Appendix A- Code Sheet

Prompt/Question	Field Name	Variable Type	Font for Prompt	Pattern, Table, or Option Selection
Parent School Asthma Pre-Intervention Survey	PreSurvey	Label/Title	14, Bold	
Please answer all the questions below, whether or not your child has asthma.	Instruction	Label/Title	12	
School Number	SchoolNum	Text		Code Table link to PSNumber: A to 123 B to 234 C to 345 D to 456
Student ID Number	StudentID	Text		Required
Zip Code	Zip	Text		
Child's Last Name	ChildLast	Text		
Child's First Name	ChildFirst	Text		
Male/Female	Gender	Text		Legal value: Male Female
Child's Date of Birth	DOB	Date		Required MM/DD/YYYY
Age	Age	Number		Read Only ##
Your Last Name	YourLast	Text		
Your First Name	YourFirst	Text		

Your relationship to Child	Relation	Text		
Home Phone Number	Phone	PhoneNumber		###-###-####
PS School Number	PSNumber	Text		Read Only Code Table link to SchoolNum
Grade	Grade	Number		##
Today's Date	TDate	Date		MM/DD/YYYY
Has a health professional ever told you that your child has any of the following conditions?	Condition	Label/Title		
Asthma	Asthma	Checkbox		
Reactive Airway Disease	RAD	Checkbox		
Asthmatic Bronchitis or Wheezy Bronchitis	Bronchitis	Checkbox		
Wheezing	Wheezing	Checkbox		
Has a health professional prescribed any medication to your child?	Medication	Yes/No		
How many times did your child have an emergency visit for breathing problems?	Emergency	Number		##
How many times did your child have to stay overnight in the hospital for breathing problems?	Overnight	Number		##
Does your child take medicine every day for breathing difficulties?	DailyMed	Yes/No		
Select the month when your child's breathing was the worst.	WMonth	Text		Comment Legal 1- January 2- February 3- March

				4- April 5- May 6- June 7- July 8- August 9- September 10- October 11- November 12- December
During their worst breathing month, select how often the following symptoms occurred.	Symptoms	Label/Title		
Wheeze or whistling in the chest?	Whistle	Text		Legal Values are: Never 2 times each week or less 3 to 6 times each week Every day but not all day Every day and all day
Have a cough?	Cough	Text		Legal Values are: Never 2 times each week or less 3 to 6 times each week Every day but not all day Every day and all day
Have a tight chest or shortness of breath?	ShortB	Text		Legal values are: Never 2 times each week or less 3 to 6 times each week Every day but not all day Every day and all

				day
Wake up at night from wheezing, coughing, or trouble breathing?	WakeUp	Text		Legal Values are: Never 2 times each week or less 3 to 6 times each week Every day but not all day Every day and all day
How many days of school has your child missed due to asthma?	MissDays	Number		###
Have breathing problems stopped your child from participating in sports?	MissSport	Yes/No		
If Yes, how many times in the past month?	SpTimes	Text		Legal Value 2 times a month or fewer 3 to 4 times a month 1 to 3 times each week 4 times each week or more
How many people living in your home, including this child, have asthma?	IllHome	Number		##

Appendix B- Parent School Asthma Pre-Intervention Survey

Please answer all the questions below, whether or not your child has asthma. If you receive more than one questionnaire, please complete a separate questionnaire for each of your children who attend this school. Your answers will help the school nurse provide information and medical assistance to children and their families who have asthma.

School Number	Student ID Number	Zip Code	
Child's Name (Last, First)	Male/Female (Circle One)	Child's Date of Birth	Age
Your Name (Last, First)	Your Relationship to Child	Home Phone Number	
PS School Number	Grade	Today's Date	

School Number	**Student ID Number**

1. Has a doctor, nurse or other health professional ever told you that your child has any of the following conditions?

   (Please check "Yes" or "No".)

   a. Asthma ☐ Yes ☐ No
   b. Reactive Airway Disease ☐ Yes ☐ No
   c. Asthmatic Bronchitis or Wheezy Bronchitis ☐ Yes ☐ No
   d. Wheezing ☐ Yes ☐ No

2. During the past school year (September 1, 2002 – June 30, 2003), has a doctor, nurse or other health professional prescribed any medicine for asthma, wheezing, cough, bronchitis, or other breathing problems? *(This could include pills, syrups, inhalers or breathing machines.)* ☐ Yes ☐ No

3. During the past school year (September 1, 2002 – June 30, 2003), how many times did your child have an emergency visit to a doctor, clinic or an emergency room for asthma, wheezing, cough, bronchitis, or other breathing problems? (*Enter the number. If none, enter "0" or "None".)*
   _____
   (Number of times)

4. During the past school year (September 1, 2002 – June 30, 2003), how many times did your child have to stay overnight in the hospital (not the emergency room) for asthma, wheezing, cough, bronchitis, or other breathing problems? (*Enter the number. If none, enter "0" or "None".)*
   _____
   (Number of times)

5. Does your child take any medication every day for asthma or other breathing difficulties, even when he or she is feeling well? ☐ Yes ☐ No

6. Think about your child's breathing difficulties over the past school year (September 1, 2002 – June 30, 2003). Please check the month that you feel your child's breathing was the WORST.

