

# Youth Risk Behavior Survey Results

## Your 2011 YRBS Data

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### Understanding, Analyzing, Presenting



**YRBSS**  
Youth Risk Behavior Surveillance System



# **Understanding, Analyzing, and Presenting Your YRBS Data**

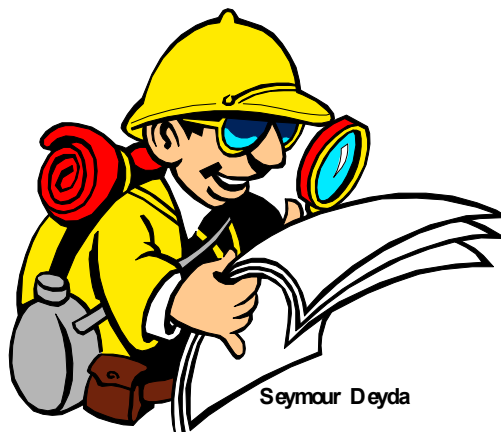
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## Understanding, Analyzing, and Presenting Your YRBS Data

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The Youth Risk Behavior Survey (YRBS) results in your report binder will be of great interest to many people in your state or district. Students, parents, school administrators, policymakers, and the general public will find the results relevant and useful. This brochure is designed to assist you in understanding, analyzing, and presenting the results of your YRBS. This brochure has three major sections:

- **Understanding Your Data** - This section describes the two major parts of your report binder – Survey Results and Survey Documentation. This section also describes additional data sources you can use to supplement your YRBS data.
- **Analyzing Your Data** - This section describes how to compare subgroup results and provides guidelines for doing further analysis of your data, including comparing data from two survey years.
- **Presenting Your Data** - This section includes guidelines for developing accurate and effective graphics and suggested methods of data presentation.



## Understanding Your Data

Effective reporting of your YRBS results enables you to provide a broad audience with factual information on the priority health-risk behaviors of students in your state or district. Concrete data-supported recommendations can be made to education agencies, public health officials, parents and those who assist in the development of your health education programs. The [Understanding Your Data](#) section of this document provides information to help you understand the main components of your YRBS results report binder. In addition, this section describes additional data sources to supplement your YRBS report.

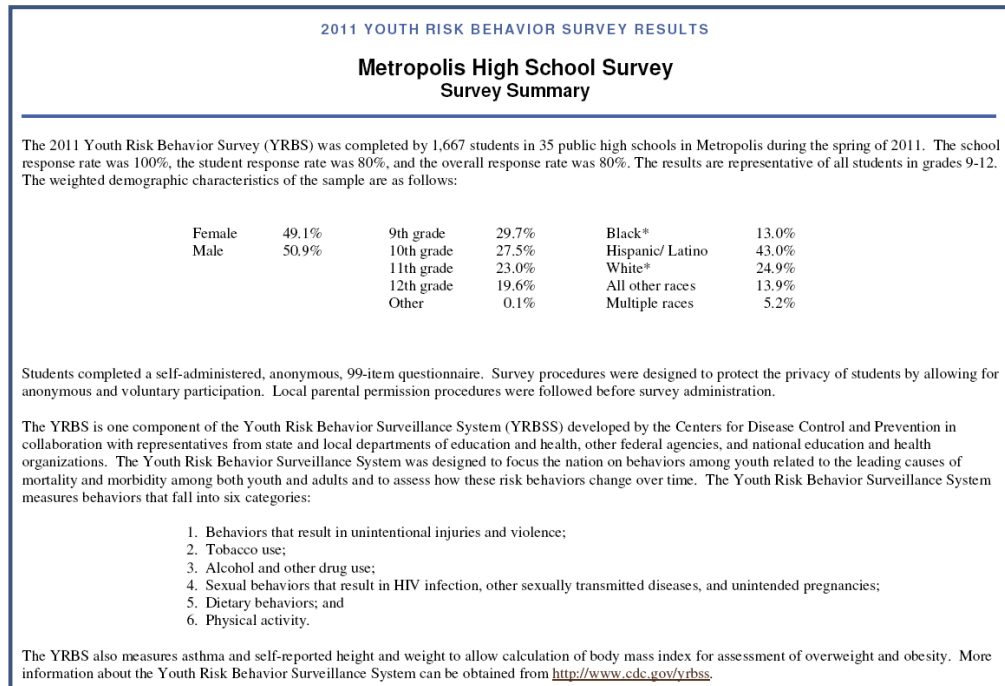
### Youth Risk Behavior Survey Report Binder

The section describes the information in your report binder:

- Section 1: Survey Results
  - Summary Results
  - Demographic Tables
  - Summary Tables
  - Detail Tables
  - Graphs
  - Trend Report (if applicable)
- Section 2: Survey Documentation
  - Questionnaire
  - Item Rationale
  - Data User's Guide
  - Codebook
  - Sample and Weighting Information
  - Sample Statistics
  - Resources
- Section 3: CD-ROM

## SURVEY RESULTS

**Summary Results:** Summary Results include the Survey Summary and the Summary Graphs. The **Survey Summary** (Figure 1) provides the number of students and the number of schools that participated in your survey, when the survey was administered, and the number of questions on your questionnaire. The school, student, and overall response rates are given, as well as a description of the sample by gender, grade, and race/ethnicity. Also included is a brief description of the Youth Risk Behavior Surveillance System.



