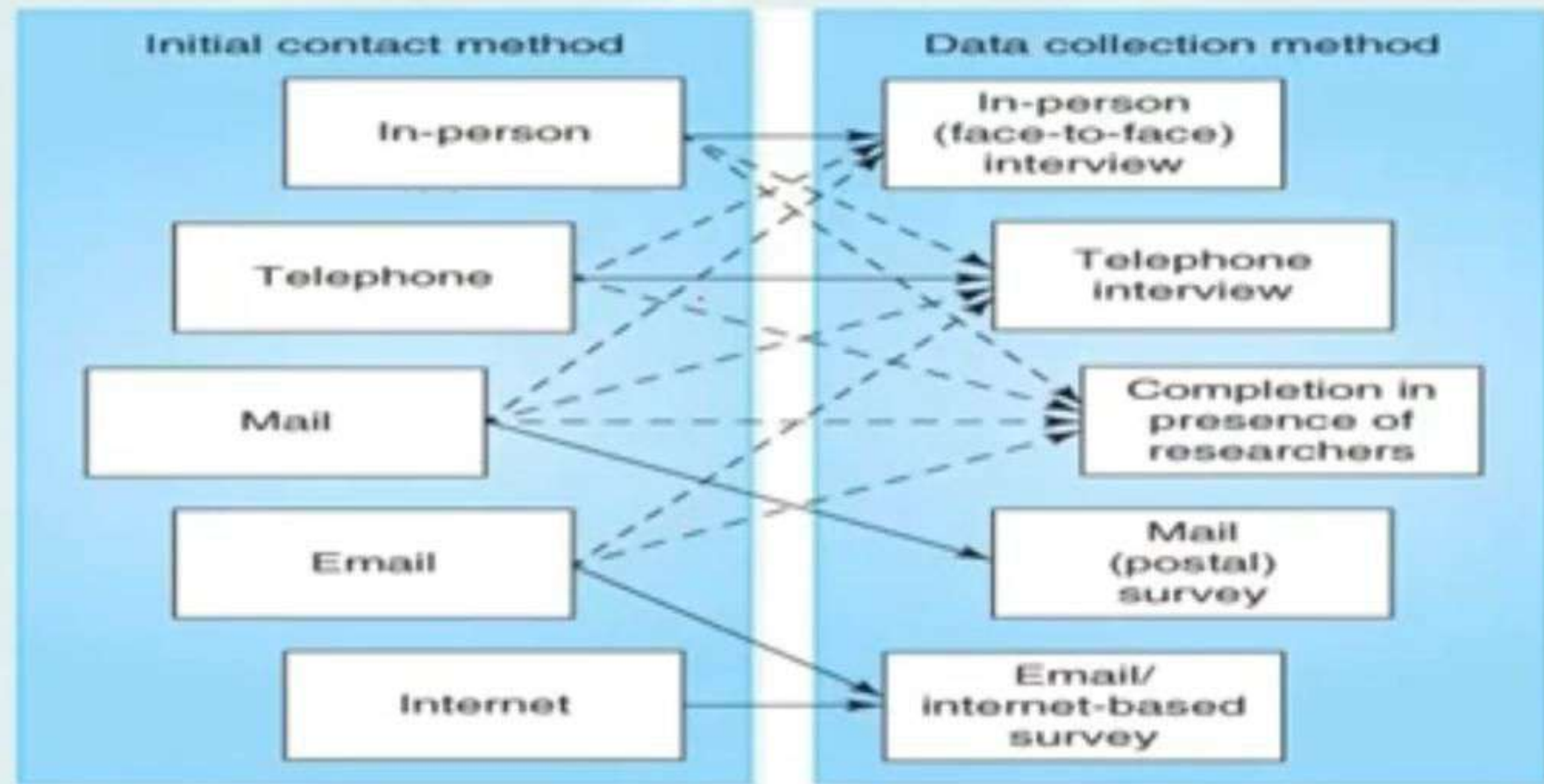
19.3 Data Recording Methods

- **Paper-based surveys** must later be scanned or typed into computers; this can be expensive & time-consuming, but they also allow a large number of people to take the survey at one time & place.

- **Computer-assisted surveys** input survey responses directly into a computer and can have built-in checks & "skips," but not all populations are comfortable with computers.

