Community Health Assessment: Data and Analysis

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Accreditation Standards

- Analysis should include:

  – **Trends**

  – **Comparison of local rates** to:
    - State rates
    - Other counties
    - Healthy NC 2020 objectives

  – **Health priorities selection process**

Types of Data

- **Quantitative**
  - Based on counts and measurements
    - Rates
    - Disease events
    - Answers to closed questions

- **Qualitative**
  - Based on information that can not be measured
    - Opinions
    - Perceptions
    - Observations
    - Answers to open questions

Descriptive Statistics

- Measurement Scales
  - Nominal scale (identified by name only)
    - sex, marital status
  - Ordinal scale (identified by name and can be ranked)
    - strongly agree – strongly disagree
  - Interval scale
    - age groups
  - Ratio scale (distances can be determined and there is a meaningful zero point)
    - population growth, death rate

Descriptive Statistics

- Count
- Comparison of Variables
  - Percent
  - Mean
  - Rate

Additional Information to Include

- Include additional information on
  - Time period
  - Geographic area
  - Potential sub-population (e.g. pregnant women, college campus)

Prevalence

- The proportion of people who have a disease/ outcome at one point in time
  - New cases + previously diagnosed (living) cases
  - Measures total disease burden on population
- Usually measured in surveys

Incidence

- The rate at which new cases occur in a population "at risk" for getting the outcome
  - Also "incidence rate" or "incidence density"
  - How rapidly is the disease occurring in the population?
- Usually measured in disease registries

Which to use?

- Chronic diseases are generally measured by prevalence

- Acute diseases are generally measured by incidence

- Why might a prevalence rate increase when the incident rate for the same condition is not increasing?
  - Individuals are living longer

Percent

- Also known as proportion

- How big of a portion of the population has the characteristic?

- Example: Percent living below the poverty line

Rates

- # of events/ unit population or time
  - Birth (natality) rate
  - Death (mortality) rate
  - Infant mortality rate
  - Cause specific death rate
  - Age specific death rate

Crude Rates

- Relative frequency with which some event occurs in a study population
- Standard from such as a number per 100,000
- Simply the number of events divided by the population at risk, often multiplied by some constant so that the result is not a fraction
- Used to study an absolute event, such as mortality or pregnancy
- May not give information needed for decision making
- May not represent accurately the health status of populations
- Do not permit clear comparisons among study populations

Understanding Age-Adjusted Rates

- **Age-adjustment** controls for differences in age distributions of populations

- Important when comparing rates between 2 populations with different age distributions
  - Rates for 2 different counties
  - County vs. state rates
  - State vs. national rates

  - See **Statistical Primer 13** for further discussion

Cautions to consider with rates

- Confirm base population is the same for comparisons
- Trends may be seasonable in nature
- Rates based on small numbers are unstable
- Consider notable events that may impact the county

Small Numbers Ahead

- Rates based on **small numbers** (< 20 events) are unreliable
  - May look like a drastic change with only 1 added case
  - Always report the actual number of cases
  - <u>Solutions</u>:
    - Combine data from several years
    - Use regional instead of county data

  - See **Statistical Primer 12** for further discussion

2011-2015 Infant Mortality

	Total Rate	White, Non-Hispanic	African American, Non-Hispanic	Disparity Ratio
North Carolina	7.2	5.5	12.9	2.35
Guilford	7.9	5.3	11.8	2.23
Robeson	11.5	11.7	15	1.28

Data Sources

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- County Health Data Book
  - Data is made available for each calendar year and may be released early.
  - The 2017 County Health Data Book is to be used for the Assessments conducted during 2017 and due the first Monday of March, 2018
  - For the CHA due in March, 2017, data from the 2016 is considered current.
  - Newer reports
    - Births Where Mothers Smoked During Pregnancy
    - Births to Medicaid and WIC Mothers
    - Life Expectancy
    - Poisoning Deaths

Data Sources

- 500 Cities: Local data for better health https://www.cdc.gov/500cities/
- Community Health Status Indicators (CHSI 2015) https://wwwn.cdc.gov/communityhealth
- https://www.healthdata.gov/
- Medicare Part D Opioid Prescribing Mapping Tool http://arcg.is/2hGrcoD

Data Reporting

Data Overload: What to report?