**Figure 1**

## 2011 YOUTH RISK BEHAVIOR SURVEY

There are two sets of **Summary Graphs**. The first set shows the number of students in a class of 30 that reported more risky behavior (Figure 2) or less risky behavior. The second set of graphs shows the percent of students that reported more risky behavior (Figure 3) or less risky behavior.

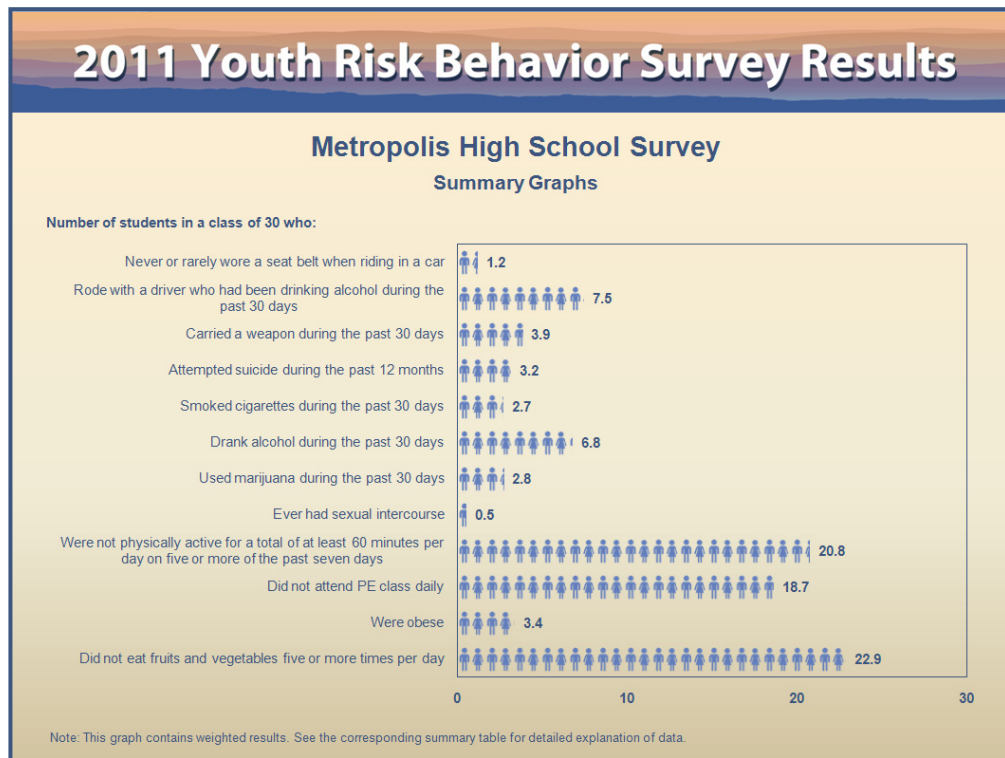


Figure 2

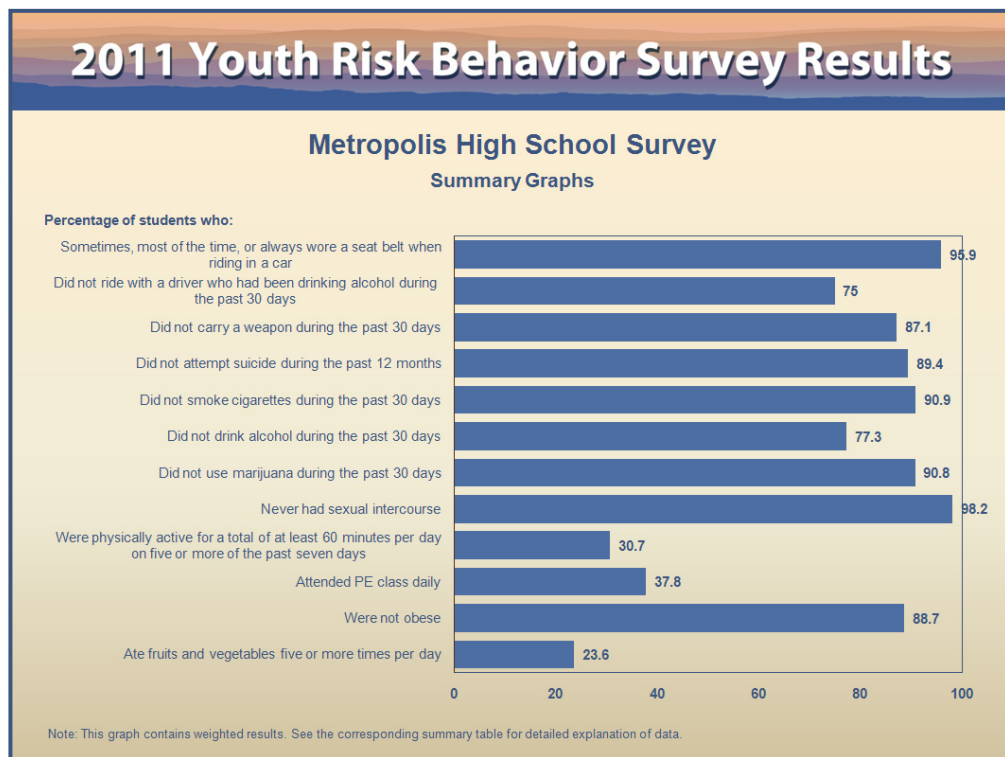


Figure 3



## 2011 YOUTH RISK BEHAVIOR SURVEY

**Demographic Tables:** Demographic Tables (Figures 4, 5, and 6) present the number and percentage of students by gender, age group, grade, and race/ethnicity. The ‘missing’ column represents the number of missing observations for all age groups. The footnote provides the number of students who did not report their gender. The demographic table also contains your total sample size.