Figure 19-3

Mail (postal) survey	**Record responses on paper and enter responses into a computer database later**	
In-person (face-to-face) interview	**Telephone interview**	**Completion in presence of researchers**
Email/ internet-based survey	**Enter responses directly into a computer or other electronic device**	

19.4 Training Interviewers

- Uniformity in data collection procedures is important.

- Interviewers need access to comprehensive handbooks & training sessions when they can practice their skills.

- Inter-rater reliability needs to be established

**FIGURE 19-4**   **Characteristics of Well-Trained Interviewers (continued)**

Characteristic	Actions That Demonstrate the Characteristic
Consistent	• Reads the script exactly as it is written • Probes for answers only when the script indicates that probing is approved • Does not provide explanations for any question unless an explanation is provided in the script or approved in the interviewer handbook
Impartial	• Avoids verbal and nonverbal expressions of approval or disapproval • Does not express personal opinions • Avoids leading interviewees toward a particular answer (for example, by placing special emphasis on particular words in a question or by probing until receiving a particular desired response)
Honest	• Does not fabricate or falsify reports • Records responses to open-ended questions verbatim, without rephrasing, paraphrasing, "correcting," or interpreting them
Careful	• Completes all steps of the interview process in the correct order, as prescribed by the interviewer handbook • Documents informed consent prior to conducting an interview • Does not skip any component of the interview • Completes all response forms correctly

FIGURE 19-4 Characteristics of Well-Trained Interviewers

Characteristic	Actions That Demonstrate the Characteristic
Respectful	• Communicates pleasantly and professionally with all study participants and members of the research team • Has practiced interviewing enough to be comfortable with both the script and the interview process • Asks supervisors for assistance when it is needed
Organized	• Begins each scheduled interview session on time • Has all necessary materials on hand prior to the start of each interview session • Maintains meticulous records and completes all files and paperwork promptly
Considerate	• Dresses and grooms appropriately for in-person interviews • Is alert to modifiable conditions that may make interviewees uncomfortable, such as loud background noises or dim lighting • Allows adequate time for participants to respond to each question
Articulate	• Speaks at an appropriate pace and volume • Enunciates clearly • Uses an appropriate tone of voice (and, for in-person interviews, appropriate facial expressions and gestures) • Rereads questions and/or the list of closed-ended responses when a participant does not understand the question or the acceptable responses

Additional Assessments

Chapter 20

SECOND EDITION

INTRODUCTION TO HEALTH RESEARCH METHODS

A Practical Guide

Kathryn H. Jacobsen
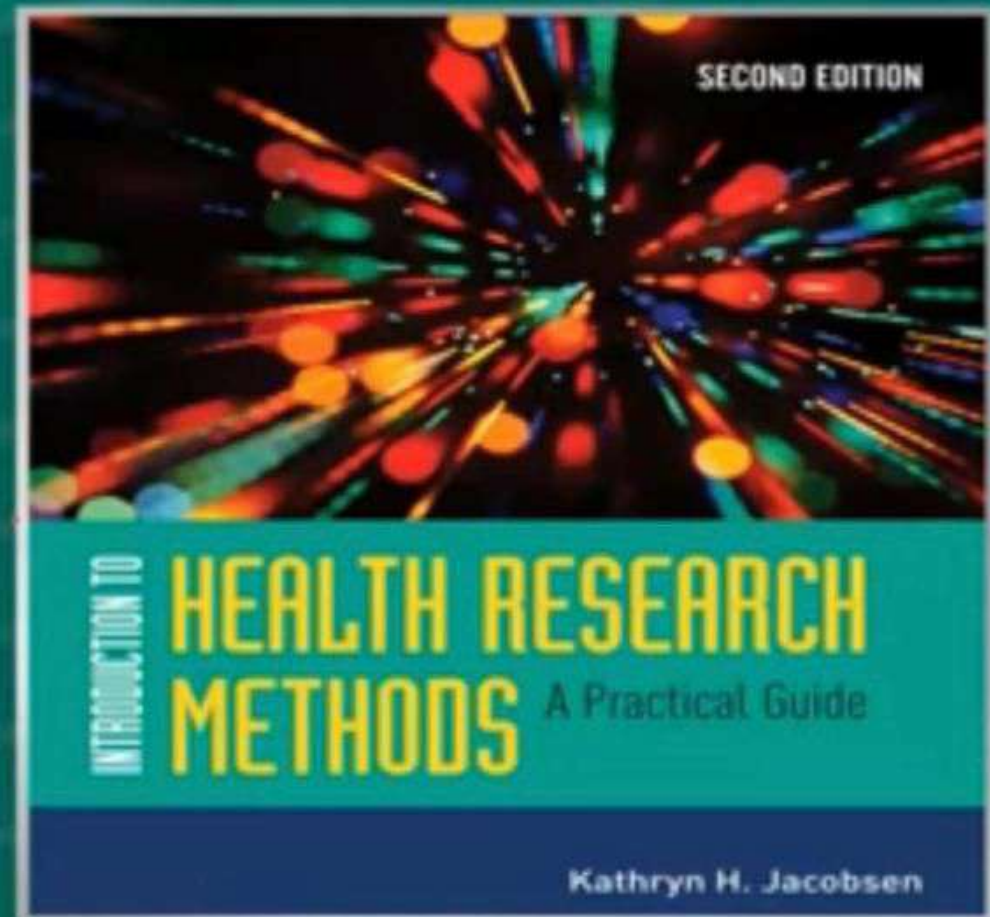
20.1 Supplementing Self-Reported Information

