

# **Youth Risk Behavior Survey: Final Report**

**February 2008**

**MONITORING AND EVALUATION SERVICES**

INFORMATION  
FOR



DECISION-MAKING

**ALEXANDRIA CITY PUBLIC SCHOOLS**



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## EXECUTIVE SUMMARY

The Youth Risk Behavior Survey was administered to ACPS students in grades 7-12 in April 2007. A preliminary report provided a list of all survey items with response option percentages by total sample, gender, grade and race/ethnicity subgroups. This report focuses on analyzing indicators established by the Centers for Disease Control for each of the priority health risk behaviors begun during adolescence that result in the most significant mortality, morbidity, disability and social problems in youth and adults.

Key highlights from the results are:

- Some of the most prevalent health risk behaviors for Alexandria youth included:
  - Excessive television viewing (3+ hrs/day)
  - Sexual activity
  - Alcohol use
  - Physical fighting
  - Riding with a driver who had been drinking
- Although alcohol was the most common illegal substance used by young people in Alexandria, its prevalence was less common than in the national comparison high school sample.
- Five in ten high school youth and three in ten middle school youth have had sexual intercourse. Condom use, among sexually active youth, was high, especially among Black youth.
- Cigarette use was less prevalent than marijuana use. Cigarette use was more common in the national sample, while marijuana use was similar to the national sample.
- Gender differences confirmed typical sex-stereotypes. Girls were more likely to describe themselves as overweight and trying to lose weight, although BMI calculations did not indicate they were more likely to be overweight. Girls were also less likely to get recommended amounts of physical activity or to play on a sports team. Boys were more likely to engage in violent behaviors and have more sexual partners, while girls were more likely to report sad and hopeless feelings.
- Behaviors in all core areas of health varied between ethnic subgroups, with the exception of mental health behaviors. Asian youth generally had the lowest incidence of risk behaviors. White youth reported more tobacco, alcohol and marijuana use, but also the most positive physical health behaviors. Black and Hispanic youth were more likely to be sexually active.
- Three in ten youth were engaging in no risk behaviors, while another three in ten were engaging in 2-4 risk behaviors.

Research indicates that most of the risk behaviors engaged in by adolescents are preventable. Prevention and intervention programs are important to reduce the incidence of these behaviors, however these efforts must be complemented with a community wide initiative to create an environment that fosters healthy options and choices for all youth in all neighborhoods and cultural niches. The next step for the community is to determine local health objectives, establish targets, determine appropriate actions to achieve those goals and what persons and agencies will be accountable. Strategies that capitalize on existing community organizations efforts and involve multiple influences are more likely to succeed.



## INTRODUCTION

This report provides an analysis of the data collected from administration of the Youth Risk Behavior Survey (YRBS) to Alexandria City Public School students in grades 7-12 in April 2007. The presentation focuses on indicators established by the Centers for Disease Control for each of the priority health risk behaviors established during adolescence that result in the most significant mortality, morbidity, disability, and social problems in youth and adults.

Indicators are dichotomous measures that help monitor the prevalence of certain behaviors in the population. A cut-score is established for each of the items on the survey that partitions respondents into two groups. One group has a level of engagement in the behavior that warrants attention as it places them at risk for problems, injury or death. For example, motor vehicle related injuries kill more young people age 15-19 than any other single cause in the United States<sup>1</sup>. Seat belts, when used, reduce the risk of fatal injury by 45% and the risk of moderate to critical injury by 50%<sup>2</sup>. The YRBS survey asks youth to report the frequency with which they wear seatbelts (never, rarely, sometimes, often and always). The five response choices are divided into two groups never/rarely and sometimes/often/always; youth who report never or rarely wearing a seatbelt are considered 'at-risk' and are compared to all other youth.

A preliminary report provided a list of all survey items with response option percentages by total sample, gender, grade and race/ethnicity subgroups and is available at [http://www.acps.k12.va.us/mes/reports/20071212\\_yrbs\\_prelim.pdf](http://www.acps.k12.va.us/mes/reports/20071212_yrbs_prelim.pdf). No analysis and interpretation of the data was included. However, for individuals interested in the range and frequency of response types, the preliminary report provides that detail. All data in this report uses the dichotomous classification of individuals.

The goal of this report is to describe and compare youth behaviors and prevalence estimates for six core areas of health:

1. Physical Health;
2. Sexual Behaviors;
3. Tobacco Use;
4. Alcohol and Other Drug Use;
5. Mental Health and;
6. actions that lead to Unintentional Injuries and Violence.

Findings for Alexandria youth on the various indicators for each area of health are (1) compared to the National 2005 YRBS data (high school only, the 2007 data are not currently available) and

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<sup>1</sup> Web-based Injury Statistics Query and Reporting System (WISQARS) [online database]. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention; 2006.

<sup>2</sup> National Highway Traffic Safety Administration. Traffic Safety Facts 2004: Occupant protection. National Highway Traffic Safety Administration Web site. Available at <http://www.nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/TSF2004/809909.pdf>.

(2) statistical differences between ACPS subgroups are examined. Relationships between selected indicators are also analyzed to provide an additional level of detail that may be useful in understanding co-occurring behaviors, which may suggest next steps for the community.

While risk behaviors are often common and many are considered a rite of passage for youth (e.g., drinking alcohol), they *do not necessarily* have to be a part of growing up. Research shows that families, peers, schools and communities can strongly influence young people in positive ways and provide options and opportunities to help them to make good choices and decisions. The data presented here are a barometer of the effectiveness of the Alexandria community in fostering healthy choices for *all* youth. They are a baseline as this was the first administration of the survey. If administered on a biennial cycle, as is the case with the national data, the schools and community will be able to monitor trends and assess if initiatives implemented are positively influencing youth behaviors.

## **METHODOLOGY AND PROCEDURES**

### **Youth Risk Behavior Survey (YRBS)**

The YRBS is an anonymous, self-administered, self-report paper and pencil survey. The high school version of the survey includes 87 questions; the middle school version has 49 questions. Each takes approximately 30-45 minutes to complete. The same six core areas of health are covered in both surveys, however the high school version has greater depth of coverage on most topics and often more response options per item. The middle school version typically asks about the students' lifetime engagement in a behavior, while the high school version focuses on activities in the past year and past month to more accurately assess current behaviors and the extent of engagement in the behavior.

The high school survey was developed by the Centers for Disease Control and has been administered biennially, since 1991, to a nationally representative sample of students in grades 9-12 from around the country. The middle school version was first developed in 2007; no data are currently available for comparison. In addition to the national sample, which included 13,917 students from 159 schools in 2005, 44 states elected to administer the survey to a representative sample of grade 9-12 students. Virginia does not collect a state sample, so there are no relevant state data for comparison. Local jurisdictions can also utilize the survey for their own purposes. For example, Arlington administers a modified version of the YRBS survey to a random sample of 6<sup>th</sup>, 8<sup>th</sup>, 10<sup>th</sup> and 12<sup>th</sup> grade students. Their 2007 data were recently made public (available at: [http://www.arlingtonpartnershipforyouth.org/rep\\_pubs/WebChartbook.pdf](http://www.arlingtonpartnershipforyouth.org/rep_pubs/WebChartbook.pdf)). Given the differences in sampling (including 6<sup>th</sup> grade) and local populations (socioeconomic and cultural distribution of students), total sample data are not directly comparable between Alexandria and Arlington. However, the data may be utilized to provide insight into variation in local circumstances for youth on key indicators. It is important though that data are compared grade to grade, given the different sampling procedures utilized.

## **Procedure**

The YRBS survey was administered to all ACPS 7<sup>th</sup>-12<sup>th</sup> grade students present in school on the day(s) selected for data collection. Each secondary school chose one or two days during the week of April 17<sup>th</sup>, 2007 to maximize reaching the majority of students. Parents were notified about the survey one month prior to administration and given the opportunity to opt their children out of participation. Forty-one parents chose this option. In addition, students had the choice whether or not to complete the survey when it was being given and whether they preferred to complete the survey in English or Spanish. Students could also skip individual items.

The number of completed, usable high school surveys was 2,015; 37 surveys were discarded due to greater than 50% of items being missing, having set patterns of responses (e.g., all f's) or excessive extreme responses. The number of completed, usable middle school surveys was 1,202; 25 surveys were discarded for the same reasons detailed above. In addition, editing of individual responses occurred to check for appropriate response range, plausibility, and logical consistency. If responses from two questions conflicted logically, both variables were set to missing. Further, not all students answered all questions, but of the usable surveys, approximately 1-3% of the data were missing from individual items (two items on the high school survey had 10% of the data missing due to logical consistency edits). All usable surveys had a minimum of 50% of the items answered. At least ninety-five percent of the students completed 90% or more of the survey.

## **Participation**

Table 1 shows the number of students by school and grade who completed the survey. Also provided in the table is an indication of the student population at the time of the survey and the percentage who completed the survey. As can be seen, participation differed by grade and school, with the lowest rate of participation being 70% (TC Williams: 12<sup>th</sup> grade, 9<sup>th</sup> grade not considered due to small cohort) and the highest 91% (Francis Hammond: 8<sup>th</sup> grade). Participation was better at Hammond than George Washington. Overall, participation was higher at the middle schools (86%) than the three high school settings (77%).

## **Sample Demographics**

Table 2 presents the demographic characteristics of the sample by survey level. Slightly more females completed the survey at both the middle school and high school levels. In general, the race/ethnicity distribution mirrors the ACPS population, with slight variations in the distribution of students across ethnicities at both grade levels. More ninth, tenth and eleventh grade students completed the survey than twelfth grade students. At middle school, the distribution was equal between seventh and eighth grade.

Table 1: Participation in the YRBS

	GRADE	N	ENROLLMENT	% OF POPULATION
Francis	7	318	352	90%
Hammond	8	342	377	91%
George	7	276	329	84%
Washington	8	250	320	78%
<b>MS TOTAL <sup>a</sup></b>		<b>1194</b>	<b>1378</b>	<b>86%</b>
Minnie	9	500	686	73%
Howard				
STEP <sup>b</sup>	10	17	--	--
	11	13	--	--
	12	12	--	--
TC Williams	9	13	21	62%
	10	573	705	84%
	11	509	641	81%
	12	370	562	70%
<b>HS TOTAL <sup>a</sup></b>		<b>2007</b>	<b>2615</b>	<b>77%</b>

<sup>a</sup> Due to missing data, the numbers will not always sum to the total sample size..

