

## Understanding, Analyzing, and Presenting Your YRBS Data

This brochure is designed to assist you in understanding, analyzing, and presenting the results of your Youth Risk Behavior Survey (YRBS). There are three major sections:

- Understanding Your Data - This section describes the major parts of your data report, how to get started as you look for key results, and what you will find on your CD-ROM. This section also describes additional data sources you can use to supplement your YRBS data.
- Analyzing Your Data - This section provides guidelines for doing further analysis of your data, including trends.
- Presenting Your Data - This section includes guidelines for developing accurate and effective graphics, and suggested methods of data presentation.



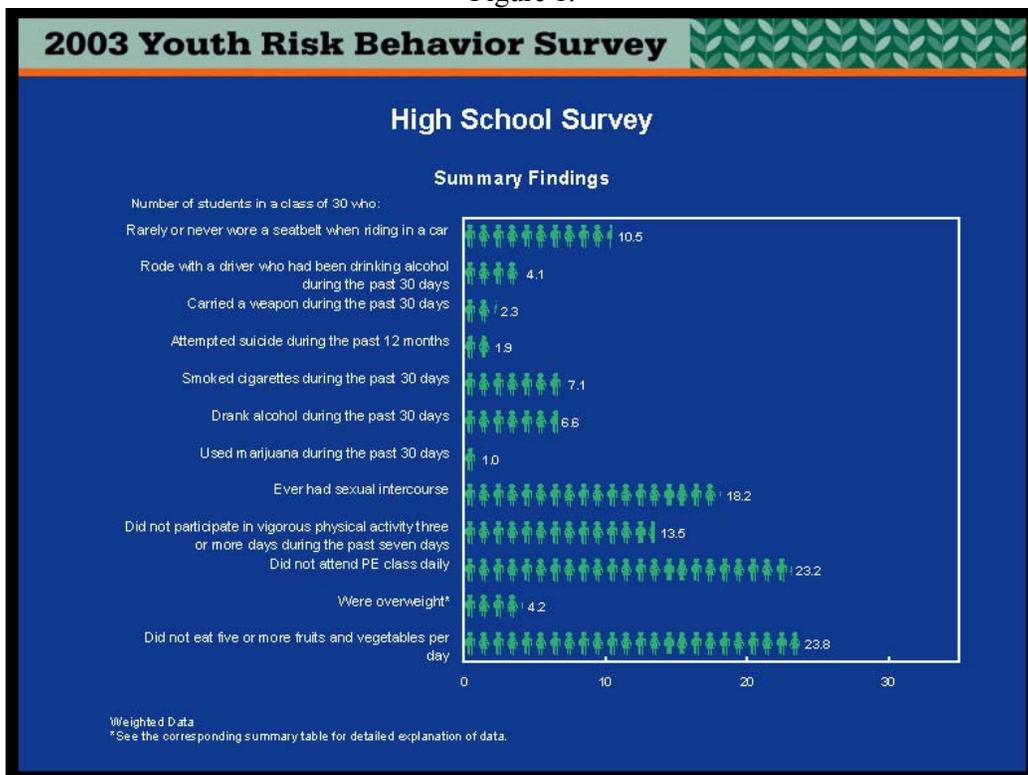


# Understanding Your Data

**Survey Summary:** The Survey Summary includes information on the number of students and the number of schools that participated in your survey, when the survey was administered, and a brief description of 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.

In addition to the written description of your survey, the Survey Summary includes two sets of graphs. Each set consists of a graph showing the percent of students who participate in selected behaviors and a graph showing the number of students in a class of 30 that participate in the same selected behaviors. One set presents the "desired" behaviors while the other set offers the "undesired" or negative behaviors. Figure 1 is the graph showing the number of students practicing "undesired" behaviors in a class of 30.

Figure 1.



While these summary graphs are a good place to begin looking at your data, you will want to explore your data in more depth by looking at the Demographic Table, the Summary Tables, and the Detail Tables. These tables provide detailed information on all of the questions from your survey.

**Tables:** Three types of tables are provided, a Demographic Table, Summary Tables and Detail Tables. Each type of table is described.

**Demographic Table:** The Demographic Table presents the number of students by gender, age, grade, and race/ethnicity. The footnote provides the number of students who did not report their gender. This demographic table also contains your total sample size. In the example below, the total sample size is 1,461 and is outlined in blue. The number of observations in each summary and detail table will add up to this number, if you include the number of missing observations reported in the footnote. The red outlined cell in Figure 2 shows that the number of 10<sup>th</sup> grade males, aged 15 or younger is 92.

The overall number of observations for the total sample, for males, and for females are in the rows (Figure 2). The number of observations for grade and race/ethnicity also are arranged in rows. The number of observations by age is arranged in columns. The missing column represents the number of missing observations for all age groups.

Figure 2.