- Laboratory tests & other objective measures can be used to supplement & validate self-reported data.

20.2 Anthropometric Measures

- ***Anthropometry*** is the measurement of the human body.
- Examples include height, weight, & waist circumference.
- Calibration should be done before measurement
- Ensure privacy for participants being measured.

20.3 Vital Signs

- Examples include body temperature, blood pressure, & pulse (heart rate).

- The research protocol should state exactly how each measurement should be taken.

- Strict guidelines should be applied to guarantee reliability

- Inter-rater reliability needs to be established

20.4 Clinical Examination

- Examples include breath sounds, range of motion, & oral health status.

- An assessment form can guide the procedures that will be used for all participants.

20.5 Tests of Physiological Function

- Examples include spirometry for lung function, EEG for brain function, & audiometry for hearing acuity.

- Consider the costs of these tests.

- From care plan vs. for study purpose

20.6 Laboratory Analysis of Biological Specimens

- Examples include immunologic, genetic, & other tests of blood, urine, saliva, & other body fluids.

- Decide ahead of time whether results will be shared with participants.

20.7 Medical Imaging

- Examples include X-rays, CT scans, MRIs, & ultrasound.

20.8 Tests of Physical Fitness

- Examples include tests of strength, endurance, & flexibility.

- Safety must be the top priority.

20.9 Environmental Assessment

- Environmental risks to human health can be assessed by trained observers with checklists and by laboratory tests (e.g., tests for lead & radon).

20.10 GIS (Geographic Information Systems)

- Use a GPS (global positioning system) to gather the latitude & longitude for key places, so that they can be mapped & incorporated into spatial analysis.

20.11 Inter-Rater Reliability

- Use the kappa statistic or another test to demonstrate that two assessors are making consistently valid measurements.