☐ Sept. ☐ Oct. ☐ Nov. ☐ Dec. ☐ Jan. ☐ Feb. ☐ Mar. ☐ April ☐ May ☐ June

☐ *Not applicable, my child did not have breathing difficulties in the past school year (September 1, 2002 – June 30, 2003).*

7. When thinking about your child's breathing difficulties during the month you checked above, Mark an "X" in the box that best describes how often each of the following symptoms happened:

wheeze or whistling in the chest?	☐	Never	☐	2 times each week or less	☐	3 to 6 times each week	☐	Every day but not all day	☐	Every day and all day
have a cough?	☐	Never	☐	2 times each week or less	☐	3 to 6 times each week	☐	Every day but not all day	☐	Every day and all day
have a tight chest or shortness of breath?	☐	Never	☐	2 times each week or less	☐	3 to 6 times each week	☐	Every day but not all day	☐	Every day and all day
wake up at night from wheezing, coughing or trouble breathing?	☐	Never	☐	2 times each week or less	☐	3 to 6 times each week	☐	Every day but not all day	☐	Every day and all day

8. During the past school year (September 1, 2002 – June 30, 2003), how many days of school has your child missed due to asthma or other breathing difficulties?
(*Enter the number. If none, enter "0" or "None".)*

_____
(Number of days)

9. During the past month, has asthma or other breathing problems ever stopped your child from participating in sports or other physical activities? ☐ Yes ☐ No
If "YES", how many times in the past month? *(Please check only one box.)*

☐	2 times a month or fewer	☐	3 to 4 times a month	☐	1 to 3 times each week	☐	4 times each week or more

10. How many people living in your home, including this child, have asthma?
(Enter the number. If none, enter "0" or "None".)

_____
(Number of people)

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Appendix C- Data Entry Surveys

Please answer all the questions below, whether or not your child has asthma. If you receive more than one questionnaire, please complete a separate questionnaire for each of your children who attend this school. Your answers will help the school nurse provide information and medical assistance to children and their families who have asthma.

School Number A	Student ID Number 11	Zip Code 12208	
Child's Name (Last, First) Evans, Katie	Gender Female	Child's Date of Birth 11/30/1994	Age 10
Your Name (Last, First) Evans, Rebecca	Relationship to Child Mother	Home Phone Number 555-555-5555	
PS School Number 123	Grade 5th	Today's Date 10/25/2005	

School Number	**Student ID Number**

1. Has a doctor, nurse or other health professional ever told you that your child has any of the following conditions?

   (Please check "Yes" or "No".)

   a. Asthma ☒ Yes ☐ No
   b. Reactive Airway Disease ☒ Yes ☐ No
   c. Asthmatic Bronchitis or Wheezy Bronchitis ☒ Yes ☐ No
   d. Wheezing ☒ Yes ☐ No

2. During the past school year (September 1, 2002 – June 30, 2003), has a doctor, nurse or other health professional prescribed any medicine for asthma, wheezing, cough, bronchitis, or other breathing problems? *(This could include pills, syrups, inhalers or breathing machines.)* ☒ Yes ☐ No

3. During the past school year (September 1, 2002 – June 30, 2003), how many times did your child have an emergency visit to a doctor, clinic or an emergency room for asthma, wheezing, cough, bronchitis, or other breathing problems? (*Enter the number. If none, enter "0" or "None".)* _____2_____ (Number of times)

4. During the past school year (September 1, 2002 – June 30, 2003), how many times did your child have to stay overnight in the hospital (not the emergency room) for asthma, wheezing, cough, bronchitis, or other breathing problems? (*Enter the number. If none, enter "0" or "None".)* _____1_____ (Number of times)

5. Does your child take any medication every day for asthma or other breathing difficulties, even when he or she is feeling well? ☒ Yes ☐ No

6. Think about your child's breathing difficulties over the past school year (September 1, 2002 – June 30, 2003). Please check the month that you feel your child's breathing was the WORST.

☒ Sept. ☐ Oct. ☐ Nov. ☐ Dec. ☐ Jan. ☐ Feb. ☐ Mar. ☐ April ☐ May ☐ June

☐ *Not applicable, my child did not have breathing difficulties in the past school year (September 1, 2002 – June 30, 2003).*

7. When thinking about your child's breathing difficulties during the month you checked above, Mark an "X" in the box that best describes how often each of the following symptoms happened:

wheeze or whistling in the chest?	☐	Never	☒	2 times each week or less	☐	3 to 6 times each week	☐	Every day but not all day	☐	Every day and all day
Have a cough?	☐	Never	☒	2 times each week or less	☐	3 to 6 times each week	☐	Every day but not all day	☐	Every day and all day
have a tight chest or shortness of breath?	☐	Never	☒	2 times each week or less	☐	3 to 6 times each week	☐	Every day but not all day	☐	Every day and all day
wake up at night from wheezing, coughing or trouble breathing?	☐	Never	☒	2 times each week or less	☐	3 to 6 times each week	☐	Every day but not all day	☐	Every day and all day

8. During the past school year (September 1, 2002 – June 30, 2003), how many days of school has your child missed due to asthma or other breathing difficulties?
(*Enter the number. If none, enter "0" or "None".)*

_____**12**_____
(Number of days)

9. During the past month, has asthma or other breathing problems ever stopped your child from participating in sports or other physical activities?
If "YES", how many times in the past month? *(Please check only one box.)*

☒ Yes ☐ No

☐	2 times a month or fewer	☒	3 to 4 times a month	☐	1 to 3 times each week	☐	4 times each week or more

10. How many people living in your home, including this child, have asthma?
(Enter the number. If none, enter "0" or "None".)