2003 YOUTH RISK BEHAVIOR SURVEY RESULTS								
High School Survey								
Demographic Table - Unweighted Data								
			Age Group			Missing		
			Overall	15 or younger	16 or 17		18 or older	
Overall	Total		1,461	607	703	151	0	
	Grade	9th		435	411	21	3	0
		10th		321	181	139	1	0
		11th		351	6	335	10	0
		12th		342	2	204	136	0
		Other/Missing		12	7	4	1	0
	Race/Ethnicity	African American		1,277	519	618	140	0
		Hispanic/ Latino		49	23	23	3	0
		White		18	8	9	1	0
		All other races		49	26	19	4	0
		Multiple races		63	30	32	1	0
		Missing		5	1	2	2	0
		Male	Total		677	297	308	72
Grade	9th			211	199	12	0	0
	10th			159	92	66	1	0
	11th			150	2	142	6	0
	12th			152	1	86	65	0
	Other/Missing			5	3	2	0	0
Race/Ethnicity	African American			583	248	267	68	0
	Hispanic/ Latino			25	14	10	1	0
	White			13	7	6	0	0
	All other races			24	14	9	1	0
	Multiple races			28	13	14	1	0
	Missing			4	1	2	1	0

Note: There were 1 students who did not provide data on gender.

2003 YOUTH RISK BEHAVIOR SURVEY RESULTS

High School Survey  
Demographic Table - Unweighted Data

			Age Group			Missing		
			Overall	15 or younger	16 or 17		18 or older	
Female	Total		783	309	395	79	0	
	Grade	9th		224	212	9	3	0
		10th		162	89	73	0	0
		11th		201	4	193	4	0
		12th		190	1	118	71	0
		Other/Missing		6	3	2	1	0
	Race/Ethnicity	African American		694	271	351	72	0
		Hispanic/ Latino		24	9	13	2	0
		White		5	1	3	1	0
		All other races		24	11	10	3	0
		Multiple races		35	17	18	0	0
		Missing		1	0	0	1	0

**Summary Tables:** Following the Demographic Table are the Summary Tables, one for each question on your survey. The standard YRBS question number and response category (or categories) are identified. The title of the Summary Table lists the following:

- the name of the site
- the table type
- whether or not the data are weighted

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 unweighted responses (number of students responding)
- an explanation of the symbol (-), which is used if there are fewer than 100 observations in a cell

For each question there are three sets of columns of data in each summary table: one for the total sample, one for males, one for females. In the Summary Table in Figure 3, 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 only 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. Be cautious about reporting results with a "wide" confidence

interval. For the YRBS, wide confidence intervals are common for the "Hispanic" and "Other" race/ethnicity categories and for the "18 or older" age category, because many sites survey a small number of students in these categories.

Under the column heading "N" is the number of students responding to each response category (i.e., unweighted responses).

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

Figure 3.

2003 YOUTH RISK BEHAVIOR SURVEY RESULTS									
High School Survey									
Summary Table - Weighted Data									
Q9. Percentage of students who never or rarely wear a seat belt when riding in a car driven by someone else									
	Percentage	Total 95% confidence interval	N	Percentage	Males: 95% confidence interval	N	Percentage	Females: 95% confidence interval	N
<b>Total</b>	7.2	( 5.6 - 8.9 )	8,063	9.6	( 7.0 - 12.3 )	4,067	4.7	( 3.7 - 5.7 )	3,961
<b>Age</b>									
15 or younger	7.0	( 5.3 - 8.7 )	4,665	8.9	( 6.1 - 11.7 )	2,311	5.0	( 4.2 - 5.9 )	2,336
16 or 17	6.8	( 4.9 - 8.7 )	2,806	9.2	( 6.7 - 11.8 )	1,421	4.3	( 2.7 - 5.9 )	1,382
18 or older	10.5	( 8.5 - 12.4 )	572	14.9	( 10.6 - 19.2 )	329	4.2	( 1.3 - 7.1 )	240
<b>Grade</b>									
8th	7.1	( 4.1 - 10.2 )	2,047	9.4	( 5.9 - 12.9 )	1,039	4.7	( 1.9 - 7.4 )	999
9th	8.0	( 6.2 - 9.8 )	1,765	10.8	( 6.3 - 15.2 )	889	5.0	( 3.8 - 6.3 )	869
10th	6.6	( 5.0 - 8.2 )	1,644	7.8	( 5.0 - 10.7 )	841	5.3	( 3.8 - 6.8 )	802
11th	5.8	( 3.7 - 7.9 )	1,366	7.9	( 4.7 - 11.2 )	691	3.4	( 2.2 - 4.6 )	670
12th	8.1	( 6.1 - 10.1 )	1,208	11.8	( 8.1 - 15.6 )	594	4.3	( 2.1 - 6.4 )	610
<b>Race/Ethnicity</b>									
African American	22.7	( 18.1 - 27.3 )	118	-	-	86	-	-	31
Hispanic/ Latino	16.9	( 14.2 - 19.7 )	159	-	-	91	-	-	68
White	6.9	( 5.2 - 8.6 )	7,178	9.2	( 6.5 - 11.9 )	3,572	4.5	( 3.4 - 5.5 )	3,589
All other races	15.7	( 10.1 - 21.3 )	374	18.4	( 12.7 - 24.2 )	209	10.5	( 5.5 - 15.5 )	159
Multiple races	9.5	( 4.7 - 14.2 )	155	-	-	66	-	-	87

Note: There were 18 students who were excluded from this analysis or who did not provide usable data for Q9.  
 N = Number of unweighted observations.  
 - = Fewer than 100 observations.

