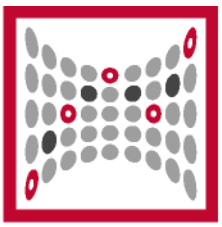
PROVE IT!
LET THE DATA TELL THE STORY.

Agenda: Day 1

8:30 – 9:00 am	Breakfast
9:00 – 9:15 am	Introductions, logistics
9:15 – 9:45 am	Section 1: Why do we need data?
9:45 – 10:45 am	Section 2: How do we locate and evaluate data?
10:45 – 11:00 am	Break
11:00 – 12:00 pm	Section 3: How do we know what analysis to request?
12:00 – 12:30 pm	Lunch
12:30 – 1:30 pm	Section 3, continued
1:30 – 1:45 pm	Break
1:45 – 2:15 pm	Section 4: How do we request analysis?
2:15 – 3:00 pm	Section 5: How do we interpret analysis?
3:00 – 3:45 pm	Section 6: How do we share the story that the data tell?
3:45 – 4:00 pm	Evaluation



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A collaborative effort between the University of New Hampshire and the NH Department of Health and Human Services

Conceptualized by the Empowering Communities Project

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Background

Prove It! is designed for a variety of health data users—particularly those with grant writing and program administration functions—who would like to learn more about how to locate, use, and interpret data. The major course goals and objectives are to:

- Provide a basic understanding of why and how we use health data in public health, using the specific context of writing grant applications as the example.
- Introduce tools and resources to make using data easier and more efficient for participants.

The Prove It! course walks participants through the grant application process using a community-based intervention, the Livable, Walkable Communities Project.[1] Attendees will participate in small group exercises, hands-on computer activities, and group discussion in order to:

1) Determine why data are necessary.
2) Learn how to find and evaluate health-related data.
3) Learn about commonly used health statistics and how to know what data are appropriate and available.
4) Determine how to get the data analysis needed by asking the correct questions.
5) Learn how to interpret data analysis.
6) Discuss how to share the story that the data tell.

The selection of the Livable, Walkable Communities Project as a grant example was based on several criteria, including:

- The Project is real.
- The Project provides a current example of a community intervention in New Hampshire.
- The Project is one that community-based organizations can apply for (e.g., from Robert Wood Johnson Foundation).
- The interventions of the Project are framed by the Evans and Stoddart Field Model[2], which is the theoretical basis for the Empowering Communities grants.
- The Project is focused on a non-controversial health issue and was selected to avoid discussions that could distract from the course goals.

Prerequisites: Participants should have basic knowledge of Microsoft Excel and should know how to use Internet browsers. No previous experience in statistics or research methods is necessary.

User's Guide

The curriculum is organized into sections, each of which reflects a major question along a continuum of needing, locating, using, and sharing health data. More specifically, the sections are:

- Section 1: Why do we need data?
- Section 2: How do we locate and evaluate data?
- Section 3: How do we know what analysis to request?
- Section 4: How do we request analysis?
- Section 5: How do we interpret analysis?
- Section 6: How do we share the story that the data tell?

Each section contains hands-on activities that reinforce the concepts covered in that section. The sections are designed to build on one another and follow a path that is commonly used by organizations seeking to use health data to support their missions. Handouts required for activities are located in Appendix A: Activity Handouts and Worksheets. A "cheat sheet," which provides a brief synopsis of some of the concepts included in the curriculum, is also included in Appendix A: Activity Handouts and Worksheets.

The curriculum also includes appendices that contain reference material; a glossary of terms and a list of additional resources are provided (See Appendix B: Explanation of Terms and Appendix C: Additional Resources). Terms used within the curriculum that are defined in the Explanation of Terms are in ***bold italics*** for easy reference.

Several activities are computer-based, and many use web sites and/or the Microsoft Excel software program. Data sets used for the examples in this curriculum are provided on the data stick provided with the curriculum. Web sites selected for Prove It! are in the public domain and did not require registration or fees at the time of the program's development.

Appendix D: Evaluation of Prove It! includes an evaluation to assess participant satisfaction and a skills evaluation that can be administered before and after the course to assess knowledge.

Introductory activities

Begin the course by exploring the participants' backgrounds and determining the ways in which they use data in their organizations. Pose the following questions to the participants, or list the questions in a central location (e.g., on a white board) and break the group into pairs to discuss each question with his or her partner.

- How many people in this room work with data or statistics? For how many people is that statistical work their primary responsibility?
- How many people who do not work with data think that they might be working with data in the future?
- How many people are working with data in their current jobs and feel that they could use some help understanding more about why and how data can be used?
- How many people are involved with writing grants in their current jobs?
- How many people have a degree in statistics or epidemiology or other formal training in statistics or epidemiology?

Upon completion of the introductory activity, explain to the participants that this course is designed to achieve the following objectives:

- Provide a basic understanding of why and how we use health data in public health, using the specific context of writing grant applications as the example.
- Introduce tools and resources to make using data easier and more efficient for participants.
- Use a real community intervention example to learn:
    - why data are necessary
    - how to find and evaluate health-related data
    - what analysis/statistics to request
    - how to request analysis
    - how to interpret analysis
    - how to share the story that the data tell

The course is participatory and will be strengthened by hearing about and using real-life examples that the participants are willing to share.

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Section 1: Why do we need data?

Section 1 of Prove It! provides examples of why data are necessary for public health practice. Through the activities in this section, participants will explore many of the uses of data in public health, including the primary example of this course—using data in grant writing. The Livable, Walkable Communities Project (LWC) example will be used to illustrate the importance and process of using data in grant writing.

The LWC Project is introduced to participants in this section of the curriculum. This will set the stage for the subsequent sections of the course by introducing the health concerns of the study community, the program of interest, the ways health-related indicators can be measured, and the types of resources that can be used to find and use data. Section 1 will be followed by more in-depth investigation about requesting data, interpreting data, and sharing the story that the data tell to support the application for a grant.

Section 1, Activity 1: Range of data uses in public health

Time needed: 10 minutes

Supplies needed: Paper

Break participants into small groups (3-4 people per group). Ask participants to create a list of ways in which they use data in their organizations. After 5 minutes, have each group present the list to the class.

Examples can include:

- **Reporting:** Organizations are often required to report progress of their projects to funding agencies, legal entities, and/or other stakeholders. Examples can include ***Community Benefits Reporting*** or progress reports to funding agencies.
- **Research Projects:** Data are necessary for most research projects.
- **Needs Assessment or Community Health Assessment:** According to the National Center of Vital Health Statistics, this is "a process that involves the community in identifying problems, setting priorities, developing an action plan, measuring progress, deciding whether the actions are effective, modifying the actions if necessary, and reevaluating the community's problems and priorities"[3].
- **Asset Mapping:** The process of cataloging resources of a community, including individual, association, institutional, and economic resources for asset- based community development[4].
- **Measuring Health Indicators, Outcomes, and Objectives**: Organizations may want to measure their status on common health indicators and objectives, such as targets or goals set forth in the Healthy People 2010 and Healthy New Hampshire 2010 initiatives. Data are also important for evaluating the success of the health interventions and programs.
- **Priority Setting and Strategic Planning**: Organizations use data to determine areas of need in order to effectively allocate resources.

- **Program Development**: Organizations seeking to develop interventions and programs use data to define the scope of the program in order to create a well-informed program.
- **Grant applications**: In order to receive grant funds, organizations often need a quantitative demonstration of need based on health data.

Summarize the lists for the group and ask the participants if anyone has used data in the context of grant applications. The use of data in grant applications is the focus of this course.

Setting the stage:

Ask participants to consider this scenario:

National reports have focused on obesity as a major threat to health in the United States; obesity has been called an epidemic. A statewide assessment reported that rates of cardiovascular disease and obesity are also high in New Hampshire. At the local level, your constituents have reported that they believe obesity is a problem in your community.

While talking with a colleague about obesity and the health of your community, she tells you that she has recently heard of a funding opportunity for a new program to address obesity and cardiovascular disease.

Section 1, Activity 2: Introduction to Livable, Walkable Communities

Time needed: 20 minutes

Supplies needed: Handout 1.2 and NHPTV video segment

Turn to Handout 1.2, the synopsis of the Livable, Walkable Communities (LWC) Project. Ask participants to take a moment to read the synopsis. A video segment is available from New Hampshire Public Television[5]. If you are using the video, explain that a short video segment will also provide some background about the program. Ask participants to consider these questions as they read the synopsis and watch the video:

- What is the focus of the program?
- What is the purpose of the program?
- What data do the LWC project staff use to tell their story?

Ask the participants to pay attention to the data that are reported in the video to support the LWC program. Examples of data used in the video include the percentage of children who walk to school, prevalence of obesity, and levels of physical activity. As a group, discuss the focus and purpose of the LWC Project.

Section 1, Activity 3: The scope of what can be measured

Time needed: 25 minutes

Supplies needed: Paper, Handout 1.3, Chalk or white board

Once the purpose of the LWC project is clear to the group, break the class into smaller groups (3-4 people per group). In the smaller groups, ask participants to spend 10 minutes discussing these two questions:

- What would you need to prove and what would you want to improve if you were applying for funding for this program?
- Given the program's focus, goals, and objectives, what would you want to measure if you were to apply for funds to implement the program?

Distribute a diagram of the Evans and Stoddard Field Model (Handout 1.3). Explain that the possibilities of measures for public health programs are many and can reflect more than "typical" health outcomes (e.g., hospitalization, death). ***The Evans and Stoddart Field Model of Health and Well-being*** is an example of a way to consider the wide variety of factors that affect health.

Bring the groups together and make a list in a common location (e.g., a white board) of what they might want to measure in relation to LWC, including factors included in the Evans and Stoddard Field Model. Bring the groups back together to present what they have discussed. Items considered might include:

- Mapping recreational capacity in community
- Accident/safety information
- Cardiovascular disease rates
- Obesity rates/average weight or body mass index (BMI)
- Use of recreation facilities
- Exercise (in and out of specific recreation facilities)
- Blood pressure/cholesterol
- Incidence of diabetes
- Incidence of diabetes-related illness (e.g., retinopathy)

Inform the group that this course will continue to revisit the concepts of what data are of interest and what data are available.

Optional: Section 1, Activity 4: Non-data resources

Organizations often want to consider resources and issues that are not numeric or quantitative. Some sources of data may be qualitative, such as expert interviews and opinions of local leaders and stakeholders. This type of data can help inform the design of a program and strengthen a grant application.

In the same groups used for Activity 3, give the participants 5 minutes to create a list of resources to consult to learn more about factors that may be affected by the LWC program. After the groups have had time to develop a list, have each group present the list to the class. Examples can include:

- Experts (e.g., NH Celebrates Wellness) and stakeholders (e.g., local providers)
- Community-based coalitions related to health or wellness initiatives
- Web-based resources from thought-leading organizations (e.g., American Heart Association, American Cancer Society)

Although this type of information is not the focus of the course, it can be helpful in providing community-specific context for the story about the public's health.

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Section 2: How do we locate and evaluate data?

In Section 1 of Prove It!, participants created a list of possible health-related outcomes that they could investigate to support their application for the LWC funding. In many instances, organizations need to use ***secondary data***, or data collected by someone outside their own program or agency, to measure the outcomes of interest. There are many sources of secondary data, but locating them and determining their relevance to the organization can be difficult. This section will introduce tools to locate secondary data sources, as well as ways to evaluate data quality and utility. Participants will learn about web-based resources for locating health data at the state and national levels.

Section 2 also introduces participants to guiding principles for evaluating potential data. This includes introducing participants to some of the characteristics that should be considered to determine if the data is of good quality. This section also helps participants understand how to evaluate how much data is sufficient to tell their story.

Less often, organizations will use ***primary data***, which is data collected directly by the organization. Teaching how to collect good primary data is beyond the scope of this course, but is of utmost importance in being sure that data tell the true story.

Participants will be introduced to the concepts of ***sample-based data*** and ***population-based data.*** Sample-based data are collected from a sample of the population. Sample-based data are often used to estimate the characteristics of the population from which the sample comes. Examples of sample-based data include survey data (e.g., Behavioral Risk Factor Surveillance System), which selects a sample of the population to survey. Population-based data are collected from the entire population. Examples include death data (death certificates are collected from all deaths) and birth data.

Section 2, Activity 1: Introduction of the Health Data Inventory

Time needed: 20 minutes

Supplies needed: Handout 2.1, Paper, and Computer with Internet access

The New Hampshire Health Data Inventory (HDI)[6] was conceptualized by the Empowering Communities Project. The HDI is a web-based inventory; it is a catalog of community health data sources and health-related data and statistical reports. The HDI was developed to provide community organizations in New Hampshire with a web resource for information about New Hampshire health data. Each community health data source is described in terms of the geographic unit of analysis, indicators available, most recent year data are available, and contact information for the data steward. Data and statistical reports are also catalogued on the web site.

Use the presentation in Handout 2.1 to introduce the participants to the HDI. From the HDI web site (www.nhhealthdata.org), provide a brief tour, including how to use the menus and "Search" function on the site.

- Give a brief overview of "Search", "Feedback" and the "A-Z Index".
- The "Search" function allows you to type in a keyword, and the search function will return all of the HDI sources that relate to that keyword.

- The "A-Z Index" lists all data sources and reports that are catalogued on the website, in alphabetical order.
- Explore options under particular "Topic Areas" and "Age Groups". Note that for every available data source, each template page has data steward contact information, when data are available, at what geographic level, etc.

Section 2, Activity 2: Locating data (using the HDI)

Time needed: 20 minutes

Supplies needed: Paper, Computer with Internet access

Review the list of possible measures related to LWC (from Section 1, Activity 3: The scope of what can be measured). Break the participants into small groups and ask each group to explore what resources on the HDI could be used to provide data for the measures. Ask the groups to record their thoughts on paper for future discussion. Give the groups approximately 15 minutes, and then discuss the findings as a group.

After discussing what the participants were able to locate related to the measures of interest, ask the group if anyone could not find data that could be used to measure the objectives listed as related to LWC. Discuss why some data may not be available. Discussion points may include:

- Some data are not systematically **collected**, and thus cannot be measured. Examples of this can include primary care data (data from an individual doctor's office) and individual's use of public parks and local fitness centers.
- The availability of data can depend on whether or not money has been allocated to collect the data. If there is public concern about certain health issues, there may be legislation (or a mandate) to study those health issues. Examples of this include:
    - State Cancer Registry: New Hampshire (and other states) has legislation authorizing state departments and their contractors to collect data about all cancer cases.
    - "Crash Outcomes Data Evaluation System (CODES) evolved from a congressional mandate to report on the benefits of safety belts and motorcycle helmets. NHTSA has funded 27 states to link statewide crash and injury data. Probabilistic linkage techniques make it possible for the states to link large state data files in a phenomenally short amount of time at relatively low cost."[7]

Not everything that can be counted counts, and not everything that counts can be counted. - Albert Einstein

Section 2, Activity 3: Accessing data files

Time needed: 15 minutes

Supplies needed: Handout 2.3, Computer with Internet access

Note that the HDI does not actually house data; it is not possible to download a data set from this web site to actually do calculations. However, there are links from the HDI to web sites that do provide data. Some web sites provide tables of data that can be used to perform calculations or create charts. Other web sites allow users to obtain raw data files, which can be used to create aggregate tables, generate statistics, and perform calculations.

An example of this is a web site that provides tables is the *Chartbook on Trends in the Health of Americans* from the Center for Disease Control and Prevention's (CDC) National Center for Health Statistics.[8] *Health, United States* is an annual report of health statistics. Instructions for downloading Excel tables from this CDC site are in Handout 2.3. Inform the participants that there are many tables available on this site. Participants can determine what the tables are by browsing through the report itself.

Other Web sites that allow a user to download data files are available. It is beyond the scope of this course to go through all sites of this nature; however, other examples are:

- CDC WONDER, http://wonder.cdc.gov/: CDC's WONDER system has access to a variety of public health information, including links to environmental and disease-specific data.
- CDC WISQARS™, http://www.cdc.gov/injury/wisqars/index.html: According to the CDC, "WISQARS™ (Web-based Injury Statistics Query and Reporting System) is an interactive database system that provides customized reports of injury-related data."[9]
- US Census, www.census.gov: The US Census Bureau makes some of its data about the US population available for download.

Section 2, Activity 4: Of the data that are collected, what are "good" data?

Time needed: 20 minutes

Supplies needed: Handout 2.4

After an organization has located data, it is important to determine if the data that they found is appropriate for their needs. Break the participants into small groups and ask each group to create a list of what they think the characteristics of good data are. After the groups have had time to develop and discuss their lists, discuss the thoughts as an entire group.

The following dimensions of data quality are adapted from "Managing Data Quality in a Statistical Agency"[10], and used and/or recommended by many agencies and organizations, including the World Bank and Statistics Canada.

Dimensions of Data Quality	
Relevance	The relevance of statistical information reflects the degree to which it meets the real needs of clients.
Accuracy	The accuracy of statistical information is the degree to which the information correctly describes the phenomena it was designed to measure. It may also be described in terms of the major sources of error that potentially cause inaccuracy (e.g., coverage, sampling, non-response, response).
Timeliness	The timeliness of statistical information refers to the delay between the reference point (or the end of the reference period) to which the information pertains, and the date on which the information becomes available.
Accessibility	The accessibility of statistical information refers to the ease with which it can be obtained from the Agency.
Interpretability	The interpretability of statistical information reflects the availability of the supplementary information and metadata necessary to interpret and use it appropriately. This information normally includes… the methodology of data collection and processing, and indications or measures of the accuracy of the statistical information.
Coherence	The coherence of statistical information reflects the degree to which it can be successfully brought together with other statistical information within a broad analytic framework and over time.
These elements of quality tend to overlap, often in a confounding manner. Just as there is no single measure of accuracy, there is no effective statistical model for bringing together all these characteristics of quality into a single indicator. Also, except in simple or one-dimensional cases, there is no general statistical model for determining whether one particular set of quality characteristics provides higher overall quality than another.	

Other aspects of data quality to consider:

- Able to drive decision-making and behavior
- Can the outcome be monitored over time?

It is important to remember to let the data tell the story. Don't use data to only prove what you believe is true. Avoid bias.

Because we are going to trust the data to tell the story, we should always take care to use the best data, and be honest about what questions the data can answer. Some agencies have quality assurance procedures that they follow to ensure that they are collecting good data. However, sometimes "great" data is not available. In these cases, it is important to know and share the limitations of the data, allowing it to only tell the story it can.

How much data is good enough?

There is no universal set of rules for this. Some suggested guidelines are (note that these are also listed on the cheat sheet):

It is about how good the data is—good quality and from credible sources—not how much.

- If the data meet all the criteria or dimensions for "good/quality" data, one indicator may be enough.
- Establish your priorities for your research – use this as a guide.
- Getting the best return (value of your data) for your investment (time and energy).
- You may leave some stones unturned – avoid analysis paralysis.
- Be sure that each bit of data tells the reader something new.
- You may make some trade-offs (e.g. population data - old, but very reliable data). Some data may not change much year to year; old data may be ok.
- Know the data sources and collection methods- learn what to expect from the data.

Optional: Section 2, Activity 4: Non-data resources

If time allows, participants may want to explore the HDI on their own, trying to find data sources to meet their own data needs for their organization's projects or grant applications.

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Section 3: How do we know what analysis to request?

In Section 3 of Prove It!, participants will be introduced to some of the basic principles of statistics in order to help them better understand what type of data analysis is appropriate for answering different kinds of questions–or telling different aspects of the story. While it is beyond the scope of this program to be a comprehensive statistics course, this section will define certain concepts that are commonly used for analyzing health data. For anyone seeking a more in-depth review of statistical concepts, several very good statistical resources are suggested in Appendix C: Additional Resources.

Measures of central tendency (i.e., ***mean***, ***median***, and ***mode***) will be reviewed to give participants a sense of what summary measures can be used when analyzing a data set. The mean is the arithmetic average of the values in the data. The median is the middle value. The mode is the most commonly occurring value. ***Measures of dispersion*** (i.e., ***variance*** and ***standard deviation***) will also be reviewed to explain how the variability of data can be measured. Participants will also learn how to use Microsoft Excel tools to calculate these values.

Consider this example. For a certain population, we know that 38 men aged 18-24 smoke. That number alone does not provide a great deal of information. For many health measures, rates and proportions are used. A ***proportion*** is the part of the population with the characteristic of interest divided by the total population from which the people with the characteristic come. For example, if you are interested in smoking among young men, you may determine the proportion of men age 18-24 who smoke by dividing the number of men 18-24 who smoke by the total number men aged 18-24 years in the population. A ***rate*** is similar to a proportion, but a rate multiplies the proportion by a standard number, such as 100 or 1000 people. This allows an analyst to report the number of men 18-24 who smoke per 100 (or 1000) men aged 18-24 years. For this example:

- Total population of men 18-24: 250
- Total number of men in population age 18-24 who smoke: 38
- Proportion of men 18-24 who smoke: 38/250 = 0.152
- Rate of smoking among men 18-24 in this population: 0.152*1000=15.2 per 1000 men aged 18-24 years.

Several different types of rates are common in health data analysis. Section 3 will discuss the calculation of ***rates*** and the difference between ***crude rates*** and ***specific rates***. Crude rates are summary measures for entire populations. Specific rates distinguish the rate within a specific population characteristic, such as age or sex.

Look at birth rates as an example:

- Crude birth rate could be the total number of births for the population.

  *Crude birth rate = # live births/total population *1000*

- Age-specific birth rates would be these rates among a more defined population. For example, an organization may be interested in learning the birth rate only among teens.

  *Age-specific (teen) birth rate = births to 15-19 year olds/population of 15-19 year old females * 1000*

Other types of rates (i.e., ***adjusted***, ***standardized***, and ***normalized***) control for differences in populations. Controlling for differences between populations allows an analyst to make a "fair" comparison of rates. Using these types of rates, analysts try to eliminate differences in population characteristics (such as different age or sex characteristics) to determine differences in the rates of health outcomes that are not due to differences in the characteristics of the population. Populations can then be more easily compared to one another. For example, to determine if the rate of cancer is higher in one state compared to another, it is important to understand that the age of the population may affect the cancer rate. So, comparing a state with an older population to one with a young population may not be fair, because you can expect more cancer cases in an older population. Adjusting rates to a common standard population for both states allows you to compare the states as if they had the same population characteristics.

Another commonly used statistic in health data analysis is the ***confidence interval***. A confidence interval (CI) is often calculated for a statistic to account for uncertainty in the estimate. For example, the CDC's Behavioral Risk Factor Surveillance System (BRFSS, a health survey) reported that in 2002, 23.2% (95% CI: 21.8, 24.5) of New Hampshire adults were current smokers.[11] For this statistic, 23.2% is the estimate of the percent of NH adults who are current smokers. This estimate is calculated by interviewing a sample of the population and estimating the value for the population based on that sample. The 95% CI—the numbers located within the parentheses—are the upper and lower limit of the range of values that, with 95% certainty contains the true value for the population. The size of the width indicates how close our estimate may be to the likely true value.

