Tribal Accreditation Learning Community

To join by phone:

1-877-668-4493
Access code: 730 488 633

JANUARY 6, 2020

TOPIC:

DATA ANALYSIS FOR PERFORMANCE IMPROVEMENT

National Indian Health Board

TALC Webinar Protocols

- The meeting will be recorded.
- Please keep your phones on mute to minimize background noise.
- Use the chat box anytime or the phone line for questions during the Q&A
- Feel free to ask questions of other people on the line as well
- A post webinar evaluation survey will pop up when you leave the meeting, please fill that out

National Indian Health Board

SSSC Project Progress

- PI/SI Cohort:
  - Check in Calls
  - Signed MOA/ Audit Submission
  - If new to the cohort- Site Visit Planning
- Self-Assessment Cohort:
  - Signed MOA/ Audit Submission
  - Dates for the in-person training
  - Form PI/Accreditation Assessment Teams

National Indian Health Board

SSSC Project Progress

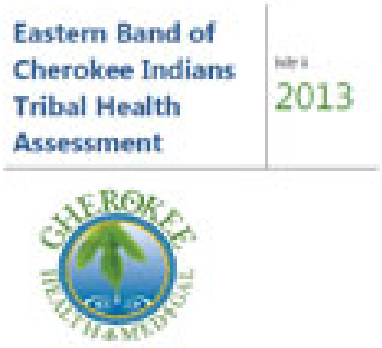
- Joint Cohort: Awardee selected (Tribe, state, and local health department)
  - Will share progress so that connections can be made
- Press-release: Please feel free to share with your community to highlight your work!

Agenda

- How is Data Analysis used in PI/SI?
- Types of Data
- Statistics in Data Analysis
- Research Studies as a Data Source

Where is Data Analysis Used

- CHA/CHIP
- Performance Measurement
- QI Projects
- Policy Analysis and Decisions
- Epidemiology Programs



National Indian Health Board

Core Competencies for PH

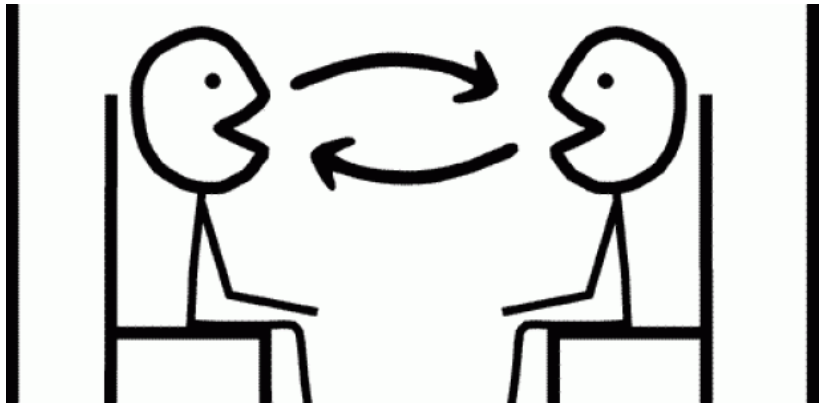
- Tier 1: Identifies quantitative and qualitative data and information (e.g., vital statistics, electronic health records, transportation patterns, unemployment rates, community input, health equity impact assessments) that can be used for assessing the health of a community.
- Tier 2 and 3: Determines quantitative and qualitative data and information (e.g., vital statistics, electronic health records, transportation patterns, unemployment rates, community input, health equity impact assessments) needed for assessing the health of a community.