<sup>b</sup> Separate enrollment data is not available for STEP. STEP and TCW participation numbers are combined to determine % of population participation for grades 10, 11 and 12.

Table 2: Demographic Characteristics of Students Participating in the YRBS

		MIDDLE SCHOOL		HIGH SCHOOL	
		N <sup>a</sup>	Percent	N <sup>a</sup>	Percent
Gender	Male	569	48%	937	47%
	Female	613	52%	1055	53%
Race/ Ethnicity	Asian	83	7%	127	6%
	Hispanic	344	29%	518	26%
	Black	469	39%	718	36%
	White	191	16%	441	22%
	Other	115	9%	211	10%
Grade	7	594	50%	--	--
	8	592	50%	--	--
	9	--	--	513	26%
	10	--	--	590	29%
	11	--	--	522	26%
	12	--	--	382	19%
<b>Total</b>		<b>1202</b>		<b>2015</b>	

<sup>a</sup> Due to missing data, the numbers will not always sum to the total sample size. Percentages were calculated based on number of respondents answering the question.

## Measures: Indicators

An indicator quantifies and simplifies data about individual behavior into two groups. In this report, one group is considered ‘healthy’ and the other group is identified as ‘at risk,’ due to their level of engagement in the behavior. All of the items on the middle school and high school versions of the YRBS, if they are not already dichotomized (a yes/no response), are aggregated to indicate if someone is in the risk group or not. Most of the time, the identified group includes youth who:

- 1) responded yes to an item (e.g., have experienced abuse in a relationship); or
- 2) engaged in the behavior *one or more times* in a specified period. This method aggregates together youth who have had any experience with the behavior. For example, students who were in a fight one time in the last year are grouped together with youth who were in a fight 12 or more times in the last year.

A few items are dichotomized in multiple ways to differentiate use from frequent use. For example, cigarette use is quantified as (1) smoked on  $\geq 1$  day in the last 30 days, and (2) smoked on  $\geq 20$  days in the last 30 days.

An additional level of detail accounted for within the questions on the YRBS is to ask how often the behavior took place on school grounds. These items are only included on the high school survey.

Finally, a series of questions also determine age of onset of the behavior. If a youth tried the behavior prior to 13 for the first time, they are classified as at-risk

The results section is structured around each of the six categories of behavior. Each category of behavior has a different number of indicators that paint a picture of how healthy youth are.

Presentation of the findings include:

- 1) A definition of each indicator and how it is quantified is presented at the beginning of each section. Differences between middle school and high school coding are noted in parentheses, if applicable. Further, some indicators are dichotomized and identify a healthy choice or behavior (e.g., percentage of students who met the weekly recommended amount of physical activity). These indicators are identified with an <sup>H</sup>. It is important to understand how the response data are grouped, so that interpretation of the data tables is accurate.
- 2) Tables of data are presented that disaggregate the data by gender and race/ethnicity for both survey levels. Middle school and high school data are included in the same table for comparison. However, due to differences in time frame that the students’ reported on, the results are not always directly comparable. Notes are included at the bottom of the table to describe if there are differences in the meaning of the indicator. As well, the middle

school survey has fewer items, so not all behaviors have matched responses. When there is no corresponding item on the middle school survey, the cell in the table is left blank.

- 3) The National 2005 high school (HS) sample is included in each table for comparison with the Alexandria HS sample. Some items have changed with the 2007 survey, so not all indicators will have comparative data. In addition, Asian students' results are not disaggregated in the national sample, but they are presented for Alexandria.
- 4) If the difference between groups is significant for the two Alexandria samples, an asterisk (\*) is placed in the significance (sig) column that follows the data.
- 5) Major themes for each of the categories of behavior are provided to facilitate interpretation of the tables.

In addition to prevalence estimates for each of the indicators, relationships between selected indicators are examined to provide a more nuanced picture of Alexandria youth. For example, the high school survey includes an objective measure of weight status (body mass index) and youth also describe their weight. The relationship between the objective and subjective assessment of weight are compared. In addition, a series of analyses examine the co-occurrence of risk behaviors.

## **Statistical Tests**

A majority of this report focuses on comparing data for different groups of students. Statistical tests were run to determine if the differences in means between the groups was likely to be a true difference or whether the difference occurred just by chance. The results of the statistical tests are reported as "p-values". Simply put, a p-value is the probability that the observed difference or association could be based on chance. P-values range from 0-1. A low p-value, conventionally anything below .05, means that the difference is not likely due to chance and is a real difference, i.e., statistically significant. Statistically significant differences are identified in the tables with an asterisk (\*).

It is important to remember that with large samples, one has more power to obtain statistically significant differences, as is the case here. In addition, when running a lot of statistical tests, you increase the likelihood of obtaining a statistical difference just by chance. All of the tables contain the percentage of youth who fall into a group. Conventionally, when there is a difference of 5 or more percentage points, it may be a noteworthy difference. This convention will be utilized when comparing the Alexandria high school sample to the national sample.

## RESULTS

### Physical Health

#### Indicators:

##### Weight Status

1. *At risk for becoming overweight* (high school only): students who were  $\geq 85^{\text{th}}$  percentile but  $< 95^{\text{th}}$  percentile for BMI, by age and sex, based on reference data.
2. *Overweight* (high school only): students who were  $\geq 95^{\text{th}}$  percentile for BMI, by age and sex, based on reference data.
3. *Described self as overweight*: includes students who reported themselves as slightly or very overweight.
4. *Trying to lose weight*: at the time of the survey

##### Method used to lose weight (EVER for MS, last 30 days HS)

5. *Exercise*<sup>H</sup>
6. *Restricted calories, food, fat*<sup>H</sup>
7. *Fasted for 24+ hours*
8. *Used diet pills*
9. *Vomited or used laxatives*

##### Dietary Choices (last week, HS only)

10. *Three or more servings of milk per day*<sup>H</sup>
11. *One or more servings of soda per day*

##### Physical Activity

12. *Five or more days of 60+ minutes of exercise in the last week*<sup>H</sup>
13. *Watch 3+ hours of television on a school day*
14. *Use computer 3+ hours on a school day for non-academic work*
15. *Played on 1+ sport teams in the last year*<sup>H</sup>

Tables 3 and 4 display the percentage of youth by total sample, gender, and ethnic group for each of the physical health indicators. The middle school youth reported on a different time frame in regard to methods to lose weight. In addition, the Physical Health category is unique in that five of the indicators actually represent healthy choices or recommended guidelines (noted with an <sup>H</sup> in the above list and associated tables). For example, exercising or restricting one's calories, food and fat intake are healthy ways to lose weight, whereas fasting, using diet pills not prescribed by a doctor or vomiting and using laxatives are unsafe and unhealthy.

#### Themes:

- Approximately  $\frac{1}{4}$  of the students described themselves as overweight and approximately  $\frac{1}{4}$  of the students were identified as  $\geq 85^{\text{th}}$  percentile of body mass index for age and sex.
- Almost  $\frac{1}{2}$  of the total students (43%) indicated that they were trying to lose weight, which exceeds the percentage of students who described themselves as overweight. There was a significant difference between boys (28%) and girls (56%) at high school. Middle school boys and girls also differed but less dramatically (boys 40%; girls 55%).
- The two healthy methods of weight loss (exercising and restricting caloric intake) were far more common than the unhealthy methods.

Table 3: Physical Health Indicator Percentages by Gender for Alexandria and the National Sample

Physical Health <sup>a</sup>												
Indicator	Alexandria MS Sample				sig	Alexandria HS Sample				National 2005 HS Sample <sup>b</sup>		
	Total Sample	Gender		Total Sample		Gender		sig	Total Sample	Gender		
		M	F			M	F			M	F	
<i>Weight Status</i>												
At-risk for becoming overweight					14.6	15.3	13.9		15.7	15.8	15.5	
Overweight					13.4	14.6	12.3		13.1	16.0	10.0	
Described self as overweight	26.2	20.6	31.1	*	25.9	20.5	30.5	*	31.5	25.1	38.1	
Trying to lose weight	48.1	39.9	54.8	*	42.9	28.0	56.2	*	45.6	29.9	61.7	
<i>Method used to lose weight<sup>c</sup></i>												
Exercised <sup>H</sup>	70.4	67.8	72.4		57.9	54.7	61.3	*	60.0	52.9	67.4	
Restricted calories, food, fat <sup>H</sup>	46.7	39.0	53.2	*	39.6	29.9	48.2	*	40.7	26.8	54.8	
Fasted for 24+ hours	18.7	14.3	22.6	*	10.2	7.9	12.2	*	12.3	7.6	17.0	
Used diet pills	6.5	4.8	7.9	*	5.3	3.9	6.6	*	6.3	4.6	8.1	
Vomited or used laxatives	6.6	4.1	8.5	*	5.4	4.3	6.5	*	4.5	2.8	6.2	
<i>Dietary Choices</i>												
3+ servings of milk/day <sup>H</sup>					10.5	14.3	7.4	*	16.2	20.8	11.6	
1+ serving of soda/day					30.7	34.6	27.2	*				
<i>Physical Activity</i>												
5+ days of 60min of exercise/wk <sup>H</sup>	42.4	52.2	33.9	*	34.5	40.8	29.1	*	35.8	38.0	27.8	
Watched television 3+ hours/day	55.3	55.7	55.8		41.8	41.6	41.9		37.2	38.0	36.3	
Used computer 3+hours/day	34.3	39.4	30.2	*	26.5	29.6	23.7	*	21.1	27.4	14.8	
Played 1+ sport team/yr <sup>H</sup>	57.1	62.9	52.3	*	53.9	62.6	46.6	*	56.0	61.8	50.2	

<sup>a</sup> If a cell is blank, no data are available.

<sup>b</sup> The National 2005 HS Sample is for comparison with Alexandria's HS Sample.

<sup>c</sup> Middle school youth report if they ever used any of the weight management strategies; high school students report use in the last month.