In addition to a Summary Table for each question on your survey, you may find Summary Tables on variables that are calculated based on results from one or more questions. These appear in the report as questions M1 through M12. The following is a list of these tables and where they will appear in your report. You will not have these calculated variables if you modified or deleted any of the questions

needed for these variables. The question numbers given below are those from the standard high school YRBS.

- M1 - Percentage of students who smoked cigarettes on 20 or more of the past 30 days. This variable is based on responses to question 30 and appears after question 30.
- M2 - Percentage of students who smoked more than 10 cigarettes per day on the days that they smoked. This variable is based on responses to questions 31 and appears after question 31.
- M3 - Percentage of students less than 18 years of age who were current smokers and purchased cigarettes at a store or gas station. This variable is based on responses to questions 1 and 32, and appears after question 32.
- M5 - Percentage of students who used any tobacco during the past 30 days. This variable is based on responses to questions 30, 36 and 38, and appears after question 38.
- M6 - Percentage of students who have ever had sexual intercourse but have not had sexual intercourse during the past three months. This variable indicates that the student is currently sexually abstinent and is based on responses to question 61. It appears after question 61.
- M7 - Percentage of students who are at risk for being overweight. This variable is based on questions 1, 2, 6, and 7, and appears after question 65.
- M8 - Percentage of students who are overweight. This variable is based on questions 1, 2, 6, and 7 and appears after M7.
- M9 - Percentage of students who ate five or more servings of fruits and vegetables during the past seven days. This variable is based on questions 73, 74, 75, 76, 77, and 78, and appears after question 78.
- M10 - Percentage of students who did not participate in at least 20 minutes of vigorous physical activity on three or more of the past seven days and did not do at least 20 minutes of moderate physical activity on five or more of the past seven days. This variable indicates that the student did not do the minimum amount of moderate or vigorous physical activity and is based on responses to questions 80 and 81. It appears after question 81.
- M11 - Percentage of students who participated in no vigorous or moderate physical activity during the past seven days. This variable is based on responses to questions 80 and 81 and appears after M10.
- M12 - Percentage of students who attended physical education (PE) class daily. This variable is based on responses to question 84 after question 84.

Examine your data systematically by looking at the results for the different categories. Consider these questions as you look through the results:

- Do the results look different for males and females?
- Do the results change by grade or age?
- Do the results differ by race or ethnic group?

**Detail Tables:** Following the Summary Tables are the Detail Tables, with three pages of results for each question: results for your entire sample, for all males, and for all females. The standard YRBS question number and response category (or categories) are identified. Figure 4 shows results for the total sample.

Figure 4.

2003 YOUTH RISK BEHAVIOR SURVEY RESULTS															
High School Survey															
Detail Table - Weighted Data															
Q16. During the past 12 months, how many times has someone threatened or injured you with a weapon such as a gun, knife, or club on school property?															
Overall	Age				Grade					Race/Ethnicity					
	Overall	15 or younger	16 or 17	18 or older	8th	9th	10th	11th	12th	African American	Hispanic/Latino	White	All other races	Multiple races	
0 times	%	92.9	92.0	93.5	93.3	93.6	91.3	90.6	94.4	95.6	78.7	81.4	93.4	83.4	82.6
	N	7,458	4,289	2,609	541	1,905	1,610	1,489	1,284	1,149	96	131	6,713	315	133
1 time	%	3.2	4.1	2.4	0.8	3.4	4.7	4.3	1.8	1.4	3.7	4.4	3.1	5.2	8.4
	N	275	189	78	6	75	78	71	30	19	5	8	225	20	14
2 or 3 times	%	1.6	1.6	1.6	0.8	1.3	1.8	2.2	1.7	0.7	2.3	3.7	1.5	2.5	2.8
	N	130	79	45	5	28	33	38	21	9	3	6	106	10	3
4 or 5 times	%	0.5	0.4	0.7	0.3	0.1	0.7	0.8	0.5	0.6	0.6	1.5	0.5	2.3	0.5
	N	46	23	20	3	5	13	12	8	8	1	3	32	8	1
6 or 7 times	%	0.3	0.3	0.2	0.2	0.2	0.4	0.3	0.4	0.1	0.0	1.2	0.2	0.3	2.3
	N	24	15	7	2	3	8	6	5	2	0	2	18	1	2
8 or 9 times	%	0.2	0.1	0.2	0.5	0.2	0.1	0.3	0.2	0.3	0.0	0.5	0.2	0.3	0.0
	N	16	7	6	3	5	2	4	2	3	0	1	14	1	0
10 or 11 times	%	0.1	0.2	0.0	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.1	0.6	0.0
	N	7	7	0	0	1	2	2	0	0	0	0	6	1	0
12 or more times	%	1.2	1.1	1.2	2.0	1.1	0.9	1.2	1.0	1.4	14.6	7.2	0.9	5.4	3.4
	N	105	52	38	14	25	17	21	16	17	13	7	61	17	5
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	100.0
	N	8,061	4,661	2,803	574	2,047	1,763	1,643	1,366	1,207	118	158	7,175	373	158

Note: There were 20 students who did not provide usable data for Q16.  
 N = Number of unweighted observations.  
 - = Fewer than 100 cases.