_____**0**_____
(Number of people)

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Please answer all the questions below, whether or not your child has asthma. If you receive more than one questionnaire, please complete a separate questionnaire for each of your children who attend this school. Your answers will help the school nurse provide information and medical assistance to children and their families who have asthma.

School Number A	Student ID Number 12	Zip Code 12203	
Child's Name (Last, First) Williams, Beth	Gender Female	Child's Date of Birth 11/08/1995	Age 9
Your Name (Last, First) Williams, Susan	Relationship to Child Mother	Home Phone Number 333-333-3333	
PS School Number 123	Grade 5th	Today's Date 10/25/2005	

School Number	**Student ID Number**

1. Has a doctor, nurse or other health professional ever told you that your child has any of the following conditions?

   (Please check "Yes" or "No".)

   a. Asthma ☒Yes ☐No
   b. Reactive Airway Disease ☒Yes ☐No
   c. Asthmatic Bronchitis or Wheezy Bronchitis ☐ Yes ☐No
   d. Wheezing ☒Yes ☐No

2. During the past school year (September 1, 2002 – June 30, 2003), has a doctor, nurse or other health professional prescribed any medicine for asthma, wheezing, cough, bronchitis, or other breathing problems? *(This could include pills, syrups, inhalers or breathing machines.)* ☒ Yes ☐No

3. During the past school year (September 1, 2002 – June 30, 2003), how many times did your child have an emergency visit to a doctor, clinic or an emergency room for asthma, wheezing, cough, bronchitis, or other breathing problems? (*Enter the number. If none, enter "0" or "None".)* _____**0**_____ (Number of times)

4. During the past school year (September 1, 2002 – June 30, 2003), how many times did your child have to stay overnight in the hospital (not the emergency room) for asthma, wheezing, cough, bronchitis, or other breathing problems? (*Enter the number. If none, enter "0" or "None".)* _____**0**_____ (Number of times)

5. Does your child take any medication every day for asthma or other breathing difficulties, even when he or she is feeling well? ☐ Yes ☒No

6. Think about your child's breathing difficulties over the past school year (September 1, 2002 – June 30, 2003). Please check the month that you feel your child's breathing was the WORST.

☐ Sept. ☐ Oct. ☐ Nov. ☐ Dec. ☐ Jan. ☐ Feb. ☐ Mar. ☐ April ☐ May ☒ June

☐*Not applicable, my child did not have breathing difficulties in the past school year (September 1, 2002 – June 30, 2003).*

7. When thinking about your child's breathing difficulties during the month you checked above, Mark an "X" in the box that best describes how often each of the following symptoms happened:

wheeze or whistling in the chest?	☐	Never	☐	2 times each week or less	☒	3 to 6 times each week	☐	Every day but not all day	☐	Every day and all day
have a cough?	☐	Never	☒	2 times each week or less	☐	3 to 6 times each week	☐	Every day but not all day	☐	Every day and all day

have a tight chest or shortness of breath?	☒	Never	☐	2 times each week or less	☐	3 to 6 times each week	☐	Every day but not all day	☐	Every day and all day
wake up at night from wheezing, coughing or trouble breathing?	☐	Never	☒	2 times each week or less	☐	3 to 6 times each week	☐	Every day but not all day	☐	Every day and all day

8. During the past school year (September 1, 2002 – June 30, 2003), how many days of school has your child missed due to asthma or other breathing difficulties?
(*Enter the number. If none, enter "0" or "None".)*

_____**14**_____
(Number of days)

9. During the past month, has asthma or other breathing problems ever stopped your child from participating in sports or other physical activities?
If "YES", how many times in the past month? *(Please check only one box.)*

☐ Yes ☒ No

☐	2 times a month or fewer	☐	3 to 4 times a month	☐	1 to 3 times each week	☐	4 times each week or more

10. How many people living in your home, including this child, have asthma?
(Enter the number. If none, enter "0" or "None".)