Core Competencies for PH

- Tier 1: Selects valid and reliable data
- Tier 2: Analyzes the validity and reliability of data
- Tier 3: Evaluates the validity and reliability of
- data

Types of Data

- Data is generally split into two categories:
  - **Quantitative Data**
  - **Qualitative Data**



Types of Data in PI/SI

Self-Administered Survey Responses

Interviews

Experimental Results

Primary Data: Gathered Firsthand

Secondary Data: Existing data that is extracted for research purposes

Government Health Data

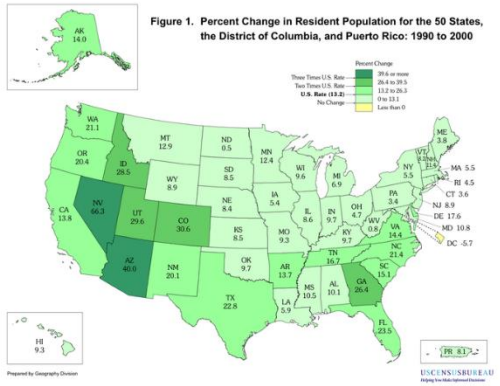
Hospital Data

Census Data

National Indian Health Board

Types of Data in PI/SI

- Evaluation data
- Benchmarks
- Census data
- National databases
- Research Synthesis
- Survey Data
- Health-records data
- Focus Group/KII



National Indian Health Board

Statistics in Data Analysis

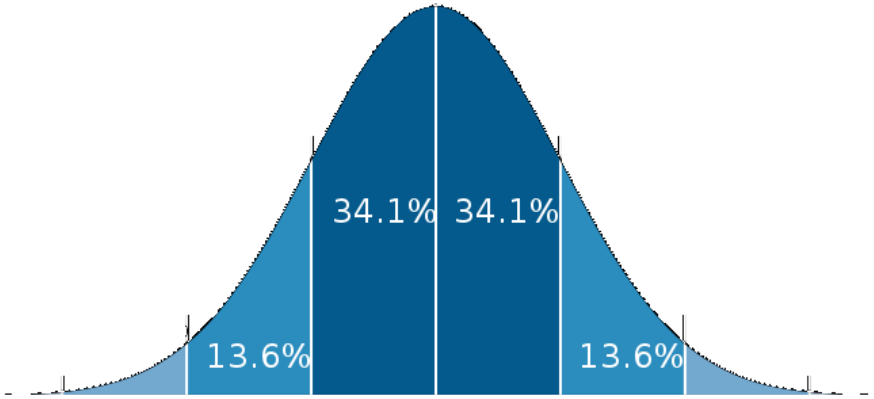
- Why are statistics important for public health?
  - *"Nearly every day, statistics are used to support assertions about health and what people can do to improve their health"*
  - Statistics are used to determine if claims are supported by data.

Statistics in Data Analysis

- Why are statistics important for public health?
  - Often, accepted claims are supported through multiple studies.
  - Support evidence-based program and policy development.
  - Avoid making decisions on individual anecdotes or staff feelings (although anecdotes and staff experience can be powerful data sources)

Descriptive Statistics- Terminology

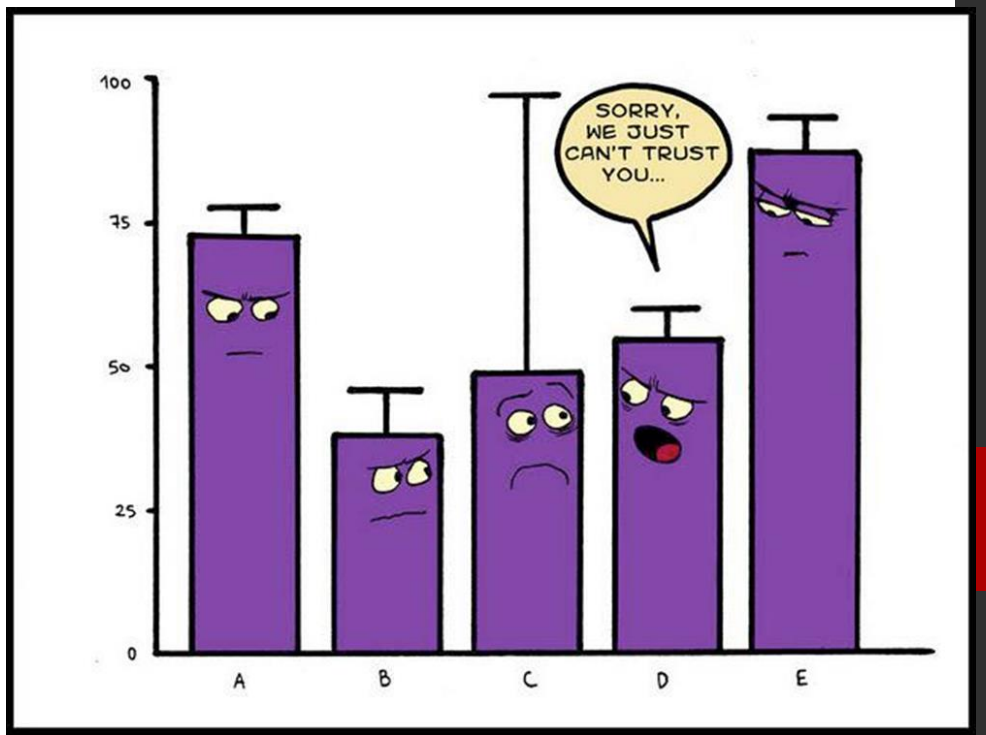
- **Mean (μ):** the average
- **Median:** the middle point of a number set
- **Mode:** the value that appears most often
- **Standard Deviation (σ, s, or sd):** the variation of data from the mean
  - The smaller the sd, the closer the results are to the mean.