- If an interval is narrow, it is very likely that our sample estimate closely approximates the true population value.
- If an interval is wide, it is less likely that our sample estimate closely approximates the true population value.

The calculation of the 95% CI depends on the type of data being used. That is, the formula for a population-based data set (e.g., birth data) is different than one for a sample-based data set (e.g., the BRFSS survey); the formula can also change based on the number of observations (or the number of values) in the dataset.

The CI can also be used to determine if rates are significantly different. Some analysts use the standard that when comparing rates to one another, if the 95% CI do not overlap, the difference in the rates is statistically significant. However, it should be noted that other, more formal tests for significance can also be used.

The 95% CI is the most commonly used CI in health statistics, but individuals may come across other values, such as a 90% CI.

Presentation: Data Analysis

The activities in this section are completed as part of an overall presentation of the material. At the start of this section, distribute Handout 3

Section 3, Activity 1: Demonstrating measures of central tendency and dispersion

Time needed: 15 minutes

Supplies needed: Computers, Prove It! data disk, white board or chalkboard,

Handout 3.*1a, 3.1b, 3.1c, 3.1d*

The instructor will introduce levels of measurement and types of data through the presentation, as well as demonstrate using Excel to determine the measures of central tendency.

Discussion points about using measures of central tendency include:

- The mean accounts for ALL of the values – every value is used to calculate the mean, so each value has equal weight.
- The median is the middle value. If most of the values are about the same, but one is very different, the median value will reflect the middle of the range of values. How does this differ from the mean? What would happen to the mean if there were a small number of extreme values?
- When might the "mean" or "median" be misleading? (e.g., age of marriage, income)

Instruct participants to open the "CommutingSelect.xls" file on their Prove It! data disk. This file includes data about commuting time to work. Use the instructions provided in

Handout 3.1a, 3.1 b, 3.1c to determine the mean, mode, and median for the data.

The mean is a common health statistic. Many times, analysts are interested in knowing how much variation there is in the data; that is, are most of the values in the data similar to one another, or do they differ greatly? One of the ways to account for the variation around the mean—that is, how different the values in the data are from the mean—is to calculate the standard deviation from the mean. The standard deviation gives information about the spread of the data and provides the average distance of any one value from the mean (as discussed in detail in the presentation).

For a hands-on activity, have participants use the instructions in Handout 3.1 d to calculate the standard deviation for the mean travel time to work using the "CommutingSelect.xls" file.

Section 3, Activity 2: Introduction to using and comparing rates

Time needed: 30 minutes

Supplies needed: Computers with Internet access, Handout 3.2

During the presentation, the instructor will introduce the difference between rates and proportions and why rates are used. The presentation will also explain different types of rates: crude, specific, and adjusted. Discussion points include:

- For most comparisons, counts or frequencies need to be converted to rates to make the numbers comparable to each other.
- Rates are often presented as per 100 (percentage), but may be per 1000, per 10,000, or per 100,000. Ask the students why you could want to use a different denominator. The value

used may depend on the frequency of the event being reported; larger multipliers may be needed for rare events.

- Remind participants that those in the denominator must be eligible to be in the numerator. Key issue is "who is at risk?" The definition must be the same for the numerator and denominator.

To demonstrate how data are presented as a **crude rate**, instruct participants to visit the CDC's BRFSS Web site at www.cdc.gov/brfss. Use the instructions provided in Handout 3.2

To demonstrate how data are presented as a **specific rate**, use the same BRFSS Web site and continue with instructions from Handout 3.2. Ask the students why they may want to view these specific rates.

Section 3, Activity 3: Introduction to Confidence Intervals

Time needed: 30 minutes

Supplies needed: Computers, Prove It! data disk, Handout 3.3

During the presentation, the instructor will introduce the concept of confidence intervals as a measure of the confidence in the calculation of a rate. Discussion points may include:

- The width of the interval refers to the distance between the "upper" and "lower" limit
- Width of the interval is a measure of variation in the sample

Participants will use Excel to determine confidence intervals in the "CommutingSelect.xls" file according to the instructions in Handout 3.3.

Section 4: How do we request analysis?

Instruction in the collection and management of primary data is beyond the scope of this course. In addition, much of the data required for grant writing is available from secondary data sources. Therefore, organizations often need to request data analysis from other entities. Section 4 of Prove It! explains how to make requests for analysis that meet the requestor's needs and include sufficient relevant information to allow an analyst to fulfill the request.

In Section 4, participants will learn to define specific aspects of the analysis. Participants will be asked to consider if they are interested in the ***incidence*** or ***prevalence*** of the health condition. The **incidence** is the number of new cases of a disease over a specified time period. The **prevalence** is the total number of cases. Students should also be informed about defining their questions clearly in the context of whether they seek data about what happens in their community (for example, the number of injuries that occur *in* their community) or data about the members of their community (for example, the number of injuries that occur *to the members of* their community). Students will also learn about some of the nuances of defining their needs.

The hands-on activities in Section 4 focus on a request process for secondary data. Using information provided about data resources in Section 2 and introductory knowledge of statistics from Section 3, participants will learn how to shape their questions so that they will be able to make a data request, then review and understand analysis from the data request. The data request process for Health Statistics and Data Management (HSDM) of NH DHHS will be used as the example.

Section 4, Activity 1: Shaping the questions

Time needed: 15 minutes

Supplies needed: Paper, Handout 4.1

Break the participants into small groups. Ask each group to consider the "elements of the question" listed in Handout 4.1 in relation to the information that they would like to have to support their grant application to implement the LWC program. Ask the participants to use the handout to make notes about the statistics they would like to have for each element of the question. Remind participants to consider the information in Section 2 about the limitations of what data is available; some things are not systematically collected.

Elements of the question:

Who: what are the characteristics of the population you want to know about?

- **Age**
- **Gender**
- **Race/ethnicity**

What: About what indicator or outcome are you seeking information?

- **Behavior**
- **Health/illness - particular ICD-10 codes can be found at:**
  http://www.who.int/classifications/apps/icd/icd10online/
  ICD-9-CM codes can be found at:
  http://www.cdc.gov/nchs/icd9.htm#RTF
- **Vitals**
- **Incidence or prevalence**

- **What type of rate?**

Where: What areas are you interested in learning about?

- **Geographic area (e.g. HSA, SAU, county)**
- **Know the town, or group of towns in the geographic area**
- **Residents v. occurrences**

When: What time period are you considering?

- **Trends over time**
- **Is a certain time frame necessary (is the indicator changing)?**

The following examples may be useful guides or prompts for discussion:

- What is the rate of cardiovascular disease in New Hampshire for the most recent year for which data is available? Five years ago? Ten years ago? For ages 65+?
- What is the prevalence of diabetes in New Hampshire for different age groups?

Section 4, Activity 2: Review data request form

Time needed: 15 minutes

Supplies needed: Handout 4.2a, Handout 4.2b

Ask the participants to review the example New Hampshire Guidelines for the Release of Public Health Data (Handout 4.2a). Guidelines like these, and other legislation, affect access to data. Discuss the importance of maintaining:

- Confidentiality
- Stability and reliability

In order to protect confidentiality and maintain reliability of the data, organizations may receive data that has been combined over multiple years or geographic areas.

In the same small groups from Section 4, Activity 1, ask participants to review the blank HSDM Data Request Form (Handout 4.2b).

Section 4, Activity 3: Initial review of data analysis

Time needed: 15 minutes

Supplies needed: Handout 4.3a, 4.3b, 4.3c

Distribute the handouts of analyses from the requests submitted for LWC. In small groups, ask the class to review the analysis results and compare them to the requests. Bring the group back together and discuss any comments or questions from the participants. Points for discussion may include:

- The BRFSS Data Request Form is different. Ask the participants if they have any thoughts on why this form is different from the form used for hospitalization and death data? Reinforce the difference between sample and population-based data.

- Review what each data analysis is measuring: cases, individuals, variables, indicators, and geographic area. If time permits, ask students to highlight or list the statistics that they recognize in the analyses.

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Section 5: How do we interpret analysis?

Section 5 of Prove It! walks participants through the interpretation of each of the data analyses from Section 4.

The instructor will reinforce the following concepts from Section 3:

- Different types of rates
- How to compare rates
- Interpreting 95% CI
- Determining statistical significance

Overall questions for the participants to consider as they interpret the data analysis:

- Is the target population the same population measured in the analysis?
- Is there anything missing? Are there additional analyses that you would like to request to support the grant application?

Presentation: Interpretation of Data

The activities in this section are completed as part of an overall presentation of the material. At the start of this section, distribute Handout 5.

Section 5, Activity 1: Review BRFSS data request example

Time needed: 30 minutes

Supplies needed: Handout 4.3a

Concepts reinforced with the BRFSS data analysis include:

- Sample v. population data and statistics
- Confidence interval width in sample data
- Understanding who and what is included in the data, and who and what is not!
- Sample size
- Statistical significance
- Using specific analysis to better define the target population, or tailor a program (e.g., gender disparity in the rate of physical activity)

Section 5, Activity 2: Review death data request example

Time needed: 30 minutes

Supplies needed: Handout 4.3b

Concepts reinforced with death data analysis include:

- Age-specific rates
- Confidence intervals in population data
- Understanding who and what is included in the data
- Knowing about the disease – knowing about case definition used in analysis (e.g., ICD-9 and ICD-10 coding)

- Cautions about coding issues – do sensitive issues get coded as well as others?
- Be aware of changes in definition over time (e.g., change from ICD-9 to ICD-10)
- Definition of occurrence versus residence data
- Changes over time (e.g., collection methodology)
- Data should be comparable in order for comparisons to be made
- Cobbling data across geographic areas and over time may be necessary for small numbers

Section 5, Activity 3: Review hospital data request example

Time needed: 30 minutes

Supplies needed: Handout 4.3c

Concepts reinforced with hospital data analysis include:

- Age-adjusted rates
- Confidence intervals in population statistics
- Understanding who and what is included in the data
- Interpreting in comparison with state rate
- Knowing about the disease - knowing about case definition used in analysis (ICD-9 and ICD-10 coding)

Section 6: How do we share the story that the data tell?

Section 6 of Prove It! provides participants suggestions and instructions for ways to share the story that the data tell. This includes a discussion of how to use tables and graphs appropriately and effectively.

After determining that the data are "good" (refer to characteristics described in Section 2), interpreting data analysis that has been requested, and finding that the data support the grant proposal, organizations should consider some guiding questions for sharing the story, including:

- What is the story that the data tell?
- How can you best describe the health issue in your community?
- Can you demonstrate a need to implement the LWC Project?
- Are there a few key messages that are best described with a bar chart or graph?
- Are there complicated pieces of the story that require a table of data?

Identify the best way to organize the grant proposal by determining the strongest messages from the data (e.g., changes over time, comparison to other geographic areas, etc.). These will be the story that the data tell, may guide your writing, and could convince your funder!

Presentation: Sharing the Story

The activities in this section are completed as part of an overall presentation of the material. At the start of this section, distribute Handout 6.

Section 6, Activity 1: Visual displays: tables

Time needed: 15 minutes

Supplies needed: Sample tables and data

The instructor will use sample analysis results from Section 4 (obesity, daily activity, heart disease deaths, and injury) to demonstrate construction of a table of data. Some points for discussion may include:

- Labeling is clear, legible, and consistent.
- If you are using several tables that you will be comparing in your argument, be sure to use the same format (if possible) to allow the reader to easily compare the data. If the tables look different, the reader may have to struggle to make comparisons.
- Streamline your message – keep it simple and easy to follow! Tables should only include as much data as necessary to tell the story. For example, if your community is different from the rest of New Hampshire, you may only need two rows of data – one for the health data for your community, and one for the state of NH.
- Tables can be useful when presenting supporting data for a complex chart or graph.

Always consider the readers and make it easy on them. You want the reader to digest this easily and focus on the project (not struggle to understand your data).

Section 6, Activity 2: Visual displays: graphs

Time needed: 15 minutes

Supplies needed: Sample tables and data

The instructor will use sample analysis results from Section 4 (obesity & daily activity, heart disease deaths, and injury) to demonstrate the construction of a graph. Some points for discussion may include:

- Use similar axes for all graphs
- Use similar scales and gridlines on the axes
- Use high contrast for background and foreground (e.g. white background with black graph instead of yellow background with blue graph)

Section 6, Activity 3: Creating visual displays

Time needed: 60 minutes

Supplies needed: Prove It! data disk, computer, Handout 6.3

Ask the class to open the Excel file, Prove It!.xls on their Prove It! data disk. This file contains the data from Section 4. Instruct the participants to break into pairs and create bar charts for the three sets of data using the instructions provided in Handout 6.3.

Section 6, Activity 4: Sharing the story

Have each pair of students from Section 6, Activity 3 describe their findings from the visual displays by presenting the findings to the funder (the rest of the group). Allow participants to ask questions about each other's graphs and the interpretation of the data. For each review, feedback may include:

- Comment on the format of the graphs.
- Ensuring that the graphs match the story that the grant applicant want to tell the funder.
- Ensuring that the grant applicant has told the complete story.
- Anything missing? Anything else to add to complete the story for the grant application?

Wrap-up the course by asking participants to relate the story told by the data to some of the concepts presented earlier in the course. What do funders need to know about the data that was used to tell this story?

- Where did the data come from? And is it of good quality? How would you describe the type of data being presented (population versus sample, etc.)? (Section 2)
- What types of statistics are being presented? (Section 3)
- Would you present this message differently if you were presenting it to a community coalition? a reporter?

Reward the groups with "funding" and thank them for participating!!!
Ask all of the participants to complete the SURVEY/FEEDBACK about the class.

Appendix A: Activity Handouts and Worksheets

Handout 1.2

Livable, Walkable Communities

Livable, Walkable Communities are places where people of all ages and abilities can easily enjoy walking, bicycling and other forms of recreation. They are areas that support and promote physical activity; have sidewalks, on-street bicycle facilities, multi-use paths and trails, parks, open space and recreational facilities; and promote mixed use development and a connected grid of streets, allowing homes, work, schools and stores to be close together and accessible by walking and bicycling.

The program is designed to increase awareness of the importance of physical activity among all ages through helping NH communities evaluate and explore ways neighborhoods can improve the quality of life for residents.

Many communities lack proper sidewalks that allow children to safely walk to school, and many roads have narrow shoulders, discouraging cyclists. Livable, Walkable Communities will be part of a broad-based, integrated statewide effort to help cities and towns ensure their environments are more conducive to day to day physical activity.

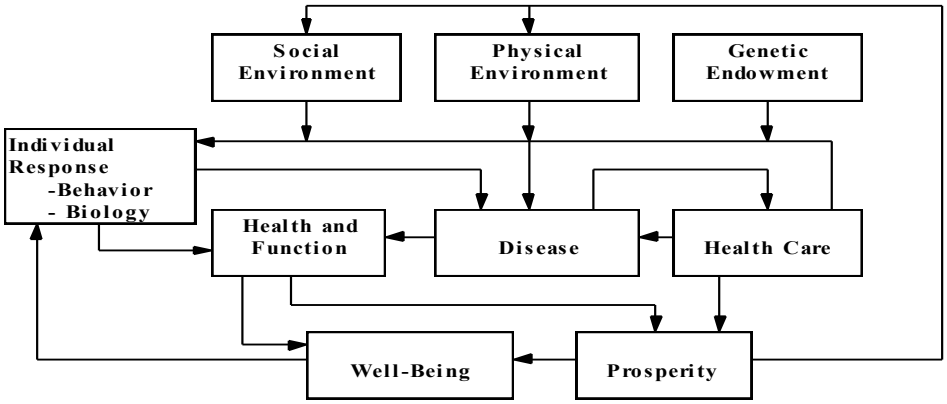
New Hampshire Celebrates Wellness developed a toolkit to assist communities in visioning, engaging, assessing, planning, linking with resources, implementing, and of course, celebrating the process of becoming more livable and walkable. The toolkit includes an assessment scorecard, an exercise for mapping destinations and linkages, and a survey for conducting a walking audit of current conditions in your neighborhood or community. Additionally, a Community Resource Guide included in the toolkit will assist your community in easily assessing statewide and local resources necessary for implementing desired action steps.

For more information about Livable, Walkable Communities see:
http://extension.unh.edu/CommDev/LiveWalk.htm

Handout 1.3

Evans and Stoddart Field Model of Health and Well-Being

Evans and Stoddart, in their 1990 publication "Producing Health, Consuming Health Care,"[2] proposed a dynamic and multi-factorial field model to explain the interplay of health, disease, and its determinants. The Field Model identifies nine summary domains known to influence population health over time: social environment, physical environment, genetic endowment, individual response, (behavioral and biological) health and function, disease, health care, well-being, and prosperity. Each domain includes a complex set of factors that can be studied in further detail; the researchers suggest that "each box and category could be expanded to show its complex contents." To this end, the authors warn against "treating such categories as if they could be adequately represented by some single homogenous variable." The arrows between the boxes suggest the dynamic relations between the domains of determinants and health and disease. These interactions, like the determinants, may also affect health. For example, the link between health care and disease exposes the possibility of risk of unintended consequences from medical intervention. Evans and Stoddart also posit that the *interactions* themselves may be the most critical determinants of health.



Source: Adapted from Figure 4 in Evans R, Stoddart G. "Producing Health, Consuming Resources" Soc Sci Med. 1990;31:1347-1363.

Handout 2.1
"Locating Data" Presentation

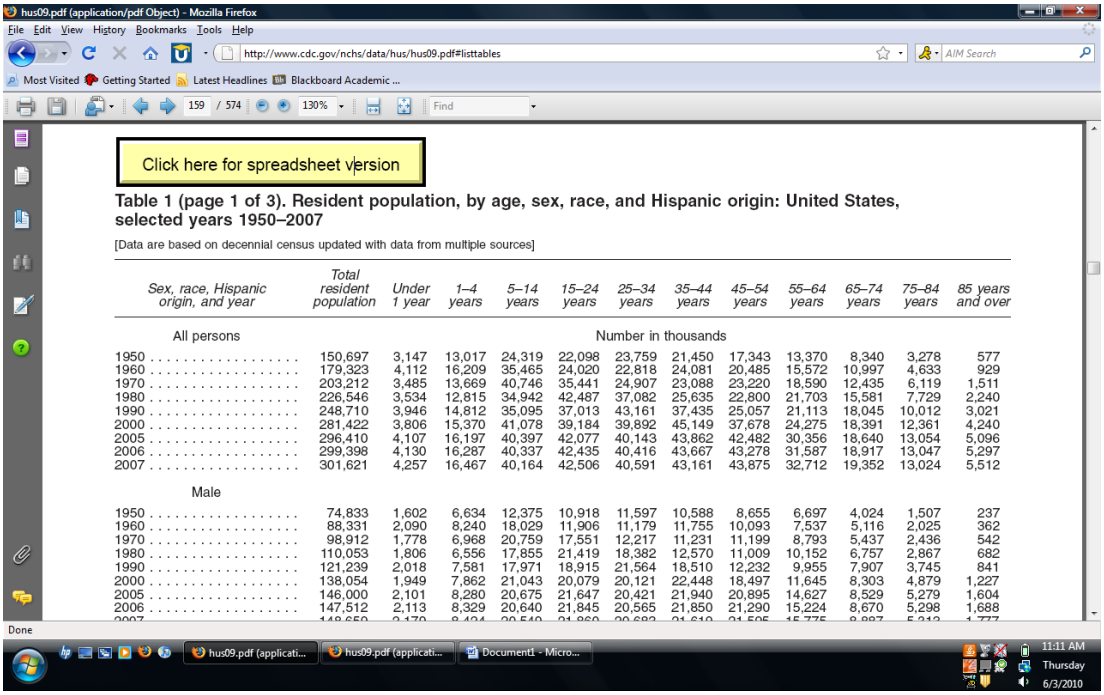
Handout 2.3
Section 1

Instructions for viewing a list of available tables from the *Health, United States* publication from the Center for Disease Control and Prevention's (CDC) National Center for Health Statistics.[8]

1. Open the Health, United States site: http://www.cdc.gov/nchs/hus.htm

2. At the top of the page for the 2009 Edition, select "Trend Tables". This will provide a list of all the available tables. Please not that these tables can be viewed by clicking on the title of the table.

3. However, these are pdf files, which are for "viewing" data only; user cannot work with the table. Once you select a particular trend table, (Resident Population, by age, sex, race, and Hispanic Origin selected years 1950-2007 **under header "Population"**) you may elect to view the spreadsheet version in Excel by clicking the yellow box in the upper left. In Excel, the user will have the ability to organize and graph the data as well.



4. Use the "Save As" function to save this file to the user's computer.

Notes about this exercise:

Handout 2.4

Dimensions of Data Quality

Relevance The relevance of statistical information reflects the degree to which it meets the real needs of clients. It is concerned with whether the available information sheds light on the issues that are important to users. Assessing relevance is subjective and depends upon the varying needs of users. The Agency's challenge is to weigh and balance the conflicting needs of current and potential users to produce a program that goes as far as possible in satisfying the most important needs within given resource constraints.

Accuracy The accuracy of statistical information is the degree to which the information correctly describes the phenomena it was designed to measure. It is usually characterized in terms of error in statistical estimates and is traditionally decomposed into bias (systematic error) and variance (random error) components. It may also be described in terms of the major sources of error that potentially cause inaccuracy (e.g., coverage, sampling, non-response, response).

Timeliness The timeliness of statistical information refers to the delay between the reference point (or the end of the reference period) to which the information pertains, and the date on which the information becomes available. It is typically involved in a trade-off against accuracy. The timeliness of information will influence its relevance.

Accessibility The accessibility of statistical information refers to the ease with which it can be obtained from the Agency. This includes the ease with which the existence of information can be ascertained, as well as the suitability of the form or medium through which the information can be accessed. The cost of the information may also be an aspect of accessibility for some users.

Interpretability The interpretability of statistical information reflects the availability of the supplementary information and metadata necessary to interpret and utilize it appropriately. This information normally includes the underlying concepts, variables and classifications used, the methodology of data collection and processing, and indications or measures of the accuracy of the statistical information.

Coherence The coherence of statistical information reflects the degree to which it can be successfully brought together with other statistical information within a broad analytic framework and over time. The use of standard concepts, classifications and target populations promotes coherence, as does the use of common methodology across surveys. Coherence does not necessarily imply full numerical consistency.

These elements of quality tend to overlap, often in a confounding manner. Just as there is no single measure of accuracy, there is no effective statistical model for bringing together all these characteristics of quality into a single indicator. Also, except in simple or one-dimensional cases, there is no general statistical model for determining whether one particular set of quality characteristics provides higher overall quality than another.