<sup>H</sup> Healthy choice

Table 4: Physical Health Indicator Percentages by Ethnicity for Alexandria and the National Sample

Physical Health <sup>a</sup>																
Indicator	Alexandria MS Sample						Alexandria HS Sample						National 2005 HS Sample <sup>b</sup>			
	Total Sample	Ethnicity				sig	Total Sample	Ethnicity				sig	Total Sample	Ethnicity <sup>d</sup>		
	Asian	Hispanic	Black	White	Asian		Hispanic	Black	White	Asian	Hispanic		Black	White		
<i>Weight Status</i>																
At-risk for becoming overweight							14.6	10.7	16.7	15.6	11.1	*	15.7	16.7	19.8	14.5
Overweight							13.4	9.8	16.3	16.1	6.8	*	13.1	16.8	16.0	11.8
Described self overweight	26.2	30.9	32.5	21.6	22.1	*	25.9	22.6	30.6	23.9	21.8	*	31.5	37.1	27.2	31.1
Trying to lose weight	48.1	53.0	54.5	42.9	42.2	*	42.9	38.1	50.2	38.1	42.9	*	45.6	51.2	38.9	45.9
<i>Method used to lose weight<sup>c</sup></i>																
Exercised <sup>h</sup>	70.4	66.7	75.4	66.0	69.1	*	57.9	55.6	61.3	54.5	60.2		60.0	65.9	54.1	60.4
Restricted calories, food, fat <sup>h</sup>	46.7	43.2	52.4	40.2	48.7	*	39.6	41.6	42.1	34.2	44.0	*	40.7	42.2	31.1	42.4
Fasted for 24+ hours	18.7	25.3	18.6	19.2	11.6	*	10.2	12.0	8.3	9.6	10.3		12.3	12.6	11.4	12.5
Used diet pills	6.5	2.4	8.2	5.6	4.2		5.3	4.9	5.5	4.5	5.9		6.3	6.6	5.0	6.6
Vomited or used laxatives	6.6	6.0	7.1	6.9	4.7		5.4	1.6	6.1	4.4	5.5		4.5	5.4	3.4	4.4
<i>Dietary Choices</i>																
3+ servings of milk/day <sup>h</sup>							10.5	9.6	9.4	8.6	14.3	*	16.2	13.9	8.6	18.7
1+ serving of soda/day							30.7	26.6	33.6	32.9	25.5	*				
<i>Physical Activity</i>																
5+ days of 60min of exercise/wk <sup>h</sup>	42.4	32.5	33.7	43.4	60.0	*	34.5	27.2	22.9	30.6	53.9	*	35.8	32.9	29.5	38.7
Watched television 3+ hours/day	55.3	50.0	55.0	67.7	26.8	*	41.8	26.2	45.8	55.2	20.0	*	37.2	45.8	64.1	29.2
Used computer 3+hours/day	34.3	36.6	40.1	35.6	20.6	*	26.5	36.5	28.9	24.9	23.0	*	21.1	19.8	25.2	19.6
Played 1+ sport team/yr <sup>h</sup>	57.1	40.2	44.5	59.0	79.8	*	53.9	34.4	47.0	51.6	71.0	*	56.0	53.0	53.7	57.8

<sup>a</sup> If a cell is blank, no data are available.

<sup>b</sup> The National 2005 Sample is for comparison with Alexandria's high school sample.

<sup>c</sup> Middle school youth report if they ever used any of the weight management strategies; high school students report use in the last month.

<sup>h</sup> Healthy choice

- Only 35% of high school students and 42% of middle school students met weekly recommended guidelines for physical activity. These percentages are comparable to the national sample. The difference between boys and girls and ethnic groups was significant
- The Alexandria and National HS samples were comparable on 11 of the 15 indicators.
  - More boys and girls in the national sample described themselves as overweight.
  - Alexandria youth were less likely to meet daily requirements for milk intake and were more likely to watch 3+ hours of television and use the computer 3+ hours per day for non-academic work. The difference in computer use was a result of Alexandria females who were far more likely (24%) to use the computer than females in the national sample (15%). Hispanic youth in Alexandria were also far more likely to use the computer for non-school work (29%) than Hispanic youth in the national sample (20%)
- Alexandria MS and HS youth differed on 4 of 6 comparable indicators.
  - Middle school students were more likely to watch 3+ hours of television and use the computer for 3+ hours a day, as well as meet recommended guidelines for vigorous physical activity.
  - Middle school males (52%) were far more likely than HS males (41%) to get vigorous physical activity.
  - Middle school females were more likely (52%) than HS females (47%) to play on one or more sports teams.
- Differences between ethnic subgroups were apparent for many indicators.
  - Hispanic youth were more likely to describe themselves as overweight in all three samples.
  - White youth in Alexandria were far more likely to report playing on one or more sports teams. Black students, although significantly different from White youth, were still more likely than Hispanic and Asian students to play sports. These stark differences were not as apparent in the national sample.
  - Black and Hispanic youth (as well as middle school Asian youth) were far more likely to watch 3+ hours of television or use the computer for 3+ hours per day, while White youth were far more likely to meet recommended activity levels.

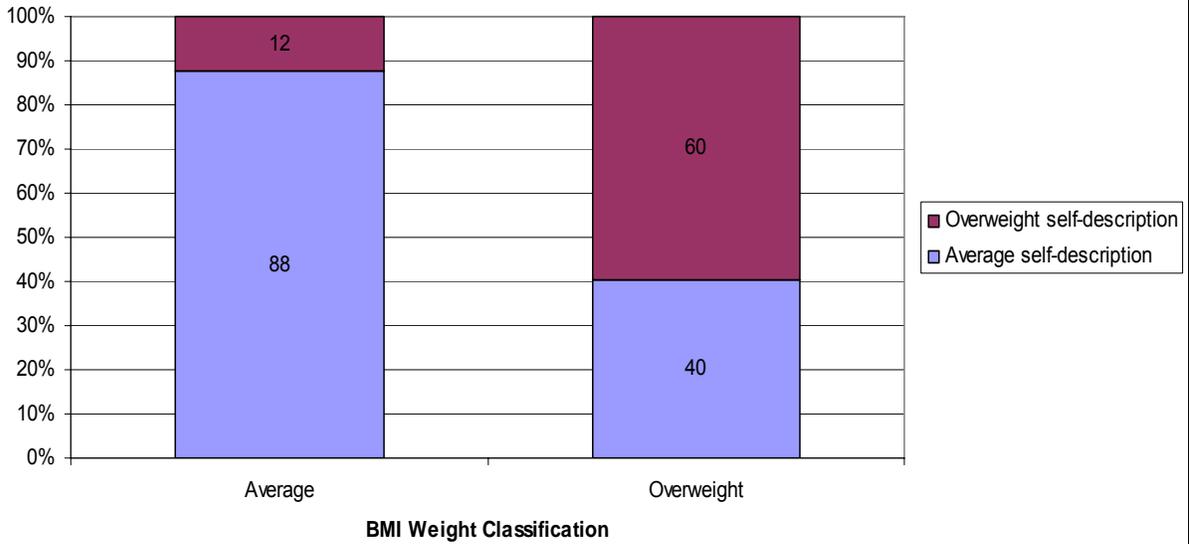
### Relationships among Physical Health Indicators

Figure 1 displays the relationship between students' descriptions of their weight (perceived) and determination of their weight using body mass index (BMI) calculations (objective). BMI was calculated from self-reported height and weight, which historically has tended to underestimate the prevalence of over weight and at risk for overweight<sup>3</sup>. The dichotomized measures were compared, so that students were either classified as average or overweight on each measure. As can be seen from the graph, if students were classified as average by their BMI calculation (first column), 87% did not describe themselves as overweight. If students were classified as overweight by their BMI calculation (second column), 60% described themselves as overweight and 40% did not. Said differently, one in ten average students described themselves as overweight, while four in ten overweight students described themselves as average.

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<sup>3</sup> Brener, N.D., McManus, T., Galuska, D.A., Lowry, R., Wechsler, H. (2003). Reliability and validity of self-reported height and weight among high school students. *Journal of Adolescent Health, 32*, 281-287.

**Figure 1: Relationship Between BMI and Self Assessment of Weight:  
Alexandria HS Students**



**Figure 2: Relationship Between BMI Weight Classification and  
Physical Activity Indicators: Alexandria HS Students**

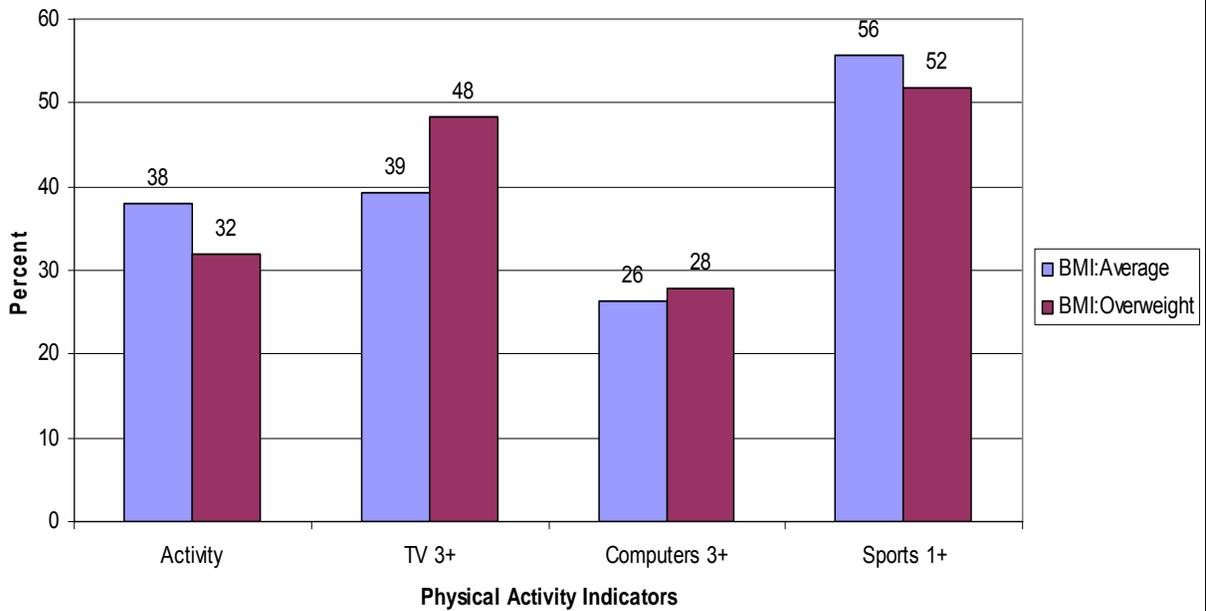


Figure 2 displays the relationship between the physical activity indicators for students classified as overweight or not overweight by bmi calculations. Youth who are identified as overweight were more likely to watch three or more hours of television a day and less likely to get the recommended amount of physical activity or play on a sports team. The difference between computer use for non school related activities was minimal.