National Indian Health Board

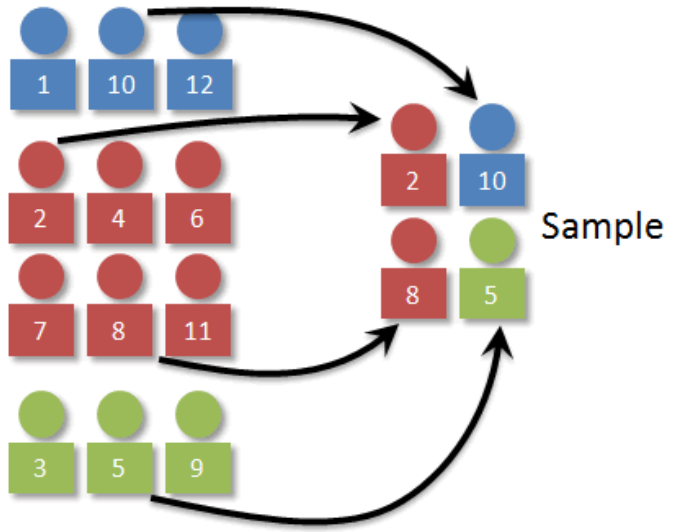
Descriptive Statistics- Terminology

- **Outliers**: data that is significantly different than the pattern
  - May be a result of experimental error. Sometimes excluded
- **Variable**: a quantity that can be measured
  - Ex. Age, sex, behaviors, etc.