_____**0**_____
(Number of people)

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Appendix D Skills Reviews Answer Key

Lesson 2 Check Code	
Check Code can run Before or After values are entered in a variable.	True From the Program Editor, you assign when Check Code will run by using the Before or After radio buttons in the Check Commands window.
Using the Program Editor, you can create Check Code that will run across pages or records.	True From the Program Editor, Check Code can be added to pages and records using the Choose Field Where Action Will Occur drop-down menu.
In the Check Command window, variables tagged with an X have Check Code associated with them.	False Variables with Check Code are tagged with an *asterisk.
Which Function is used to create an age variable.	YEARS The YEARS function returns the number of years from variable 1 to variable 2 in a numeric format. For example, Age=YEARS(DOB, Today's Date)
How does the answer Yes appear in the Program Editor?	(+) The symbol (+) is equal to Yes or True values. The symbol (-) is equal to No or False values.
Lesson 3 Enter Data	
Once you create a _____ you cannot change field names or types in your view.	Data Table Once you begin entering records into the data table, you cannot change field names or types without deleting data that has been

	entered.
What are the two ways you can enter a new record?	Clicking New or tabbing through to the last record will allow you to begin a new record.
If you are entering data and have a required field, you must enter information into that field before proceeding to the next page.	True Enter will not allow you to leave a page until all Required fields are completed.
What expression could you enter in the Find feature to locate children who are greater than 6 in age?	Age>6
From the Find feature, what button do you click to clear the page and begin a new search?	Reset The Reset button will clear all search options without leaving the Find feature window.
Lesson 4 Analysis Basics	
After you run a command, the code appears in which window?	Program Editor Codes appear in the Program Editor and can be saved as programs.
What command allows you to open a project for analysis?	READ You must READ a project into Analysis before creating any statistics or data management.
What command would you use to see variables and records in the current data table?	LIST The LIST command creates a listing of the current data table and records.
What command would you use to specify a sequence for records to appear?	SORT The SORT command organizes listed data in and ascending or descending order based on selected variables.
What are the two Display Modes you can use with the LIST command?	Web (HTML) and Grid The LIST command allows you to view information embedded in the Output window as HTML or in a grid table format. There is a third Display Mode called List

	Allow Updates, which allows you to edit records. This is covered in the Intermediate Analysis lesson.
Lesson 6 Epi Graph	
You can use a Line Graph to determine trends and cyclic variation.	True Line Graphs can display data that varies along an accepted sequence such as time, temperature, etc.
Which type of graph presents a circular proportional assessment by comparing data elements such as percentages or counts against the sum of the data elements?	Pie Graph Pie Graphs are used for proportional assessment by comparing data elements such as percentage or count against the sum of data elements.
From Epi Graph, select the 2 ways you can open the Customization dialog box.	Right click and select Customization or select View>Customization
Graphs can be exported for use in other programs such as MS Word, PowerPoint, or Epi Report.	True Select File>Export from Epi Graph and choose your export options.
You can plot a new graph type from an existing graph using the Customization dialog box.	True Open the Customization dialog box and select the Plot tab. Select a new Plot Style and click Apply.
Lesson 7 Analysis: Exporting Files	
Which command allows you to designate a new Output file?	ROUTEOUT The ROUTEOUT command directs output to a named file until the process is terminated by the CLOSEOUT command or by exiting Analysis.
Which command allows you to create a new variable?	DEFINE The DEFINE command allows you to create new variables. The most common type being Standard.

Which command allows you to store the value of a variable or assigns the result of a mathematical expression.	ASSIGN This command assigns the value of an expression to a variable. It is commonly used after a new variable is created with the DEFINE command.
When changing, assigning, or selecting text fields, the value must be enclosed in what?	"Quotes" Quotes are used to enclose text strings.
In the Program Editor, the value of Missing appears how?	(.) This symbol denotes a missing value in your data table.
To change a number variable to a date, which function would you use?	NUMTODATE This function transforms three numbers into a date format.
Which command allows you to create a new data table?	WRITE WRITE will send records to an output table or file in the format that you specify. You can specify what variables will be written, the order in which they will appear, and the type of file to be written.
Which command allows you to open a new data table?	READ The READ command makes a view active. It also removes any previously active data tables and associated defined variables, and data table-specific commands such as RELATE, SORT or SELECT.
From the WRITE dialog box, what Output Mode would you select to add data to an existing table?	APPEND Records will be added to the existing file or data table if you select the APPEND option.
The WRITE command can be used to export a data table to MS Excel.	True The WRITE command will send records to an output table or file in the format that you specify. You can specify what variables will be written, the order in which they will

	appear, and the type of file to be written.
Lesson 10 Epi Report	
Which Analysis Output files are accessible by Epi Report?	Output.XML Analysis creates two types of files HTML and XML. The XML file can be used in Epi Report.
To view a report with complete data included, click which button?	Generate Reports Click the Generate Report button or select File>Generate Report to view a report with all statistics computed.
Aggregate data can be added to reports from the Read Data and Create menu.	True From the Read Data and Create menu, you can also Read Analysis Output, insert a Line Listing Group, or create a Pivot Table.
Line Listing groups can be customized from what dialog box?	Query Builder The Query Builder allows you to customize the data that appears in a line listing.
What element is used to insert a graphic into a report?	Image Open the Insert Report Object menu in the Report Elements Tree and drag the word Image onto the report.