In Figure 4 below, the total sample size is 1,667 and is outlined in blue. The number of respondents in each summary and detail table will add up to this number, if you include the number of missing observations reported in the footnote.

2011 YOUTH RISK BEHAVIOR SURVEY RESULTS										
Metropolis High School Survey Demographic Table - Weighted Data										
Total		Total		15 or younger		16 or 17		18 or older		Missing
		N	Percentage	N	Percentage	N	Percentage	N	Percentage	
	Total	1,667	100.0	632	43.5	924	50.0	110	6.6	1
Grade	9th	377	29.7	360	28.4	16	1.3	1	0.1	0
	10th	481	27.5	266	15.0	214	12.5	1	0.1	0
	11th	477	23.0	1	0.0	463	22.4	13	0.6	0
	12th	318	19.6	0	0.0	224	13.8	94	5.8	0
	Ungraded or other grade	2	0.1	1	0.1	1	0.1	0	0.0	0
	Missing	12		4		6		1		1
Race/Ethnicity	Black*	155	13.0	60	5.8	87	6.5	8	0.7	0
	Hispanic/Latino	725	43.0	277	18.9	416	22.3	31	1.8	1
	White*	367	24.9	132	10.3	204	12.4	31	2.2	0
	All other races	282	13.9	96	5.3	149	6.7	37	1.9	0
	Multiple races	100	5.2	53	3.2	46	1.9	1	0.0	0
	Missing	38		14		22		2		0

N = Number of students.  
 \*Non-Hispanic.  
 Note: There were 3 students who did not provide data on gender. Those students are excluded from analyses by gender.

**Figure 4**

The rows provide the number of students and percentages for the overall sample (Figure 4), for males (Figure 5), and for females (Figure 6). Those three groups are subdivided to provide, in rows, the number of observations and percentages by grade and race/ethnicity. The columns provide the number of observations and percentages by age group. The red outlined cell in Figure 5 shows that the number of 10<sup>th</sup> grade males, aged 15 or younger is 124 and that they represent 7.1% of the sample size.

# 2011 YOUTH RISK BEHAVIOR SURVEY

2011 YOUTH RISK BEHAVIOR SURVEY RESULTS										
Metropolis High School Survey Demographic Table - Weighted Data										
		Total		15 or younger		Age Group 16 or 17		18 or older		Missing
		N	Percentage	N	Percentage	N	Percentage	N	Percentage	
Male										
	Total	838	50.9	306	21.7	470	25.7	62	3.5	0
Grade	9th	189	15.3	180	14.6	9	0.7	0	0.0	0
	10th	242	14.3	124	7.1	118	7.1	0	0.0	0
	11th	226	11.6	0	0.0	218	11.2	8	0.4	0
	12th	176	9.8	0	0.0	122	6.7	54	3.1	0
	Missing	5		2		3		0		0
Race/Ethnicity	Black*	77	6.6	29	2.9	44	3.4	4	0.3	0
	Hispanic/Latino	375	22.7	135	9.5	221	12.1	19	1.0	0
	White*	181	12.5	62	5.1	100	6.1	19	1.2	0
	All other races	142	7.0	51	2.9	73	3.2	18	0.8	0
	Multiple races	44	2.3	23	1.4	20	0.9	1	0.0	0
	Missing	19		6		12		1		0

N = Number of students.  
\*Non-Hispanic.  
Note: There were 3 students who did not provide data on gender. Those students are excluded from analyses by gender.

2

Figure 5

2011 YOUTH RISK BEHAVIOR SURVEY RESULTS										
Metropolis High School Survey										
Demographic Table - Weighted Data										
		Total		15 or younger		Age Group 16 or 17		18 or older		Missing
		N	Percentage	N	Percentage	N	Percentage	N	Percentage	
Female										
	Total	826	49.1	326	21.8	452	24.2	48	3.1	0
Grade	9th	188	14.4	180	13.8	7	0.5	1	0.1	0
	10th	239	13.3	142	7.9	96	5.4	1	0.1	0
	11th	250	11.4	1	0.0	244	11.2	5	0.2	0
	12th	142	9.8	0	0.0	102	7.1	40	2.7	0
	Ungraded or other grade	2	0.1	1	0.1	1	0.1	0	0.0	0
	Missing	5		2		2		1		0
Race/Ethnicity	Black*	78	6.5	31	2.9	43	3.2	4	0.4	0
	Hispanic/Latino	349	20.4	142	9.4	195	10.2	12	0.7	0
	White*	185	12.4	70	5.2	103	6.3	12	1.0	0
	All other races	139	6.8	45	2.4	75	3.4	19	1.1	0
	Multiple races	56	2.9	30	1.8	26	1.1	0	0.0	0
	Missing	19		8		10		1		0

N = Number of students.  
\*Non-Hispanic.  
Note: There were 3 students who did not provide data on gender. Those students are excluded from analyses by gender.

Figure 6

**Summary Tables:** Each survey question or supplemental variable is summarized in a Summary Table (Figure 7). Summary tables contain results representing the ‘response of interest’ which is the typical way of reporting results for a particular question. Specific information on the ‘response of interest’ is in the Data User’s Guide in the Survey Documentation section of the report binder.