Figure 20-1: Inter-Rater Agreement

Concordant pairs: Observers agree
Both positive = *a*
Both negative = *d*

Discordant pairs: Observers disagree
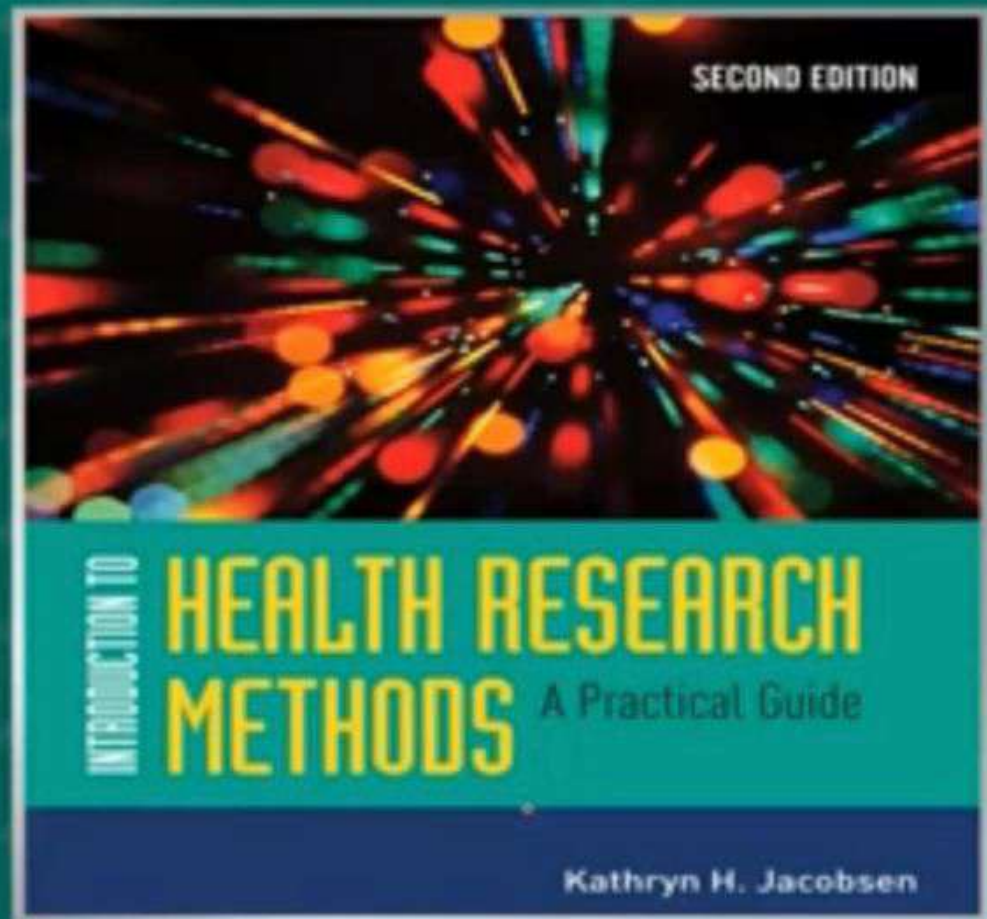One positive and
one negative = *b, c*

$$\text{Expected agreement:} = \frac{((a+b)(a+c)) + ((c+d) + (b+d))}{(a+b+c+d)^2}$$

$$\text{Observed agreement:} = \frac{a+d}{a+b+c+d}$$

$$\text{Kappa coefficient} = \kappa = \frac{\text{Observed agreement} - \text{Expected agreement}}{1 - \text{Expected agreement}}$$

Secondary Analyses

Chapter 21

21.1 Overview of Secondary Analysis

- In a *secondary analysis*, the researcher conducting the statistical analysis has not had (and does not have) any contact with the individuals whose data are being examined.

21.2 Publicly Available Data Sets

- Many datasets are available online, such as a diversity of cross-sectional studies from the CDC:
  - National Health and Nutrition Examination Survey (NHANES)
  - National Health Interview Survey (NHIS)
  - Behavioral Risk Factor Surveillance System (BRFSS)

- The data may be downloadable to all, or there may be an application process for acquiring the relevant data.

- Read all relevant supporting documentation, and be aware of possible costs & authorship issues.

21.3 Private Data Sets

- Professors (and others) may make not-yet-analyzed data files available to students & other investigators.

- Ethical approval, careful review of the data collection methods, & frank conversations about authorship are required.

21.4 Clinical Records

- Ethical review of a research protocol is required before data are accessed. (e.g., **HIPAA** Act in USA)

- Some data are electronic; others may be on paper and require data entry.

- Records are often incomplete. However, absence of information in a file cannot be assumed to mean that the symptom or sign was not present in the patient.

21.5 Health Informatics, Big Data, & Data Mining

- **Health informatics**: applies advanced techniques from information science & computer science to the compilation & analysis of health data

- **Big data**: the analysis of data sets that are so large & complex that they require access to powerful hardware & special statistical software applications

- **Data mining**: can be used to extract particular phrases from large sets of files

- **Data sources**: electronic health records (EHRs), billing records, lab records, medication records, social media, & others

21.6 Ethics Committee Review

- Any <u>data file containing possibly identifiable information</u> requires review by an ethics committee prior to beginning analysis.

- For all other data files, check with the appropriate committees about what review is required.

The End
Good Luck