## Sexual Behaviors

### Indicators:

#### Sexual Activity

1. *Ever had sex*:  $\geq 1$  time in lifetime
2. *Sex prior to 13*
3. *Number of partners lifetime*:  $\geq 4$  is identified as at-risk
4. *Currently sexually active* (high school only):  $\geq 1$  partner in the last three months

#### Context

5. *Dating violence* (high school only): physically abused by partner in the last 12 months
6. *Used alcohol/drugs before sex* (high school only)
7. *Against will* (high school only): ever physically forced to have sex
8. *Condom Use<sup>H</sup>*: if currently sexually active, used a condom during last experience

Tables 5 and 6 display the percentage of youth, by total sample, gender and ethnic group for each of the sexual behavior indicators. Condom use is considered a protective factor rather than a risk indicator in that use of a condom prevents against sexually transmitted diseases.

#### Themes:

- Approximately 5 in 10 high school students and 3 in 10 middle school students have had sexual intercourse.
- Roughly 16% of both middle and high school students had their first sexual experience prior to age 13. This is significantly higher than the national comparison sample (6%).
- Slightly more Alexandria high school students (38%) are currently sexually active than the national comparison sample (34%).
- More Alexandria students have had four or more partners (18%), as compared to the national sample (14%). In addition, 8% of middle school students have had four or more partners.
- Approximately 1 in 10 students have experienced dating violence and have been forced to have sex against their will.
- More high school students in the national sample (23%) used alcohol or drugs before sexual intercourse than Alexandria students (19%) and fewer students in the national sample (63%) used condoms during their last sexual experience than Alexandria students (68%).
- There are significant differences between male and female sexual behavior for both middle school and high school students in Alexandria:

- Middle school and high school boys were more likely to have had sexual intercourse, have had their first sexual experience prior to 13, have had four or more partners and currently be sexually active.
- High school boys were more likely to have used alcohol or drugs before sex and to have used condoms.
- Sexual behaviors were significantly different between ethnic/cultural groups:
  - Asian students were least likely to be engaging in sexual behaviors in high school. Middle school Asian and White students report similar behaviors, which were significantly less than Black and Hispanic students.
  - In the national sample, Black students were more likely than all other groups to have had sex, have had their first experience before 13, have had four or more partners, and to be currently sexually active. This is true in the Alexandria middle school sample. In high school, Hispanic and Black students' behaviors were similar.
  - White students were more likely to have used alcohol or drugs before sex.
  - Black students reported the most frequent use of condoms.

### Methods of Contraception for High School Students

Figure 3 displays the method of contraception used by sexually active high school male and female students during their last sexual experience. As can be seen, condom use is the most likely method of contraception for both boys and girls, although slightly higher for males. Approximately 13% of students did not use any method of contraception and 7% of students used withdrawal, which is not an effective method of contraception. Approximately 10% of students used birth control, with a smaller percentage (~3%) relying on DepoProvera (three month injectable shot).

Figure 4 displays the methods of contraception used by sexually active high school students disaggregated by ethnicity. White students were least likely to not use any form of contraception, but the most likely to use withdrawal. They were also significantly more likely to use birth control and significantly less likely to use condoms. Asian students were most likely to not use any method of contraception and were also likely to respond “not sure”. Condom use was comparable with White students; however they were least likely to use birth control. Condom use was highest among Black students. DepoProvera was only used by a very small percentage of Black and White students. Hispanic and Black students' sexual behaviors were similar except condom use, which was higher among Black students.

Table 5: Sexual Behavior Indicator Percentages by Gender for Alexandria and the National Sample

<b>Sexual Behavior<sup>a</sup></b>											
<b>Indicator</b>	Alexandria MS Sample				Alexandria HS Sample				National 2005 HS Sample <sup>b</sup>		
	Total Sample	Gender		sig	Total Sample	Gender		sig	Total Sample	Gender	
		M	F			M	F			M	F
<i>Sexual Activity</i>											
Ever had sex	27.1	37.5	17.6	*	51.6	58.7	45.5	*	46.8	47.9	45.7
Sex prior to 13	15.6	23.9	7.7	*	16.2	25.8	9.7	*	6.2	8.8	3.7
Number of partners $\geq$ 4 in lifetime	8.0	13.3	3.1	*	18.4	25.4	12.5	*	14.3	16.5	12.0
Currently sexually active					37.8	40.7	35.5	*	33.9	33.3	34.6
<i>Context Variables</i>											
Dating Violence					11.2	12.5	10.1		9.2	9.0	9.3
Alcohol/drugs before sex					18.6	21.5	15.5	*	23.3	27.6	19.0
Against will					9.3	8.1	10.4		7.5	4.2	10.8
Condom use <sup>†</sup>	72.2	75.2	66.1		68.4	71.8	64.8	*	62.8	70.0	55.9

<sup>a</sup> If a cell is blank, no data are available.

<sup>b</sup> The National 2005 HS Sample is for comparison with Alexandria's HS Sample.

<sup>†</sup> Healthy choice

Table 6: Sexual Behavior Indicator Percentages by Ethnicity for Alexandria and the National Sample

Sexual Behavior <sup>a</sup>																
Indicator	Alexandria MS Sample						Alexandria HS Sample						National 2005 HS Sample <sup>b</sup>			
	Total Sample	Ethnicity				sig	Total Sample	Ethnicity				sig	Total Sample	Ethnicity <sup>c</sup>		
		Asian	Hispanic	Black	White			Asian	Hispanic	Black	White			Hispanic	Black	White
<i>Sexual Activity</i>																
Ever had sex	27.1	10.0	28.8	36.5	10.2	*	51.6	24.6	58.4	57.9	39.7	*	46.8	51.0	67.6	43.0
Sex prior to 13	15.6	3.6	16.2	22.9	4.2	*	16.2	6.7	20.2	23.0	7.1	*	6.2	7.3	16.5	4.0
Number of partners ≥ 4 in lifetime	8.0	4.8	8.9	9.6	5.3		18.4	8.1	17.6	25.3	10.5	*	14.3	15.9	28.2	11.4
Currently sexually active							37.8	17.9	41.8	41.5	30.5	*	33.9	35.0	47.4	32.0
<i>Context Variables</i>																
Dating Violence							11.2	3.2	10.7	11.8	9.6	*	9.2	9.9	11.9	8.2
Alcohol/drugs before sex							18.6	6.5	14.3	15.2	31.8	*	23.3	25.6	14.1	25.0
Against will							9.3	4.8	9.9	9.8	6.8		7.5	7.8	9.3	6.9
Condom use <sup>†</sup>	72.2	62.5	65.3	78.0	63.2		68.4	60.0	65.3	74.2	63.5	*	62.8	57.7	68.9	62.6

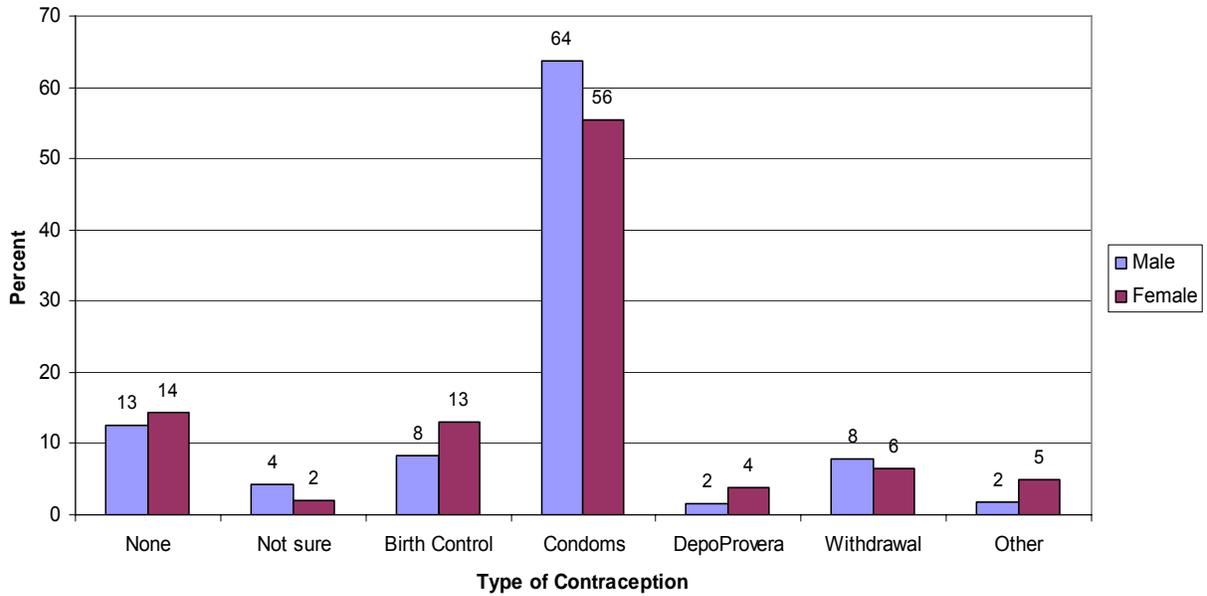
<sup>a</sup> If a cell is blank, no data are available.

<sup>b</sup> The National 2005 Sample is for comparison with Alexandria's high school sample.