2011 YOUTH RISK BEHAVIOR SURVEY RESULTS									
Metropolis High School Survey									
Summary Table - Weighted Data									
QN8: Among students who rode a bicycle during the past 12 months, the percentage who never or rarely wore a bicycle helmet									
	Percentage	Total 95% confidence interval	N	Percentage	Male 95% confidence interval	N	Percentage	Female 95% confidence interval	N
Total	77.0	( 73.4 - 80.2 )	1,056	79.2	( 73.5 - 83.9 )	629	73.6	( 69.0 - 77.8 )	425
Age									
15 or younger	73.9	( 67.8 - 79.3 )	440	73.2	( 63.3 - 81.2 )	248	74.9	( 68.5 - 80.5 )	192
16 or 17	79.6	( 75.1 - 83.4 )	556	83.9	( 77.0 - 89.1 )	341	72.3	( 66.4 - 77.5 )	213
18 or older	-	-	60	-	-	40	-	-	20
Grade									
9th	71.0	( 63.7 - 77.4 )	272	68.3	( 55.4 - 79.0 )	152	74.6	( 67.7 - 80.4 )	120
10th	81.9	( 75.6 - 86.8 )	321	85.0	( 77.0 - 90.5 )	194	76.8	( 67.5 - 84.1 )	127
11th	79.5	( 73.0 - 84.8 )	273	84.6	( 73.7 - 91.5 )	160	71.1	( 66.4 - 75.4 )	112
12th	76.8	( 65.6 - 85.1 )	186	82.1	( 68.9 - 90.5 )	122	-	-	64
Race/Ethnicity									
Black*	-	-	90	-	-	56	-	-	34
Hispanic/Latino	85.7	( 81.4 - 89.1 )	458	87.8	( 80.9 - 92.4 )	281	82.3	( 75.7 - 87.5 )	177
White*	63.2	( 55.1 - 70.6 )	273	64.7	( 53.0 - 74.9 )	153	61.0	( 52.7 - 68.7 )	119
All other races	74.0	( 66.0 - 80.7 )	150	-	-	93	-	-	56
Multiple races	-	-	62	-	-	31	-	-	31

Note: There were 611 students who were excluded from the analysis for QN8.  
N = Number of students.  
\*Non-Hispanic.  
- = Less than 100 students in the subgroup.

Figure 7

There are three columns of data in each summary table: one for the total sample, one for males, one for females. In the Summary Table in Figure 7, the set of columns for the total sample is outlined in purple. The first column in each set contains the weighted or unweighted percentages. If your data are weighted, the percentages can be used to describe the entire high school or middle school population of your district or state (or any other population from which you selected your sample). If your data are unweighted, the Summary Tables provide unweighted percentages. These refer only to students who participated in your survey.

The next column in each set contains the 95% confidence intervals. If your data are not weighted, this column is not included in your report. A **confidence interval** is a range of values within which the “true” percentage lies. A 95% confidence interval means that if a survey were repeated many times, the “true” value would fall within the interval 95% of the time. The confidence interval is related to the number of observations and the survey design. Beginning with the 2007 YRBS reports, confidence intervals are asymmetric.

Be cautious about reporting results with a “wide” confidence interval. For the YRBS, wide confidence intervals are common for the “Hispanic/Latino,” “Multiple races,” and “All other races” race/ethnicity categories and for the “18 or older” age category, because many sites have a small number of students in these categories.

Under the column heading “N” is the number of students responding to each response category.

The first row of each Summary Table contains overall percentages, confidence intervals, and “N” for the whole sample and separate results by gender. Subsequent rows contain results by age group, grade, and race/ethnicity for the total sample and by gender.

Footnotes provide the following information:

- the number of observations with missing data, that is, the number of students who did not respond or whose response was deleted during the data editing process
- an explanation of the symbol (N), which is used as a column heading to indicate the number of responses
- an explanation of the symbol (-), which is used if there are fewer than 100 observations in a cell.

**Detail Tables:** Detail Tables provide results for every response option for every question in separate rows. Each question has three Detail Tables: results for the entire sample (Figure 8), for all males, and for all females. The Detail Tables consist of a column for the overall sample and columns for each of the respondent categories of age group, grade, and race/ethnicity. The first row of each response option contains the weighted or unweighted percentages. The next row contains the “N” (the number of responses for that category). Question numbers match the Summary Table numbers.

2011 YOUTH RISK BEHAVIOR SURVEY RESULTS													
Metropolis High School Survey													
Detail Table - Weighted Data													
Q8. When you rode a bicycle during the past 12 months, how often did you wear a helmet?													
Total		Age			Grade				Race/Ethnicity				
	Total	15 or younger	16 or 17	18 or older	9th	10th	11th	12th	Black*	Hispanic/Latino	White*	All other races	Multiple races
Did not ride a bicycle	% 34.9	28.6	38.9	45.7	26.6	32.2	41.5	42.0	40.1	35.8	24.3	45.6	36.0
	N 605	189	365	50	102	159	203	131	62	264	94	132	38
Never wore a helmet	% 44.3	46.8	42.9	39.1	46.4	49.2	41.7	38.3	52.3	50.5	38.7	35.1	31.6
	N 724	290	390	44	171	231	194	125	79	360	143	98	32
Rarely wore a helmet	% 5.8	6.0	5.7	4.9	5.7	6.3	4.8	6.2	2.7	4.5	9.1	5.2	5.8
	N 95	38	52	5	22	30	22	20	4	33	34	14	6
Sometimes wore a helmet	% 5.0	6.8	3.9	1.9	8.1	3.5	4.1	3.8	2.8	4.3	6.7	5.4	6.3
	N 79	40	37	2	30	17	19	13	4	31	23	14	5
Most of the time wore a helmet	% 4.4	5.5	3.6	2.7	5.8	3.7	3.5	4.3	2.0	2.2	9.7	2.4	9.5
	N 67	34	30	3	22	17	16	12	3	15	34	6	9
Always wore a helmet	% 5.6	6.3	5.0	5.7	7.3	5.1	4.3	5.4	0.0	2.6	11.5	6.3	10.7
	N 91	38	47	6	27	26	22	16	0	19	39	18	10
Total	% 100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	N 1,661	629	921	110	374	480	476	317	152	722	367	282	100

Note: There were 6 students who did not provide usable data for Q8.  
N = Number of students.  
\*Non-Hispanic.