Appendix E- Lesson 5 Answer Key

Frequency Sections	**Answers**
A. Are there more males or females in the survey population?	Females 406
B. Which condition has the highest frequency?	Wheezing 12.4%
C. Which month had the highest number of students with breathing difficulties?	9-September
D. Which school had the highest frequency of students with bronchitis?	School A- 13.8%
E. Which gender has the highest frequency of Asthma?	Males 12.2%
F. How many students answered Yes to Reactive Airway Disease (RAD)?	93
G. What is the percentage of students with RAD that have been prescribed medication?	49.5%
H. Which zip code has the highest number of students living in it?	12046
I. Of that zip code, which condition had the highest frequency?	Asthma
J. How many students answered Yes to all four conditions: Asthma, Reactive Airway Disease, Bronchitis, and Wheezing?	16
K. Based on all four conditions and zip code, are the conditions evenly distributed among the survey population?	Yes
L. Does one school have more students in the affected zip codes and with all fours conditions than the others do?	Yes- School A
Means Sections	**Answers**
M. What was the most frequent number of missed days?	1
N. What is the mean (average) number of missed days due to asthmatic conditions?	3.76
O. Which school had the highest average of missed days?	School A- 4.15 days
P. Was the school with the highest average of missed days for males the same as the school with the highest average of missed days for females?	No, School A for Males (4.36) and School B for Females

	(4.17)
Q. Is the average number of missed days higher among those who answered Yes to asthma than the overall average? Refer to Question N.	Yes, 11.8 versus 3.76
R. What is the average age of the student population?	8.66
Tables Section	**Answers**
S. Does one school have a higher number of students with asthma?	Yes- School A
T. Which school has the highest number of students with wheezing?	School A
U. How many students had both asthma and wheezing?	63
V. What are the odds that you have the condition wheezing, if you have the condition asthma?	Odds Ratio 42% Risk Ratio 13.6%
W. Is the Odds Ratio for Bronchitis and Reactive Airway Disease lower or higher than Asthma and Wheezing? Refer to Question V for the Odds Ratio for Asthma and Wheezing.	Lower 7.25%
X. How many children with the condition wheezing were prescribed medication? From those results, what is the Risk Ratio?	Children 44 Risk Ratio 9.2%
Y. Is the Risk Ratio for being prescribed medication for the condition asthma higher or lower than being prescribed medication for wheezing? Compare the results to Question X.	Higher. Risk Ratio 22.2%
Z. Are the risk ratios for Asthma and Wheezing higher for children under 10 than they are for the survey population as a whole? Compare the results to Question Y.	Higher. Odds 61.7% and Risk Ratio 15.9%

Appendix F- Intermediate Analysis Answer Key

The sample .PGMs listed are available in the project Asthma Final.MDB. The codes listed will show you an example of how the question could be run using Analysis. Some of the codes require intermediate steps to create results. Sample programs follow the steps listed in the lesson. For example, LISTS that require updates must be done manually as they are not saved as part of the program editor.

Computing Prevalence- Using BRFSS Data	BRFSS2003.PGM
A. What is the lifetime asthma prevalence among adults in the state?	11.7%
B. What is the current asthma prevalence among adults in the state?	7.6%
C. Is the state adult asthma prevalence rate higher in the subgroup gender? D. Is the state adult asthma prevalence rate higher in the subgroup ethnicity?	Males- 10% Females- 13.2% Hispanics- 11.2%

Primary Data- 800 Records	Freq4Schools.PGM
E. From the school asthma data, what is the difference in prevalence rates?	School A- 14.8% School B- 12.2% School C- 10.1% School D- 8.4%

Census Data	CountyPrev.PGM
F. What is the county childhood asthma prevalence?	9.978%
G. What is the county prevalence for the subgroup gender?	Males- 9.396% Females- 10.599%

Mortality Data	MortalityRate.PGM
H. Is the asthma mortality rate for the state and county significantly different?	State 2000- .179 State 2001- .181 State 2002- .174 County 2000- .136 County 2001- .068 County 2002- .136

10 Year Trends- Hospital Discharge Data	10YRgraph.PGM
I. Is the rate of hospital discharge increasing or decreasing in any age groups?	It appears that the discharge rate is cyclical with 1996, 1999, and 2003 being up years in all age groups.

3 Year Rates- Hospital Discharge Data	3YRgraph.PGM
J. Are there significant differences in the 3-year discharge rates for the state versus the county by age?	Rates in all the age groups appear to go up in 2003. In NY, the 0-17 year old age group has higher rates, while in Albany the 65+ age group has the highest rates.

Mapping Rates	MapRates.PGM
K. Based on the map with hospitalization rates by zip code, which areas have the highest rates for asthma?	12202, 12207, 12206, 12209, 12041, 12007

Scatter Plots	ScatterPlot.PGM
L. Does income appear to affect the rate of hospitalization?	Yes. The number of discharges appears much higher in the lower income brackets.

Risk Ratios- Hospitalization Data	RiskRatioZip.PGM
M. What is the risk ratio of being hospitalized for asthma if you live in the zip code 12202 versus if you live in the zip code 12211?	12202- Risk Ratio 4.5 12211- Risk Ratio .39 Persons living in 12202 are 4 times as likely to have asthma as those in 12211 are.