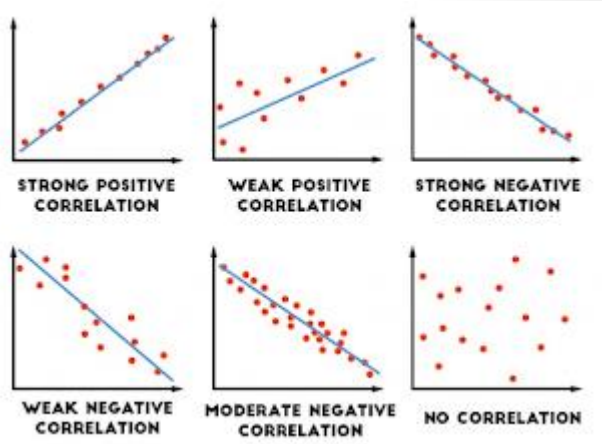


Statistics- Terminology

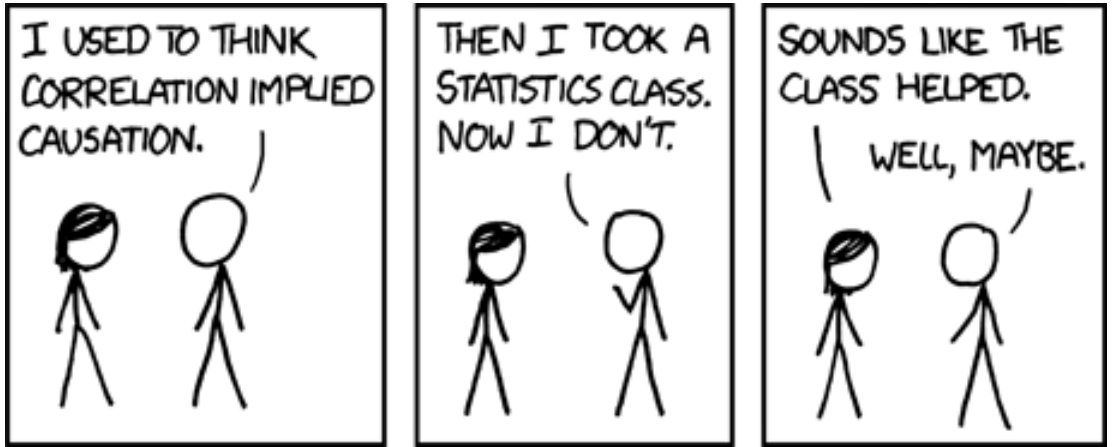
- **Population:** The entire group of people whom you intend to generalize your results for.
  - Ex. All Tribal Citizens in your community, nurses at the health center, the LGBTQ population, etc.
  - Usually denoted by **N**.
- **Sample:** The individuals who participate directly in data collection (a sub-set of your population)
  - Based on sample size, the results can be generalized to the larger population.
  - Usually denoted by **n**.



Statistics- Terminology



- **Correlation**: the degree of relation between two variables
  - Does not mean that the change in one variable is the cause of the change in the other
- **Causation:** there is cause and effect relationship between two variables
  - Usually established through a controlled study



National Indian Health Board

Statistics- Terminology

- Sampling Methods: how a sample is selected
  - **Random Sample**: Every member of a population has an equal chance of being included. Least subject to bias.
  - **Convenience Sample**: Sample is selected in a non-random way. More subject to bias.
  - **Voluntary Response Sample**: Sample is made up of people who choose to participate. More subject to bias.

Statistics- Bias

- Bias in Research:
  - **Sampling Bias**: errors based on how respondents are selected. Respondents don't reflect the population.

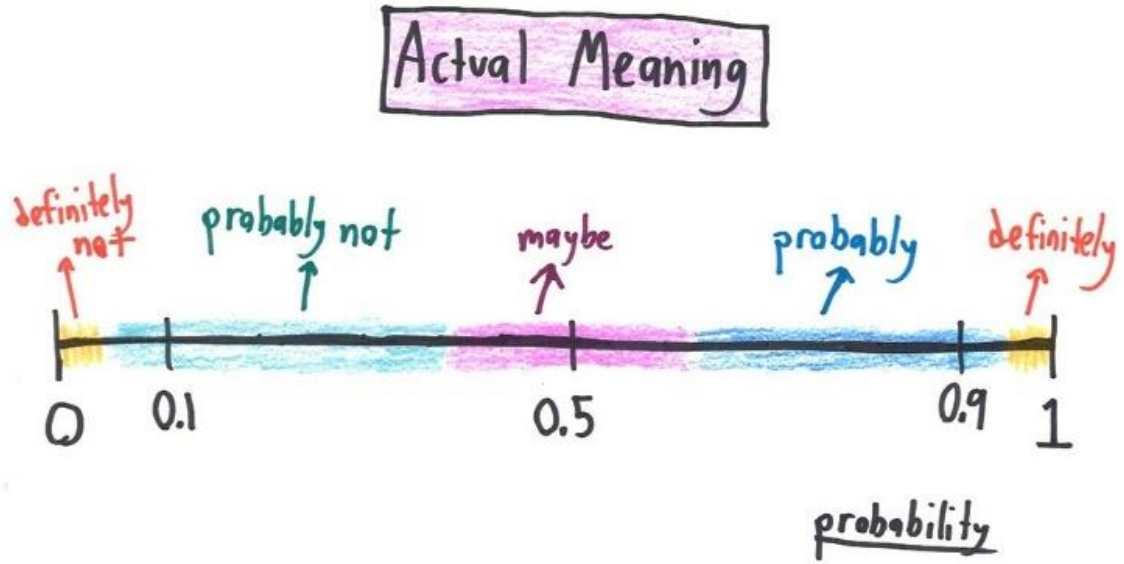
  - **Nonresponse Bias**: bias based on optional responses or unequal responses