The title of the Detail table lists the following:

- the name of the site
- the table type
- whether or not the data are weighted

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 unweighted responses (number of students responding)
- an explanation of the symbol (-), which is used if there are fewer than 100 observation in a cell

Each page of the Detail Tables consists of a column for the overall sample and columns for each of the respondent categories of age, grade, and race/ethnicity. Data for each of the response options are listed in separate rows. The first row of each response option contains the weighted or unweighted percentages. The next row contains the "N" (the number of unweighted responses for that category).

Remember that the Detail Tables contain three pages of results for each question: one for your entire sample, one for males, and one for females. The Detail Tables provide results for every response option for every question.

Consider paying special attention to the percentage and number of students who did not practice a health-risk behavior. This information may be just as useful as the information about how many students are at risk. Using the detail tables, you can look for similarities and differences among the responses by age, grade, gender, or race/ethnicity of the respondents.

## Comparing Subgroup Results from Any One Survey Year

Follow these guidelines to determine if you can compare subgroup results from any one survey year:

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.  

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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
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<hr/>	<hr/>
<hr/>	<hr/>

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).

  - a. 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)

Another approach is to use a statistical software package such as SUDAAN<sup>1</sup> or STATA<sup>2</sup> to determine if there are significant differences between groups. For example, are male students in 9<sup>th</sup> grade significantly more likely than male students in 10<sup>th</sup> grade to drink alcohol? For more information on using statistical packages, you should contact a statistical consultant.

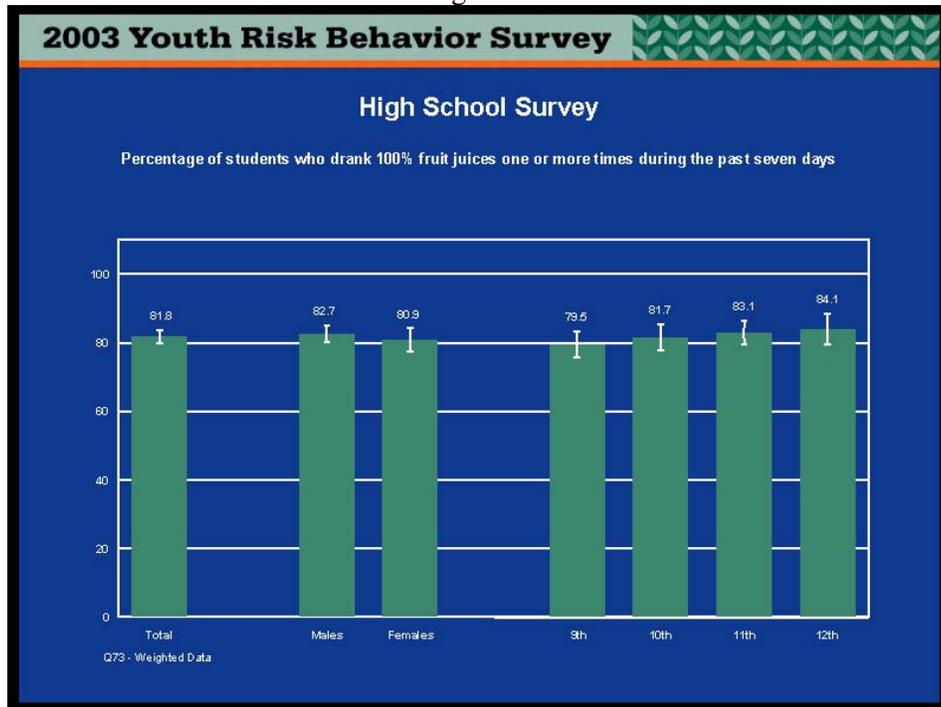
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<sup>1</sup> Documentation for SUDAAN is available from Research Triangle Institute, 3040 Cornwallis Road, Research Triangle Park, NC 27709.

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

**Bar Charts:** The bar charts provide a graphic representation of your data. There is a bar chart for every question and calculated variable. Each bar chart provides information for the total population, for males and females, and each grade. If your data are weighted, there is an I-bar that shows the confidence interval. The actual percentage is identified above each bar. An example of a bar chart with weighted data is shown in Figure 5. All of the bar charts are provided in a PowerPoint presentation.

Figure 5.



**Sample Information:** The sample information includes two documents, the Sample Description and Weighting Procedures and the Sample Statistics report. The Sample Description and Weighting Procedures document gives a description of the sample, the response rates for classes and students as well as the overall response rate, a description of the formula used in weighting your sample, and a recommendation how to interpret your results. The Sample Statistics report (Figure 6) provides additional statistical information about your data. For each question the percent, standard error, 95% confidence interval, number of valid responses, and design effect are given. An introductory page explains the standard error and design effect numbers that appear in this report.

Figure 6.