Source: Blackstone, Gordon. Managing Data Quality in a Statistical Agency. Statistics Canada, Survey Methodology, Catalogue No. 12-001-XPB, vol.25 No. 2, December 1999, with written permission from the author..

Handout 3
"Data Analysis" Presentation

Instructions for demonstrating measures of central tendency and dispersion

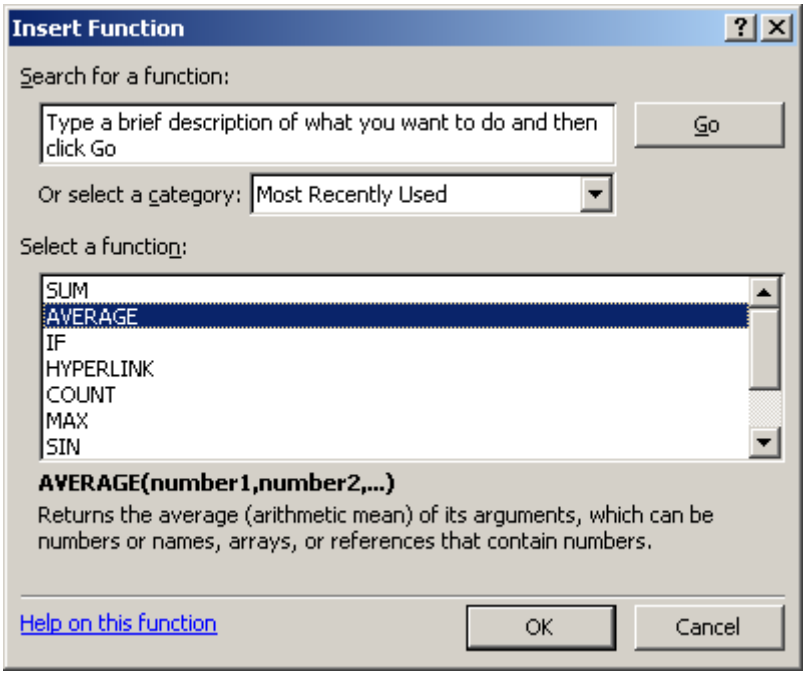
Handout 3.1a

Instructions for determining the ***mean*** of a data set using Microsoft Excel (2003 and 2007)

1. Double click on file "CommutingSelect.xls" to launch Microsoft Excel and the data file.
2. Decide on one column of data for determining the mean- for example, Column G, "Mean Travel Time to Work."
3. Place mouse cursor in the empty cell at the bottom of the column of data (cell G27 meaning Column G, Row 27) and select that cell by clicking on it.
4. **Microsoft Excel 2003 and earlier**: Go to the main toolbar above the worksheet and click on "Insert."

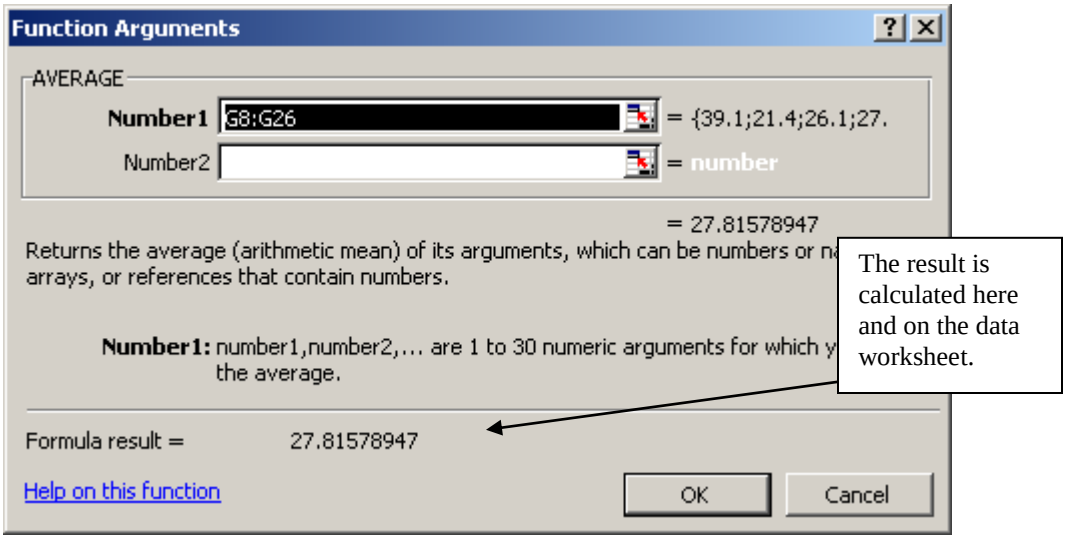
   Microsoft Excel 2007: Go to the Formulas toolbar.
5. **Microsoft Excel 2003 and earlier:** Select "Function" from the choices under "Insert."

   Microsoft Excel 2007: Select "Insert Function."
6. A dialogue box titled "Insert function" will open. Choose AVERAGE from the list of functions under "Select a function."

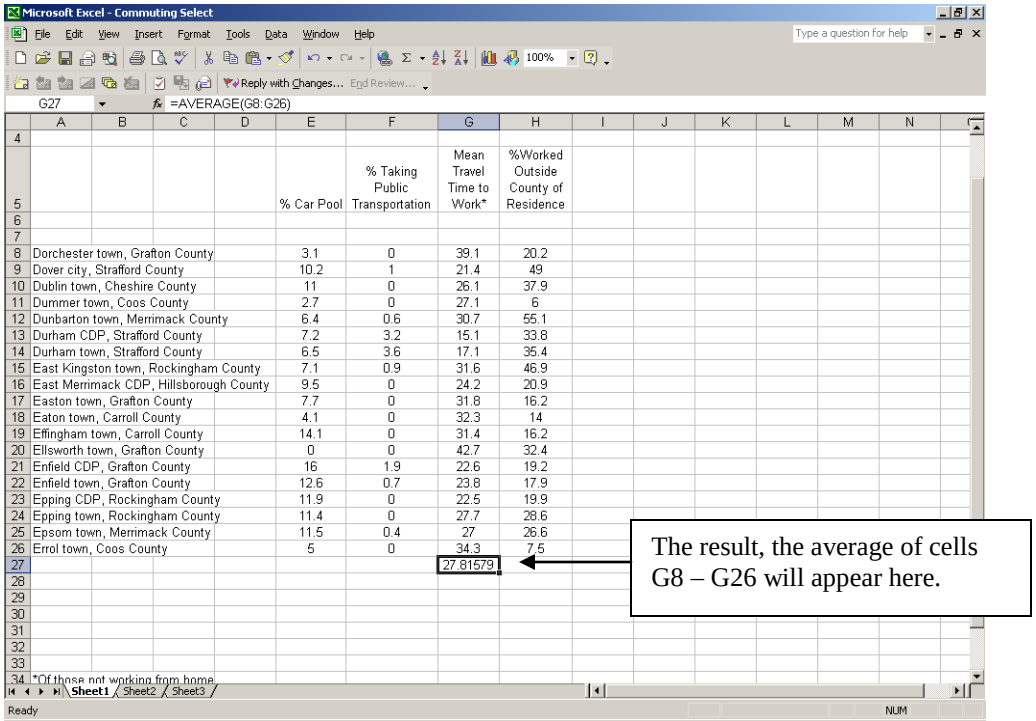


Click OK. Note: Excel uses the term "average" instead of "mean."

7. Another dialogue box (Function Arguments) will open, which will show the range of cells that Excel is performing the AVERAGE (or mean) calculation on. Double check that the range of cells is correct for the calculation you wish to perform. In this case the range is G8:G26 (read as G8 through G26).



If the range of cells is correct, then click OK. The calculated mean will be displayed in cell G27. The mean for this set of data is 27.81579.



8. You can choose the number of decimal places you wish to show.

Microsoft Excel 2003 and earlier: Go to "Format" on the toolbar and choosing "Cells." The first tabbed item in this dialogue box is "Number," select this tab if it is not already

selected. In the box entitled "Category" select "Number." There will be a box where you can specify the number of places you want represented for decimals.

Microsoft Excel 2007: Go to "Home" on the toolbar and choosing "Format" within the "Cells" section. Select "Format Cells." The first tabbed item in this dialogue box is "Number," select this tab if it is not already selected. In the box entitled "Category" select "Number." There will be a box where you can specify the number of places you want represented for decimals. You can also use the arrows for more or fewer decimal places under "Number" on the Home tab.

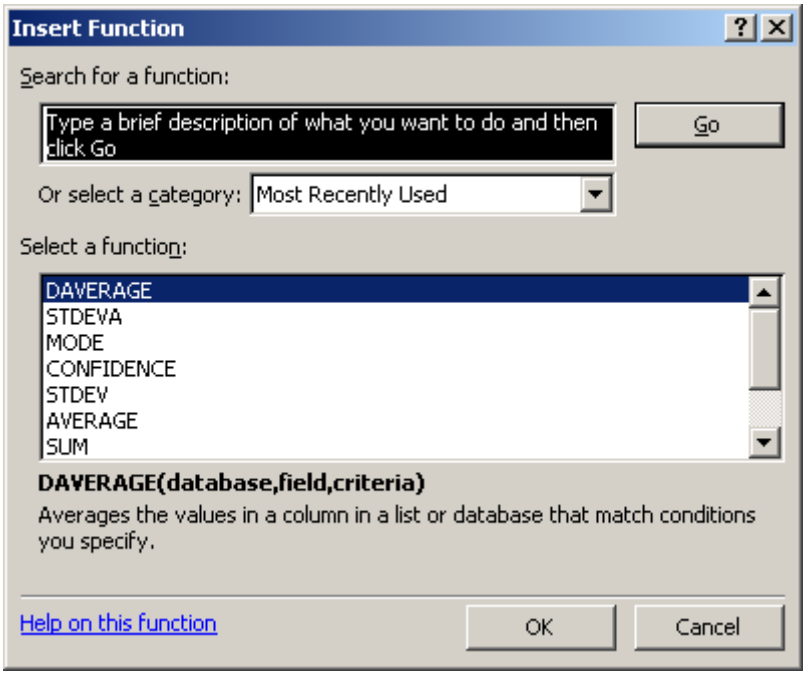
Handout 3.1b

Instructions for determining the ***mode*** of a data set using Microsoft Excel (2003 and 2007)

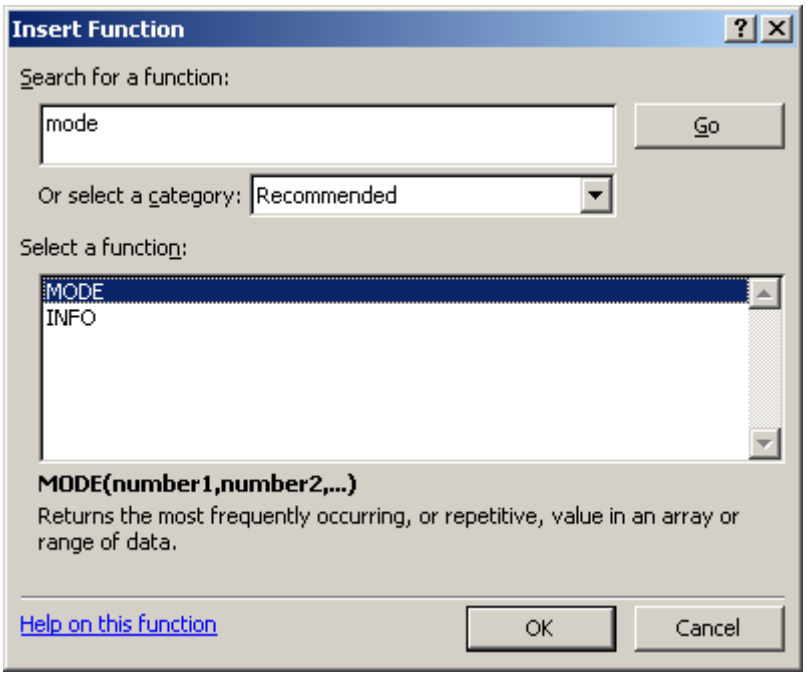
1. Double click on file "CommutingSelect.xls" to launch Microsoft Excel and the data file.
2. Decide on one column of data for determining the mode- for example, Column H, "%Worked Outside County of Residence."
3. Place mouse cursor in the empty cell at the bottom of the column of data (cell H27) and select that cell by clicking once on it.
4. **Microsoft Excel 2003 and earlier**: Go to the main toolbar above the worksheet and click on "Insert."

   Microsoft Excel 2007: Go to the Formulas toolbar.
5. **Microsoft Excel 2003 and earlier:** Select "Function" from the choices under "Insert."

   Microsoft Excel 2007: Select "Insert Function."
6. A dialogue box titled "Insert Function" will open. Type the word "mode" in the "Search for a function" box, and click Go.



7. In the next dialogue box (shown below), select “mode” and click OK.



8. Another dialogue box (Function Arguments) will open, which will show the range of cells that Excel is performing the MODE calculation on. Double check that the range of cells is correct for the calculation you wish to perform. In this case the range is H8:H26 (read as H8 through H26). If the range of cells is correct, then click OK. The calculated mode will be displayed in cell H27. In this case, the mode or most frequently occurring value in the data set selected should be 16.2.

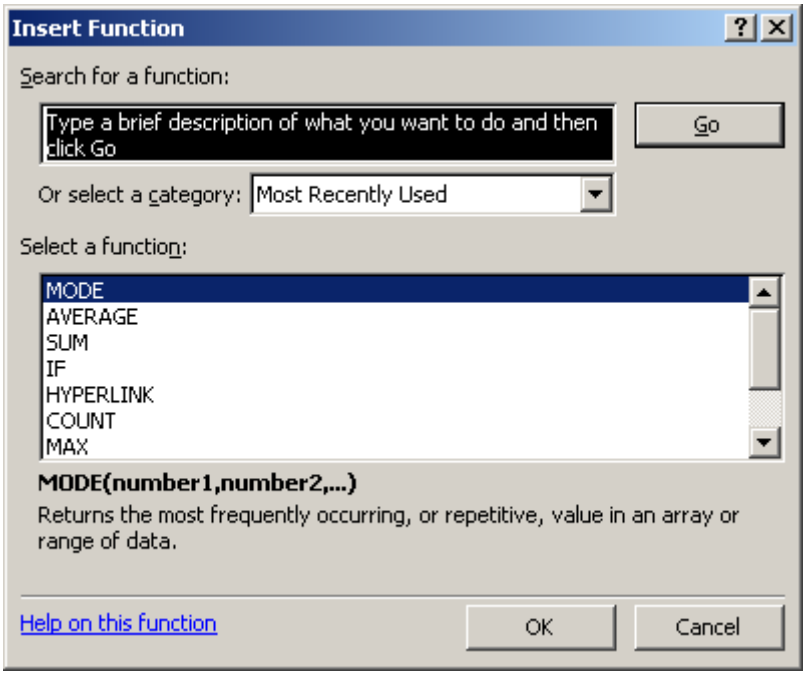
Handout 3.1c

Instructions for determining the ***median*** of a data set using Microsoft Excel (2003 and 2007)

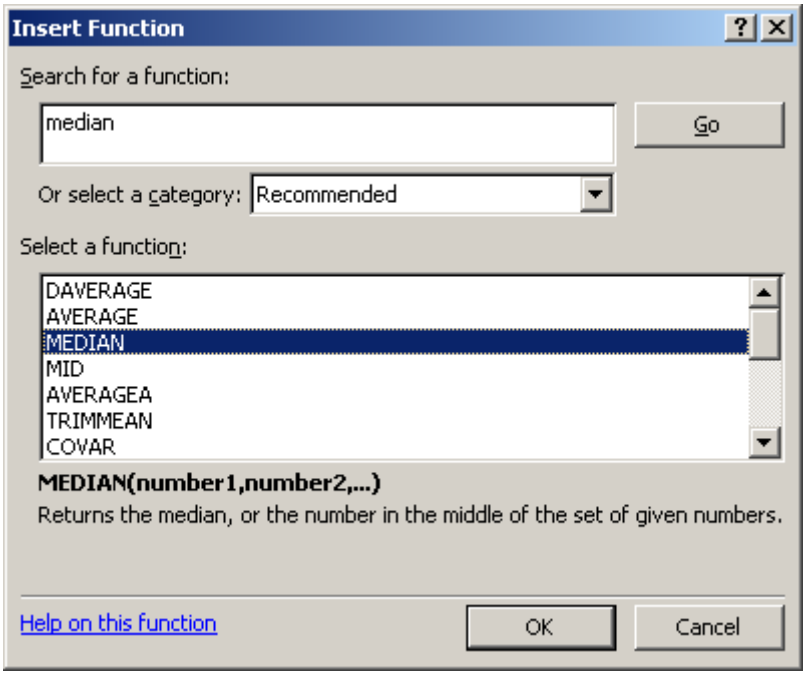
1. Double click on file "CommutingSelect.xls" to launch Microsoft Excel and the data file.
2. Decide on one column of data for determining the median- for example, Column E, "% Carpool."
3. Place mouse cursor in the empty cell at the bottom of the column of data (cell E27) and select that cell by clicking once on it.
4. **Microsoft Excel 2003 and earlier**: Go to the main toolbar above the worksheet and click on "Insert."

   Microsoft Excel 2007: Go to the Formulas toolbar.
5. **Microsoft Excel 2003 and earlier:** Select "Function" from the choices under "Insert."

   Microsoft Excel 2007: Select "Insert Function."
6. A dialogue box titled "Insert Function" will open. Type the word "median" in the "Search for a function" box, and click "Go".



7. In the next dialogue box (shown below), select "median" and click OK.



8. Another dialogue box (Function Arguments) will open, which will show the range of cells that Excel is performing the MEDIAN calculation on. Double check that the range of cells is correct for the calculation you wish to perform. In this case the range is E8:E26. If the range of cells is correct, then click OK. The calculated mode will be displayed in cell E27. In this case the median value- that is, the value which cuts your data set in half- is 7.7. Half of the data in this data set are less than 7.7 and half are greater than 7.7.

Handout 3.1d

Instructions for calculating the ***standard deviation*** of a data set using Microsoft Excel

1. Double click on file "CommutingSelect.xls" to launch Microsoft Excel and the data file.
2. Select one column of data for determining the standard deviation- for example, Column G, "Mean Travel Time to Work."
3. Place the cursor in the empty cell at the bottom of the column of data (cell G27) and select that cell by clicking on it.
4. **Microsoft Excel 2003 and earlier**: Go to the main toolbar above the worksheet and click on "Insert."

   Microsoft Excel 2007: Go to the Formulas toolbar.
5. **Microsoft Excel 2003 and earlier:** Select "Function" from the choices under "Insert."

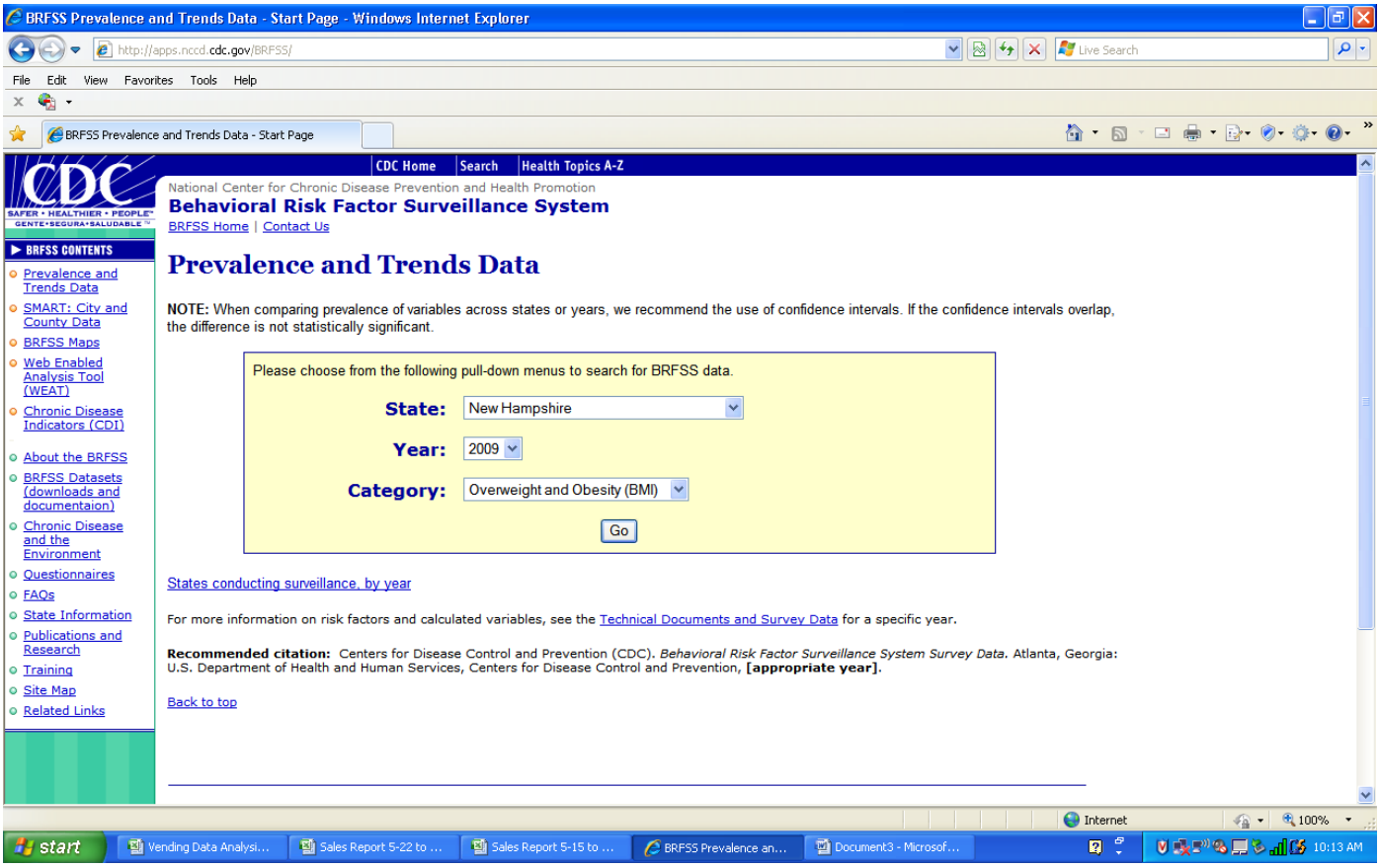
   Microsoft Excel 2007: Select "Insert Function."
6. Choose STDEV from the list of functions under "Select a function." Click OK. Note: There are several choices of types of standard deviations. For now, we are just interested in the standard deviation for this particular sample, so the appropriate choice is STDEV.
7. Another dialogue box (Function Arguments) will open, which will show the range of cells that Excel is performing the standard deviation calculation on. Double check that the range of cells is correct for the calculation you wish to perform. In this case the range is G8:G26 (read as G8 through G26). If the range of cells is correct, then click OK.