Statistics- Bias

- **Response Bias**: respondent does not answer truthfully
  - Often due to the wording of the question.
  - Example: Recall Bias: respondent remembers incorrectly
- **Confounding Factors**: additional factors may mask an association or falsely create the appearance of association
  - Researchers often control or “adjust” for confounding factors to prevent bias.

Statistics- Terminology

- **Probability**: the chance an event will happen
  - Between 0 and 1



National Indian Health Board

Statistics

- Examples of Statistical Tests in Public Health:
  - Chi Square: Is there a relationship between two variables?
    - Example: Is participating in an exercise class associated with gender?
  - Linear Regression: Predict an outcome based on variables. Which variables have an impact?

Statistics

- Examples of Statistical Tests in Public Health:
  - Risk Ratio/ Odds Ratio: Measure the association between a risk factor and outcome
    - OR=1, Exposure does not effect outcome
    - OR>1, Exposure associated with higher odds of outcome
    - OR<1, Exposure associated with lower odds of outcome
    - **Confidence Interval:** Range of values that you are a certain percent sure the mean falls within (often used in RR/OR)

	Outcome present	Outcome absent
Intervention or exposure PRESENT	**a**	**b**
Intervention exposure ABSENT	**c**	**d**

a = Number of exposed cases

b = Number of exposed non-cases

c = Number of unexposed cases

d = Number of unexposed non-cases

$$\text{OR} = \frac{a/c}{b/d} = \frac{ad}{bc}$$

Statistics

- **P-value**: Are the results significant based on our significance value?
  - P values less than 0.05, 0.01, .001 are usually the significance value.
  - Therefore if the significant value =0.05, P< 0.05 would be significant.

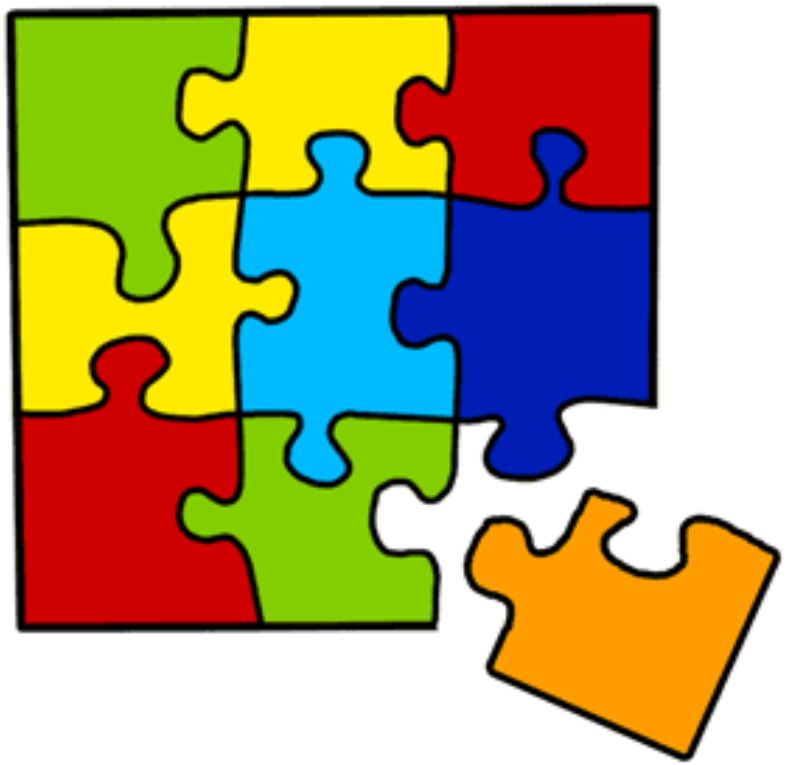
Research Studies Overview

- The process of gaining knowledge through a systematic, rigorous way
- Can be used as a data source for understanding public health problems
- Different ways to do research, including indigenous methods.