2003 YOUTH RISK BEHAVIOR SURVEY RESULTS					
High School Survey					
Sample Statistics					
Question	Percent	Standard Error	95% Confidence Interval	Number of Valid Responses	Design Effect*
Q7. Percentage of students who received grades of mostly D's and F's during the past 12 months	5.7	0.71	±1.38	7,958	2.7
Q8. Of students who rode a bicycle during the past 12 months, the percentage who never or rarely wore a bicycle helmet	50.0	4.26	±8.35	6,381	6.8
Q9. Percentage of students who never or rarely wear a seat belt when riding in a car driven by someone else	7.2	0.86	±1.69	8,063	3.0
Q10. Percentage of students who during the past 30 days rode one or more times in a car or other vehicle driven by someone who had been drinking alcohol	21.8	1.17	±2.30	8,042	2.5
Q11. Percentage of students who during the past 30 days drove a car or other vehicle one or more times when they had been drinking alcohol	7.6	0.59	±1.15	7,988	2.0
Q14. Percentage of students who carried a weapon such as a gun, knife, or club on school property on one or more of the past 30 days	8.0	0.32	±0.63	8,068	1.1
Q15. Percentage of students who did not go to school on one or more of the past 30 days because they felt unsafe at school or on their way to or from school	4.1	0.30	±0.59	8,063	1.4
Q16. Percentage of students who had been threatened or injured with a weapon on school property one or more times during the past 12 months	7.1	0.21	±0.41	8,061	0.7

\*The average design effect across all items for this survey is 2.3.

**Codebook:** The Codebook provides the following information:

- Data location, the column in which the data variable resides in the ASCII format data file for each record (respondent)
- The name used to describe the variable, such as Q1.
- Question code and label, the actual question and response options
- Unweighted frequency, the number of times each response option is selected. These are unweighted counts even if the data are weighted. The unweighted frequencies in this table are the same as the value given for N in the Overall Detail Table for each response category for each question.
- If data are weighted, the weighted percent for each response category is provided for each question. The weighted percentages in the codebook are the same as the percentages in the Overall Detail Table for each response category for each question. If the data are unweighted, this percentage represents the unweighted response for each response category for each question.

Figure 7 shows an example of the beginning of the codebook.

Figure 7.

2003 YOUTH RISK BEHAVIOR SURVEY RESULTS				
High School Survey Codebook				
Data Location	Variable Name	Question Code and Label	Unweighted Frequency	Weighted Percent
1-3	SITE	Site Code		
4-13	SCHOOL	School Codes		
14-16	CLASS	Class Codes		
17-17	Q1	How old are you?		
		1 12 years old or younger	17	0.2
		2 13 years old	1,138	11.4
		3 14 years old	1,805	19.7
		4 15 years old	1,714	20.8
		5 16 years old	1,543	20.4
		6 17 years old	1,266	18.8
		7 18 years old or older	574	8.7
		Missing	24	
18-18	Q2	What is your sex?		
		1 Female	3,967	48.6
		2 Male	4,075	51.4
		Missing	39	
19-19	Q3	In what grade are you?		
		1 8th grade	2,053	20.2
		2 9th grade	1,768	21.3
		3 10th grade	1,647	20.4
		4 11th grade	1,367	19.5
		5 12th grade	1,210	18.4
		6 Ungraded	14	0.2

**Item Rationale:** The Item Rationale provides information as to the importance of each question included in the YRBS. This document can also be found in Appendix E of the Handbook for Conducting Youth Risk Behavior Surveys. The information in this document may have been useful in obtaining clearance for conducting your YRBS and is now useful in preparing reports and other presentations of your results.

**Computer Disks:** A CD-ROM is included with your data report and includes the following items:

- Survey Summary in PDF format
- Demographic Table in PDF format
- Summary Tables in PDF format
- Detail Tables in PDF format
- Sample Description in PDF format
- Codebook in PDF format
- Map Information in PDF format
- Sample Statistics report, only if data are weighted, in PDF format
- Average Design Effect in PDF format
- Sample SAS/SUDAAN Program in PDF format
- Item rationale in PDF format
- Data in ASCII format file
- PowerPoint files containing the graphs
- Adobe Acrobat Reader software

The PDF files can be opened, viewed, and printed with Adobe Acrobat Reader software. Acrobat Reader is free and is included on the CD. It also can be downloaded from the Adobe website at <http://www.adobe.com>.

**Tables:** The Demographic Table, Summary Tables, and Detail Tables are PDF files. Each of these three files can be opened and printed by individual page or in its entirety. These files appear exactly as they do in the printed data report.

**Supplemental Data Sources:** Combining data from your YRBS and other information 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.

### **Healthy Outcome Data**

**Morbidity and Mortality Data:** The CDC publishes annually 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 is available at [www.cdc.gov/nchs](http://www.cdc.gov/nchs).

**Health Indicators:** The CDC publishes State Health Profiles for each state and the District of Columbia which presents mortality, health indicators, demographic characteristics, and prevention and control efforts on a state-by-state basis. This report is available at [www.cdc.gov/epo/shp/indicators.htm](http://www.cdc.gov/epo/shp/indicators.htm).

**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 [www.cdc.gov/hiv/stats/hasr1302.pdf](http://www.cdc.gov/hiv/stats/hasr1302.pdf).

**Other Health Outcome Data:** State and local health departments can provide data on a variety of health outcomes, such as HIV infection, unintended teen pregnancies, sexually transmitted diseases, and leading causes of death. Including this kind of information in your 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 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 will conduct a NYTS among a nationally representative sample of high school students beginning in Spring 2004. Prior to 2004, the American Legacy Foundation conducted the survey. The reports are available at [www.cdc.gov/tobacco/youth.htm](http://www.cdc.gov/tobacco/youth.htm).

**National Survey of Drug Use (formerly the National Household Survey on Drug Abuse (NHSDA):** The Substance Abuse and Mental Health Services Administration (SAMHSA) conducts annually the NHSDA 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 [www.samhsa.gov/oas/nhsda.htm](http://www.samhsa.gov/oas/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 annually the MTF on the prevalence of 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).