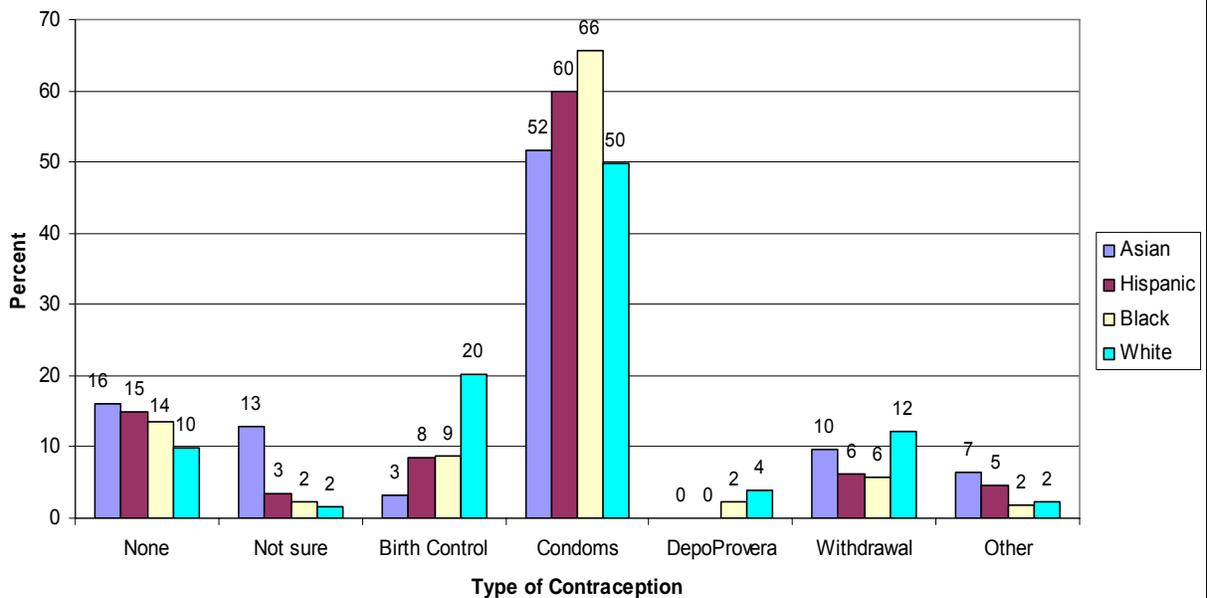
<sup>c</sup> CDC does not disaggregate data for Asian students.

<sup>†</sup> Healthy choice

**Figure 3: Method of Contraception During Last Sexual Experience by Gender:  
Alexandria HS Students**



**Figure 4: Method of Contraception During Last Sexual Experience by Ethnicity:  
Alexandria HS Students**



## Tobacco Use

### Indicators:

#### Cigarettes

1. *Tried smoking*: ever in lifetime, even one or two puffs
2. *Smoked prior to age 13*
3. *Lifetime daily cigarette use*: smoked 1 or more cigarettes every day for 30 days
4. *Current cigarette use*: smoked on  $\geq 1$  of the past 30 days
5. *Current frequent cigarette use*: smoked on  $\geq 20$  of the past 30 days
6. *Smoked > 10 cigarettes/day*: 10+ cigarettes on the days they smoked in the past 30 days
7. *Tried to quit*<sup>H</sup> (high school only): in the past 12 months

#### Other Tobacco

8. *Current smokeless tobacco use*: chewing tobacco, snuff, or dip on  $\geq 1$  of the past 30 days
9. *Current cigar use*: cigars, cigarillos or little cigars on  $\geq 1$  of the past 30 days

#### At School

10. *Smoked at school* (high school only): on  $\geq 1$  of the past 30 days
11. *Smokeless tobacco at school* (high school only): on  $\geq 1$  of the past 30 days

#### Summary Indicator

12. *Current tobacco use*: tobacco, smokeless tobacco or cigars on  $\geq 1$  of the past 30 days

Tables 7 and 8 display the percentage of youth, by total sample, gender and ethnic group for each of the Tobacco Use indicators. Attempting to quit smoking is considered a protective factor rather than a risk indicator.

#### Themes:

- Tobacco use is lower in Alexandria high school students (15%) as compared to the national sample (23%).
- Approximately 1 in 10 high school students smoked a whole cigarette prior to age 13.
- Alexandria high school males are more likely than females to have tried smoking, currently smoke, smoke 10 or more cigarettes a day and use smokeless tobacco or cigars. The differences are less apparent at middle school, although the trend is emerging.
- Smoking on school grounds is infrequent, but is occurring.
- Of the youth who smoke, nearly 5 out of 10 have tried to quit in the last year.
- Ethnic differences are apparent in the Alexandria high school and middle school samples.
  - Hispanic youth are more like to have tried smoking at both middle school and high school. They are also more like to have tried to quit smoking (high school data only).
  - High school Asian and Black youth are least likely to currently smoke at all or frequently. However, the likelihood of smoking more than 10 cigarettes in the days smoked was similar among groups.
  - Cigar and smokeless tobacco use is more frequent for high school White youth and middle school Hispanic youth.

Table 7: Tobacco Use Indicator Percentages by Gender for Alexandria and the National Sample

Tobacco Use <sup>a</sup>													
Indicator	Alexandria MS Sample				sig	Alexandria HS Sample				sig	National 2005 HS Sample <sup>b</sup>		
	Total Sample	Gender		Total Sample		Gender		Total Sample	Gender				
		M	F			M	F		M		F		
<i>Cigarettes</i>													
Tried smoking	34.1	35.4	33.0		48.9	52.7	45.5	*	54.3	55.9	52.7		
Smoked prior to age 13	14.6	15.1	14.0		11.8	13.7	10.0		16.0	18.3	13.6		
Lifetime daily cigarette use	5.5	7.8	3.1	*	8.8	9.8	7.8		13.4	13.3	13.5		
Current cigarette use	9.1	11.6	6.7	*	15.2	18.3	12.3	*	23.0	22.9	23.0		
Current frequent cigarette use	2.1	3.7	0.5	*	4.7	6.6	3.0	*	9.4	9.3	9.3		
Smoked > 10 cigarettes/day	10.0	14.1	4.5		6.8	9.4	2.9	*	10.7	14.2	7.2		
Tried to quit <sup>H</sup>					46.3	48.0	44.3		54.6	48.9	60.3		
<i>Other Tobacco</i>													
Current smokeless tobacco use	3.3	4.5	2.2	*	4.2	6.9	1.7	*	8.0	13.6	2.2		
Current cigar use	7.8	10.6	5.3	*	10.5	15.5	6.3	*	14.0	19.2	8.7		
<i>At School</i>													
Smoked at school					6.1	8.1	4.2	*	6.8	7.4	6.2		
Smokeless tobacco at school					2.3	3.6	1.3	*	5.0	9.2	0.8		
Current Tobacco Use	10.8	13.6	8.2	*	17.5	22.1	13.4	*	28.4	31.7	25.1		

<sup>a</sup> If a cell is blank, no data are available.

<sup>b</sup> The National 2005 HS Sample is for comparison with Alexandria's HS Sample.

<sup>H</sup> Healthy choice

Table 8: Tobacco Use Indicator Percentages by Ethnicity for Alexandria and the National Sample

Tobacco Use <sup>a</sup>																
Indicator	Alexandria MS Sample						Alexandria HS Sample						National 2005 HS Sample <sup>b</sup>			
	Total Sample	Ethnicity				sig	Total Sample	Ethnicity				sig	Total Sample	Ethnicity <sup>c</sup>		
		Asian	Hispanic	Black	White			Asian	Hispanic	Black	White			Hispanic	Black	White
<u>Cigarettes</u>																
Tried smoking	34.1	25.6	45.1	36.4	14.3	*	48.9	37.3	56.4	46.5	46.3	*	54.3	57.1	54.7	54.0
Smoked prior to age 13	14.6	7.2	24.7	12.2	5.8	*	11.8	9.4	14.5	10.2	10.4		16.0	16.0	13.8	16.4
Lifetime daily cigarette use	5.5	1.2	10.2	3.2	3.2	*	8.8	5.0	9.9	6.0	10.9	*	13.4	10.4	5.2	16.1
Current cigarette use	9.1	4.9	16.9	6.2	4.2	*	15.2	8.2	19.6	10.3	18.2	*	23.0	22.0	12.9	25.9
Current frequent cigarette use	2.1	0.0	4.6	0.4	2.6	*	4.7	1.6	4.8	2.8	7.1	*	9.4	6.5	3.7	11.2
Smoked > 10 cigarettes/day	10.0	0.0	12.3	3.4	33.3		6.8	7.7	4.9	5.1	6.8		10.7	8.5	3.5	11.7
Tried to quit <sup>h</sup>							46.3	42.9	52.2	42.9	38.3		54.6	53.4	61.8	54.6
<u>Other Tobacco</u>																
Current smokeless tobacco use	3.3	1.2	6.3	1.5	2.7	*	4.2	2.4	2.0	3.0	7.7	*	8.0	5.1	1.7	10.2
Current cigar use	7.8	3.7	14.6	5.2	4.3	*	10.5	3.1	10.9	7.5	15.0	*	14.0	14.6	10.3	14.9
<u>At School</u>																
Smoked at school							6.1	3.9	7.1	4.3	6.5		6.8	7.2	3.4	7.4
Smokeless tobacco at school							2.3	1.6	1.6	1.8	3.5		5.0	3.2	1.2	6.3
Current Tobacco Use	10.8	4.9	18.5	8.4	5.9	*	17.5	9.9	20.8	11.9	22.6	*	28.4	24.9	16.5	32.5

<sup>a</sup> If a cell is blank, no data are available.