Figure 8

Footnotes provide the following information:

- the number of observations with missing data, that is, the number of students who did not respond or whose response was deleted during the data editing process
- an explanation of the symbol (N), which is used as a column heading to indicate the number of responses
- an explanation of the symbol (-), which is used if there are fewer than 100 observation in a cell

**Graphs:** There is a graph for every question and supplemental variable. The graphs correspond to the results presented in the Summary Tables, providing a graphical representation of the percentages for the total population, for males and females, for each grade, and for race/ethnicity. If your data are weighted, there is an I-bar that shows the confidence interval. An example of a graph with weighted data is shown in Figure 9. If a category has less than 100 respondents in the denominator, no bar is displayed on the graph. This is the case for Black students in the example graph below.

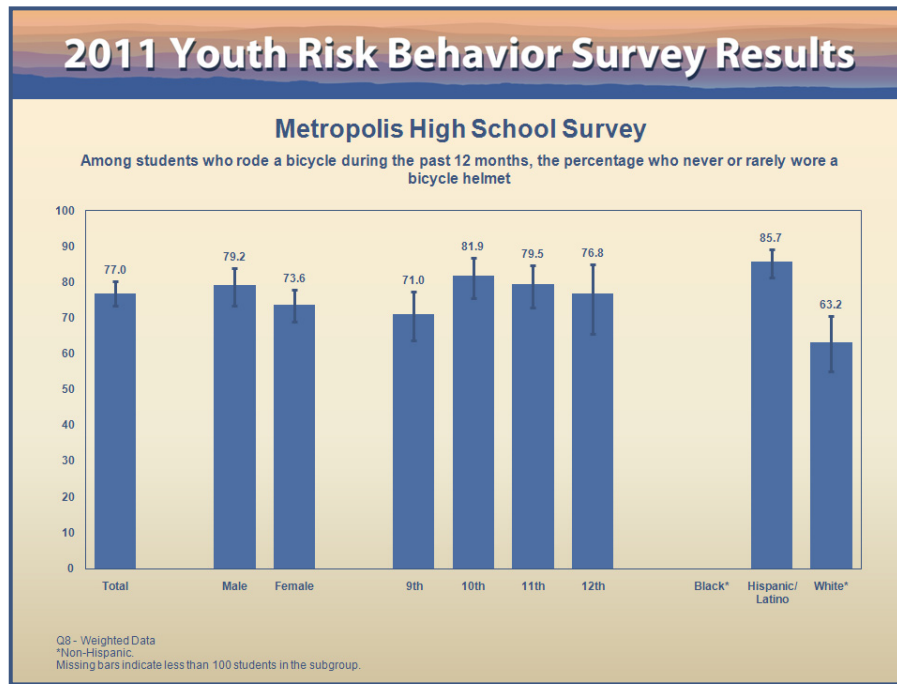


Figure 9

**Printed graphs are not included in your YRBS report binder. A PowerPoint file with all the graphs is included on the report binder CD ROM.**

## SUPPLEMENTAL DATA SOURCES

Combining data from your YRBS and other sources will present a clearer and more complete picture of what your results tell you about your state or district. Information from other sources is readily available.

### Health Outcome Data

**Morbidity and Mortality Data:** The CDC publishes annual mortality data on the 10 leading causes of death in the United States by age, sex, race, and ethnicity in National Vital Statistics Reports. This report and other mortality documents are available at [www.cdc.gov/nchs](http://www.cdc.gov/nchs).

**HIV and AIDS Data:** The CDC publishes the HIV/AIDS Surveillance Report that provides information on the prevalence and incidence of HIV and AIDS for each state and the District of Columbia. This report is available at <http://www.cdc.gov/hiv/topics/surveillance/resources/reports/2007report/pdf/2007SurveillanceReport.pdf>.

**Other Health Outcome Data:** State and local health departments can provide data on a variety of health outcomes, such as HIV infection, teen pregnancies, sexually transmitted diseases, and leading causes of death. Including this kind of information in a YRBS report will highlight the relationship between health risk behaviors and health outcomes.

### National Risk Behavior Data

**National Youth Risk Behavior Survey:** The CDC conducts biennially a YRBS on the prevalence of risk behaviors including unintentional injuries and violence, suicide ideation and attempts, tobacco use, alcohol and other drug use, sexual behaviors, dietary behaviors, and physical inactivity plus overweight and asthma among a nationally representative sample of high school students. The data are published in a Morbidity and Mortality Weekly Report Surveillance Summary. The reports are available at [www.cdc.gov/yrbs](http://www.cdc.gov/yrbs).