   The calculated standard deviation will be displayed in cell G27. For this set of data, the standard deviation is 6.947683. This represents the average distance of the values in this sample from the mean.

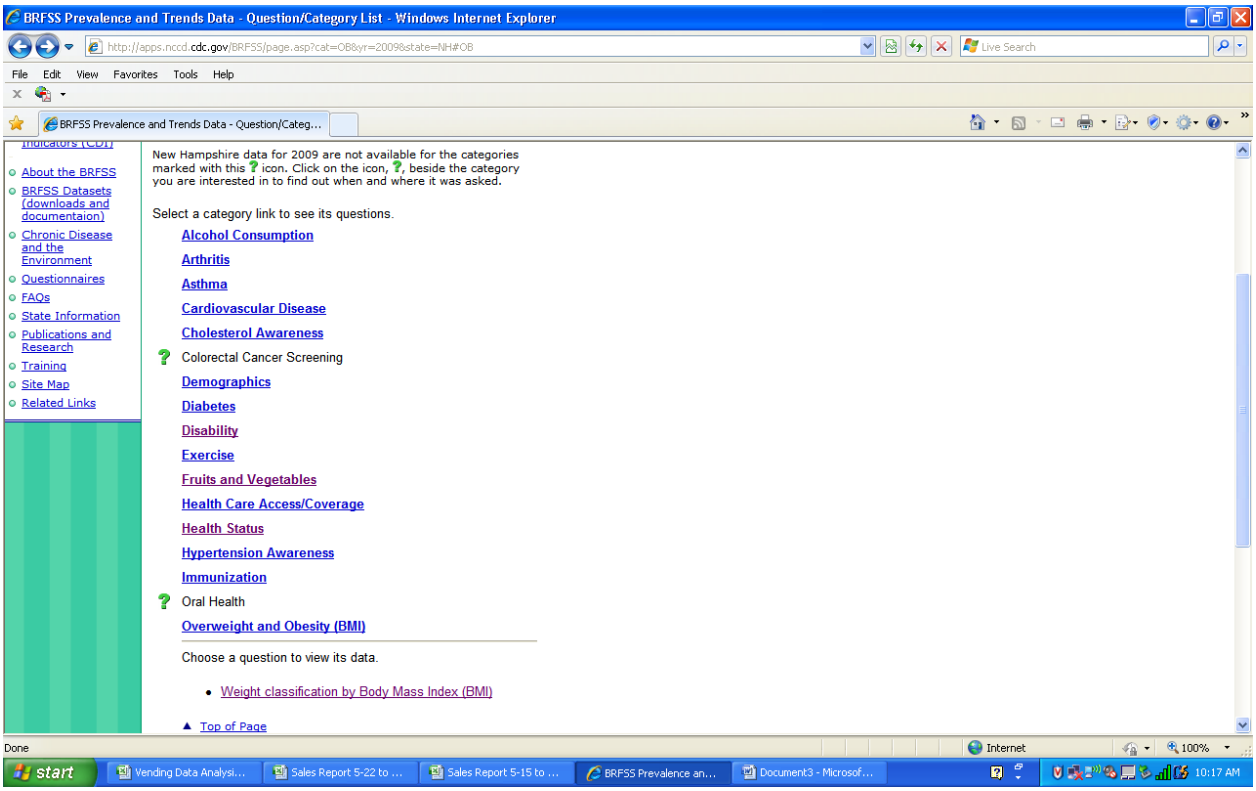
Handout 3.2

Instructions for computer exercises for using and comparing rates (accessing BRFSS prevalence data from the CDC website)

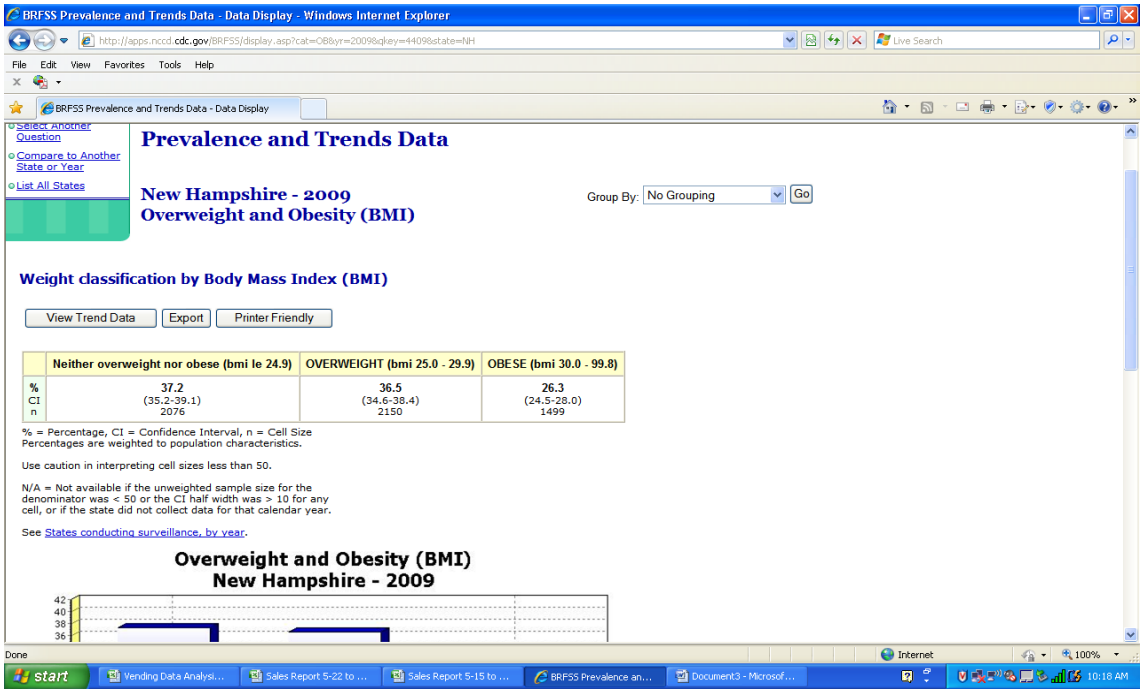
1. Type the follwing URL into your Internet browser- http://www.cdc.gov/brfss/ and select "Prevalence and Trends Data" under BRFSS Contents
2. Under Prevalence Data use the drop-down menus to select the folling criteria:
    a. **State:** New Hampshire
    b. **Year:** 2009
    c. **Category:** Overweight and Obesity
    d. Finally, click on the "**Go**" button.



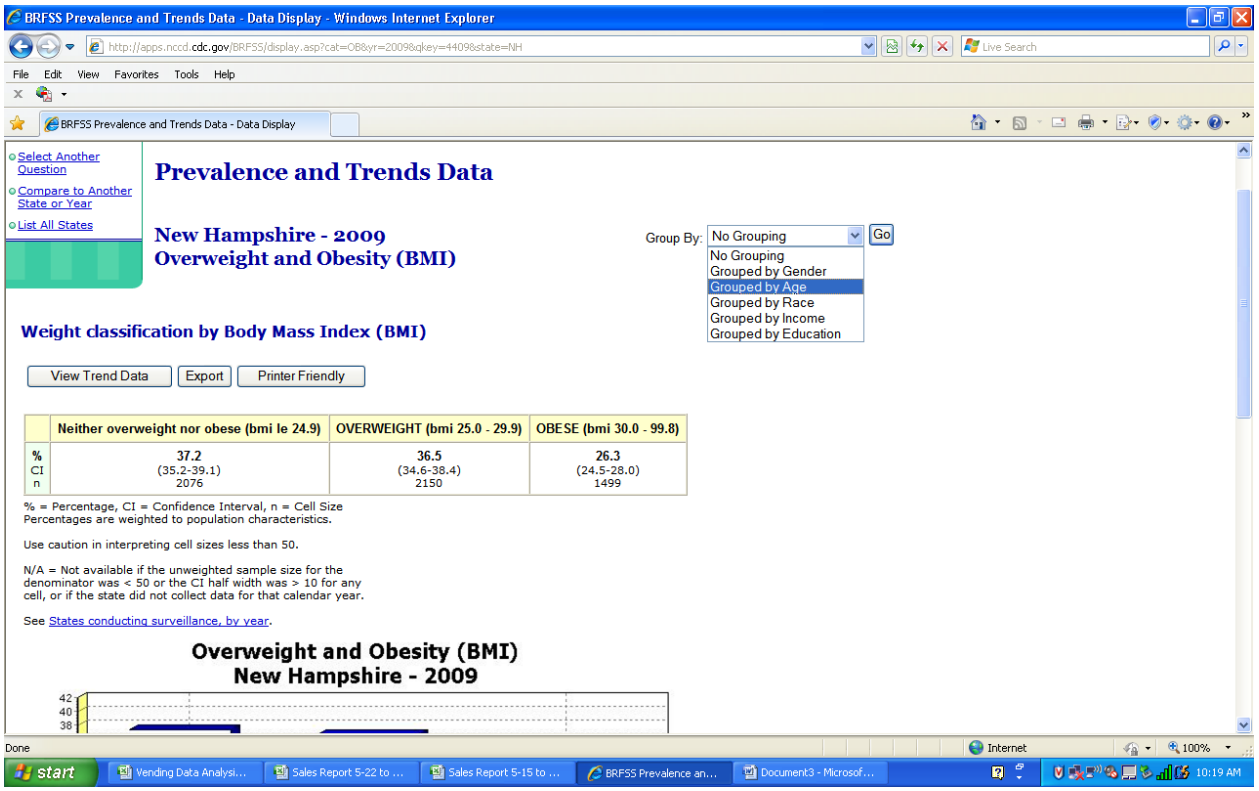
3. At the next screen shot, select: <u>Weight Classifications based on BMI</u>



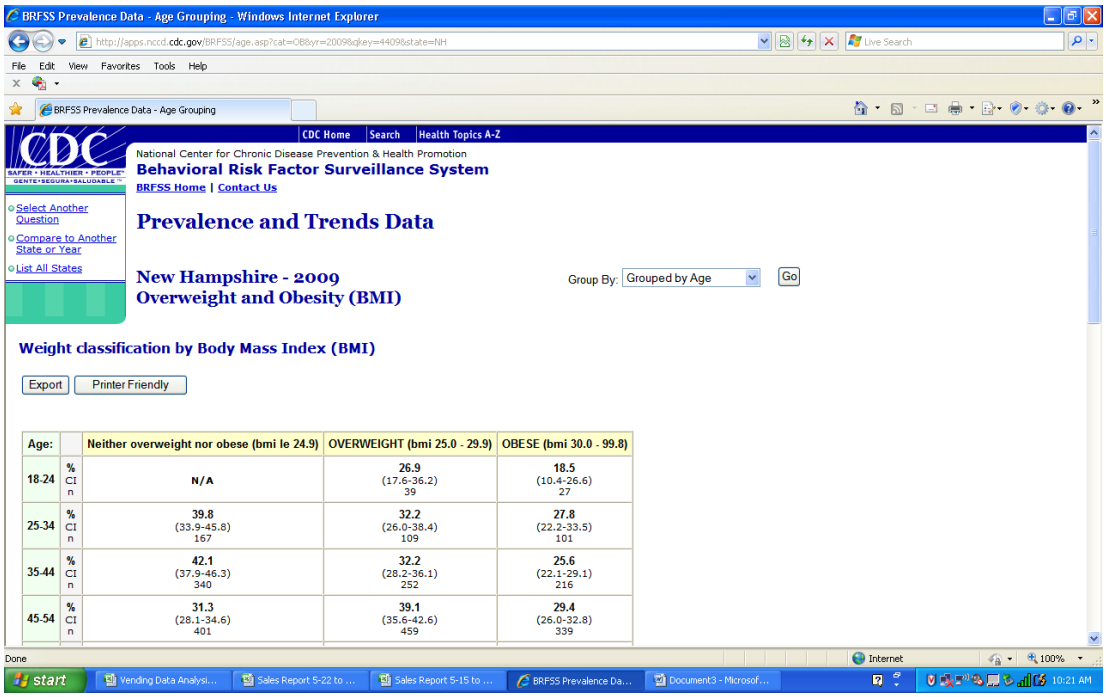
4. Prevalence data for weight classifications will appear:



5. To look at age-specific rates, select “Grouped by Age” and then “Go”:



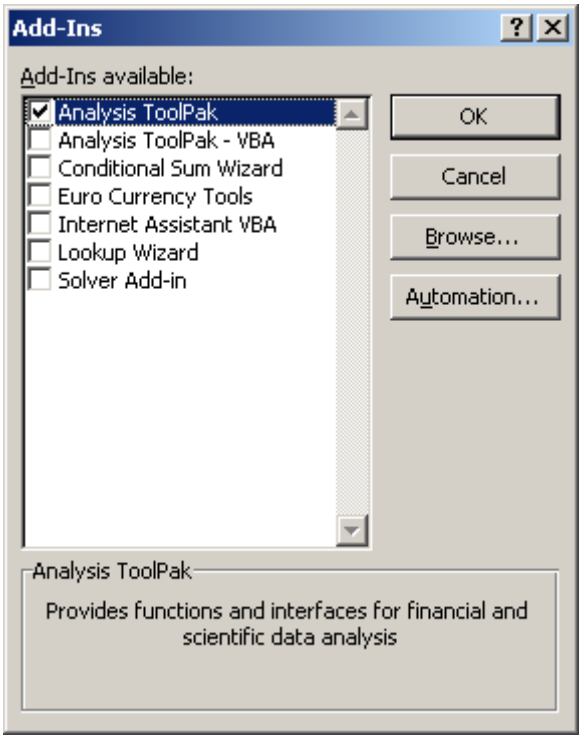
6. Notice that, in the output on your screen, the age groups appear in the left-hand column and the weight classifications appear across the top:



Handout 3.3
Instructions for calculating the ***confidence interval*** of a sample using Microsoft Excel

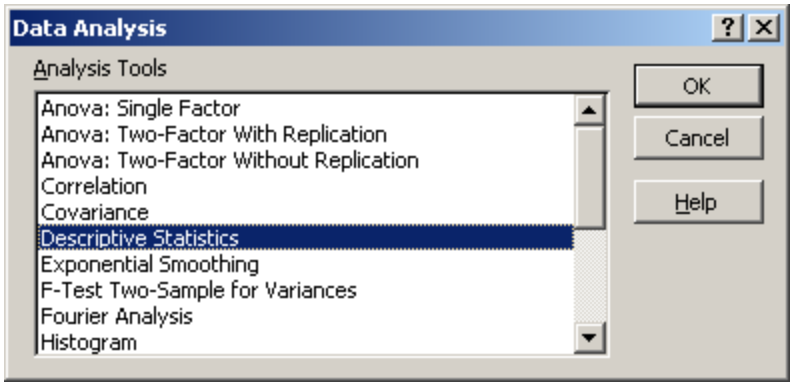
1. Double click on file "CommutingSelect.xls" to launch Microsoft Excel and the data file.
2. **Microsoft Excel 2003 and earlier:** From the Tools menu, select "Add-Ins."

   Microsoft Excel 2007: Click the Microsoft Office Button  , click Excel Options, and then click Add-Ins. In the "Manage" menu options, select "Excel Add-ins" and Click go.
3. Be sure that "Analysis ToolPak" is checked, and click "OK".

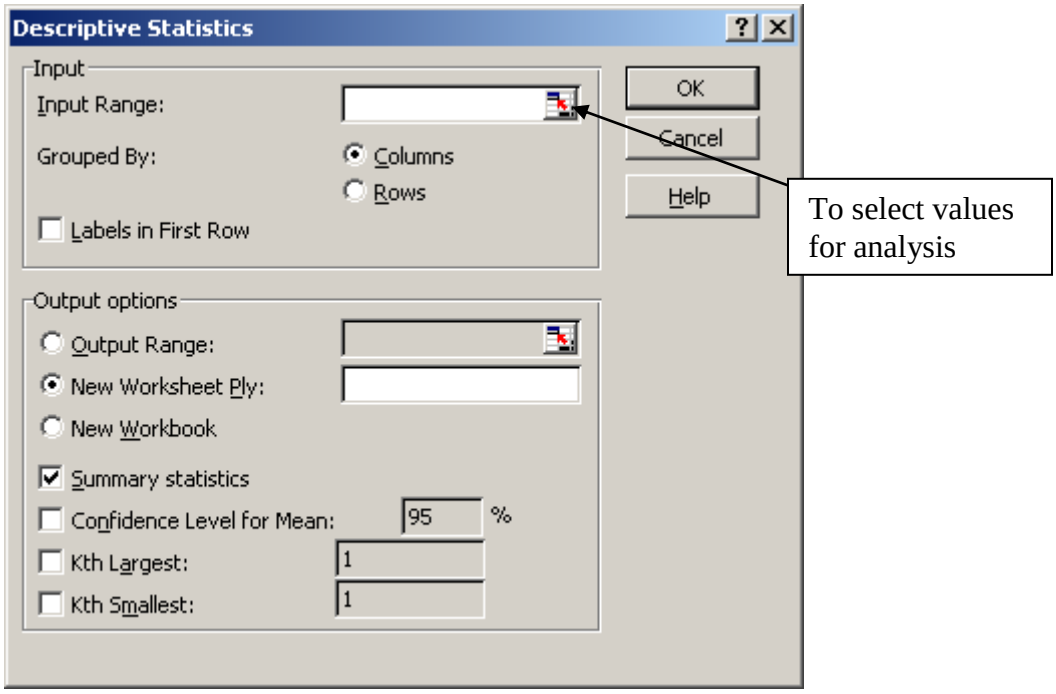


4. **Microsoft Excel 2003 and earlier:** From the Tools menu, select "Data Analysis…." A dialog box will appear for "Data Analysis", select "descriptive Statistics" and click "OK.

   Microsoft Excel 2007: Click on the "Data" tab. Click on "Data Analysis" in the "Analysis" section. A dialog box will appear for "Data Analysis", select "descriptive Statistics" and click "OK.

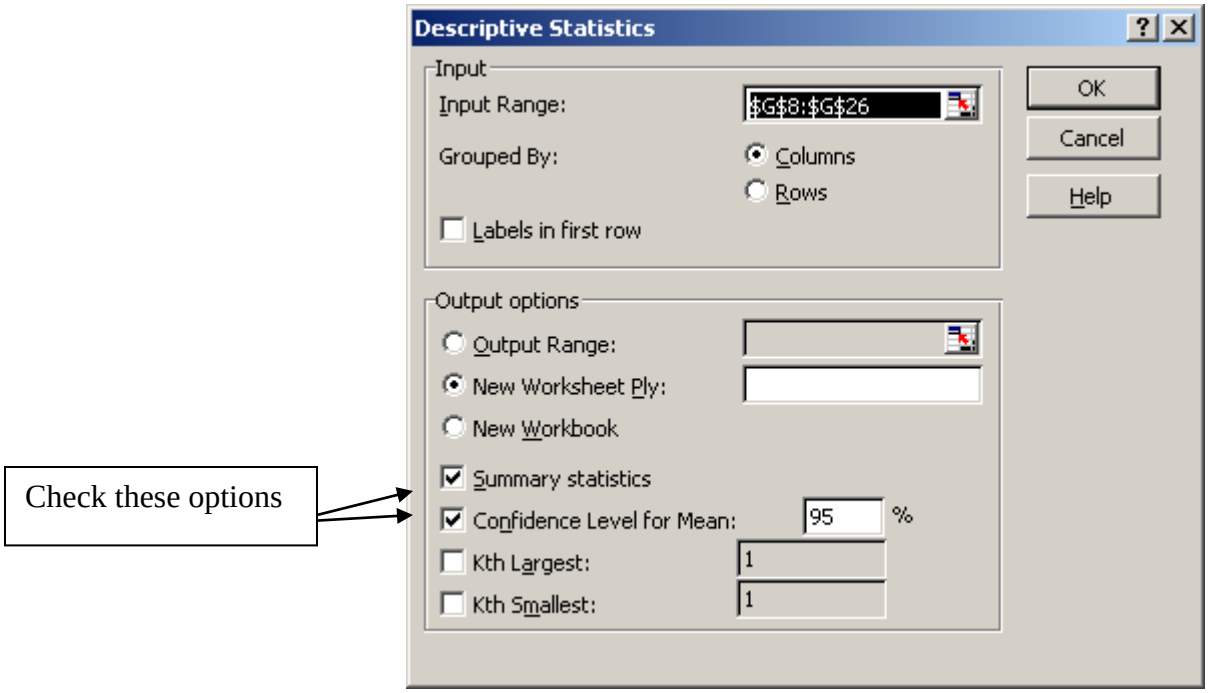


5. A dialog box for "Descriptive Statistics" will appear. Click on the red icon to the right of the input values field.

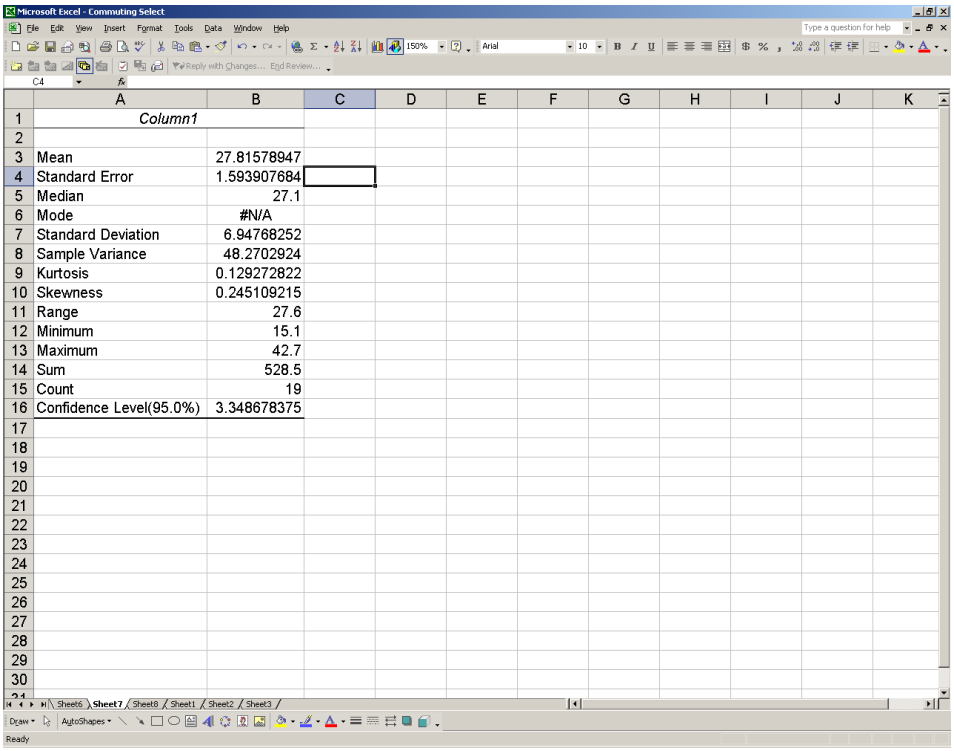


6. Now, by highlighting the cells on your spreadsheet that you would like to analyze (e.g. values in column for "mean travel time to work"), the cells are defined for the analysis. Click on the red icon to the right on the Descriptive Statistics dialog box to confirm this input range and complete this step:

7. Confirm that “Summary Statistics” and “Confidence Interval for Mean” are checked in the “Descriptive Statistics” dialog box, and click “OK”.