StatCalc	
N. From the New York hospital discharge data, how many records do you need to sample to get a 95% confidence interval from a sample size of 38998?	3602

Appendix G- Preparing Data for Use in the Epi Info™ Tutorial

The preparation and data management phase is critical for any project involving multiple data sources. Data management in Epi Info™ requires some forethought into the types of results needed. The steps used in this tutorial for accessing and formatting data are explained briefly below. The purpose of this appendix is to provide you with an estimate of the preparation time and scope of data management used in this project, which you can apply to different projects in the future.

PREPARATION QUESTIONS

1. Once it was decided to use asthma data, how did you decide what data was needed?
2. Where did you find the data?
3. In what format was the data? HTML, DBF, MS Excel, etc.
4. Did you reformat any of the data? If yes, what did you need to do, and how long did it take?
5. Where did you get shape files and zip code level maps used in the lessons?
6. How did you format the data so it could be used for mapping?

ANSWERS

1. ***Once it was decided to use asthma data, how did you decide what data was needed?***

   The first step was to understand the context of why asthma information was needed. It was decided that the scenario would involve applying for an asthma grant. Secondly, questions were developed and data sources located. The initial questions are included below.

   - The asthma prevalence among adults in the state is ___, and is increasing/decreasing. (BRFSS)
   - The prevalence rate of adult asthma is higher in certain subgroups (age, gender, race/ethnicity. (BRFSS)
   - The county adult asthma prevalence rate is higher/lower than the state. (BRFSS/EBRFSS)

- The county adult asthma prevalence is higher in some population subgroups (age, gender, race/ethnicity). (BRFSS/EBRFSS)
- How do the county population sub-group patterns related to the state sub-groups for adult asthma prevalence? (BRFSS/EBRFSS)
- The current asthma prevalence among children in the state in ___. (National Asthma surveillance – NY)
- Is the state childhood asthma prevalence higher in any population subgroup? (National Asthma surveillance – NY)
- The county childhood asthma prevalence is __ (primary data collection)
- How is the county childhood asthma prevalence different from the state?
- Is the asthma mortality rate for the state and county significantly different? (Vital Records – 3 years)
- The rate of hospital discharge from asthma is increasing in __ age group, and decreasing in __ age group. (10 year trends, 3 years for map; age group- total, 0-17, 18-64, 65+)
- Compare the three-year rates for state vs. county by age. Which are significantly different?
- Hospitalization rate by zip code for 3 years; where are the high risk areas
- Look at median family income/ per capita income by zip code.
- Look at emergency room data – one-year cross-sectional. What percentage is asthma-related? Look at age, gender, race/ethnicity, payment source distributions.
- The risk ratio for someone who lives in the __ zip code being hospitalized/seen in the emergency room for asthma is___ than the other zip codes in the county.
- Estimation of sample size for sampling school asthma survey.
- From school asthma data of 4 schools (2 high-risk areas, one moderate risk and one low risk) with 800 records totally, what is the difference in prevalence rates?

2. *Where did you find the data?*

Data	**Source**
Hospital Discharge Data – 10 years for trends, 3 years for maps, payment source, age, race/ethnicity, gender	NYSDOH SPARCS database https://commerce.health.state.ny.us/hin/dataque/data

(aggregate data)	quer.html
Hospital asthma discharge numbers by zip code (data available as an MS Excel file)	NYSDOH SPARCS database https://commerce.health.state.ny.us/hin/dataque/dataquer.html
Mortality data - 3 years (aggregate data)	Bureau of Biometrics, NYSDOH
BRFSS – 4 years (aggregate data)	BRFSS Program, NYSDOH https://commerce.health.state.ny.us/hpn/brfss/default.htm
E-BRFSS – 1 year (excel file)	BRFSS Program, NYSDOH https://commerce.health.state.ny.us/hpn/brfss/default.htm
Parent school asthma survey	Sample questionnaire used with permission from the New York City Department of Health and Mental Hygiene
Parent School Asthma Survey (4 schools/200 records each)	hypothetical data was created
Census - zip code level, county boundary and shape files, median family and per capital income, racial/ethnic distribution, hospital/emergency rooms, schools – (aggregate data and map files)	http://www.census.gov/geo/www/tiger/index.html
National asthma surveillance Childhood asthma prevalence (aggregate data)	Asthma Program, Public Health Information Group, NYSDOH

3. ***In what format was the data? HTML, DBF, .XLS, etc.***

Data used in this tutorial were in HTML, MDB, XLS, DBF, and TXT formats.

The process for merging an .MDB and an .XLS file is explained in Lesson 5. Analysis can READ in 24 different file formats. You can READ in an .XLS file and then WRITE it to a table inside Analysis for use with the Analysis features. The process of reading and

writing .HTML and .DBF files is covered in the Intermediate Analysis Lesson of this tutorial. The steps outlined in Intermediate Analysis Lesson for reading in and writing out an .HTML file can be applied to any format imported into Epi Info™.