**National Youth Tobacco Survey (NYTS):** The CDC conducted a NYTS among a nationally representative sample of high school students in Spring 2006. Prior to 2004, the American Legacy Foundation conducted the survey. The reports are available at [http://www.cdc.gov/tobacco/data\\_statistics/surveys/NYTS/index.htm](http://www.cdc.gov/tobacco/data_statistics/surveys/NYTS/index.htm).

**National Survey on Drug Use and Health (NSDUH) (formerly the National Household Survey on Drug Abuse (NHSDA)):** The Substance Abuse and Mental Health Services Administration (SAMHSA) conducts annually the NSDUH on the prevalence, patterns, and consequences of drug and alcohol use in the general U.S. civilian non-institutionalized population, age 12 and older. Information is available at <http://oas.samhsa.gov/nhsda.htm>.

**Monitoring the Future (MTF):** The Survey Research Center in the Institute for Social Research at the University of Michigan, through a research grant from the National Institutes of Health, conducts MTF on the prevalence of tobacco, alcohol, and drug use behaviors, attitudes, and

values of 8<sup>th</sup>, 10<sup>th</sup>, and 12<sup>th</sup> grade students. The reports are available at [www.monitoringthefuture.org](http://www.monitoringthefuture.org).

### **School Policy and Program Data**

**School Health Policies and Programs Study (SHPPS):** The CDC conducts SHPPS every 6 years among all states and the District of Columbia, and among a representative sample of school districts and schools. SHPPS provides information about health education, physical education and activity, health services, mental health and social services, food service, healthy and safe school environment, faculty and staff health promotion, and family and community involvement. The reports are available at [www.cdc.gov/healthyyouth/shpps](http://www.cdc.gov/healthyyouth/shpps).

**School Health Profiles (Profiles):** State and local education and health departments conduct biennially a School Health Profiles among a representative sample of middle schools and senior high schools. Profiles provides information about the provision of health education; the content of health education courses; school health policies related to HIV infection/AIDS, tobacco use prevention, unintentional injuries and violence, physical activity, and nutrition; physical education; asthma management activities; and family and community involvement. The reports are available at [www.cdc.gov/healthyyouth/profiles](http://www.cdc.gov/healthyyouth/profiles).



## Analyzing Your YRBS Data

You can use the data in your YRBS report to prepare state- or district-level reports and presentations. This section describes how you can use data in this report to compare subgroups from one survey year and how you can compare results across two survey years.

The CD-ROM contains the data from your 2011 YRBS in SAS, SPSS (syntax file), MS Access, and ASCII formats. Those data files can be used along with the documentation to conduct additional analyses of the current year data. They also can be used with data from a previous YRBS. Given the complex sample design, you need to use a statistical software package, such as SUDAAN<sup>1</sup> or STATA<sup>2</sup>, which accounts for the clustered sample. A sample SAS and SUDAAN program is located in the Data User's Guide. For more information on how to analyze YRBS data and the appropriate software packages to use for analysis go to the YRBS website at [www.cdc.gov/yrbs](http://www.cdc.gov/yrbs), click on YRBSS Methods, and select Software for Analysis of YRBS Data.

**Comparing Subgroup Results from Any One Survey Year:** Follow these guidelines to determine if you can compare subgroup results from any one survey year: Use the results reported in the Summary Tables

1. Are the data weighted?
  - a. No - STOP! The comparison should not be made.
  - b. Yes - Continue.
2. Write in the question for which subgroups are being compared.
3. Write in the subgroups of interest (e.g., males and females or 9<sup>th</sup>, 10<sup>th</sup>, 11<sup>th</sup>, and 12<sup>th</sup> grade students) on the chart below.
4. Write in the confidence intervals for each estimate on the chart below.

### Subgroups of Interest

### Confidence Intervals

<sup>1</sup> Documentation for SUDAAN is available from Research Triangle Institute, 3040 Cornwallis Road, Research Triangle Park, NC 27709.

<sup>2</sup> Documentation for STATA is available from STATA Corporation, 4905 Lakeway Drive, College Station, TX 77845.

5. Do the confidence intervals overlap?

No: then it is likely that the estimates are significantly different.

Example of non-overlapping confidence intervals: (42.0 - 52.0) and (55.0 - 65.0).

Yes: then it is likely that there is no significant difference between the estimates.

Example of overlapping confidence intervals: (42.0 - 52.0) and (45.0 - 55.0)

**Comparing Results from Multiple Survey Years:** The Trend Report is based on logistic regression analysis and provides trends based on all years with weighted YRBS data for the overall population, for males and females, and for race/ethnicity. If you want to compare results between two years for subgroups, follow these guidelines. The first step is to determine if you can compare results from two survey years:

1. Write in the survey years being compared.                                            
Survey Year 1                      Survey Year 2

2. Are the data from both years weighted?

- a. No - STOP! The comparison should not be made.  
b. Yes - Continue.

3. Describe the population surveyed each year (e.g., public schools, grades 9-12).

Survey year 1: \_\_\_\_\_

Survey year 2: \_\_\_\_\_

4. Was the same population surveyed each year?

- a. No - STOP! The comparison should not be made.  
b. Yes - Continue.

5. Write in the question and response category to be compared from Survey Year 1.

\_\_\_\_\_  
\_\_\_\_\_

Write in the question and response category to be compared from Survey Year 2.

\_\_\_\_\_  
\_\_\_\_\_

6. Are the questions and response categories from each survey worded identically?

- a. No - STOP! The comparison should not be made.
- b. Yes - Continue.