#### **State and Local Risk Behavior Data**

**Youth Tobacco Survey (YTS):** State and local health departments periodically conduct a YTS among a representative sample of high school students. The reports are available at [www.cdc.gov/tobacco/youth.htm](http://www.cdc.gov/tobacco/youth.htm).

#### **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, health services, mental health and social services, food service, school policy and environment, faculty and staff health promotion, and family and community involvement. The reports are available at [www.cdc.gov/shpps](http://www.cdc.gov/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/nccdphp/dash/profiles](http://www.cdc.gov/nccdphp/dash/profiles).

## Analyzing Your YRBS Data

An ASCII format file on your CD contains the data from your 2003 YRBS. This file can be used along with the codebook to conduct additional analyses of the current year data. It also can be used with data from previous YRBS surveys.

There are guidelines that must be followed when using these data files. Presented here is some information that will help you begin this process. If you are unfamiliar with statistical analysis, you may want to consider using a contractor who has had experience with statistical packages and using survey data.

### Comparing Results from Multiple Survey Years

A relatively easy way to look at data from more than one survey year can be done by following these guidelines. The first step is to determine if you can compare results from multiple survey years:

1. Write in the survey years being compared.                                                                 
Survey Year 1    Survey Year 2    Survey Year 3
2. Are the data from all 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: \_\_\_\_\_  
Survey year 3: \_\_\_\_\_
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.

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

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Write in the question and response category to be compared from Survey year 3.

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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: \_\_\_\_\_

Survey year 3: \_\_\_\_\_

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)

Another approach is to use a statistical software package, such as SUDAAN<sup>3</sup> or STATA<sup>4</sup> to compare results from multiple survey years.

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<sup>3</sup> Documentation for SUDAAN is available from Research Triangle Institute, 3040 Cornwallis Road, Research Triangle Park, NC 27709.

<sup>4</sup> Documentation for STATA is available from STATA Corporation, 4905 Lakeway Drive, College Station, TX 77845.

## 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 contains bar charts 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.

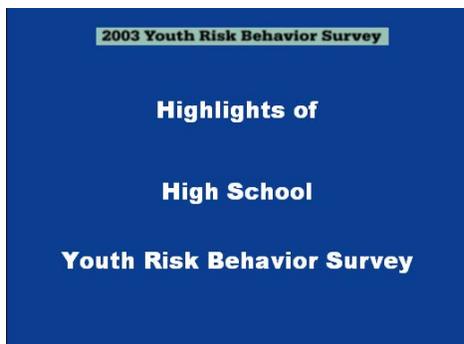
Another key factor to consider is the amount of information to convey in a single graphic. Too much information makes a graphic difficult to comprehend, which in turn detracts from your ability to demonstrate important programmatic needs. A series of simple graphics may be far more effective than a single 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 of 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.

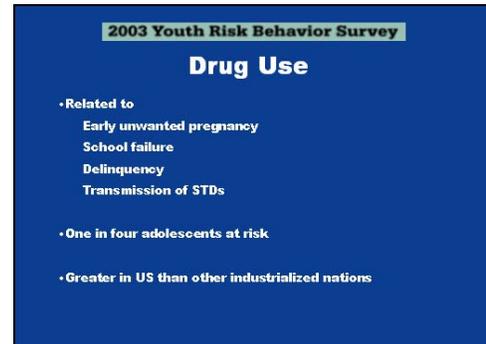
### Text Charts



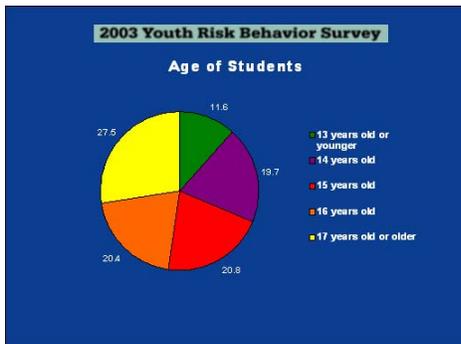
Use text charts to introduce nonnumeric data in a presentation, for example, to introduce or summarize your findings. Text charts should be short and precise in meaning, using the minimum number of short, key words needed to convey your message. Keep lines short by highlighting only the main idea. Limit 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



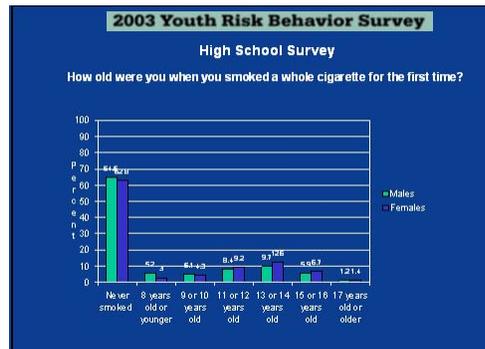
A pie chart is the graphic that answers simple questions about proportions. Each slice represents an individual part of a particular group. "Cutting" (separating) one of the slices emphasizes an element that is part of the whole. For clarity, place labels next to the slices, not in a legend. Include 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.