4. ***Did you reformat any of the data? If yes, what did you need to do, and how long did it take?***

Yes. The data management steps involved in creating the lessons varied in time taken and complexity of steps. Here is an example of the kinds of behind-the-scenes steps that were taken.

If you READ the Numerators table in Analysis, you will see a set of values listed under the variable Series>Asthma Deaths. The plan was to place the mortality numbers into the Numerator table to compute rates.

The mortality data came from an .XLS file. The mortality spreadsheet contained a list of counties and 3 columns with mortality numbers for 3 years in those columns. The .XLS file was opened in Analysis and written out to a new data table so it could be manipulated.

Once the new table was read into Analysis a set of matching variables to the Numerator table were defined. For example, SERIES was DEFINED and then ASSIGNED the value Asthma Deaths. Each year was SELECTed and to get the number of NY deaths the SUMMARIZE command was used. This new information could then be WRITE APPENDed to the Numerator table.

Completing the steps for this one section of the final table took about one hour.

5. ***Where did you get shape files and zip code level maps used in the lessons?***

The US Census Bureau's Cartographic Boundary Files library (http://www.census.gov/geo/www/cob/bdy_files.html) contains 5-Digit ZIP Code Tabulation Areas (ZCTAs): 2000 files for download. The site contains files for both ESRI and MapInfo for every state in the country. The MapInfo boundary file data set was selected due to the accessibility of MapInfo software by the staff. County specific zip codes were carved out by creating a query that selected all zip codes from the ESRI zip code shape file map that were within or partially within a MapInfo county shape file map. This county shape file with zip codes carved out was exported into an ESRI shape file that can be used by Epi Info™.

When downloading files for use in Epi Map select the .SHP download versions. To select zip code specific information from a downloaded state file, use the Add Partial Layer feature in the Map Manager and then save the new shape. Shape files are also available from the Epi Info™ website http://www.cdc.gov/epiinfo.

6. ***How did you format the data so it could be used for mapping?***

Review Lessons 8 and 9 for all the rules for mapping.

There was data management involved in preparing files for mapping. To map data, it needs to be in an .MDB format and the zip code field needs to be text. The original .MDB prepared for the tutorial had to re-worked for use in Epi Map. Once the .MDB was READ into Analysis, the DISPLAY command was used to ensure the zip code field was text. Since it was not, a new zip code variable was DEFINEd, ASSIGNed, and the FORMAT command was used so that it would appear as text. Two of the variable titles also contained underscores, which were removed with, DEFINE and ASSIGN. The new variables were then WRITE REPLACEd to a new data table for use in mapping.

Appendix H- Glossary

Terms listed in the Glossary are located in the Epi Info™ online help system and as part of the online Glossaries listed in Appendix I: Data Sources and the References page.

Analytic Epidemiology

The aspect of epidemiology concerned with the search for health-related causes and effects. Uses comparison groups, which provide baseline data, to quantify the association between exposures and outcomes, and test hypotheses about causal relationships.

Chi Square

A test of statistical significance that is used to determine how likely it is that an observed association between an exposure and a disease could have occurred due to chance alone, if the exposure was not actually related to the disease. The Chi-Square Test is the test of choice when the expected values for each cell in a two-by-two table are at least 5.

Confidence Interval (CI)

A range of values for a variable that indicates the likely location of the true value of a measure.

Denominator

The lower portion of a fraction used to calculate a rate or ratio. In a rate, the denominator is usually the population (or population experience, as in person-years, etc.) at risk.

Descriptive Epidemiology

The aspect of epidemiology concerned with organizing and summarizing health-related data according to time, place, and person.

Distribution

In epidemiology, the frequency and pattern of health-related characteristics and events in a population. In statistics, the observed or theoretical frequency of values of a variable.

Epidemiology

The study of the distribution and determinants of health-related states or events in specified populations, and the application of this study to the control of health problems.

Expressions

Expressions are combinations of literal values, variables, functions, and operators that can be evaluated to a single result. Within an expression, the values of variables can be modified by a number of functions and operators. An Expression consists of one or more Operands

(variables or literal values) and one or more Operators (like +, -, *, and /). Expressions, no matter how complex, can eventually be evaluated to produce a single value, like 1.323, or "True" or "False." Functions modify the value of one or more variables to produce a result. For example, ROUND (2.33333) produces the value 2. Operators are used to combine two items. For example, the "+" operator combines Var1 and Var2 to produce a sum, as in Var3=Var1+Var2. Almost all functions require arguments enclosed in parentheses and separated by commas. Where arguments are required, there may not be any spaces between the function name and the left parenthesis.

Fisher Exact Test

A test of statistical significance that is used to determine how likely it is that an observed association between an exposure and a disease could have occurred due to chance alone, if the exposure was not actually related to the disease. The Fisher Exact Test is the test of choice when the expected values in a two-by-two table are less than 5.

Incidence Rate

A measure of the frequency with which an event, such as a new case of illness, occurs in a population over a period of time. The denominator is the population at risk; the numerator is the number of new cases occurring during a given time period.

Mean

The measure of central location commonly called the average. It is calculated by adding together all the individual values in a group of measurements and dividing by the number of values in the group.