8. Your results will return on another worksheet in your “Commuting Select” file:



	A	B
1	*Column1*	
2		
3	Mean	27.81578947
4	Standard Error	1.593907684
5	Median	27.1
6	Mode	#N/A
7	Standard Deviation	6.94768252
8	Sample Variance	48.2702924
9	Kurtosis	0.129272822
10	Skewness	0.245109215
11	Range	27.6
12	Minimum	15.1
13	Maximum	42.7
14	Sum	528.5
15	Count	19
16	Confidence Level(95.0%)	3.348678375

Handout 4.1
Shaping the question worksheet

Who: what are the characteristics of the population you want to know about?

- Age
- Gender
- Race/ethnicity

What: About what indicator or outcome are you seeking information?

- Behavior
- Health/illness
- Vitals
- Incidence or prevalence
- What type of rate?

Where: What area are you interested in learning about?

- Geographic area (e.g. HSA, SAU, county)
- Know the town, or group of towns in the geographic area
- Residents v. occurrences

When: What time period are you considering?

- Trends over time
- Is a certain time frame necessary (is the indicator changing)

Handout 4.2a

BHSDM Guidelines for the Release of Public Health Data

OCPH Guidelines for the Release of Public Health Data[12]

Guidelines for the Release of Public Health Data

September 18, 2001

I. Introduction:

The New Hampshire Department of Health and Human Services (DHHS), Office of Community and Public Health (OCPH) is committed to providing the public, media and researchers with health statistics and data tabulations in a manner that balances individual privacy needs while maximizing informational detail. The following guidelines are intended to direct OCPH personnel in making decisions about the release of information to researchers, public health agencies and the general public under certain state statutes. The statutes addressed in these guidelines include:

RSA 126 (Vital Records and Health Statistics)
RSA 126:25 (Health Care Data)
RSA 126-A:11 (Medical and Scientific Research Information)
RSA 141-B (Chronic Disease Prevention)
RSA 141-C (Communicable Disease)

Data requested under the auspices of any other statutes are not addressed in these guidelines. Requests for public records pursuant to the Right to Know Law (NH RSA 91-A) require a response within 5 business days and raise certain legal issues such as statutory exemptions to the Right to Know. Legal consultation may be obtained from the DHHS Office of Program Support, Division of Legal Services in the event that the request is non-routine or if there is any doubt as to the application of these guidelines.

For purposes of these guidelines, information is sorted into two general classifications, public information and information that is safeguarded. Information is further categorized and treated in accordance with its identifying characteristics. Categories of information include personal identifying information, constructive identifying information and information that is non-identifying. These guidelines attempt to draw a distinction between a release of information that could potentially result in the inadvertent disclosure of an individual's identity, from a release of information that is strictly an aggregate summary of data that presents no risk of such disclosure. As no guideline can perfectly address this distinction, all requests will be carefully reviewed and decisions on those falling outside of the scope of these guidelines will be made on a case-by-case

basis. All releases of surveillance data described in these guidelines are subject to the discretion of the Department of Health and Human Service releasing official.

II. Definitions:

a. "Constructive identifying information" means information or several pieces of information that could be used to surmise the identity of an individual.

b. “Direct and tangible interest” means a legal reason or authorization, pursuant to RSA 126:14, establishing access to vital records.

c. “Health related research” means research that is approved as such by the Bureau of Health Statistics, Health Data Request Review Committee.

d. “Legal representative” means an attorney, physician, funeral director, or other authorized agent acting on behalf of the registrant or his or her family.

e. “New Hampshire public health official” means any individual appointed under RSA 128:1 (i.e. city or town health officers) or employed under RSA 47:12 (Powers of City Councils) who conducts a public health investigation in the state of New Hampshire.

f. “Personal identifying information” means name, address, date of birth, telephone number, social security number, and other alphanumeric unique identifier.

g. “Public health purpose” means a population-based activity or individual effort that is necessary for the treatment, control, investigation, and prevention of a disease or condition that is dangerous to the public health.

h. “Registrant” means, for purposes of vital records information pursuant to RSA 126, the person to which the data on a certificate or report pertains.

i. “Vital record” means a certificate or report of a vital event as specified in RSA 126 and He-P 7002.75.

III. Guidelines for determining the release of personal identifying information

a. Individuals requesting their own personal identifying information collected under New Hampshire public health statute, vital records statute or administrative rule shall receive such information after providing public health officials with sufficient evidence of their identity. Sufficient evidence may include, but is not limited to, copies of driver’s licenses, birth certificates, or a notarized letter. In the case of vital records this release is conditional upon the registrant or other requestor demonstrating a direct and tangible interest consistent with RSA 126 and He-P 7000.

b. New Hampshire public health officials or other New Hampshire agency officials may receive personal identifying information in instances where the case(s) resides in their jurisdiction or where there is responsibility for specific client services (i.e. disease control or case

management activities), provided the information requested is essential to a public health purpose. The release of any personal identifying information is conditioned upon the requestor maintaining the confidentiality of the information.

c. Researchers conducting health related or scientific research must demonstrate a need for the information requested by submitting a research-related health data review request and obtaining approval from the DHHS, OCPH, Bureau of Health Statistics and Data Management (BHSDM) Health Data Review Committee prior to receiving such information. Applications are available through the World Wide Web (http://www.dhhs.nh.gov/dphs/hsdm/requests.htm). A release of the information requested will proceed only after the requestor has signed an assurance statement and is conditioned upon the researcher maintaining the confidentially of the information.

d. Official contractors of DHHS may have access to personal identifying information if the release is essential to a specific client service and contractual purpose intended to perform appropriate duties of the Department. The release of any personal identifying information is conditioned upon the contractor maintaining the confidentiality of the information.

Guideline to Determine the Release of Public Information When Constructive Identification is at Issue

Information or statistics for a defined geographic area, which do not contain personal identifying information, may be released to the general public provided such information or statistics cannot be used to constructively identify an individual. In making such a determination, geographic area must be considered as indicated below.

a. When the geographic region of interest is the state of New Hampshire:

total numbers of cases may be released,
information stating that no cases have occurred may be released,
age by single years may be released,
birth characteristic data may be released for any maternal age group,
gender may be released,
race/ethnicity may be released,
other risk factor information may be released,
status of cases may be released (i.e. alive or dead),
time period of interest shall be a minimum of 3 months.

b. When the geographic region of interest is a New Hampshire county, or an aggregate grouping of at least 11 towns (the number of towns in New Hampshire's smallest county):

total numbers of cases may be released,
information stating that no cases have occurred may be released,
age by 5-year age groups may be released,

birth characteristic data may be released by the following maternal age groups: 15-17, 18-19 (or 15-19), 20-24, 25-29, 30-34, 35-39, and 40+
gender may be released,
race may be released,
other risk factor information may be released,
status of cases may be released (i.e. alive or dead),
time period of interest shall be a minimum of 1 year.

c. When the geographic region of interest is smaller than the county size level (or if the request is for more specific information than is generally releasable at the county or state level), release of the data is limited by the following:

i. When a table results in a numerator cell size of between 1 and 4, the value will be suppressed (values of 0 and 5 or more will be released).

ii. When a cell in a table has been suppressed, sufficient other cells in the table will be suppressed so that the exact value of the originally suppressed cell cannot be deduced through the content of other cells is the table.

iii. When suppression takes place, the data requestor will be encouraged to broaden the number of years, age groups, diagnoses, etc. aggregated in the table.

d. All information not previously released by OCPH programs should receive a final evaluation prior to release to determine if even while following the above guidelines constructive identification is possible.

e. In cases where the requestor needs data that would normally be suppressed or not publicly releasable:

Data that is normally suppressed or not publicly releasable is considered at high risk for an accidental release of confidential information. As a consequence, a higher level of scrutiny should be given to the nature of the requests and its purposes. A number of the above referenced authorizing statutes allow for limited release of personally identifying information for approved health related or scientific research. The BHSDM, Health Data Review Committee must approve data requests for the purpose of health related or scientific research. Any such release is conditioned upon the researcher maintaining the confidentiality of released information and maintaining Office-approved standards for the further dissemination of findings.

f. The occurrence of a vital event and OCPH program enrollment counts, without further descriptors, may be released at the town or school district level with no suppression of the count.

V. Other requests for information

Other requests for information at low levels of geographic detail or otherwise outside the criteria set forth in these guidelines, which may compromise individual confidentiality should be made with consultation and approval of the Office of Program Support, Legal Services unit and with appropriate notification of the Director of OCPH.

The release of information in connection with any legal action should be made after consultation and approval of the Office of Program Support, Legal Services Unit and with appropriate notification of the Director of OCPH.

Alternatively, all requests for health data may be released at the discretion and with specific approval from the Director of OCPH.

VI. Reports and disclaimer

All data released by the Office in accordance with the above stated guidelines shall include the following:

The name and the title of person preparing the data report or release,
The date of the report or release,
The originating Office and Division,
The specific formulas or calculations used in the data preparation, and
A statement to read as follows:

"All data in this report are based upon information provided to the New Hampshire Department of Health and Human Services under specific legislative authority. The numbers reported may represent an underestimate of the true absolute number and incidence rate of cases in the state. All population calculations and rates are based on the most recent published estimates by the U.S. Bureau of the Census and the New Hampshire Department of State Planning. Any release of personal identifying information is conditioned upon such information remaining confidential. The unauthorized disclosure of any confidential medical or scientific data is a misdemeanor under New Hampshire law. The department is not responsible for any duplication or misrepresentation of surveillance data released in accordance with this guideline."

VII. Statutory standards matrices

Appendix A below are intended to provide a summary of statutory language governing the release of information for these datasets defined by the status of the requestor (i.e. general public, researcher, etc.).

_____

MaryAnn Cooney
Director

APPENDIX A

REQUESTER OF INFORMATION	STATUTE	INFORMATION THAT CAN BE RELEASED
Member of the general public	Vital Records RSA 126	Vital statistic records may not be inspected or released (in part or in whole) unless the register is satisfied that that the requester has a direct and tangible interest in the record. A direct and tangible interest is presumed for the registrant, a member of his immediate family, his guardian, or their legal representative. This does not apply to adoption records, which cannot be released except pursuant to RSA 170-B:19, II. Properly qualified members of the Media are deemed to have a direct and tangible interest when the information requested is "of a public nature". Information needed for determination or protection of a personal or property right. The register may authorize disclosure of certain vital records to be used for research for "legitimate genealogical purposes".
	Health Care Data RSA 126:25	To the public upon request, provided that individual patients or health care practitioners shall not be directly or indirectly identifiable. (See He-C 1500).
	Chronic Disease Prevention RSA 141-B	Information which does not disclose the identity of an individual and which cannot be used to surmise an identity are available to the public under RSA 91-A.
	Communicable Disease RSA 141-C	Information which does not disclose the identity of an individual and which cannot be used to surmise an identity are available to the public under RSA 91-A.

REQUESTER OF INFORMATION	STATUTE	INFORMATION THAT CAN BE RELEASED
Researcher	Vital Records RSA 126 Health Care Data RSA 126:25 Chronic Disease Prevention RSA 141-B Communicable Disease RSA 141-C	The commissioner may authorize the disclosure of personal identifying information for the purposes of health-related research to individuals and institutions demonstrating a need for such information. The requester must submit a research-related health data review request and obtain approval from the Bureau of Health Statistics and Data Management, Health Data Review Committee. However, research conducted using information relative to RSA 141-B and RSA 141-C must be deemed to be "essential". Any release of information is conditioned upon the personal identities remaining confidential.
New Hampshire public health official	Vital Records RSA 126	Same as general public (above)
	Health Care Data RSA 126:25	Same as general public (above)
	Chronic Disease Prevention RSA 141-B	Reports provided to the cancer registry which disclose the identity of an individual only if a need which is essential to health-related research is demonstrated and only conditioned upon the personal identities remaining confidential
	Communicable Disease RSA 141-C	All information, including personal identifying information, where the case(s) resides or where there is responsibility for specific client services (i.e. disease control or case management activities) provided the information requested is essential to the health care needs of that client or protecting the health of the public, conditioned upon the personal identities remaining confidential

Handout 4.2b
Example data request from (blank) [13]

Request for Non-confidential Data Analysis

Please send your completed application materials to the following address:

Ann Bennett, Program Assistant
Bureau of Health Statistics and Data Management
Department of Health and Human Services
6 Hazen Drive
Concord, NH 03301-6527

You may also fax the form to (603) 271-8710 or e-mail it as an attachment to abennett@dhhs.state.nh.us

If you have any questions, please do not hesitate to contact Ms. Bennett at (603) 271-5926 or at 1-800-852-3345 ext. 5926 or via e-mail at abennett@dhhs.state.nh.us.

Individual and Organization Requestor Information

1. Contact Person (person requesting data) Name and Title:
2. Organization/Office/Bureau:
3. Address:
4. Telephone Number:
5. Fax Number:
6. E-mail Address:
7. Contact Person (If Different From Requestor):
8. Contact Person Telephone Number:
9. Date Request Made:
10. Date Information Needed:

Description of Requested Analysis

Please complete the following, giving information that is as detailed as possible. The information you provide will serve as the criteria for the Bureau of Health Statistics and Data Management to respond to your data request. After receiving your request it will be reviewed for feasibility. You will be contacted if we have any questions or concerns.

Please indicate the type of data you are requesting us to analyze:

✓	Vital Records	*Most Recent Year Available*
☐	Birth	2002
☐	Death	2002
☐	Marriage	2002
☐	Divorce	2002
✓	Hospital	
☐	Inpatient	2002
☐	Specialty Hospital	2002
☐	Ambulatory	2002
✓	Cancer Registry	
☐	Cancer Incidence	2001

Summary of requested analysis:

1. Please provide a title or brief description of the requested analysis.

2. **Years Requested:** For the data set(s) you checked above, for what year(s) are you requesting analysis or information?

Note: It is sometimes necessary to combine data from multiple years to produce reliable statistics that do not conflict with confidentiality considerations. This is likely to be necessary for events that occur infrequently. Would your request still be useful to you if data from multiple years were grouped together?

3. Geographic Area Requested: What geographic area(s) are you interested in (statewide, all counties, a specific county, health service areas, city/town, etc.)? If you are interested in data at the city/town level, please note that it may be impossible for us to release data at the town level, depending on the data set, the size of the city/town, and whether or not it would be acceptable to have multiple years of data combined, because of the need to maintain confidentiality.

4. Data Elements Requested: Please describe as specifically as possible the information you would like to obtain from the data set(s) you checked above. Be sure to indicate whether you are interested in events that happened to residents of New Hampshire or are interested in events that occurred in New Hampshire.

5. Please provide any other details needed for us to complete your request.

6. Please describe the format in which you would like to receive the analysis results (report, electronic document, e-mail, etc.).

7. What are the overall aims of the study or project that this analysis is part of?

8. Please indicate the way(s) in which the health information you requested will be used to benefit the population of New Hampshire and/or public health.

Name of Contact Person:	
Signature:	Date:

Handout 4.3a
Example BRFSS data request form and analysis results

Please send your completed application materials to the following address:

Ann Bennett
Bureau of Health Statistics and Data Management
Department of Health and Human Services
6 Hazen Drive
Concord, NH 03301-6527

If you have any questions, please do not hesitate to contact Ms. Bennett at (603) 271-5926 or at 1-800-852-3345 ext. 5926 or via e-mail at abennett@dhhs.state.nh.us.

Request for BRFSS Data Analysis

Please complete the form below, giving information that is as detailed as possible. The information you provide will serve as the criteria for the Bureau of Health Statistics and Data Management to respond to your data request. After receiving your request it will be reviewed for feasibility. We are currently experiencing a 2-week turn-around time for all requests. You will be contacted if we have any questions or concerns.

Individual and Organization Requestor Information

1. Contact Person (person requesting data) Name and Title: *JOHN DOE*
2. Organization/Office/Bureau: *HEALTH OF NH TODAY*
3. Address: *123 HEALTHY STREET*
4. Telephone Number: *603-123-4567*
5. Fax Number:
6. E-mail Address: *johndoe@brfssexample.req*
7. Overall Responsible Party's Name and Title (if applicable): *JOHN D BOSS*
8. Overall Responsible Party's Telephone Number (if applicable): *603-123-4567*

Description of Requested Data

Summary of requested analysis:

1. Please provide a title or brief description of the requested analysis. What are the overall aims of the study or project that this analysis is part of?

   BRFSS 2001, obesity and daily activity analysis
   Aims: Apply for grant for Livable, Walkable Communities to promote physical activity, decrease obesity, decrease cardiovascular disease

   Years Requested: For what year(s) are you requesting analysis or information?

   2001, or most recent year available

2. Data Elements Requested: Please describe as specifically as possible the information you would like to obtain.

   "Obesity" (BMI) for NH overall, and by sex, age, income and education

   "No leisure time activity" for NH overall and by sex, age, income and education

3. Please provide any other details needed for us to complete your request.

   Age groups: 18-24, 25-34, 35-44, 45-54, 55-64, 65 and older;
   Income: $0-20,000; $20,000-40,000; $40,000-$60,000, $60,000+
   Education: less than 18years v. 18+years

4. Please describe the format in which you would like to receive the analysis results (report, electronic document, e-mail, etc.).

   Document in Excel format sent by email

   Absolute Need By Date:

   August 15

Name of Contact Person: **JOHN DOE**	
Signature:	Date: **JULY 18**

Overweight or Obese, by Sex, Age, Education, and Income Levels, 2001 NH BRFSS

Demographic	%*	(95% CI)	Sample Size (n)
Overall	56	(54.2, 57.7)	2147
Sex			
Male	67	(64.4, 69.5)	1149
Female	44.8	(42.5, 47.2)	998
Age			
18-24	36.7	(30.2, 43.3)	93
25-34	48.6	(44.3, 53.0)	289
35-44	56.6	(53.2, 60.1)	519
45-54	65.3	(61.7, 69.0)	488
55-64	68.1	(63.8, 72.3)	353
65 and older	59.7	(55.6, 63.8)	389
Income			
Less than $20,000	52.5	(46.9, 58.1)	220
$20,000-$34,999	57.5	(53.5, 61.6)	440
$35,000-$49,999	58.1	(53.7, 62.6)	351
$50,000-$74,999	60.3	(56.4, 64.1)	421
$75,000 and higher	55.1	(51.4, 58.8)	467
Education			
Less than high school graduate	57.4	(50.6, 64.3)	163
High school diploma or GED	58.1	(54.8, 61.4)	673
Some college or technical school	57	(53.5, 60.5)	576
College graduate	53	(50.1, 55.9)	731

**Percentages will not add up to 100% because each estimate represents the percentage of respondents that were overweight or obese in that demographic category (e.g., male or female).*

Based on Body Mass Index (BMI), calculated from respondent's self-reported height and weight.

BMI = weight (kg)/height(m)2

BMI greater than or equal to 25.0 is considered overweight, 30.0 or greater is obese.

Do Not Participate in Leisure Time Activity, by Sex, Age, Education, and Income Levels, 2001 NH BRFSS

Demographic	% *	(95% CI)	Sample Size (n)
Overall	19.5	(18.1, 20.9)	821
Sex			
Male	17.6	(15.6, 19.6)	311
Female	21.3	(19.5, 23.1)	510
Age			
18-24	16	(11.2, 20.8)	45
25-34	16.7	(13.7, 19.7)	112
35-44	17.9	(15.2, 20.6)	170
45-54	19.4	(16.4, 22.4)	164
55-64	19.9	(16.4, 23.4)	121
65 and older	27.6	(24.0, 31.2)	193
Income			
Less than $20,000	36.8	(31.6, 42.0)	163
$20,000-$34,999	27.7	(24.2, 31.3)	214
$35,000-$49,999	19.7	(16.2, 23.1)	124
$50,000-$74,999	14.1	(11.6, 16.7)	115
$75,000 and higher	9.7	(7.5, 12.0)	84
Education			
Less than high school graduate	38.3	(32.0, 44.5)	119
High school diploma or GED	27.3	(24.5, 30.1)	346
Some college or technical school	17	(14.5, 19.5)	190
College graduate	10.3	(8.6, 11.9)	164

**Percentages will not add up to 100% because each estimate represents the percentage of respondents with no leisure time activity in that demographic category (e.g., male or female).*

Notes

N is unweighted sample size.
Suggested Citation: Behavioral Risk Factor Surveillance System, 2001. Survey data, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, U.S. Department of Health and Human Services. NH BRFSS Data provided by the NH Dept. of Health and Human Services, Bureau of Health Statistics and Data Management.

Handout 4.3b
Example death data request form and analysis results

Request for Non-confidential Data Analysis

Please send your completed application materials to the following address:

Ann Bennett, Program Assistant
Bureau of Health Statistics and Data Management
Department of Health and Human Services
6 Hazen Drive
Concord, NH 03301-6527

You may also fax the form to (603) 271-8710 or e-mail it as an attachment to abennett@dhhs.state.nh.us

If you have any questions, please do not hesitate to contact Ms. Bennett at (603) 271-5926 or at 1-800-852-3345 ext. 5926 or via e-mail at abennett@dhhs.state.nh.us.

Individual and Organization Requestor Information

11. Contact Person (person requesting data) Name and Title: *JOHN DOE*
12. Organization/Office/Bureau: *HEALTH OF NH TODAY*
13. Address: *123 HEALTHY STREET*
14. Telephone Number: *603-123-4567*
15. Fax Number:
16. E-mail Address: *johndoe@deathdata_example.req*
17. Contact Person (If Different From Requestor):
18. Contact Person Telephone Number:
19. Date Request Made: *July 18, 2004*
20. Date Information Needed: *August 15, 2004*

Description of Requested Analysis

Please complete the following, giving information that is as detailed as possible. The information you provide will serve as the criteria for the Bureau of Health Statistics and Data Management to respond to your data request. After receiving your request it will be reviewed for feasibility. You will be contacted if we have any questions or concerns.