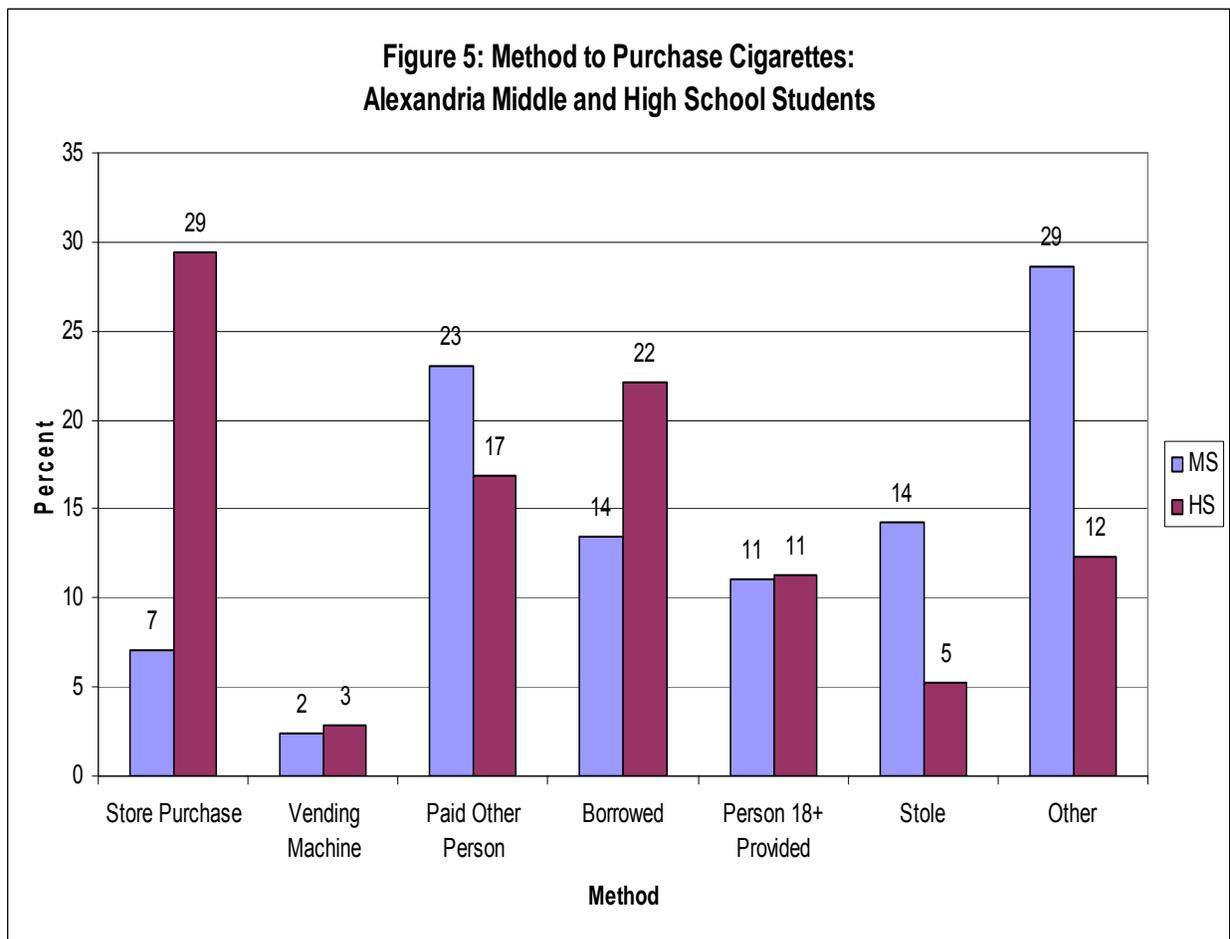
<sup>b</sup> The National 2005 Sample is for comparison with Alexandria's high school sample.

<sup>c</sup> CDC does not disaggregate data for Asian students.

<sup>h</sup> Healthy choice

## Where is Tobacco Purchased?

Figure 5 displays the various methods used to acquire cigarettes by middle school and high school students. As can be seen, the methods vary due to the grade level of the students. For example, high school students are far more likely to purchase cigarettes in a store or borrow them from a friend. Middle school students often used a method not available on the list, followed by paying another person to purchase the cigarettes for them. They were unlikely to try to purchase them at a store.



## Alcohol and Other Drug Use

### Indicators<sup>4</sup>:

#### Alcohol

1. *Alcohol use*: one or more days in lifetime
2. *Alcohol prior to 13*
3. *Current alcohol use* (high school only):  $\geq 1$  day in the last 30 days
4. *Current heavy alcohol use* (high school only):  $\geq 5$  drinks in a row in the last 30 days

#### Marijuana

5. *Marijuana use*: one or more times in lifetime
6. *Marijuana prior to 13*
7. *Current marijuana use* (high school only):  $\geq 1$  time in the last 30 days

#### Cocaine

8. *Cocaine use*: one or more times in lifetime
9. *Current cocaine use* (high school only):  $\geq 1$  time in the last 30 days

#### At School

10. *Alcohol at school* (high school only):  $\geq 1$  time in the last 30 days
11. *Marijuana at school* (high school only):  $\geq 1$  times in the last 30 days
12. *Drugs offered/sold at school* (high school only): in the last year

#### Other Drugs

13. *Inhalant use*:  $\geq 1$  time in lifetime
14. *Heroin use* (high school only):  $\geq 1$  time in lifetime
15. *Methamphetamine use* (high school only):  $\geq 1$  time in lifetime
16. *Ecstasy use* (high school only):  $\geq 1$  time in lifetime
17. *Steroid use*:  $\geq 1$  time in lifetime
18. *Needle use for drugs* (high school only):  $\geq 1$  time in lifetime

Tables 9 and 10 display the percentage of youth, by total sample, gender and ethnic group for each of the Alcohol and Other Drug Use indicators. Please note that the questions middle school students responded to regarding use of alcohol, marijuana, cocaine, inhalants and steroids were slightly different than high school students. Middle school students responded if they ever used the drug (yes/no), while high school students reported how many times. The response options for middle school students were reduced for ease and accuracy of responding. The data are comparable as the resulting indicator has the same meaning or interpretation (one or more times in lifetime).

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<sup>4</sup> The indicators used to describe Alcohol and Other Drug Use on the YRBS vary from those used in the Analysis of Alexandria Youth Assets and Risk Behaviors from the Search Institute Developmental Assets survey. That said, the responses are generally consistent with one another and in plausible ranges. For example, alcohol use in the past year was 46% on the Developmental Assets survey and alcohol use in the past month on the YRBS was 36%.

Table 9: Alcohol and Other Drug Use Indicator Percentages by Gender for Alexandria and the National Sample

<b>Alcohol and Other Drug Use<sup>a</sup></b>													
<b>Indicator</b>	<b>Alexandria MS Sample<sup>c</sup></b>				<b>sig</b>	<b>Alexandria HS Sample</b>				<b>sig</b>	<b>National 2005 HS Sample<sup>b</sup></b>		
	<b>Total Sample</b>	<b>Gender</b>		<b>Total Sample</b>		<b>Gender</b>		<b>Total Sample</b>	<b>Gender</b>				
		<b>M</b>	<b>F</b>			<b>M</b>	<b>F</b>		<b>M</b>		<b>F</b>		
<i>Alcohol</i>													
Alcohol use	44.0	44.5	43.9		66.5	64.6	68.6		74.3	73.8	74.8		
Alcohol prior to 13	28.5	27.4	29.9		20.5	22.7	18.9	*	25.6	29.2	22.0		
Current alcohol use					35.8	35.6	36.4		43.3	43.8	42.8		
Current heavy alcohol use					20.0	22.0	18.5		25.5	27.5	23.5		
<i>Marijuana</i>													
Marijuana use	14.0	17.1	11.4	*	34.1	36.7	31.8	*	38.4	40.9	35.9		
Marijuana use prior to 13	7.7	9.3	6.2	*	7.3	9.3	5.5	*	8.7	11.0	6.3		
Current marijuana use					18.7	22.1	15.7	*	20.2	22.1	18.2		
<i>Cocaine</i>													
Cocaine use	3.6	4.2	3.1		6.6	7.8	5.6	*	7.6	8.4	6.8		
Current cocaine use					3.2	4.5	2.1	*	3.4	4.0	2.8		
<i>Other Drug Use</i>													
Inhalant use	16.9	14.1	19.8	*	10.4	9.8	11.1		12.4	11.3	13.5		
Heroin use					3.1	4.2	2.2	*	2.4	3.3	1.4		
Methamphetamine use					4.0	5.3	2.9	*	6.2	6.3	6.0		
Ecstasy use					6.1	6.5	5.7		6.3	7.2	5.3		
Steroid use	2.5	2.0	2.7		3.7	4.6	3.0		4.0	4.8	3.2		
Needle to inject drug use					2.6	3.8	1.7	*	2.1	3.0	1.1		
<i>At School</i>													
Alcohol at school					6.8	7.8	5.9		4.3	5.3	3.3		
Marijuana at school					5.1	7.5	2.8		4.5	6.0	3.0		
Offered/sold drugs at school					18.7	21.7	16.2	*	25.4	28.8	21.8		

<sup>a</sup> If a cell is blank, no data are available.

<sup>b</sup> The National 2005 HS Sample is for comparison with Alexandria's HS Sample.

<sup>c</sup> Middle school youth report if they ever used any of the drugs, high school youth report the number of times. The indicator is the same.

Table 10: Alcohol and Other Drug Use Indicator Percentages by Ethnicity for Alexandria and the National Sample

Alcohol and Other Drug Use <sup>a</sup>																
Indicator	Alexandria MS Sample <sup>c</sup>						Alexandria HS Sample						National 2005 HS Sample <sup>b</sup>			
	Total Sample	Ethnicity				sig	Total Sample	Ethnicity				sig	Total Sample	Ethnicity <sup>d</sup>		
		Asian	Hispanic	Black	White			Asian	Hispanic	Black	White			Hispanic	Black	White
<u>Alcohol</u>																
Alcohol use	44.0	17.1	54.4	44.7	33.7	*	66.5	35.1	69.7	58.8	81.1	*	74.3	79.4	69.0	75.3
Alcohol prior to 13	28.5	10.8	39.2	27.1	19.9	*	20.5	7.9	24.7	20.2	19.7	*	25.6	29.8	27.9	23.7
Current alcohol use							35.8	12.2	34.4	28.6	52.1	*	43.3	46.8	31.2	46.4
Current heavy alcohol use							20.0	3.2	18.9	13.9	34.2	*	25.5	25.3	11.1	29.9
<u>Marijuana</u>																
Marijuana use	14.0	4.9	19.0	15.8	4.7	*	34.1	9.7	33.2	31.8	41.6	*	38.4	42.6	40.7	38.0
Marijuana use prior to 13	7.7	3.6	12.2	7.0	2.6	*	7.3	3.9	7.9	7.9	5.7	*	8.7	12.5	9.1	7.7
Current marijuana use							18.7	4.0	16.7	17.0	25.1	*	20.2	23.0	20.4	20.3
<u>Cocaine</u>																
Cocaine use	3.6	1.2	6.1	2.1	3.7	*	6.6	3.2	9.0	2.8	9.2	*	7.6	12.2	2.3	7.7
Current cocaine use							3.2	2.4	3.3	2.3	3.9		3.4	6.1	1.5	3.2
<u>Other Drug Use</u>																
Inhalant use	16.9	19.3	22.1	16.6	10.5	*	10.4	6.3	9.9	7.0	14.1	*	12.4	13.0	6.8	13.4
Heroin use							3.1	2.4	2.7	2.1	4.1		2.4	3.6	1.5	2.2
Methamphetamine use							4.0	3.2	2.9	2.5	7.0	*	6.2	8.8	1.7	6.5
Ecstasy use							6.1	4.0	5.0	5.5	7.7		6.3	9.6	3.9	5.8
Steroid use	2.5	0.0	4.5	1.3	2.1	*	3.7	4.0	4.5	3.2	3.4		4.0	3.9	2.4	4.2
Needle to inject drug use							2.6	1.6	2.3	1.4	4.1	*	2.1	3.0	1.7	1.9
<u>At School</u>																
Alcohol at school							6.8	2.4	6.9	7.5	6.4		4.3	7.7	3.2	3.8
Marijuana at school							5.1	2.4	5.3	4.9	4.8		4.5	7.7	4.9	3.8
Offered/sold drugs at school							18.7	11.2	20.2	13.9	24.1	*	25.4	33.5	23.9	23.6

<sup>a</sup> If a cell is blank, no data are available.