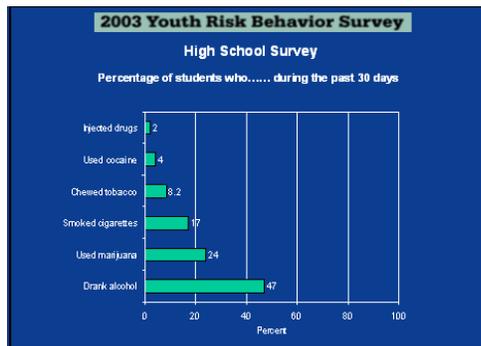
Arrange your data from the largest element to the smallest, unless you want to emphasize a particular element, or there is a logical order to your categories or elements. Your most important element should start at the 3 o'clock position on the pie. The other elements should progress in importance in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



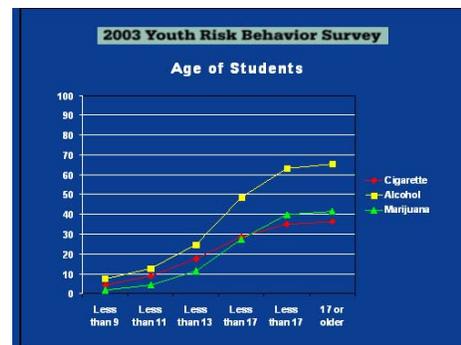
## Horizontal Bar Charts



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.

You will need a computer and an LCD projector for an electronic presentation. You may have to bring your own equipment now, but as this becomes more popular you may only need to carry a computer diskette or CD with your "slides." Hopefully, LCD projectors connected to computers will become as commonplace as slide and overhead projectors. You may want to bring overheads or a printed version as a backup in case of equipment problems.

## **Overhead Transparencies**

An alternative to a computer presentation is overhead transparencies. You can print each of the "slides" in your YRBS report on overhead transparency film. Transparencies are shown in normal or slightly reduced lighting. You may remain in the front of the room, maintain eye contact with the audience, and more easily respond to their questions. The audience can take notes easily or follow along on any handouts you may use to supplement your overhead transparencies.

Overhead transparencies are lightweight and easy to carry. They allow you to change the order of your presentation just before or even during the presentation. You can remove or rearrange your graphics, and even write on them before or during your presentation. You can point to, circle, or underline text to emphasize important points.

Several overheads can be "hinged" together to create a building effect. Begin with the first page and "build" by laying down the others as you discuss additional points. You can create a similar effect by

listing several points on a single overhead transparency and covering all but the first with a board. Then move the board down to introduce the others as you discuss them.

Black-and-white overhead transparencies are the easiest to produce. You can simply make a photocopy of the paper-printed version. Some laser printers will allow you to print directly onto transparency film. Color printers have become more readily available and can be used to add color to your presentation.

### Internet Website

Presenting data on the Internet has become more commonplace. This format 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), 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 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.

Several agencies have websites that include reports of YRBS data. As of May 2003, the following URLs were active:

State or District Name	Year	URL
Arkansas	2001	<a href="http://arkedu.state.ar.us/pdf/2001ARH%20Codebook.pdf">http://arkedu.state.ar.us/pdf/2001ARH%20Codebook.pdf</a>
Delaware	2001	<a href="http://www.state.de.us/drugfree/2001rpt/yrbs_2001_summary.pdf">http://www.state.de.us/drugfree/2001rpt/yrbs_2001_summary.pdf</a>
Delaware	1999	<a href="http://www.state.de.us/drugfree/99rpt/yrbs99s.pdf">http://www.state.de.us/drugfree/99rpt/yrbs99s.pdf</a>
Delaware		<a href="http://www.state.de.us/drugfree/data.htm">http://www.state.de.us/drugfree/data.htm</a>
Kansas		<a href="http://www.ksde.org">www.ksde.org</a>
Maine	1997	<a href="http://www.state.me.us/education/hiv/yrbs/yrbs3.htm">http://www.state.me.us/education/hiv/yrbs/yrbs3.htm</a>
Maine		<a href="http://www.state.me.us/education/hiv/yrbs.htm">http://www.state.me.us/education/hiv/yrbs.htm</a>
Maine	1999	<a href="http://www.state.me.us/education/hiv/yrbs/99survey/homepage.htm">http://www.state.me.us/education/hiv/yrbs/99survey/homepage.htm</a>
Michigan	2001	<a href="http://www.emc.cmich.edu/YRBS/2001.htm">http://www.emc.cmich.edu/YRBS/2001.htm</a>
Michigan	1999	<a href="http://www.emc.cmich.edu/YRBS/99ExecRpt.pdf">http://www.emc.cmich.edu/YRBS/99ExecRpt.pdf</a>
Mississippi	2001	<a href="http://www.msdlh.state.ms.us/msdhsite/index.cfm/12,706,97.pdf/Yrbs2001reportFinal%2Epdf">http://www.msdlh.state.ms.us/msdhsite/index.cfm/12,706,97.pdf/Yrbs2001reportFinal%2Epdf</a>
Mississippi	1999	<a href="http://www.msdlh.state.ms.us/msdhsite/index.cfm/14,171,110.pdf/epiyrbs99%2Epdf">http://www.msdlh.state.ms.us/msdhsite/index.cfm/14,171,110.pdf/epiyrbs99%2Epdf</a>