Please indicate the type of data you are requesting us to analyze:

✓	Vital Records	*Most Recent Year Available*
☐	Birth	2002
☐	Death	2002
☐	Marriage	2002
☐	Divorce	2002
✓	Hospital	
☐	Inpatient	2002
☐	Specialty Hospital	2002
☐	Ambulatory	2002
✓	Cancer Registry	
☐	Cancer Incidence	2001

Summary of requested analysis:

9. Please provide a title or brief description of the requested analysis.

Coronary heart disease deaths in New Hampshire

ICD 10 codes: "I00" and "I0999" or like "I11*" or between "I20" and "I51999" or like "I113*" in U cause only

10. Years Requested: For the data set(s) you checked above, for what year(s) are you requesting analysis or information?

2000

Note: It is sometimes necessary to combine data from multiple years to produce reliable statistics that do not conflict with confidentiality considerations. This is likely to be necessary for events that occur infrequently. Would your request still be useful to you if data from multiple years were grouped together?

YES

11. Geographic Area Requested: What geographic area(s) are you interested in (statewide, all counties, a specific county, health service areas, city/town, etc.)? If you are interested in data at the city/town level, please note that it may be impossible for us to release data at the town level, depending on the data set, the size of the city/town, and whether or not it would be acceptable to have multiple years of data combined, because of the need to maintain confidentiality.

State of NH

12. Data Elements Requested: Please describe as specifically as possible the information you would like to obtain from the data set(s) you checked above. Be sure to indicate whether you are interested in events that happened to residents of New Hampshire or are interested in events that occurred in New Hampshire.

For residents of NH, deaths due to coronary heart disease.

13. Please provide any other details needed for us to complete your request.

Please provide age-specific rates and age-adjusted rates for age groups: 0 – 4, 5 – 14, 15 – 24, 25 – 34, 35 – 44, 45 – 54, 55 – 64, 65 – 74, 75 – 84, 85+

See ICD codes above.

14. Please describe the format in which you would like to receive the analysis results (report, electronic document, e-mail, etc.).

Please produce report in Excel, and send by email

15. What are the overall aims of the study or project that this analysis is part of?

Our organization is assessing the rate of CHD in NH, in an effort to determine the need for a community-based program designed to increase daily activity and ultimately reduce the rate of CHD in NH.

16. Please indicate the way(s) in which the health information you requested will be used to benefit the population of New Hampshire and/or public health.

Health assessment and the establishment of a baseline will enable our organization to determine whether there is a problem in NH with CVD, and measure change in CHD death rate over time.

Name of Contact Person: ***JOHN DOE***	
Signature:	Date: ***August 15, 2004***

Age-Specific Death Rate, Heart Disease, NH Residents, 2000

Age Group	2000 NH Census Population	2000 NH Events	Age Specific Rate / 100,000
0 to 4	75,685	0	0.0
5 to 14	181,792	0	0.0
15 to 24	155,454	3	1.9
25 to 34	160,061	12	7.5
35 to 44	221,179	42	19.0
45 to 54	183,986	144	78.3
55 to 64	109,659	214	195.2
65 to 74	78,327	440	561.7
75 to 84	51,412	846	1645.5
85 years and	18,231	1111	6094.0
Total	1,235,786	2812	

Age-Adjusted Death Rate, Heart Disease, NH Residents, 2000

Condition	NH Events	Age Adjusted Rate / 100,000
Deaths, Heart Disease	2,812	237.3

Heart Disease: I00-I0.9, I11, I20-I51.9, I11.3

Handout 4.3c
Example injury hospitalization request form and analysis results

Request for Non-confidential Data Analysis

Please send your completed application materials to the following address:

Ann Bennett, Program Assistant
Bureau of Health Statistics and Data Management
Department of Health and Human Services
6 Hazen Drive
Concord, NH 03301-6527

You may also fax the form to (603) 271-8710 or e-mail it as an attachment to abennett@dhhs.state.nh.us

If you have any questions, please do not hesitate to contact Ms. Bennett at (603) 271-5926 or at 1-800-852-3345 ext. 5926 or via e-mail at abennett@dhhs.state.nh.us.

Individual and Organization Requestor Information

1. Contact Person (person requesting data) Name and Title: *JOHN DOE*
2. Organization/Office/Bureau: *HEALTH OF NH TODAY*
3. Address: *123 HEALTHY STREET*
4. Telephone Number: *603-123-4567*
5. Fax Number:
6. E-mail Address: *johndoe@injuryexample.req*
7. Contact Person (If Different From Requestor):
8. Contact Person Telephone Number:
9. Date Request Made: *July 18, 2004*
10. Date Information Needed: *August 15, 2004*

Description of Requested Analysis

Please complete the following, giving information that is as detailed as possible. The information you provide will serve as the criteria for the Bureau of Health Statistics and Data Management to respond to your data request. After receiving your request it will be reviewed for feasibility. You will be contacted if we have any questions or concerns.

Please indicate the type of data you are requesting us to analyze:

✓	Vital Records	*Most Recent Year Available*
☐	Birth	2002
☐	Death	2002
☐	Marriage	2002
☐	Divorce	2002
✓	Hospital	
☐	Inpatient	2002
☐	Specialty Hospital	2002
☐	Ambulatory	2002
✓	Cancer Registry	
☐	Cancer Incidence	2001

Summary of requested analysis:

1. Please provide a title or brief description of the requested analysis.

Bicycle and Pedestrian Injury in Hillsborough and Sullivan Counties

2. Years Requested: For the data set(s) you checked above, for what year(s) are you requesting analysis or information?

2001

Note: It is sometimes necessary to combine data from multiple years to produce reliable statistics that do not conflict with confidentiality considerations. This is likely to be necessary for events that occur infrequently. Would your request still be useful to you if data from multiple years were grouped together?

YES

3. Geographic Area Requested: What geographic area(s) are you interested in (statewide, all counties, a specific county, health service areas, city/town, etc.)? If you are interested in data at the city/town level, please note that it may be impossible for us to release data at the town level, depending on the data set, the size of the city/town, and whether or not it would be acceptable to have multiple years of data combined, because of the need to maintain confidentiality.

   Hillsborough and Sullivan counties of NH

4. **Data Elements Requested:** Please describe as specifically as possible the information you would like to obtain from the data set(s) you checked above. Be sure to indicate whether you are interested in events that happened to residents of New Hampshire or are interested in events that occurred in New Hampshire.

   For residents of each county (Hillsborough and Sullivan), number of injuries, and age-specific and age-adjusted rates of pedestrian and bicycle injury (including motor vehicle and non-motor vehicle, traffic and non-traffic)

5. Please provide any other details needed for us to complete your request.

   - ***Age groups: 0-4, 5-14, 15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+;***
   - ***ICD-9 800-904.9 or 910-999 and an External cause of injury code of E810-E819 (.6 or .7) or E800-E807 (.2 or .3), E820-E825 (.6 or .7), E826-E829 (.0) or E827-E829 (.1);***
   - ***Age-adjustment standard: 2000 US population***

6. Please describe the format in which you would like to receive the analysis results (report, electronic document, e-mail, etc.).

   Please send the table of results in Excel format, by email.

7. What are the overall aims of the study or project that this analysis is part of?

   The mission of our organization is to improve the health of the communities in Southern New Hampshire (including Hillsborough and Sullivan counties). This analysis will help us determine the rate of pedestrian and bicycle industry in these areas, and if special attention needs to be paid to these issues.

8. Please indicate the way(s) in which the health information you requested will be used to benefit the population of New Hampshire and/or public health.

   Our organization is interested in assessing the rate of pedestrian and bicycle industry in these 2 counties to determine whether there is a need for a bicycle and pedestrian safety campaign as part of our effort to promote daily physical activity.

Name of Contact Person: ***JOHN DOE***	
Signature:	Date: ***August 15, 2004***

Bicycle and Pedestrian Injury-Related ED Visit Rates, Hillsborough County Residents, 2001

Age Group	N	2001 Hillsborough Cnty Est. Population	Age-Specific Rate/100,000	95% Confidence Interval		
0 - 4	36	25977	138.6	97.1 - 191.9		
5 - 14	352	59339.5	593.2	531.2 - 655.2		
15 - 24	174	46214	376.5	320.6 - 432.5		
25 - 34	80	54367	147.1	116.7 - 183.1		
35 - 44	106	70193	151.0	122.3 - 179.8		
45 - 54	64	56618.5	113.0	87.1 - 144.3		
55 - 64	17	32996	*	*		
65 - 74	6	21103	*	*		
75 - 84	5	14558	*	*	Age-Adjusted Rate/100,000	95% Confidence Interval
85 +	0	5316	*	*		
Total	**840**	**386682**	**217.2**	**202.5 - 231.9**	**215.8**	**201.1 - 230.5**

* Fewer than 20 deaths or hospitalizations; rates based on fewer than 20 events do not meet standards of reliability or precision and are not reported.

Case definition: County residents with a primary diagnosis of ICD-9-CM 800-904.9 or 910-999 and an External cause of injury code of E810-E819 (.6 or .7) or E800-E807(.2 or .3), E820-E825 (.6 or .7), E826.1,.9, E826-E829 (.0), or E827-E829 (.1)

Age-adjustment standard: 2000 US Population

Population estimate: 2001 *Claritas* Population data

Data limitations: Out of state hospitalizations are not included, this tends to lower county rates slightly.

Bicycle and Pedestrian Injury-Related ED Visit Rates, Sullivan County Residents, 2001

Age Group	N	2001 Sullivan Cnty Est. Population	Age-Specific Rate/100,000	95% Confidence Interval		
0 - 4	6	2254	*	*		
5 - 14	45	5700.5	789.4	575.8 - 1056.3		
15 - 24	18	4374.5	*	*		
25 - 34	6	4744.5	*	*		
35 - 44	20	6492	308.1	188.2 - 475.8		
45 - 54	9	6465.5	*	*		
55 - 64	0	4367.5	*	*		
65 - 74	1	3427.5	*	*		
75 - 84	0	2212.5	*	*	Age-Adjusted Rate/100,000	95% Confidence Interval
85 +	1	769.5	*	*		
Total	**106**	**40808**	**259.8**	**210.3 - 309.2**	**280.3**	**226.6 - 334.1**

* Fewer than 20 deaths or hospitalizations; rates based on fewer than 20 events do not meet standards of reliability or precision and are not reported.

Case definition: County residents with a primary diagnosis of ICD-9-CM 800-904.9 or 910-999 and an External cause of injury code of E810-E819 (.6 or .7) or E800-E807(.2 or .3), E820-E825 (.6 or .7), E826.1,.9, E826-E829 (.0), or E827-E829 (.1)

Age-adjustment standard: 2000 US Population

Population estimate: 2001 *Claritas* Population data

Data limitations: Out of state hospitalizations are not included, this tends to lower county rates slightly.

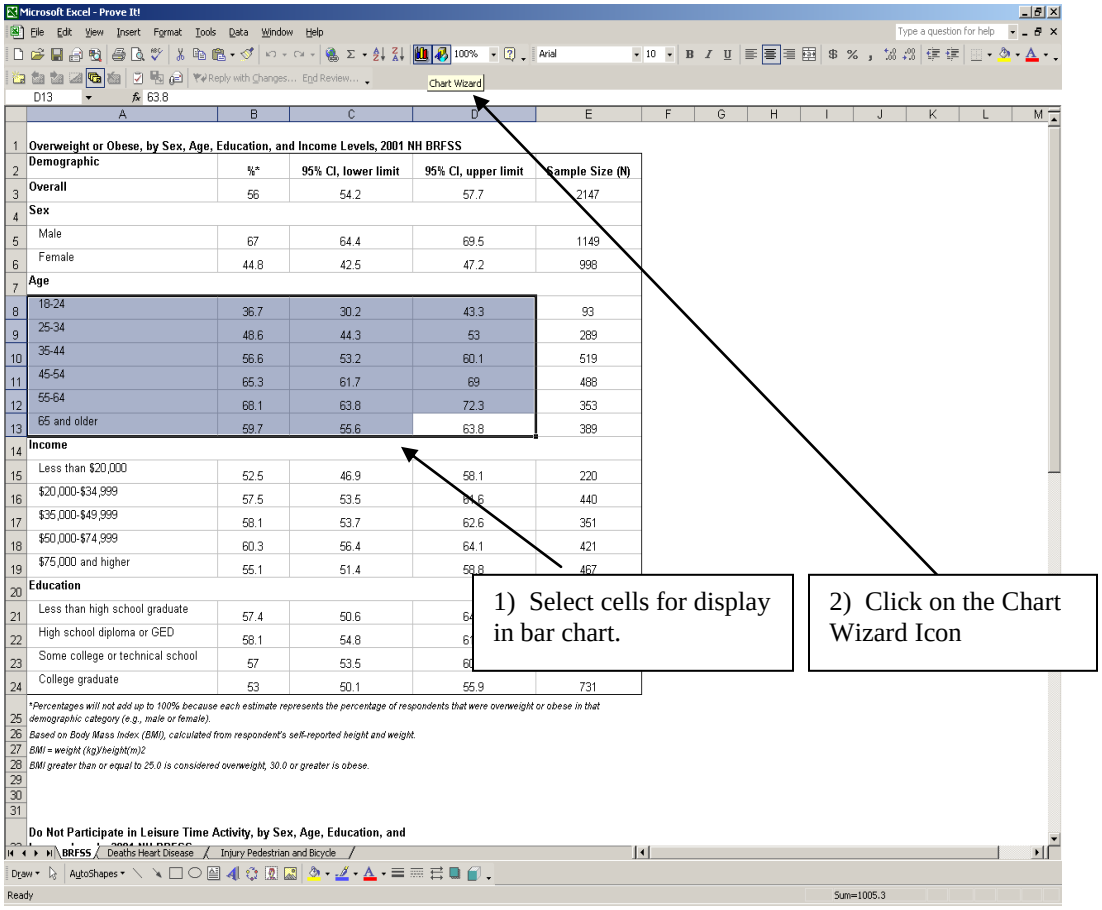
Handout 5
"Interpretation of Data" Presentation

Handout 6
"Data Sharing" Presentation

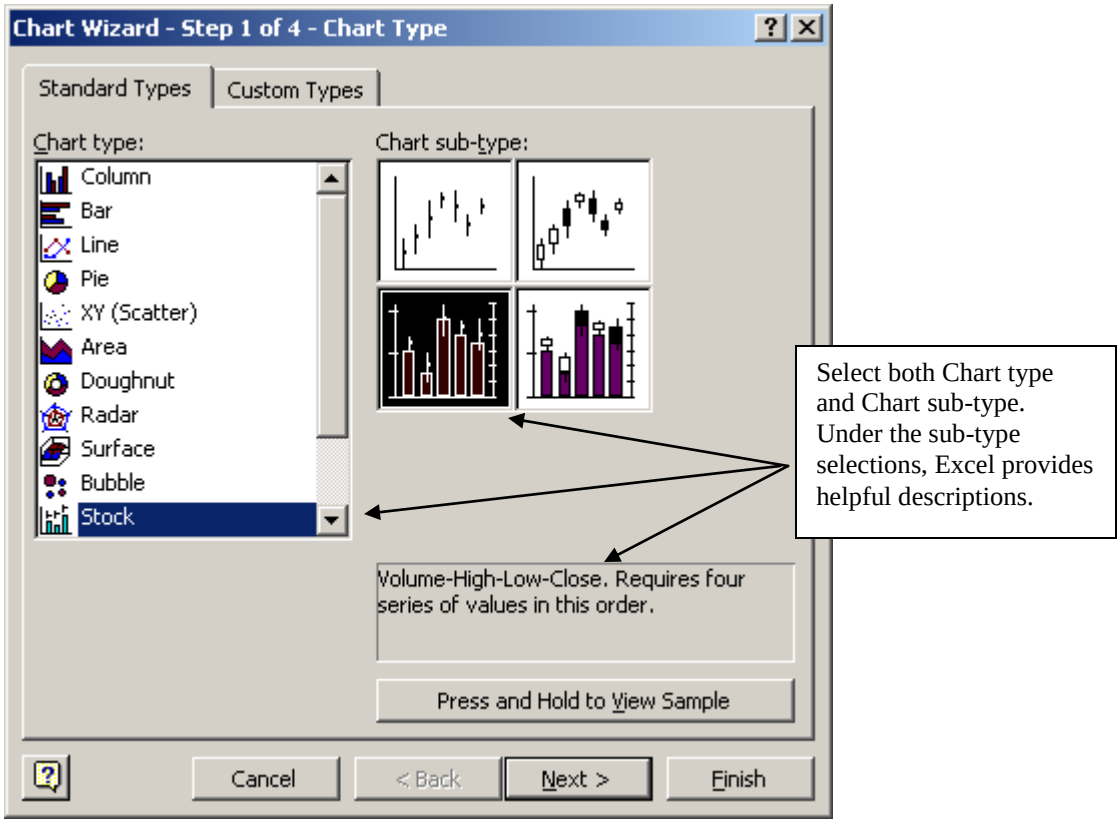
Handout 6.3

Instructions for creating a bar chart to display data in Excel – Microsoft Excel 2003 and earlier

1. Double click on file "Prove It!.xls" to launch Microsoft Excel and the data file.
2. The BRFSS worksheet will display (see tabs below). Select data you would like reflected in your bar chart by highlighting Columns A through D, Rows 8 through 13 to select the age groups and percentages for those age groups.
3. Click on Chart Wizard Icon to begin building your bar chart.

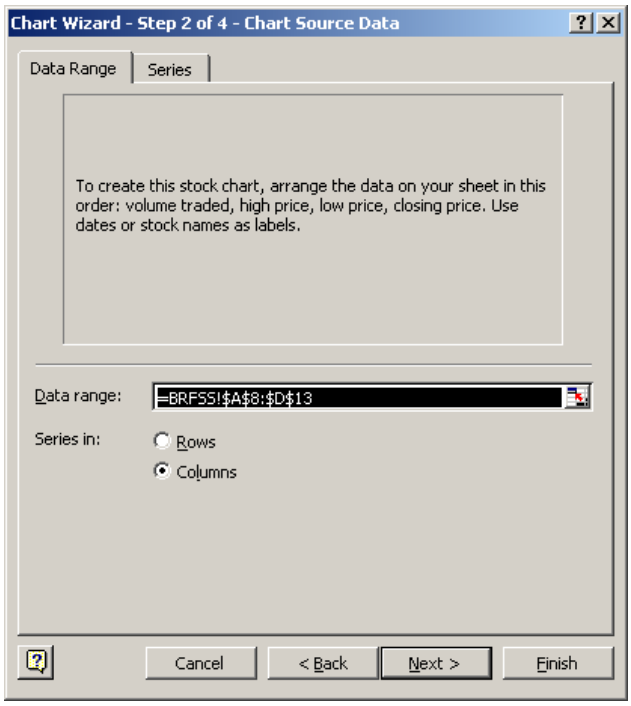


4. Select the type of chart you would like to use to represent your data. Because we will be including confidence intervals, or "high-low lines" to our data, select the "Stock" chart type, and the volume-high-low-close chart sub-type(lower left hand corner of pictures).

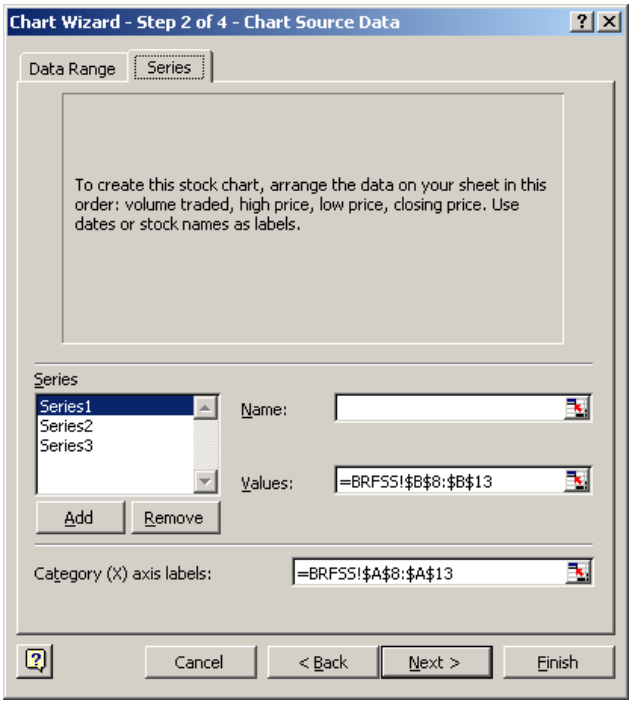


5. Click Next to advance the Chart Wizard to the next stage of your chart development. The next dialogue box of the Wizard will open, and there will be one tab entitled Data Range.

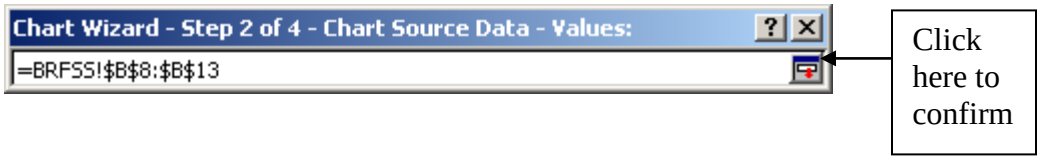
6. In this box will be the cells of data referenced for the chart, just double-check to be sure you have all the appropriate data selected. In this example, this should read: "=BRFSS$A$8:$D$13. Next to "Series In:", the button for "Columns" should be filled.



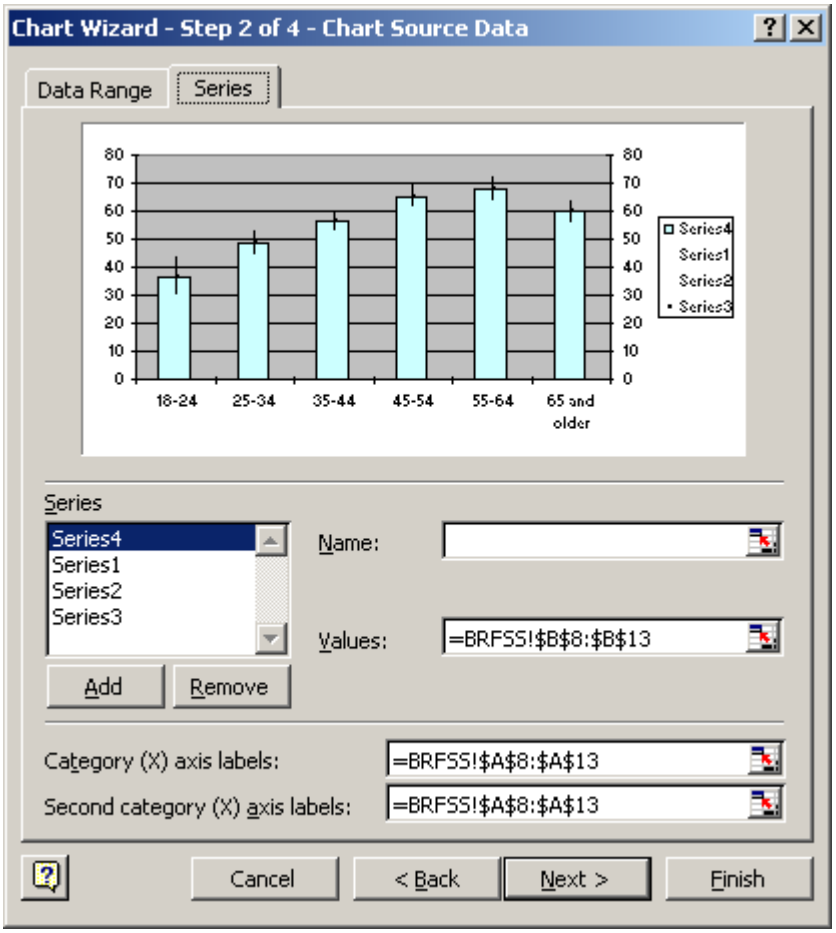
7. On this same dialog box for Step 2 of the Chart Wizard, there is another tab called "Series". Select this tab.