<sup>b</sup> The National 2005 Sample is for comparison with Alexandria's high school sample.

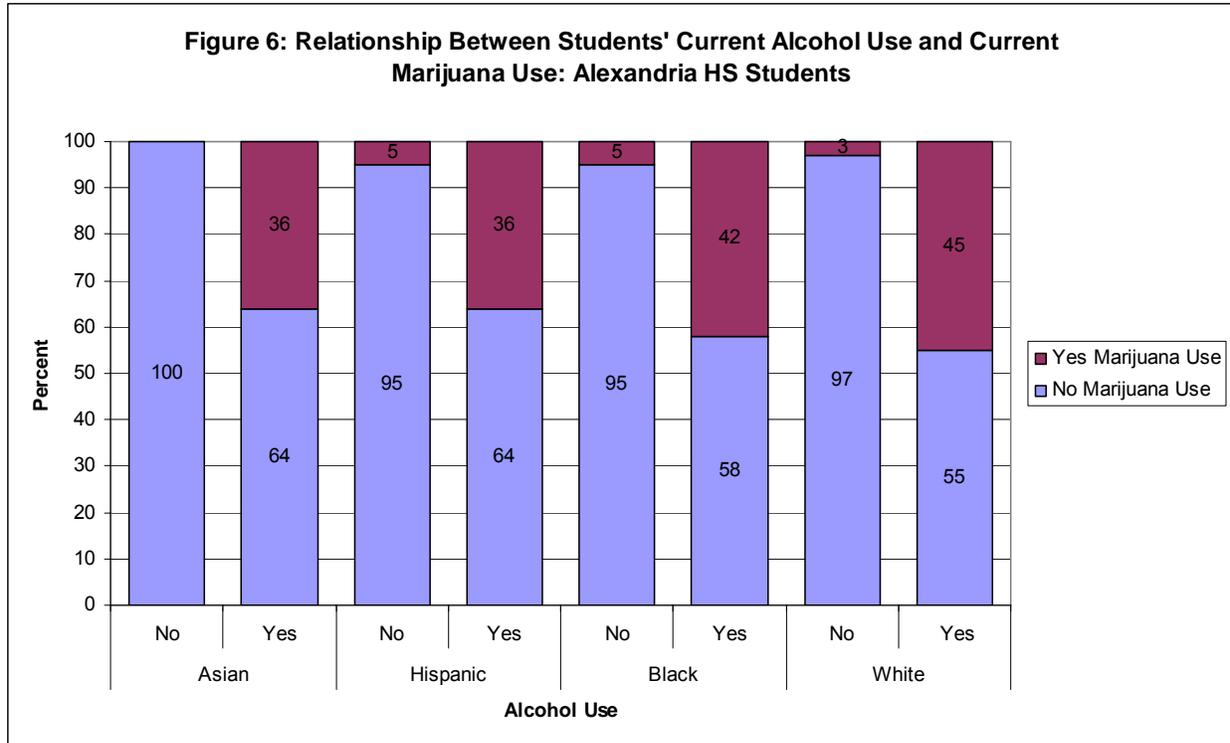
<sup>c</sup> Middle school youth report if they ever used any of the drugs; high school students report how many times. The indicator is the same, one or more times.

Themes:

- Alexandria high school youth were less likely, on all four alcohol indicators, to fall into the risk category than the national sample.
- One in five high school youth drank heavily in the past month and tried alcohol prior to age 13.
- Current alcohol use and heavy use was significantly more likely for high school White youth, compared to all other subgroups. However, White youth were less likely than Hispanic youth to drink prior to age 13. Middle school Hispanic youth followed by Black youth were more likely to have drunk alcohol.
- Marijuana use among high school students in both samples was similar.
- Approximately 1/3 of high school youth have tried marijuana at sometime in their lifetime, and approximately 20% are current users. Approximately 14% of middle school youth have tried marijuana. In both middle school and high school, more boys than girls have used marijuana.
- Marijuana and current marijuana use was highest among White youth in high school. Hispanic middle school youth were more likely to have tried marijuana.
- All other drug use was comparable between the Alexandria and national samples. However, boys more frequently reported trying heroin, methamphetamines and using needles to inject drugs than girls.
- Inhalant use was higher among middle school students, with girls use higher than boys.
- Inhalant and methamphetamine use was more common among White high school youth.
- Drugs being offered, given or sold on school property was less frequent in Alexandria than the national sample, however still nearly 1 in 5 students had had this experience.

Relationship between Alcohol Use and Marijuana Use

Figure 6 displays the relationship between current alcohol use and current marijuana use in the Alexandria high school sample. Students in each of the four major ethnic groups are categorized into two different groups, those students who did not drink alcohol in the last month (first column) and those students who did (second column). Then, within these two groups, students were classified as using marijuana in the last month (dark gray) or not using marijuana in the last month (light gray). For example, 97% of White students who did not drink alcohol also did not use marijuana. Only a small percentage (3%) used marijuana, but not alcohol. However, 45% of White students who drank alcohol, also used marijuana. Students in each of the ethnic groups who did not drink alcohol were unlikely to use marijuana (0-5%). However, students who drank alcohol were almost as likely to use (36-45%) or not use marijuana (55-64%).



## Mental Health

### Indicators:

#### Depression

1. *Sad or hopeless feelings* (high school only): almost every day for  $\geq 2$  weeks in a row in the last 12 months, so that he or she stopped doing usual activities

#### Suicide (EVER for middle school, last 12 months for high school)

2. *Seriously considered suicide*
3. *Made a suicide plan*
4. *Attempted suicide*
5. *Injury treated by a doctor* (high school only)

Tables 11 and 12 display the percentage of youth, by total sample, gender and ethnic group for each of the Mental Health indicators. Please note that the questions middle school students responded to regarding suicide defined the time period as ever in their life, while high school students reported in the last 12 months. Data are in the same table, even though the reporting period differs.

### Themes:

- The Alexandria high school sample and national comparison sample data are relatively similar.

Table 11: Mental Health Indicator Percentages by Gender for Alexandria and the National Sample

Mental Health <sup>a</sup>												
Indicator	Alexandria MS Sample				Alexandria HS Sample				National 2005 HS Sample <sup>b</sup>			
	Total Sample	Gender		sig	Total Sample	Gender		sig	Total Sample	Gender		
		M	F			M	F			M	F	
<i>Depression</i>												
Sad or hopeless feelings					28.7	20.1	35.9	*	28.5	20.4	36.7	
<i>Suicide<sup>c</sup></i>												
Seriously considered suicide	23.1	15.0	30.3	*	13.6	8.3	18.1	*	16.9	12.0	21.8	
Made a suicide plan	15.7	10.3	20.5	*	11.3	7.3	14.8	*	13.0	9.9	16.2	
Attempted suicide	12.3	8.4	15.4	*	8.4	6.2	10.1	*	8.4	6.0	10.8	
Injury treated by a doctor					2.9	2.8	3.0		2.3	1.8	2.9	

<sup>a</sup> If a cell is blank, no data are available.

<sup>b</sup> The National 2005 HS Sample is for comparison with Alexandria's HS Sample.

<sup>c</sup> Middle school youth are reporting EVER; high school students are reporting in the last YEAR.

Table 12: Mental Health Indicator Percentages by Ethnicity for Alexandria and the National Sample

Mental Health <sup>a</sup>																	
Indicator	Alexandria MS Sample						Alexandria HS Sample						National 2005 HS Sample <sup>b</sup>				
	Total Sample	Ethnicity				sig	Total Sample	Ethnicity				sig	Total Sample	Ethnicity <sup>d</sup>			
		Asian	Hispanic	Black	White			Asian	Hispanic	Black	White			Hispanic	Black	White	
<i>Depression</i>																	
Sad or hopeless feelings							28.7	28.3	32.9	27.4	25.7		28.5	36.2	28.4	25.8	
<i>Suicide<sup>c</sup></i>																	
Seriously considered suicide	23.1	22.9	22.1	22.8	20.5		13.6	10.3	12.3	13.2	15.2		16.9	17.9	12.2	16.9	
Made a suicide plan	15.7	18.1	17.5	12.4	17.6		11.3	11.3	11.8	9.5	10.8		13.0	14.5	9.6	12.5	
Attempted suicide	12.3	13.3	15.2	12.1	5.8	*	8.4	7.9	9.3	7.8	7.1		8.4	11.3	7.6	7.3	
Injury treated by a doctor							2.9	>1	3.7	2.8	2.3		2.3	3.2	2.0	2.1	

<sup>a</sup> If a cell is blank, no data are available.

<sup>b</sup> The National 2005 Sample is for comparison with Alexandria's high school sample.