7. Write in the confidence intervals for each estimate.

Survey Year 1: \_\_\_\_\_

Survey Year 2: \_\_\_\_\_

8. Do the confidence intervals overlap:

- a. No: then it is likely that the estimates are significantly different.  
Example of non-overlapping confidence intervals: (42.0 - 52.0) and (55.0 - 65.0)
- b. Yes: then it is likely that there is no significant difference between the estimates.  
Example of overlapping confidence intervals: (42.0 - 52.0) and (45.0 - 55.0)

## Presenting Your YRBS Data

In reporting statistical data, graphic representation can be extremely useful in displaying results in an easy-to-understand manner. Graphics are charts, graphs, and other visual forms for presenting information. Graphic presentation of data is a powerful tool when effectively used. Graphic enhancements are often the sparks that bring life, attention, and interest to a report or presentation. Graphic images help demonstrate group differences and aid in the explanation of survey findings.

This section has been developed to help you prepare accurate and effective graphics. The guidelines are not intended to constrain creativity, but rather to encourage and support accuracy and consistency in the display of information. Your YRBS report CD-ROM contains graphs for all of your questions in a PowerPoint presentation format. If you want to add additional “slides” or modify this presentation, you can make these changes yourself or find out about services available in your education or health agency.

Graphics help you communicate your YRBS results better by allowing you to:

- Disseminate information
- Increase the audience's retention of information
- Streamline presentations and meetings
- Establish relationships between data and ideas
- Emphasize important ideas or findings
- Prevent misinterpretation of your data or message
- Project a professional image of yourself and your agency
- Add credibility to your presentation

**Planning Your Graphic Presentation:** The first step to preparing effective graphic presentations is to ensure that they have a clear purpose. Think about what you are trying to say with the graphic. Keep your message simple and straightforward. Remember that your graphic presentation should highlight your major findings.

Graphic presentations provide an opportunity for you to acquaint various audiences with your program. You must know your audience members so you can design a presentation to best fit their needs. For example, knowing whether your graphics will be viewed by policy makers, such as district superintendents, or by parent groups will help you decide what information to present.

A graphic's primary function is to inform. This can best be done when data are presented clearly and simply. Simple graphics that are easy to understand will communicate your survey findings much more effectively than tables of raw data. Ideally, your graphics should be both accurate and visually appealing.

Graphics within a presentation should have a consistent style and format. Although many type or font styles are available, using too many different styles can add an inconsistent, cluttered, unprofessional look to an otherwise clean and simple presentation. If you add “slides” to your

YRBS report presentation, limit your choices to one or two fonts, and use boldface or italics for emphasis.

Another key factor to consider is the amount of information to convey in a single graphic. Too much information makes a graphic difficult to comprehend, which in turn detracts from your ability to demonstrate important programmatic needs. A series of simple graphics may be far more effective than a single complicated graph. However, be careful not to summarize the information to the point that it misrepresents the actual data.

Keeping presentation graphics as simple as possible forces you to interpret and discuss them in a conversational tone rather than reading them verbatim to your audience. Reading your slides and overhead transparencies is boring for both you and your audience. Your graphics should contain the framework rather than all the details of your presentation.

**Selecting Chart Types:** Several types of charts can be used to display your data. Choose the one that will best highlight the point you want to make.

### **Text Charts**

Use text charts to introduce nonnumeric data in a presentation, for example, to introduce or summarize your findings. Text charts should be short and precise in meaning, using the minimum number of short keywords needed to convey your message. Keep lines short by highlighting only the main idea. Limit text charts to 8 lines, with no more than 8 to 10 words on a line. Paraphrase rather than use complete sentences. Use initial capital letters and lowercase (as in the example shown) for the rest of the text. USING ALL UPPERCASE LETTERS MAKES TEXT DIFFICULT TO READ.

Avoid jargon. Be careful when using abbreviations or acronyms. For example, be sure your audience knows that YRBS stands for Youth Risk Behavior Survey.

Use bulleted lists to group and emphasize related ideas. If you have more than one bulleted list in your report or presentation, the symbol you choose for the bullets should be consistent for all of your graphics. Use a minimum number of indent levels, providing more detail verbally. To avoid monotonous presentations, be careful not to overuse bulleted lists.

### **Pie Charts**

A pie chart is the graphic that answers simple questions about proportions. Each slice represents an individual part of a particular group. “Cutting” (separating) one of the slices emphasizes an element that is part of the whole. For clarity, place labels next to the slices, not in a legend. Include percentages or values in the labels to add detail to the interpretation. Pie charts should contain eight slices at most. When you have more than eight data values, use a bar chart. Use multiple pie charts cautiously; bar charts are more effective in comparing proportions between groups.

Arrange your data from the largest element to the smallest, unless you want to emphasize a particular element, or there is a logical order to your categories or elements. Your most important element should start at the 3 o'clock position on the pie. The other elements should

progress in importance in a counterclockwise direction, with each slice being a lighter color or shading. For the best color or pattern effects, work from dark to light. Fluctuating between dark and light makes it difficult to see pie shading differences.

### **Vertical Bar or Column Charts**

Vertical bars are used to present trends in data such as changes over time or differences among groups. Use bar charts for a relatively small number of discrete data points or groups. Use a clustered bar chart to compare data in more than one category. However, keep the number of clusters small, and limit the number of bars in each cluster to three or fewer. Results for each of your YRBS questions are reported in this format.

### **Horizontal Bar Charts**

Horizontal bar charts are used to show comparisons between parts, groups, or categories. This type of chart will accommodate many values without visual clutter and can indicate exact quantities as well as proportions. Arrange the bars from largest to smallest to emphasize extremity. Use the same color or fill pattern for all bars. To emphasize one bar, select a contrasting fill pattern or color. Your YRBS summary charts are in this format.