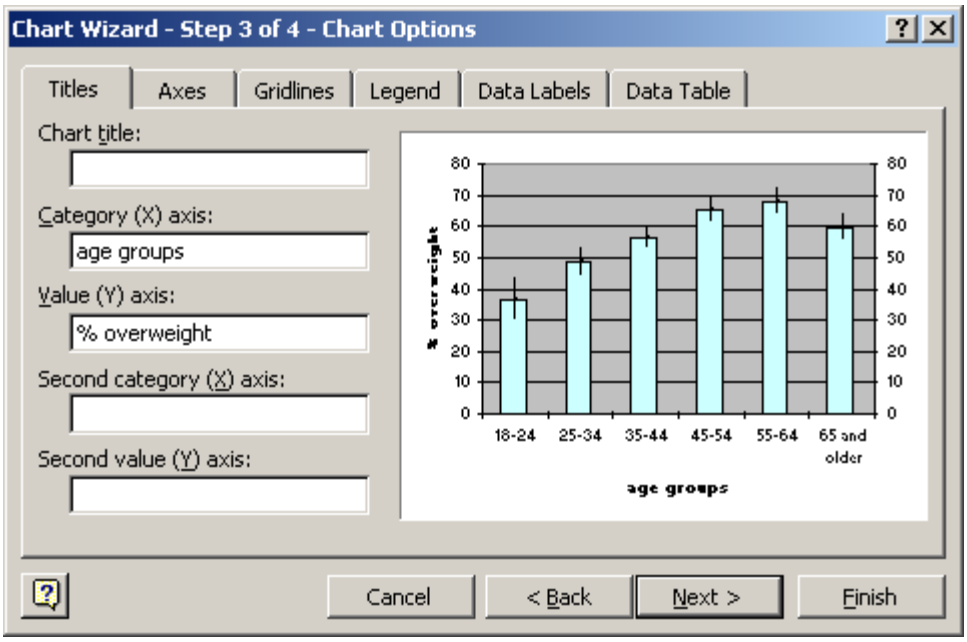
8. In order to add the fourth series of data that this type of chart requires, select "Add", and click on the red icon to the right of the entry box for "**Values**". A dialog box will appear. Erase the "={1}" in the dialog box, and select the column of values for "%" on the spreadsheet. Click on the red icon of the dialog box to confirm the data for analysis



9. At this point, click "Next" to advance to Step 3.



10. Step 3 of the Chart Wizard has several tabs for determining several chart options- such as Titles, Axes, Gridlines, and Legend. These and other tabs allow customization of the chart. For example, the "Titles" tab will allow you to label the X (e.g., "Age Groups") and Y axis (e.g., "% Overweight") of your chart. "Legend" allows you to remove the legend (recommended here because the series represent the values of the confidence interval). "Gridlines" allows you to choose whether or not to show major or minor gridlines behind one or both axes. Experiment with the various options but be careful not to make the chart too busy; your data and the story behind it might get lost. Once you have finished with these tabs, click "Next."



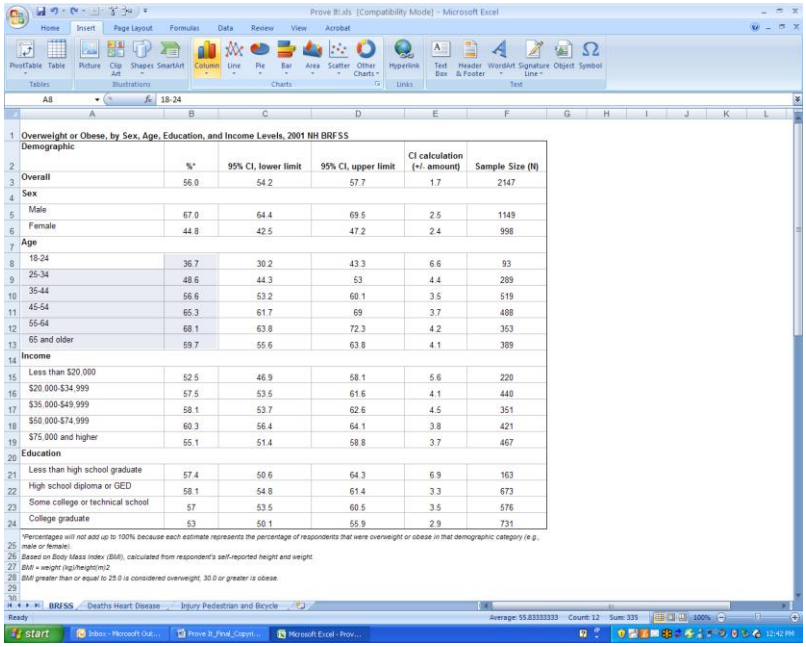
11. Step 4 of the Chart Wizard allows you to choose where you want to place the chart. If you choose "As Object In" the Chart Wizard will place the chart into the original data worksheet. If you choose to select "As New Sheet" you can name this new Excel sheet and it will become another sheet in your original data workbook. You can then copy and paste this chart into another document.

Tips for formatting slides:

- Right click on the legend, and select "Delete" to remove the legend.
- Right click on the right axes labels and select delete to remove these labels.
- Right click on the grey background of the body of the chart and select "Format Plot Area" to change the "Area" to the color white.

Instructions for creating a bar chart to display data in Excel – Microsoft Excel 2007

1. Double click on file "Prove It!.xls" to launch Microsoft Excel and the data file.
2. The BRFSS worksheet will display (see tabs below). Select data you would like reflected in your bar chart by highlighting Columns A through B, Rows 8 through 13 to select the age groups and percentages for those age groups.
3. Click on "Insert" tab and the "Column" button in the "Charts" section.

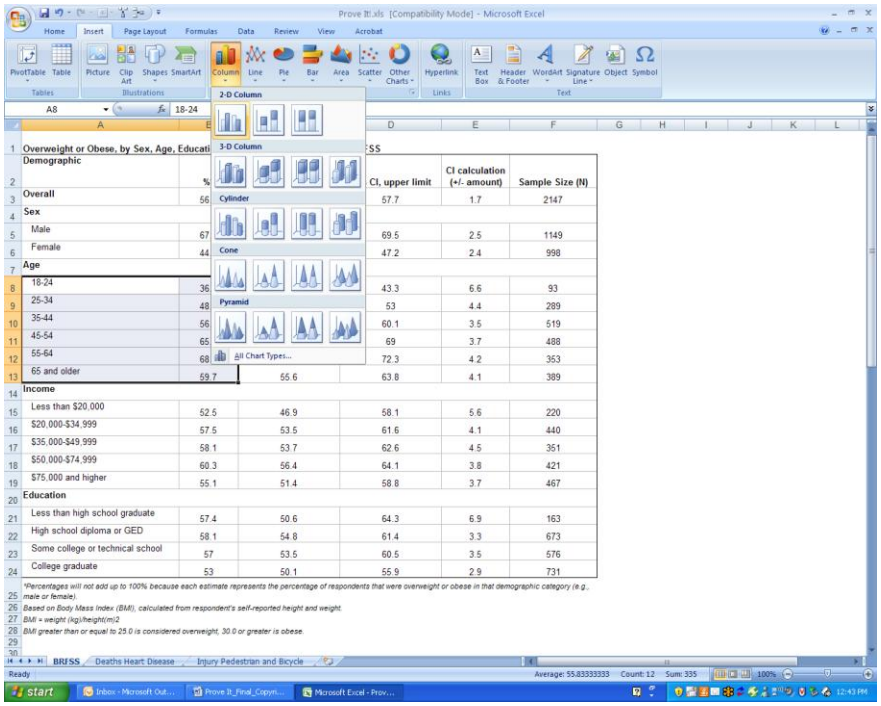


Overweight or Obese, by Sex, Age, Education, and Income Levels, 2001 NH BRFSS

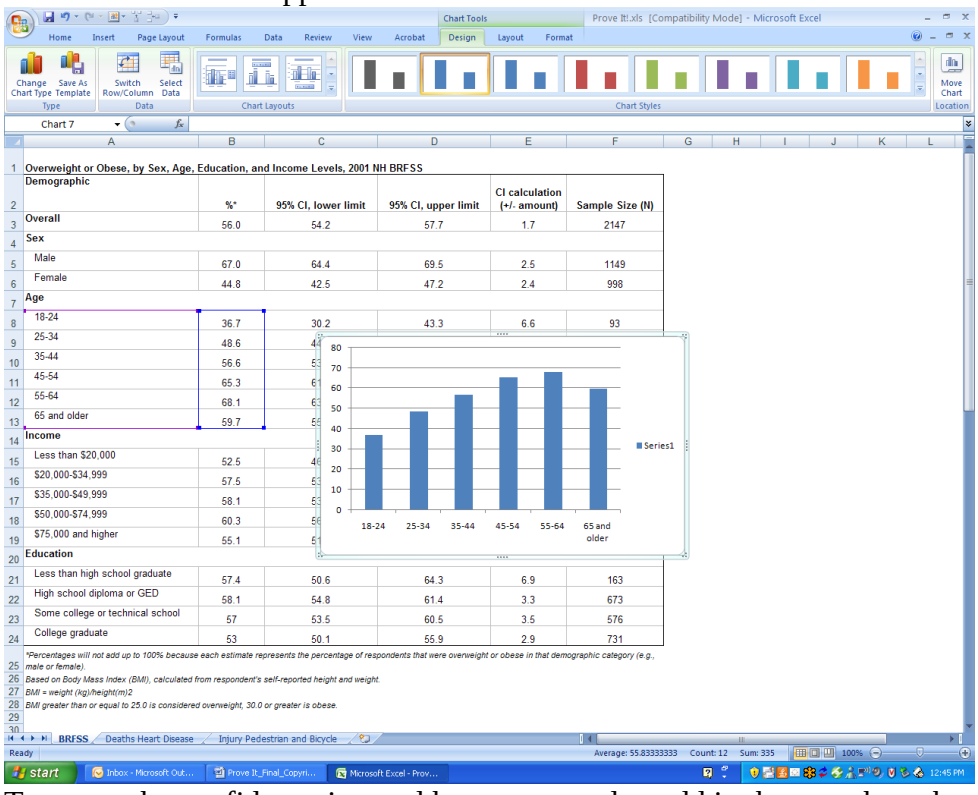
Demographic	%*	95% CI, lower limit	95% CI, upper limit	CI calculation (+/- amount)	Sample Size (N)
Overall	56.0	54.2	57.7	1.7	2147
Sex					
Male	67.0	64.4	69.5	2.5	1149
Female	44.8	42.5	47.2	2.4	998
Age					
18-24	36.7	30.2	43.3	6.6	93
25-34	48.6	44.3	53	4.4	289
35-44	56.6	53.2	60.1	3.5	519
45-54	65.3	61.7	69	3.7	488
55-64	68.1	63.8	72.3	4.2	353
65 and older	59.7	55.6	63.8	4.1	389
Income					
Less than $20,000	52.5	46.9	58.1	5.6	220
$20,000-$34,999	57.5	53.5	61.6	4.1	440
$35,000-$49,999	58.1	53.7	62.6	4.5	351
$50,000-$74,999	60.3	56.4	64.1	3.8	421
$75,000 and higher	55.1	51.4	58.8	3.7	467
Education					
Less than high school graduate	57.4	50.6	64.3	6.9	163
High school diploma or GED	58.1	54.8	61.4	3.3	673
Some college or technical school	57	53.5	60.5	3.5	576
College graduate	53	50.1	55.9	2.9	731

*Percentages will not add up to 100% because each estimate represents the percentage of respondents that were overweight or obese in that demographic category (e.g., male or female).
Based on Body Mass Index (BMI), calculated from respondent's self-reported height and weight.
BMI = weight (kg)/height(m)2
BMI greater than or equal to 25.0 is considered overweight; 30.0 or greater is obese.

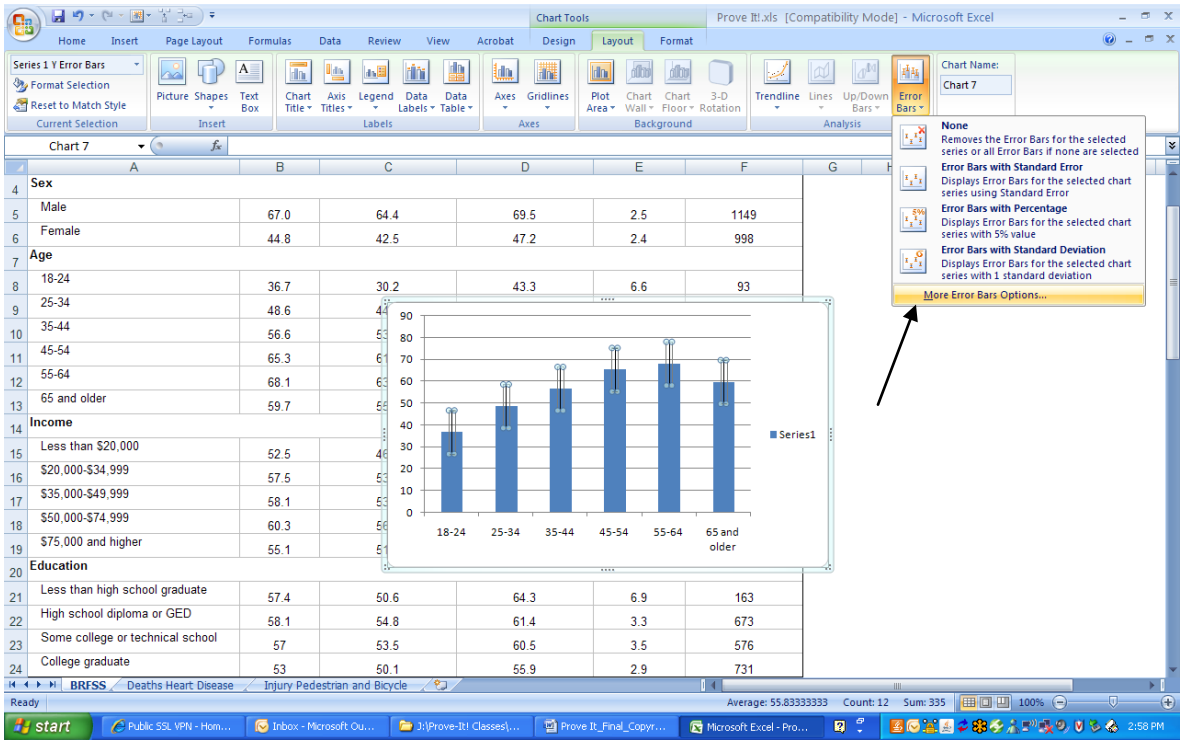
4. Select the first 2-D column option.



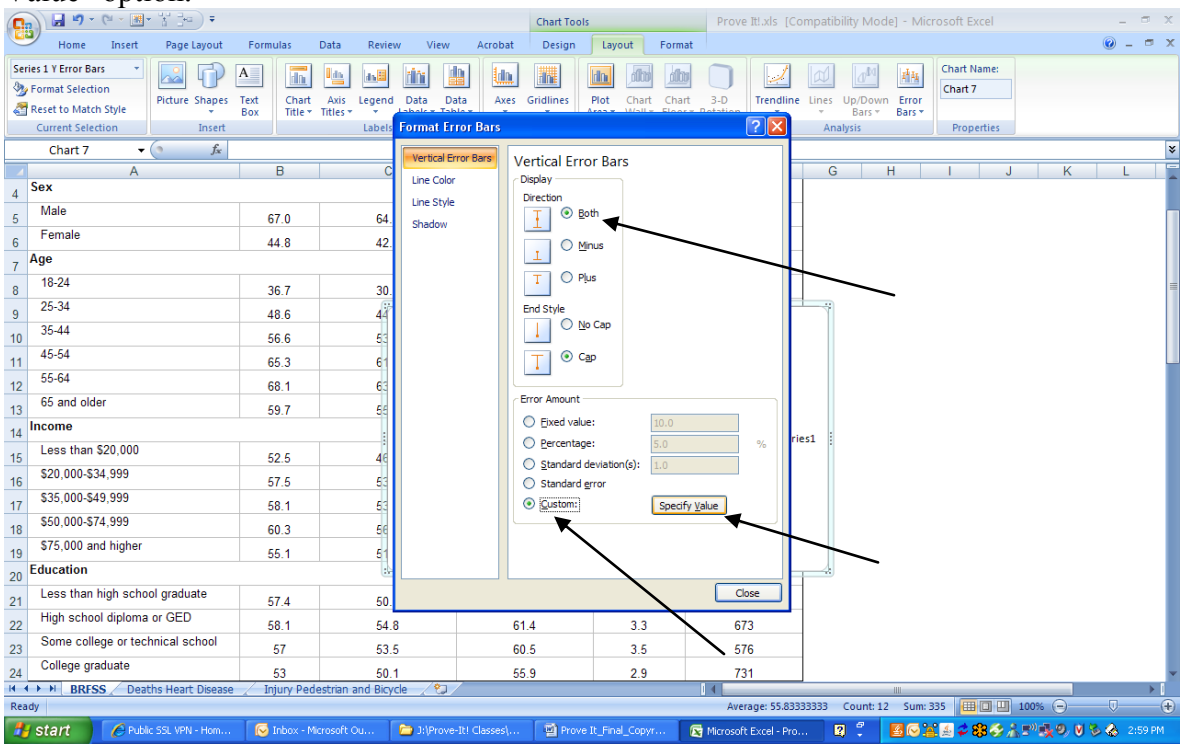
5. A column chart will appear



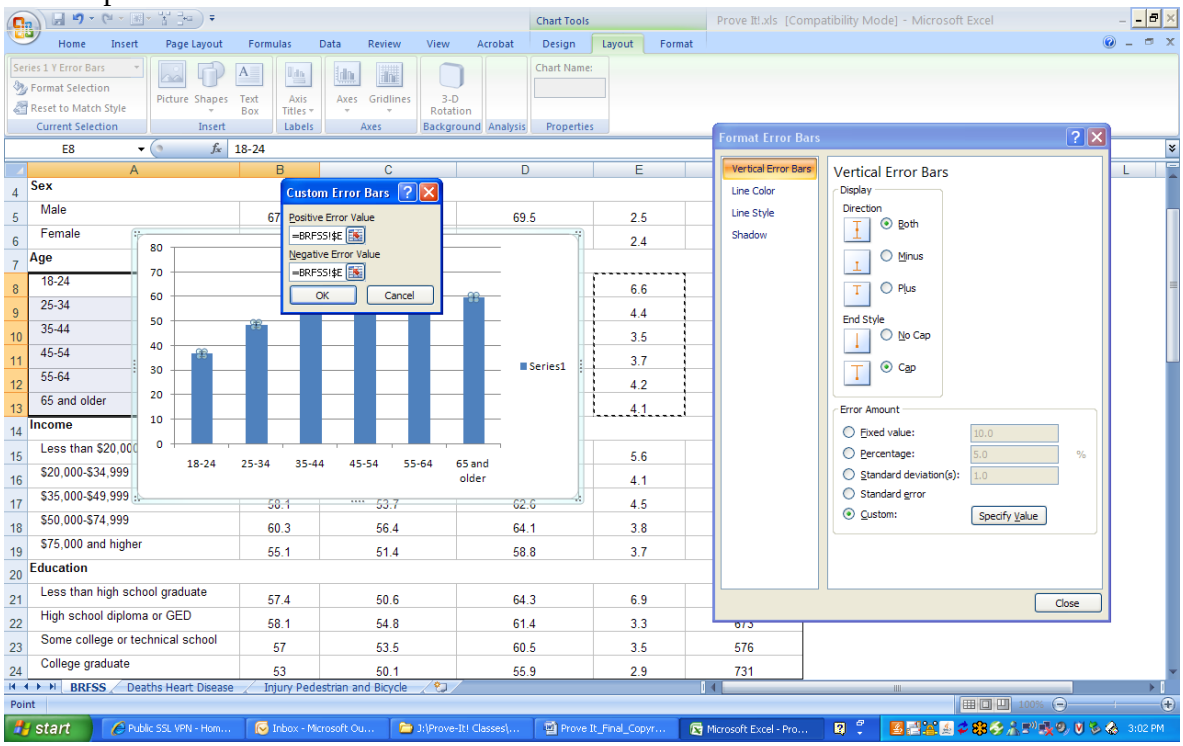
6. To create the confidence interval bars, you need to add in the error bars, based on the +/- values provided in column E. Choose the "Layout" tab. Choose "Error Bars" and "More Error Bar Options."



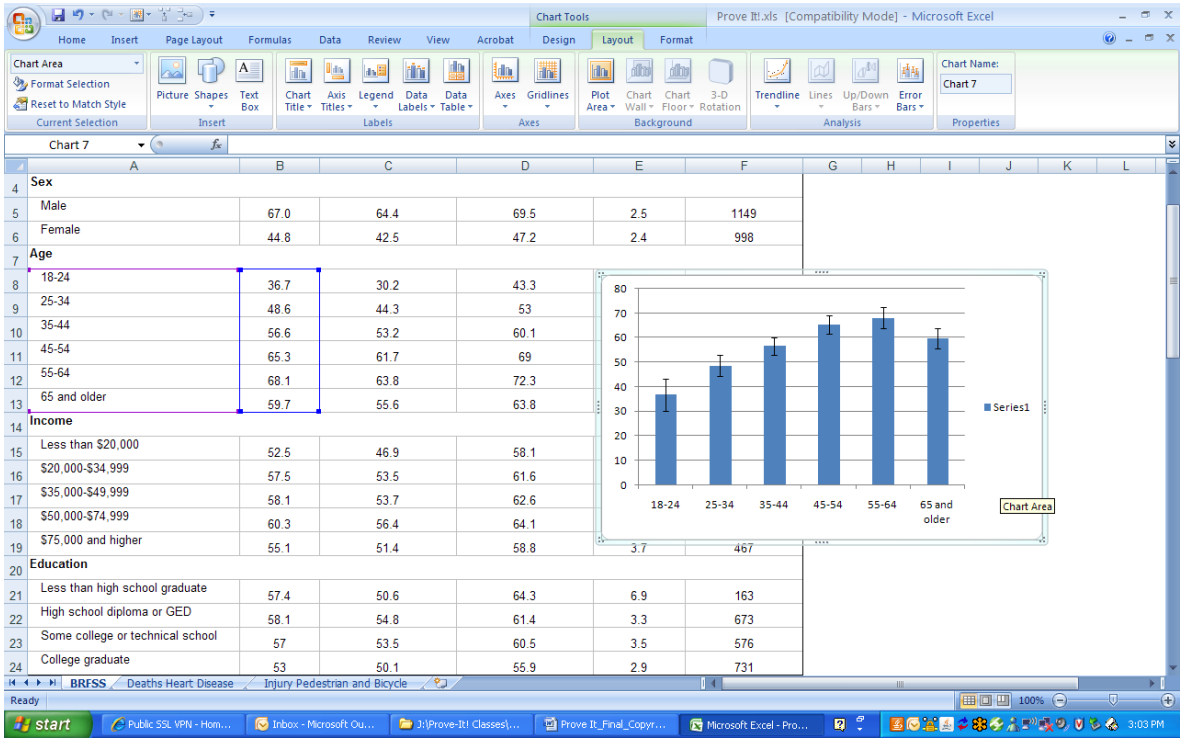
7. Select "Both" for Direction; "Custom" for Error Amount, and click the "Specify Value" option.