National Indian Health Board

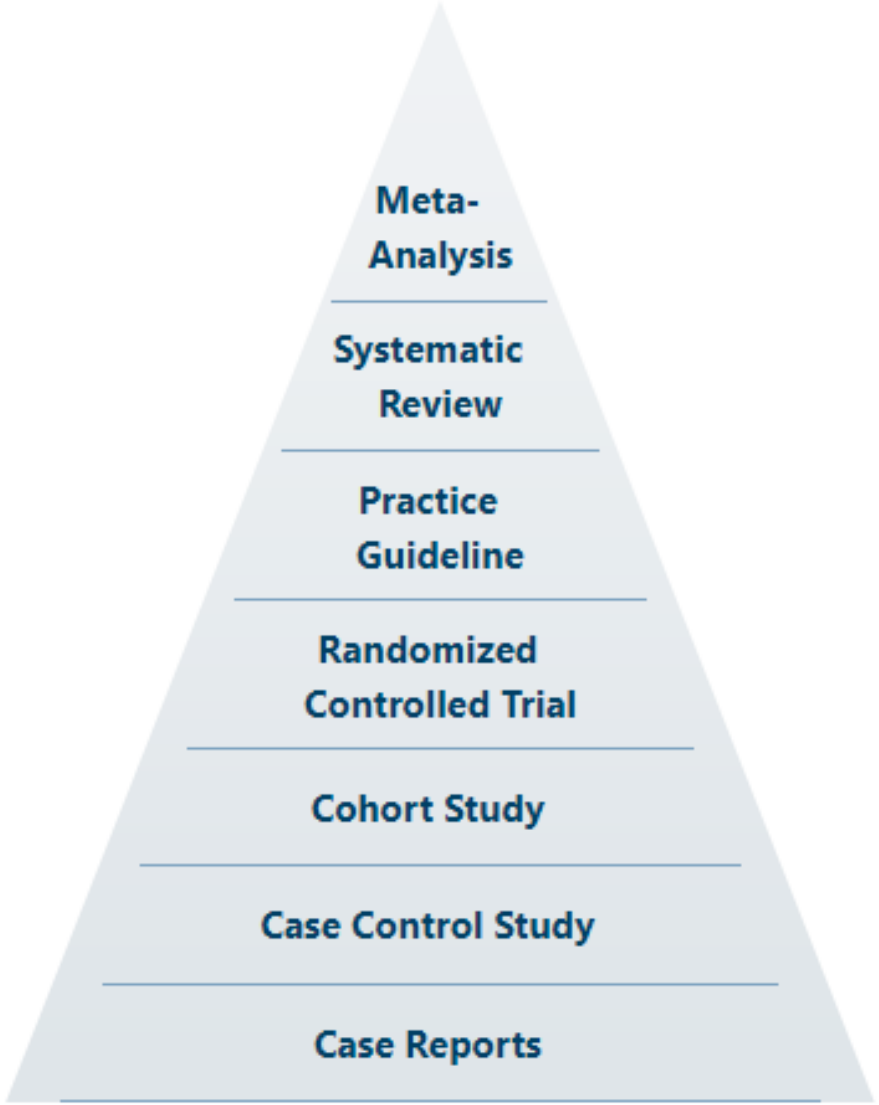
How are Research Studies Usually Structured?