Montana	2001	<a href="http://www.opi.state.mt.us/YRBS/">http://www.opi.state.mt.us/YRBS/</a>
Nebraska	2001	<a href="http://www.hhs.state.ne.us/tfn/2001_YRBS_FullReport.pdf">http://www.hhs.state.ne.us/tfn/2001_YRBS_FullReport.pdf</a>
Nebraska	2001	<a href="http://www.hhs.state.ne.us/tfn/2001_YRBS_brochure.pdf">http://www.hhs.state.ne.us/tfn/2001_YRBS_brochure.pdf</a>
New Hampshire	1999, 2001	<a href="http://www.ed.state.nh.us/ReportsandStatistics/YouthBehavior.htm">http://www.ed.state.nh.us/ReportsandStatistics/YouthBehavior.htm</a>
North Carolina	1995, 1997, 2001	<a href="http://www.ncpublicschools.org/accountability/evaluation/youth_risk_behavior/yrbsindex.html">http://www.ncpublicschools.org/accountability/evaluation/youth_risk_behavior/yrbsindex.html</a>
North Dakota	1999, 2001	<a href="http://www.dpi.state.nd.us/health/index.shtm">http://www.dpi.state.nd.us/health/index.shtm</a>
North Dakota	2001	<a href="http://www.dpi.state.nd.us/health/yrbs01.pdf">http://www.dpi.state.nd.us/health/yrbs01.pdf</a>
North Dakota	1999	<a href="http://www.health.state.nd.us/ndhd/pubs/ScheduledItems/yrbs99.pdf">http://www.health.state.nd.us/ndhd/pubs/ScheduledItems/yrbs99.pdf</a>
Rhode Island	2001, 1997	<a href="http://www.healthri.org/chic/statistics/yrbs.htm">http://www.healthri.org/chic/statistics/yrbs.htm</a>
South Dakota	2001	<a href="http://www.state.sd.us/deca/CSCF/schoolhealth/aids/yrbs01.htm">http://www.state.sd.us/deca/CSCF/schoolhealth/aids/yrbs01.htm</a>
South Dakota	1999- 2001	<a href="http://www.state.sd.us/deca/CSCF/schoolhealth/aids/yrbs.htm">http://www.state.sd.us/deca/CSCF/schoolhealth/aids/yrbs.htm</a>
Tennessee	2001	<a href="http://www.state.tn.us/education/ci/ciyrbs/ciyrbs01/index.htm">http://www.state.tn.us/education/ci/ciyrbs/ciyrbs01/index.htm</a>
Tennessee	1999	<a href="http://www.state.tn.us/education/ci/ciyrbs/ciyrbs99resultsintro.htm">http://www.state.tn.us/education/ci/ciyrbs/ciyrbs99resultsintro.htm</a>
Tennessee		<a href="http://www.state.tn.us/education/ci/ciyrbs/index.html">http://www.state.tn.us/education/ci/ciyrbs/index.html</a>
Vermont	2001	<a href="http://www.state.vt.us/adap/yrbs%202001.pdf">http://www.state.vt.us/adap/yrbs%202001.pdf</a>
Vermont	1999	<a href="http://www.state.vt.us/adap/1999YRBS/YRBSST991.htm">http://www.state.vt.us/adap/1999YRBS/YRBSST991.htm</a>
Vermont	1997	<a href="http://www.state.vt.us/adap/yrbs97a.htm">http://www.state.vt.us/adap/yrbs97a.htm</a>
Vermont	1995	<a href="http://www.state.vt.us/adap/yrbs95/YRBS95.htm">http://www.state.vt.us/adap/yrbs95/YRBS95.htm</a>
Wisconsin	2001	<a href="http://www.dpi.state.wi.us/dpi/dlsea/sspw/yrbsindx.html">http://www.dpi.state.wi.us/dpi/dlsea/sspw/yrbsindx.html</a>
Wisconsin	1999	<a href="http://www.dpi.state.wi.us/dpi/dlsea/sspw/yrbsindx99.html">http://www.dpi.state.wi.us/dpi/dlsea/sspw/yrbsindx99.html</a>
Wisconsin	1997	<a href="http://www.dpi.state.wi.us/dpi/dlsea/sspw/yrbsindx97.html">http://www.dpi.state.wi.us/dpi/dlsea/sspw/yrbsindx97.html</a>
Wyoming	2001	<a href="http://www.k12.wy.us/healthsafety/yrbs_main.htm">http://www.k12.wy.us/healthsafety/yrbs_main.htm</a>
Wyoming	2001	<a href="http://www.k12.wy.us/healthsafety/YRBS/yrbs01.pdf">http://www.k12.wy.us/healthsafety/YRBS/yrbs01.pdf</a>
Wyoming	2001	<a href="http://www.k12.wy.us/healthsafety/Docs/2001yrbssummary.pdf">http://www.k12.wy.us/healthsafety/Docs/2001yrbssummary.pdf</a>
Wyoming	1999	<a href="http://www.k12.wy.us/healthsafety/YRBS/yrbs99.pdf">http://www.k12.wy.us/healthsafety/YRBS/yrbs99.pdf</a>
Wyoming	1999	<a href="http://www.k12.wy.us/healthsafety/hsandn/yrbssummary.html">http://www.k12.wy.us/healthsafety/hsandn/yrbssummary.html</a>

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!