Median

The measure of central location that divides a set of data into two equal parts.

Numerator

The upper portion of a fraction.

Odds Ratio

A measure of association, which quantifies the relationship between an exposure and health outcome from a comparative study; also known as the cross-product ratio.

P-Value

The probability that an observed association between an exposure and a disease could have occurred due to chance alone, if the exposure was not actually related to the disease.

Percentage

The number of patients with a characteristic divided by the total number of patients with the characteristic.

Prevalence

Measure of all cases of disease at a point of time. Computed by dividing the number of cases by the total population.

Proportion

A type of ratio in which the numerator is included in the denominator. The ratio of a part to the whole, expressed as a "decimal fraction" (e.g., 0.2), as a fraction (1/5), or, loosely, as a percentage (20%).

Protective Factor

An aspect of personal behavior or lifestyle, an environmental exposure, or an inborn or inherited characteristic that is associated with a decreased occurrence of disease or other health-related event or condition.

Rate

An expression of the frequency with which an event occurs in a defined population.

Ratio

The value obtained by dividing one quantity by another.

Risk

The probability that an event will occur, e.g. that an individual will become ill or die within a stated period of time or age.

Risk Ratio

A comparison of the risk of some health-related event such as disease or death in two groups.

Standard Deviation

The standard deviation is a mathematical measure of the spread or dispersion of the data around the mean value for normally distributed data.

Standard Error (of the Mean)

The standard deviation of a theoretical distribution of sample means of a variable around the true population mean of that variable.

Statistical significance

The measure of how likely it is that a set of study results could have occurred by chance alone. The level of statistical significance is usually expressed by the P value.

Trend

A long-term movement or change in frequency, usually upwards or downwards.

Variable

Any characteristic or attribute that can be measured.

Variance

A measure of the dispersion shown by a set of observations.

Appendix I- Data Sources

Assessment in Public Health

Centers for Disease Control and Prevention (CDC), Division of Public Health Surveillance and Informatics (DPHSI). *Assessment in Public Health.* CDC Web site. 2005.

http://www.cdc.gov/epo/dphsi/AI/resources.htm

BRFSS Survey Data

Centers for Disease Control and Prevention (CDC). *Behavioral Risk Factor Surveillance System Survey Data.* Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2003.

http://www.cdc.gov/brfss/index.htm

CDC Asthma and Allergies

Centers for Disease Control and Prevention (CDC). *CDC Health Topic: Asthma and Allergies.* CDC Web site. 2005.

http://www.cdc.gov/health/asthma.htm

CDC WONDER

United States Department of Health and Human Services (US DHHS), Centers for Disease Control and Prevention (CDC), National Center for Health Statistics (NCHS), "Bridged-Race Population Estimates, United States, 1990 - 2002, By Age Groups". Compiled from the April 1, 2000 resident population developed by the Bureau of the Census in collaboration with the NCHS on CDC WONDER On-line Database.

United States Department of Commerce, U.S. Census Bureau, Population Division; Census Data for Public Health Research, CDC WONDER On-line Database, March 2003.

http://wonder.cdc.gov

Community Health Assessment Clearinghouse

New York State, Department of Health (NYSDOH). *Community Health Assessment Clearinghouse.* NYSDOH Web site. 2005.

http://www.health.state.ny.us/nysdoh/chac/index.htm

Epi Info™

Centers for Disease Control and Prevention (CDC), Division of Public Health Surveillance and Informatics (DPHSI). *What Is Epi Info™?* CDC Web site. 2005.

http://www.cdc.gov/epiinfo

The National Center for Health Statistics

Centers for Disease Control and Prevention (CDC), National Center for Health Statistics (NCHS). CDC Web site. 2005.

http://www.cdc.gov/nchs/

Statewide Planning and Research Cooperative System (SPARCS)

New York State Department of Health. "Asthma Hospitalization Rates by County, New York State Residents 2000-2002." Claritas Corporation. 2005.

United States Census Bureau

U.S. Census Bureau; "Single Years of Age Under 30 Years and Sex 2000, for Albany County, New York: 2000;" published 2000.

http://www.census.gov/census2000/states/ny.html

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http://www.cdc.gov/excite/library/glossary.htm

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Epidemiology Program Office. *Epi Info™ 2000 Users' Manual*. Atlanta: Centers for Disease Control, 2000.

North Carolina Center for Public Health Preparedness. *Epi Info Online Training Resource*. Chapel Hill: 2005.

http://www.sph.unc.edu/nccphp/training/all_trainings/at_epi_info.htm

Washington State University, College of Veterinary Medicine, Department of Veterinary Clinical Sciences, Field Disease Investigation Unit; John Gay, DVM PhD. *Clinical Epidemiology and Evidence-Based Medicine Glossary*. Web site. Updated August 11, 2004.

http://www.vetmed.wsu.edu/courses-jmgay/GlossExpDesign.htm

Young Epidemiology Scholars Competition. Sponsored by the Robert Johnson Wood Foundation and the College Board. *Epidemiology Glossary*. Web site. August 4, 2005.

http://www.collegeboard.com/yes/ae/gloss.html