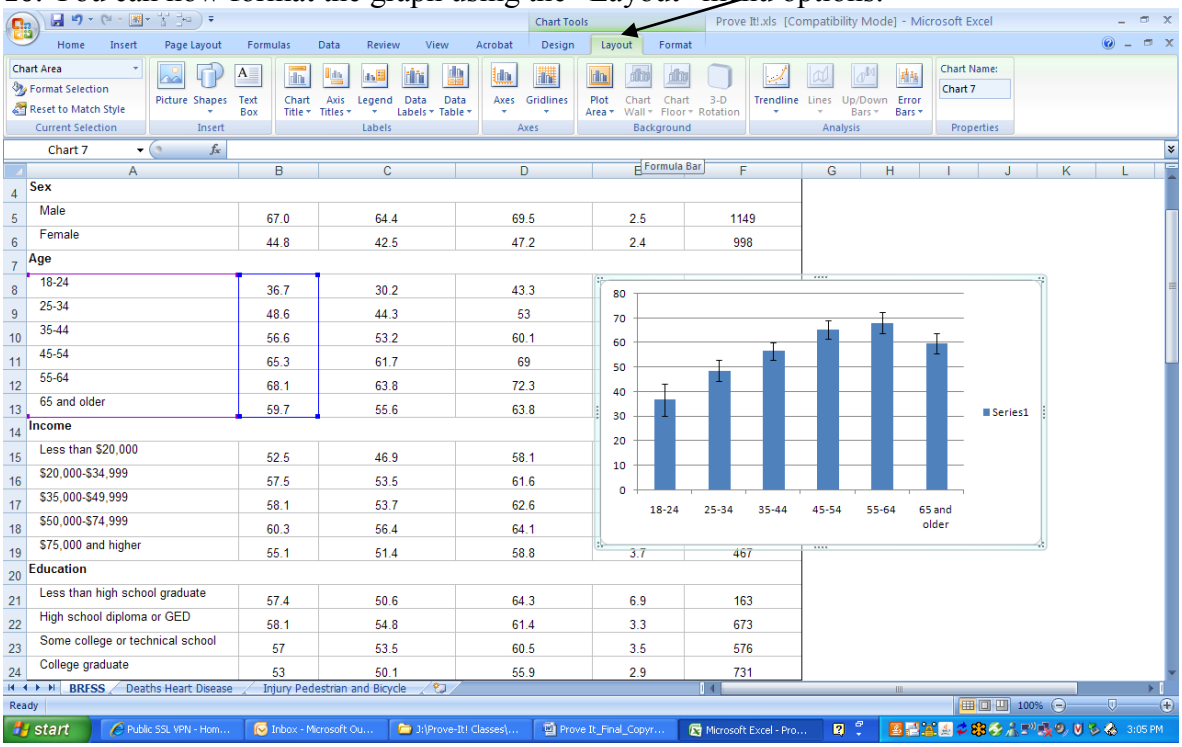
8. Select cells “E8:13” for both the Positive and Negative Error Values. You can do this by typing “=BRFSS!$E$8:$E$13” into the boxes, or by highlighting the cells on the spreadsheet. Click “OK.” Then close the “Format Error Bars” menu.



9. The graph with the CI’s represented will now appear.



10. You can now format the graph using the “Layout” menu options.



Appendix B: Explanation of Terms

Asset Mapping[14]

Asset mapping is the process of cataloging resources of a community, including individual, association, institutional, and economic resources.

Community Benefits Reporting[15]

According to 1999 Community Benefits Law, health care charitable trusts with a total value of fund balances of at least $100,000 are required to develop a community benefits plan within 90 days of the start of its fiscal year. Community benefits are defined as the health care charitable trust's activities that are intended to address community health care needs. In addition, trusts shall conduct a community needs assessment to assist in determining the activities to be included in its community benefits plan.

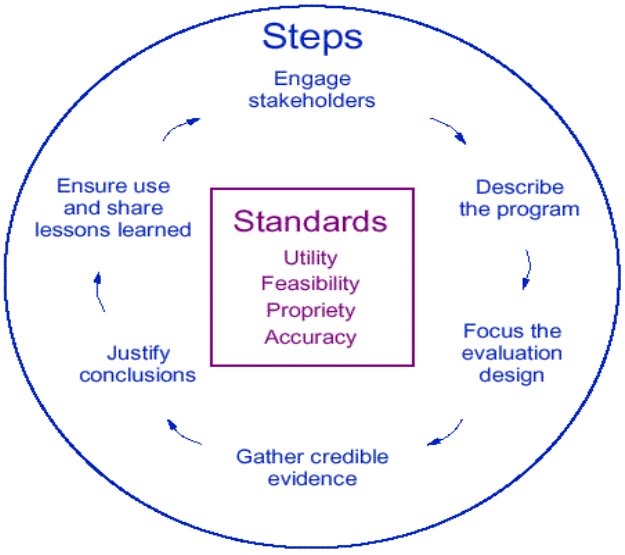
Community Health Improvement Process

The Institute of Medicine report, *Improving Health in the Community: A Role for Performance Monitoring*[16], explains how population-based performance monitoring programs can help communities point their efforts in the right direction. Within a broad definition of community health, the report addresses factors surrounding the implementation of performance monitoring and explores the "why" and "how to" of establishing mechanisms to monitor the performance of those who can influence community health. The book offers a policy framework, applies a multidimensional model of the determinants of health, and provides sets of prototype performance indicators for specific health issues.

Evaluation

According to the Evaluation Working Group of the Center for Disease Control and Prevention, "Effective program evaluation is a systematic way to improve and account for public health actions by involving procedures that are useful, feasible, ethical, and accurate".[17]

FIGURE 1. Recommended framework for program evaluation



Evans and Stoddart Field Model of Health and Well-being[2]
Proposed in 1990, in their publication "Producing Health, Consuming Health Care", the field model introduces a more dynamic perspective of health and disease, and its determinants. The categories of social environment, physical environment, genetic endowment, individual response, health care, well-being and prosperity provide an operational framework for considering the affects of not only the determinants in each of these domains, but also the interactions of the determinants, on health and disease for individuals and populations. See Handout 1.3 for more detail about the Model.

Incidence
Incidence is defined as the number of NEW cases of a particular problem or condition in a specified geographic area during a specified time period.[18]

Needs Assessment, Community Health Assessment
Community Health Assessment is "a process that involves the community in identifying problems, setting priorities, developing an action plan, measuring progress, deciding whether the actions are effective, modifying the actions if necessary, and reevaluating the community's problems and priorities"[19]. According to Dr. John Seavey, Director of the MPH Program at the University of New Hampshire, community health assessment involves the "collection and evaluation of evidence-based indicators of health inputs, health resources, and the health status of a population within a defined geographic area".[20]

Outcomes
According to the United Way[21], outcomes are "benefits or changes for individuals or populations during or after participating in program activities. They are influenced by a program's outputs. Outcomes may relate to behavior, skills, knowledge, attitudes, values, condition, or other attributes. They are what participants know, think, or can do; or how they behave; or what their condition is, that is different following the program. Therefore it follows that "outcome measurement is the regular, systematic tracking of the extent to which program participants experience the benefits or changes intended".

Population vs. sample data
Population rates and proportions are based on a complete count of all events occurring in a community (e.g. death rates based on vital statistics, reportable diseases, hospital discharges, etc.). Other data on community health are based on a statistical or random *sample* of the community that is asked to respond to a survey (e.g. BRFSS).[22]

Prevalence
Number of existing cases (including NEW) cases with a particular condition in a specified area during a specified period of time. [18]

Primary data
New data gathered for the investigation or research question at hand, or new data collected to evaluate the program of study. Data collected directly by the organization for its research, evaluation, or other purposes.

Reliable, reliability
The extent to which scores obtained on a measure are reproducible in repeated administrations (provided that all relevant measurement conditions are the same). [18]

Secondary data
Data collected for purposes other than the study or investigation at hand (e.g., data collected by another agency for their purposes). Data collected by another entity (not directly by the organization and used for its research, evaluation, or other purposes.

Valid, validity
The extent to which a measure reflects the concept it is intended to measure. [18]

Statistical Terms

Confidence Interval [23]
The range that will include, with a stated probability, the actual population parameter estimated from a sample.

Levels of Measurement [24, 25]

- **Nominal:** discrete (non-overlapping) categorical classifications (e.g., gender)
- **Ordinal:** discrete but there is a rank ordering (e.g., survey scales)
- **Interval:** rank-ordered, equal distances between measurement (e.g., IQ scores)
- **Ratio:** rank-ordered, equal distances between measurements, meaningful zero (e.g. time, money)
- **Categorical (nominal/ordinal):** data take on some finite number of measurements (e.g., county of residence, hospital, gender)
- **Continuous (continuous/interval and sometimes ordinal):** measured to as many decimal places as have meaning (e.g., time, money)

Measures of Central Tendency [24, 25]

- **Mean:** mathematical average
- **Median:** 50th percentile, or the value that cuts the distribution in two equal halves
- **Mode:** most common response

Measures of Dispersion [24, 25]

- **Variance:** The total amount of deviation from the mean (sums of the squared deviations/n)
- **Standard deviation:** The average distance of any one value from the mean (square root of the variance)

Proportion
The number of observations with a given characteristic (a) divided by the total number of observations in a given group (a + b) [26]. That is, proportion = a/(a+b).

Rate
The occurrence or existence of a particular condition expressed as a proportion of units in the relevant population (e.g., deaths per 1000 adults).[19] Rates are similar to proportions, except that a multiplier (e.g., 100, 10,000, or 100,000) is used, and they are computed over a specific period of time. The multiplier is called the base, and the formula is: Rate= (a/(A+b))* Base.[26]

Adjusted rate [18]
An expression of the predicted number of health events within a standard population defined by one or more variables not under study and used to control for effects medicated by such variables.

Specific rate [18]
An expression of the observed number of health events within a defined subgroup or stratum of the population at risk within a predefined time period (e.g., age-specific death rate of 1.2 deaths per 1,000 persons aged 10 to 19).

Disease-specific rates restrict the numerator to a specific disease, but use the entire relevant population in the denominator. Population-specific rates restrict both the numerator and denominator by socio-demographic factors (age, sex, race, income, education), geography (county, town), or other factor.

Crude rate [18]

An expression of the observed number of health events per unit of the population at risk in a defined time period (e.g., crude mortality rate of 5.7 deaths per 1000 persons in 1985).

Statistical Significance

Implies that the observed result was unlikely to have occurred by chance alone.[23]

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Appendix C: Additional Resources

Training curriculums consulted for development of Prove It!

Center for Disease Control and Prevention, "Public Health Data: Our Silent Partner." US Department of Health and Human Services, 1999.

Center for Disease Control and Prevention, "Framework for Program Evaluation in Public Health." US Department of Health and Human Services, 1999.

Center for Disease Control and Prevention, "Physical Activity Evaluation Handbook." US Department of Health and Human Services, 2002.

NY State Council on Children and Families, Using Data Effectively: Fundamentals for Policy Planners, 2001.

Lichiello, P. (1999). Turning Point: Collaborating for a New Century in Public Health, Guidebook for Performance Measurement.

NH Data Resources and Reports (including great examples for presenting data)

New Hampshire Health Data Inventory: www.nhhealthdata.org, Conceptualized by the Empowering Communities with Data project, a collaboration between University of New Hampshire and New Hampshire Department of Health and Human Services, with funding from the Endowment for Health.

New Hampshire HealthWRQS: www.nhhealthwrqs.org, a collaboration between University of New Hampshire and New Hampshire Department of Health and Human Services, with funding from the Centers for Disease Control and Prevention.

Knight, S., Miles, J. Findings from the Behavioral Risk Factor Surveillance System in New Hampshire, 2005; Concord, NH: New Hampshire Department of Health and Human Services, Division of Public Health Services, Health Statistics Section, 2008. http://www.dhhs.nh.gov/dphs/hsdm/brfss/documents/2005.pdf

Lagana, E., Chalsma, A., Porter, J. New Hampshire Births, 1999 – 2000; Concord, NH: New Hampshire Department of Health and Human Services, Office of Community and Public Health, Bureau of Health Statistics and Data Management, 2003 (Data from Bureau of Vital Records birth and death certificate files, Office of Community and Public Health, New Hampshire Department of Health and human Services). http://www.dhhs.nh.gov/dphs/hsdm/birth/documents/report.pdf

Statistical Resources

General Guidelines
http://www.doh.wa.gov/Data/Guidelines/Rateguide.htm
http://www.doh.wa.gov/Data/Guidelines/ConfIntguide.htm

Statistics in lay terms:
Norman and Streiner: Biostatistics the Bare Essentials. B.C. Decker: 2000.

Statistics in-depth:
Pagano M, Gauvreau K. Principles of Biostatistics. Duxbury Press: 2000.

Confidence Intervals:
Sutton P.D., Matthews, T.J. Trends in characteristics in births by State: United States, 1990, 1995, and 2000-2002. National vital statistics reports; vol 52, no 19. Hyattsville, Maryland, National Center for Health Statistics, 2004. Available on-line: http://www.cdc.gov/nchs/data/nvsr/nvsr52/nvsr52_19acc.pdf, August 25, 2004.

Exercise in Confidence Intervals:
http://www.rfbarrow.btinternet.co.uk/htmasa2/Confint1.htm[27]

Epidemiology:
Morton, RF. A Study Guide to Epidemiology and Biostatistics. Maryland: Aspen Press; 1996.

Evaluation:

- Rossi PH., Freeman HE, Lipsey MW. Evaluation: A Systematic Approach. Thousand Oaks: Sage Publications, Inc.; 1999

- Horsch, Karen. Evaluation Handbook. Endowment for Health, 2004. Available on-line: http://www.endowmentforhealth.org/resource-center/resource-center-detail.aspx?id=5

- Community Toolbox: http://ctb.ku.edu/index.jsp

Data Analysis using Microsoft Excel:
Function X tutorials in statistics with Excel: http://www.functionx.com/excel/index.htm

Sharing the Story:
Tufte E. Visual Display of Quantitative Analysis. Cheshire: Graphics Press, 1986.

Other Related Resources:
New Hampshire Health Information Center: http://www.unh.edu/nhhic/index.html

Appendix D: Evaluation of Prove-It!

Compared to how you felt before completing "Prove It!", how confident do you feel about your ability to:	**More confident (1)**	**Just as confident as before "Prove It!"(2)**	**Less confident (3)**	**Don't know (7)**
Find data resources related to community health				
Make a request for data analysis from the Bureau for Health Statistics and Data Management				
Interpret data analysis including crude rates,				
Interpret age-specific rates				
Interpret age-adjusted rates				
Interpret confidence intervals				
Display data in tables				
Display data in graphs				
Share the story that the data tell				

Please rate your satisfaction with the following:	**Very satisfied (1)**	**Somewhat satisfied (2)**	**Neither satisfied nor dissatisfied (3)**	**Somewhat dissatisfied (4)**	**Very dissatisfied (5)**	***Don't know (7)***
Knowledge and instruction method of instructors						
Curriculum materials						
Group activities						
Hands-on computer exercises						
Length of the course (12 hours)						
Timing of the course (month of the year)						
Days of the week (Friday and Saturday)						

Please respond and include your comments	**Yes (1)**	**No (0)**	**Comments**	**Don't know (7)**
I will share the materials from "Prove It!" with colleagues.				
I will recommend "Prove It!" to coworkers.				
I will recommend this course to community health professionals outside of my organization.				
Taking this course will assist me in my work with community health.				
I will recommend this course to other professionals. Other:_____				

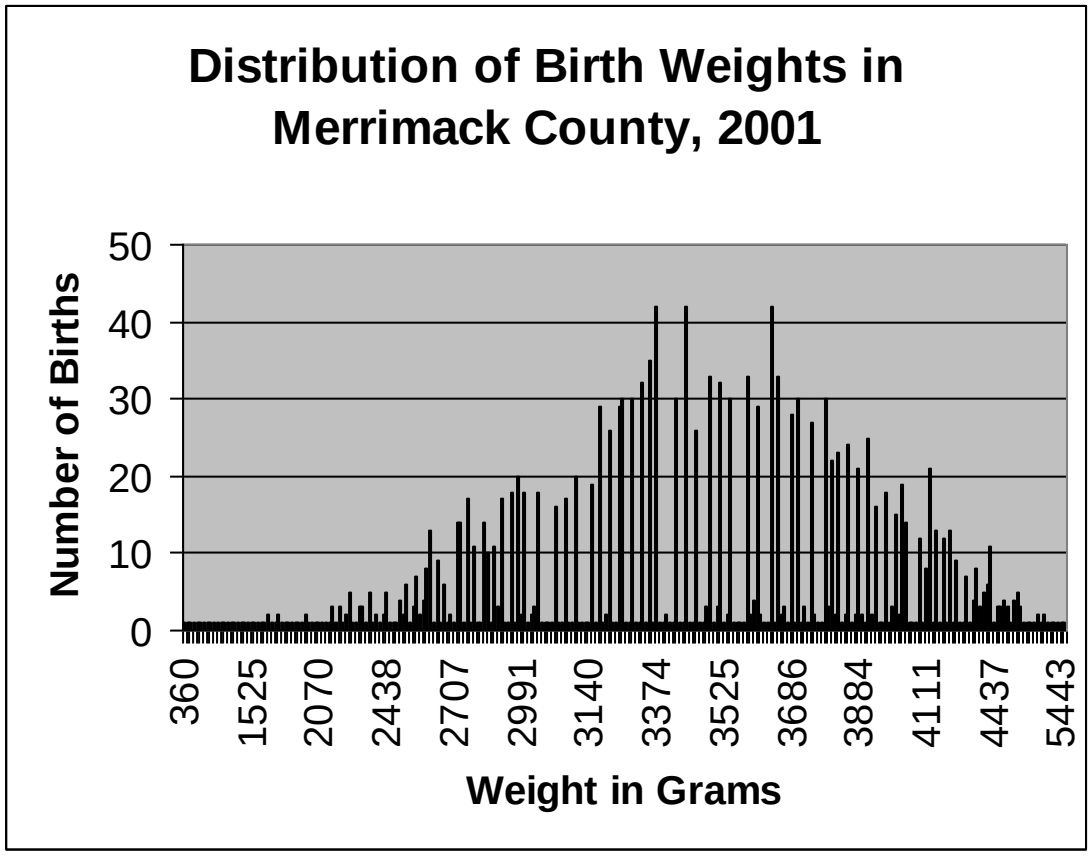
I would like to learn more about…	**Yes (1)**	**No (0)**	**Comments**	**Don't know (7)**
Locating and evaluating health data				
Collecting primary data				
Survey design				
Calculation of rates				
Calculation of confidence intervals				
Using Excel				
Interpreting rates				
Interpreting confidence intervals				
Other statistics Please specify:_____				
Displaying data in tables and graphs				
Sharing the story – translating the story from the data into summaries for grant applications or reports				
Other:_____				

What would you say were the strengths of the course? _____
What would you say were the weaknesses of the course? _____

Other comments about the course materials and instruction: _____

Skills Evaluation

Birth weight is often used as an indicator of a healthy birth. Any infant weighing less than 2500 grams (5.5 pounds) is considered low birth weight. Any infant weighing less than 1500 grams (3.3 pounds) is considered very low birth weight. The graph below presents the birth weight distributions for NH residents in Merrimack County in 2001.



1) The average birth weight of babies born in Merrimack County in 2001 was 3415 grams (7.53 pounds). The number 3415 (the average birth weight) can also be called a:

a) Median

b) Mode

c) Mean

d) Standard deviation

e) You do not know

2) 42 infants weighed 3374 grams, 42 weighed 3430 grams, and 42 weighed 3629 grams. No other weight in grams included as many as 42 infants. (See graph above.) In fact, the next highest number of infants with a given weight in grams was 35. The numbers 3430, 3629, and 3374 are defined as:

a) Modes
b) Means
c) Maximum values
d) Outliers
e) You do not know

3) The middle value was 3459 grams. In other words, half of the infants had weights above 3459 and half had weights below 3459. What is this number?

a) Mean
b) Mode
c) Median
d) Outlier
e) You do not know

4) The numbers in the graph above range from a low of 360 grams to a high of 5443. A descriptive number that gives information about the spread of these values and gives us this information about the average distance of any one value from the mean is:

a) The variance, which is equal to 368,995
b) The standard deviation, which is equal to 608
c) The interquartile range, which is equal to 667
d) The mean-median difference, which equals 44
e) You do not know

The following table shows the cancer deaths by age group in Merrimack County in 2001.

2001 Cancer Deaths		
Age Group	**New Hampshire**	**Merrimack County**
0 to 4	1	0
05 to 14	4	0
15 to 24	5	0
25 to 34	12	1
35 to 44	80	9
45 to 54	209	20
55 to 64	371	37
65 to 74	638	60
75 to 84	708	75
85 plus	364	44

5) If you simply want to look at the overall cancer death rate for NH, what kind of rate calculation would you request?

a) Age-specific rate

b) Crude rate

c) Age-adjusted rate

d) You do not know

6) If you want to compare the cancer death rate for NH residents who are 15–24 to NH residents who are 65–74, what kind of rate calculation would you request?

a) Age-specific rate

b) Crude rate

c) Age-adjusted rate

d) You do not know

7) If you want to compare cancer death rates between the state of NH as a whole and Merrimack County and want to account for differences in the age distribution between the areas, what kind of rate calculation would you request?

a) Age-specific rate

b) Crude rate

c) Age-adjusted rate

d) You do not know

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