- Introduction
- Methods
- Results
- Discussion
  - Limitations



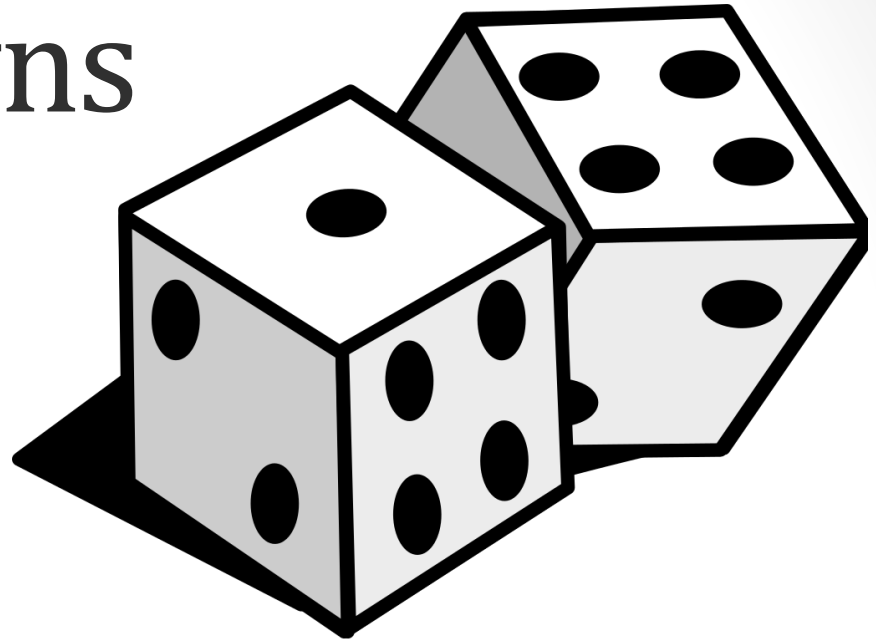
National Indian Health Board

Study Designs



National Indian Health Board

Study Designs



- Types of Research Studies
  - **Randomized Control Trials**
    - People are randomly assigned to different behaviors or treatments to see if they are more likely to develop certain outcomes. Control groups, randomization, and placebos all may be used.

Study Designs

- Types of Research Studies
  - **Observational Studies**
    - **Prospective Cohort Study**: A group of people are followed over time. Exposures are recorded and compared to see if there is an impact on an outcome
    - **Case-control**: 2 groups are compared. 1 already has the outcome, the others do not have the outcome. Exposures are compared

Study Designs

- Types of Research Studies
  - Observational Studies (cont.)
    - **Case Report/Study:** Report of an individual patient or single situation. Qualitative research.