### **Line Charts**

Line charts are used to show changes in data over time or to represent continuous measurements. Like bar charts, line charts answer questions about trends, and they can support an almost unlimited number of data points.

**Titles and Labels:** Graphics should have clear, concise titles and subtitles. Both axes of a graph should be labeled with the names of the variables, and the scales should be indicated. Titles should be centered at the top or bottom of the graphic. All information necessary to understand the graphic should be included.

**Production:** Graphics produced for paper copies and those created for computerized digital display require different design formats. It is important to consider the purpose and presentation medium when choosing among pattern, shading, and color options. Computer presentations benefit from use of color. Photocopying printed graphics (unless using a color copier) will obscure color or shading patterns.

**Electronic Presentation:** You can present your results in the PowerPoint presentation format without any modification, or you can tailor the report to meet more specific needs. The PowerPoint presentation allows you to add transitions between slides, text builds, and even animation and sound. Transitions are special visual effects that appear when moving from slide to slide. Text builds allow you to show main bullet points on a slide one at a time. These special effects should be used sparingly. You need to preview your presentation to be sure that everything looks good. Another advantage of this type of presentation is the room lights do not need to be dimmed allowing your audience to take notes more easily.

**Internet Website:** Presenting data on the Internet makes it readily available to many audiences. Having data available on the World Wide Web emphasizes the importance of the data and encourages an exchange of information to enhance analysis and presentation.

Preparing data for an Internet site is not difficult. Software packages are available to convert your paper presentation text and graphics into HTML (hypertext markup language) or PDF (portable document file), so it can be viewed on the Internet. Like your paper presentation, you will want to keep it simple and easy to read. Some formats will change in the HTML conversion, so take the time to adjust the format the way you like. Highlight important headings and keep basic facts bulleted. Converting to HTML will allow you to draw attention to links including appendices, tables, graphs, and pie charts, if you chose. By using hyperlinks, you can allow the user to move within your report or to jump to supplemental information available elsewhere on the Internet. Converting to PDF format will keep your document true to the original format.

Several agencies have websites that include reports of YRBS data. To find the most recent websites with YRBS data, use a search engine, such as Google or Yahoo, and the terms “YRBS” and the name of the agency whose data you are searching for. In addition to web sites that are devoted to YRBS data, references to information collected through the YRBS can be found in many reports available on the Internet and elsewhere.

**Quality Assurance:** Quality assurance is the time and effort spent by the graphics developer to ensure that the message conveyed by the graphic is true to the data it represents. Adequate quality assurance ensures that a graphic represents data in a manner that is easily viewed and understood by the observer and is not in any way misleading or incorrect. If the graphic presentation is incorrect, the viewer will have a false sense of the data and their implications.

Proofread your charts. If possible, enlist one or more of your co-workers who are familiar with your YRBS to help with the proofing. Also, check that percentages sum to 100%, when applicable, and that counts sum to the total. If percentages do not sum to 100 due to rounding, be sure to document that in a footnote.

Make sure the numbers on your chart match the numbers in the original data and that they are presented in the correct category. Within a presentation, scale changes should be avoided whenever possible so that between-chart comparisons can be made. For example, you may have two charts side by side showing response rates. One may use a scale of 0 to 100. The second chart may zoom in on a scale of 60 to 100. A person comparing these two charts will probably get a distorted view of the data. If you need to enlarge a selected portion of a scale, be sure it is clearly labeled as such. The vertical scale of bar and line charts should include zero.

Answer the following questions when proofreading your charts:

- Is all the text there? (Did the computer truncate text on long lines?)
- Is the spelling correct? (If your graphics package has one, use the built-in spell checker.)
- Is your message clear?
- Is the chart simple and easy to understand?
- Are the data accurate?
- Would color enhance the presentation of the data?

Whether you are compiling a written report or preparing visuals for a presentation, graphics can be used to add emphasis to your message. Graphics can help make sure your readers or audience leave with the message you want to convey. Effective use of graphics may help you generate interest in your program, gain support for conducting the YRBS, and enhance your report or presentation.



## Checklist for Effective Graphics

### Purpose

- ☐ Identify your audience(s).
- ☐ Specify your objectives.
- ☐ Ensure presentation methods match purpose and audience.

### Planning

- ☐ Create rough drafts first.
- ☐ Plan on making several drafts of all graphs.
- ☐ Remember that producing graphics sometimes takes longer than expected, so plan time accordingly.

### Appropriate Use

- ☐ Use graphics to highlight the intended material.
- ☐ Use the correct type of chart for your data.
- ☐ Be sure the chart demonstrates the comparisons you planned.

### Clarity

- ☐ Avoid unnecessary shadowing, 3D effects, and coloring.
- ☐ Minimize the number of fonts.
- ☐ Use bold and italic versions of fonts for highlighting.
- ☐ Avoid red and green adjacent to each other.
- ☐ Use accurate and complete labels.

### Simplicity

- ☐ Present the data without extraneous material.
- ☐ Avoid elaborate fill patterns.
- ☐ Avoid too many different patterns.
- ☐ Avoid overly decorative backgrounds.

### Consistency

- ☐ Use a similar style across all graphics.
- ☐ Use comparable scales for accurate comparison.

### Accuracy

- ☐ Check that data are correct.
- ☐ Check that spelling is correct.
- ☐ Double-check everything!