- It is **NOT** necessary to report all of your data!

- <u>Report</u>:
  - Data for which an action plan can be written
  - Important comparisons
  - Areas of progress
  - Important health problems and risks

What analyses should I focus on?

- **Trends**
  - Report changes in your county's health indicators over time
  - Need data from several points in time
    - If annual rates, look at yearly trends over a 5 or 10 year period
    - If 5 year rates, look at trends over longer periods of time
  - Look for improvement, decline, or steady state
  - Easiest to illustrate using graphs
  - If this is your 2nd or 3rd CHA cycle, compare results from one CHA to the next!

Percent Change

1. Determine the base statistic
2. Subtract the base from the comparison value
3. Divide by the base value
4. Multiply by 100
5. When reporting, clearly specify the base value

What analyses should I focus on?

- **Comparison** of local statistics to those from:
  - Peer counties
  - Neighboring counties
  - State
  - HNC 2020 objectives

- Can report using tables or figures

- See Excel spreadsheet for calculations

Sources of comparison

- HealthStat Peer Counties
  - Last updated in 2012
- CHSI 2015
  - Uses statistical clustering methodology
  - May not include other NC counties
  - http://wwwn.cdc.gov/communityhealth

Using Statistics in Your Report

1. Combine your primary and secondary data
2. Review all of your statistics and analyses
3. Decide how you will present these numbers
   - Text
   - Graphs/ charts
   - Tables
4. Ask yourself: "What do these figures show?"
5. Write a "stand alone" explanation of each graph, chart or table

Data Interpretation

- **NEVER** present numbers in any form without giving some explanation!
1. Summarize findings
2. Call attention to most important or interesting changes or problems
3. <u>Always</u> state your units
   - Ex: The birth rate for 2014 for our county was 5.6 <u>births per 100,000 population</u>.
4. Look at qualitative data for the story behind the numbers

Interpreting the Numbers: Important Questions

- What makes your community unique?
- What do these numbers mean for my community's health?
- How has my community changed lately?
- Do recent changes affect the health of community members? The work of health professionals?
- What gaps in healthcare did you find, if any?

Interpreting the Numbers: Health Problems

- What are my community's major
health risks and problems?
- What are major causes of death?
- Why are these risks or rates so high (or low)?
- Where did these problems come from?
- How has the history of my community's development affected the health of its members?

Interpreting Community Health Opinion Survey data

1. Report your methods
2. Use demographic data to describe your sample population
3. Summarize important findings
4. Report how your sample population compares to your target population
5. Hypothesize about what caused differences

More on Interpreting Survey Data

- According to survey respondents:
  - What was the general opinion about the quality of life in your community?
  - What areas seem to need work in your community?
  - What were the biggest health problems?
  - What are some of your community's assets?

Reminders on Primary Data

- Misleading data is worse than no data!
  - If using a convenience sample, interpret the results with caution. Be sure to describe the sampling method used.

- Small group discussion results should be described qualitatively, not quantitatively.

Organizing Your Results

- Most prevalent/ serious health problems
  - Based on concerns of community members
  - As evidenced by secondary data
- Results of each instrument used to collect data:
  - Survey data
  - Listening session/ focus group results
  - NC-CATCH/ Community Health Data Books
- As supported by data:
  - Informed beliefs/ opinions of CHA team members
  - Healthy Carolinians Goals

Putting It All Together

- Focus on issues that:
  - Affect a lot of people
  - Greatly impact the whole community
  - Have a solution

- Assess whether your community member's perceptions supported or conflicted with the secondary data
- Assess the accuracy or relevance of the data
- Cite your sources

Special Thanks

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