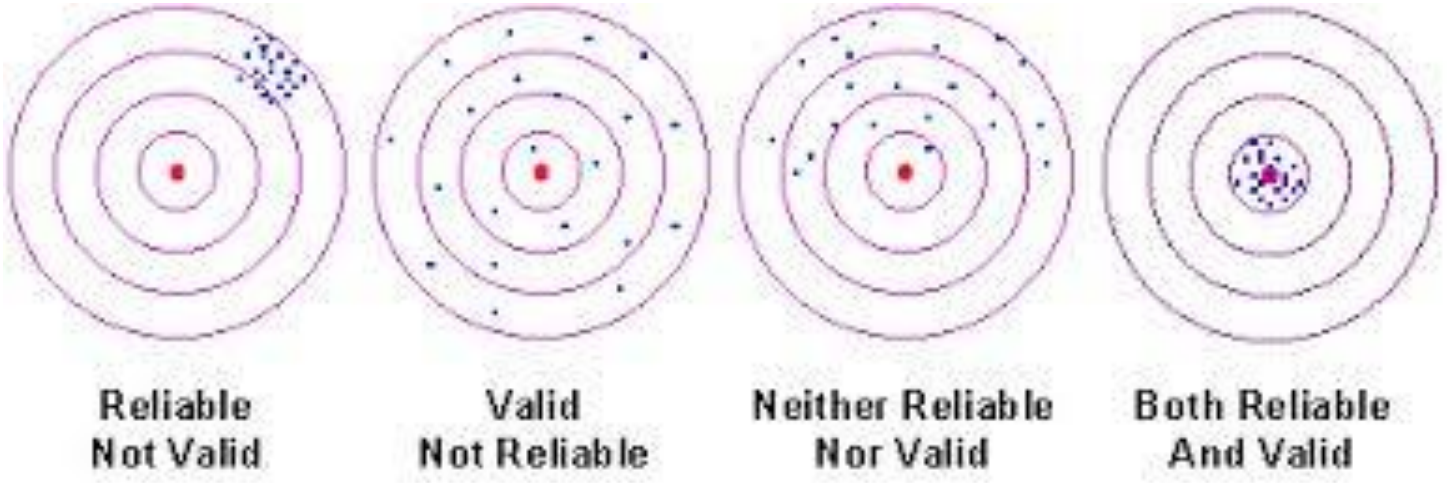
National Indian Health Board

Study Design

- **Retrospective**: Information is collected about the past.
  - Pros: More subject to bias and error
  - Cons: Fewer resources and time are needed
- **Prospective**: Subjects are followed over time.
  - Pros: Less subject to bias
  - Cons: More difficult and time consuming

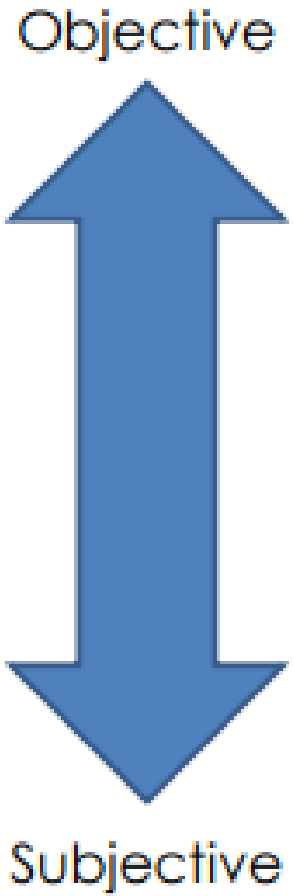
Study Designs- Terminology

- **Reliability:** Consistency of a measure
  - Will the same person get the same results each time
- **Validity:** Accuracy of a measure
  - Does the question measure what is supposed to measure?



Types of Evidence

- Scientific literature in systematic reviews
- Scientific literature in one or more journal articles
- Public health surveillance data
- Program evaluations
- Qualitative data
  - Community members
  - Stakeholders
- Media/marketing data
- Word of mouth
- Personal experience



Making Decisions Based on Research

- Case Study: Talcum Powder
  - Claim: *Talcum powder causes lung and ovarian cancer.*
    - Research: Some research shows Talc is associated with increase in cancer. Other research does not show a correlation.

National Indian Health Board

Making Decisions Based on Research

- Case Study: Talcum Powder (cont.)
  - How would you decide to create programs/ policies on this topic?
    - Review the research!
    - Determine is data on your community is available
    - Political will on this topic?
    - Cost of addressing this topic

Making Decisions Based on Research

- Case Study: Talcum Powder (cont.)
  - Some Retrospective Case-Control studies show slight increase.
    - Retrospective case studies look back at a group to see if there is a difference in disease incidence based on a risk factor.
    - Subject to recall bias.

Making Decisions Based on Research

- Case Study: Talcum Powder (cont.)
  - Prospective studies show no increased risk of cancer.
    - Prospective studies follow subjects over time to compare incidence in those with and without an exposure.

Making Decisions Based on Research

- Case Study: Talcum Powder (cont.)
  - Asbestos is a confounding factor.
    - Asbestos was previously found in talc products, but is no longer included. Many studies don't discuss if the talcum powder was contaminated with asbestos. Talcum powder in the US has been asbestos free since the 1970s.

Making Decisions Based on Research

- Case Study: Talcum Powder (cont.)
  - What recommendations would you make?
  - What resources would you allocate towards a public health intervention?

Discussion

- How have you used data and research in your work?
- What challenges have you faced?
- Lessons learned/ tips for those just starting?

National Indian Health Board

Thank you!

Next TALC:

JANUARY 27, 2020

3PM ET, 2PM CT, 1PM MT, 12PM PT

National Indian Health Board

Upcoming Trainings/Events

National Indian Health Board