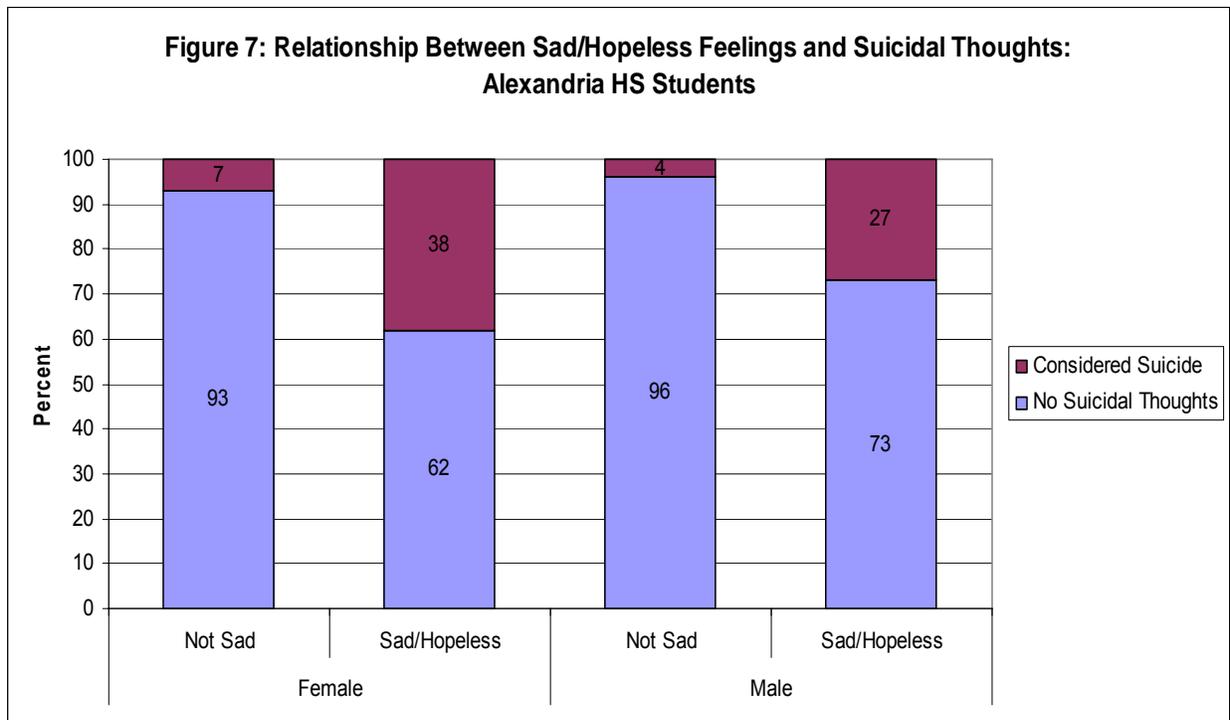
<sup>c</sup> Middle school youth are reporting EVER; high school students are reporting in the last YEAR.

<sup>d</sup> CDC does not disaggregate da

- Significant differences are noted between boys and girls on the three indicators for suicidal thoughts and behaviors, as well as sad and hopeless feeling for high school students (not assessed with middle school students). Girls were more likely to report all of the behaviors. This trend was also noted in the national comparison sample.
- No significant differences were noted between ethnic groups in high school on the four suicide indicators. Attempted suicide differed between ethnic groups in middle school, with the lowest rate associated with White students.
- Although not significant, Hispanic students had higher rates of hopeless and sad feelings, which were consistent with the national high school sample.

Relationship between Sad/Hopeless Feelings and Suicidal Thoughts

Figure 7 displays the relationship between sad and hopeless feelings and suicidal thoughts by gender for Alexandria high school students. Males and females are classified as feeling sad and hopeless or not and within those two groups, classified as having suicidal thoughts or not. Very few students, who have not experienced sad and hopeless feelings for two or more weeks, have considered suicide. However, if students have experienced sad and hopeless feelings that caused them to stop their usual activities, the likelihood of considering suicide increased from 7-38% for females and 4-27% for males.



## Unintentional Injuries and Violence

### Indicators

#### Transportation Safety

1. *Bike helmet*: rarely or never
2. *Car seatbelt*: rarely or never
3. *Rode with drunk driver*: **EVER for middle school,  $\geq 1$  of the last 30 days**
4. *Drove drunk* (high school only):  $\geq 1$  last 30 days

#### Violence

5. *Carried a weapon*: **EVER for middle school,  $\geq 1$  of the last 30 days**
6. *Carried a gun* (high school only):  $\geq 1$  last 30 days
7. *Fight*: **EVER for middle school,  $\geq 1$  in the last 12 months**
8. *Injured in fight*: **EVER for middle school,  $\geq 1$  in the last 12 months**

#### At School

9. *Weapon at school* (high school only):  $\geq 1$  of the last 30 days
10. *Absent due to safety* (high school only):  $\geq 1$  of the last 30 days
11. *Threatened/injured with weapon at school* (high school only):  $\geq 1$  time in the last 12 months
12. *Property damage at school* (high school only):  $\geq 1$  time in last 12 months
13. *Fight at school* (high school only):  $\geq 1$  time in last 12 months

Tables 13 and 14 display the percentages of youth by total sample, gender and ethnic group for each of the Unintentional Injuries and Violence indicators. Please keep in mind that for the middle school violence indicators and riding with a drunk driver indicator, the youth reported if they ever engaged in the behavior, while high school students are reporting in the last 30 days.

#### Themes:

- Using a helmet while riding a bicycle is not a habit for Alexandria youth;  $\frac{3}{4}$  of students rarely or never wear a helmet. The percentage of non-helmet wearers is even higher in the national sample.
- Unlike bike helmet use, car seatbelt use is far more common. Only about 1 in 10 students rarely or never wear a seatbelt while riding in the car. High school girls are significantly more likely than boys to wear a seatbelt.
- White students in both middle school and high school have the highest rates of helmet and seatbelt usage. This pattern is not pronounced in the national sample.
- Nearly 30% of high school students have ridden with a drunk driver and one in ten have driven drunk themselves. These behaviors mirror those found in the national sample.
- About 40% of middle school students have ridden with a drunk driver at least one time in their lifetime.
- Violence indicators are generally comparable between the total Alexandria and national comparison high school samples. There are some notable differences between national and local subgroups, between boys and girls and between students of different ethnicities.

- Alexandria high school males (21%) are less likely to have carried a weapon in the last month, as compared to males in the national sample (30%). However, although females are less likely to carry a weapon, Alexandria females were equally, if not slightly more likely (10%) to have carried a weapon, compared to girls in the national sample (7%).
- White youth were the most likely to carry a weapon and Asian students were least likely. Carrying a gun was similar for all ethnicities, but the behavior was prevalent in males.
- Slightly more than 1/3 of high school boys and ¼ of high school girls were in a physical fight in the last year.
- Two thirds of middle school youth were in a fight sometime in their life. Middle school boys were significantly more likely than girls to have been in a fight. Black middle school youth were also most likely to have been in a fight.
- Nearly 20% of boys and 10% of girls in Alexandria were in a fight at school, which is similar to the national sample. Hispanic high school students were most likely to have been in a fight at school. Hispanic students were also most likely to be absent from school, due to perceived safety concerns.

### **Age of Onset of Risk Behaviors**

Many adolescents engage in risk behaviors at an early age. For example, alcohol use frequently begins between ages 12 and 14, smoking begins between 11 and 15, marijuana use begins at about age 14 and about one third of adolescents report having sexual intercourse by age 14 or 15<sup>5</sup>. Within the YRBS, four questions ask about age of onset. If the behavior began prior to age 13, it is considered a health risk indicator. The four behaviors addressed are: sexual intercourse, smoking, alcohol use and marijuana use (see associated tables). In the Alexandria sample, the percent of youth engaging in early initiation of the behavior was highest for alcohol use, followed by sexual intercourse. Twenty-nine percent of middle school youth and 21% of high school youth tried alcohol prior to age 13, suggesting the younger cohort might have a greater incidence of alcohol use over time. Sixteen percent of both middle school and high school youth indicated that they had had sexual intercourse prior to age 13, showing stability in the behavior between the two cohorts. Youth were least likely to have tried marijuana for the first time before age 13. Boys were significantly more likely than girls to engage in all behaviors prior to age 13, except smoking.

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<sup>5</sup> Ozer, E.M., Park, M.J., Paul, T., Brindis, C.D., and Irwin, C.E. (2003). *America's Adolescents: Are they healthy?* San Francisco: University of California, San Francisco, National Adolescent Health Information Center.

Table 13: Unintentional Injuries and Violence Indicator Percentages by Gender for Alexandria and the National Sample

<b>Unintentional Injuries and Violence<sup>a</sup></b>												
<b>Indicator</b>	Alexandria MS Sample				Alexandria HS Sample				National 2005 HS Sample <sup>b</sup>			
	Total Sample	Gender		sig	Total Sample	Gender		sig	Total Sample	Gender		
		M	F			M	F			M	F	
<i>Transportation Safety</i>												
Bike helmet	70.0	73.4	66.3	*	77.5	82.8	70.7	*	83.4	86.1	79.9	
Car seatbelt	12.5	13.8	11.5		11.5	14.7	8.4	*	10.2	12.5	7.8	
Rode with drunk driver	38.3	36.7	40.5		28.6	29.1	28.0		28.5	27.2	29.6	
Drove drunk <sup>c</sup>					9.9	13.3	6.8	*	9.9	11.7	8.1	
<i>Violence<sup>c</sup></i>												
Carried a weapon	33.5	47.0	21.6	*	14.8	20.7	9.7	*	18.5	29.8	7.1	
Carried a gun					4.8	8.1	1.9	*	5.4	9.9	0.9	
Fight	66.1	77.7	56.1	*	31.4	39.2	24.3	*	35.9	43.4	28.1	
Injury treated by doctor	9.0	12.6	6.1	*	4.6	6.1	3.2	*	3.6	4.8	2.4	
<i>At School</i>												
Weapon at school					6.9	9.3	4.9	*	6.5	10.2	2.6	
Absent due to safety					7.2	7.5	6.9		6.0	5.7	6.3	
Threatened/injured at school					8.5	11.8	5.6	*	7.9	9.7	6.1	
Property damage at school					23.6	26.4	21.3	*	29.8	31.4	28.0	
Fight at school					13.4	17.2	9.5	*	13.6	18.2	8.8	

<sup>a</sup> If a cell is blank, no data are available.

<sup>b</sup> The National 2005 HS Sample is for comparison with Alexandria's HS Sample.

<sup>c</sup> Middle school youth report if they EVER engaged in the behavior; high school students report in the last month.

Table 14: Unintentional Injuries and Violence Indicator Percentages by Ethnicity for Alexandria and the National Sample

Unintentional Injuries and Violence <sup>a</sup>																
Indicator	Alexandria MS Sample						Alexandria HS Sample						National 2005 HS Sample <sup>b</sup>			
	Total Sample	Ethnicity				sig	Total Sample	Ethnicity				sig	Total Sample	Ethnicity <sup>d</sup>		
		Asian	Hispanic	Black	White			Asian	Hispanic	Black	White			Hispanic	Black	White
<i>Transportation Safety</i>																
Bike helmet	70.0	67.7	75.2	81.1	37.3	*	77.5	73.3	83.6	84.5	60.1	*	83.4	86.5	92.0	81.5
Car seatbelt	12.5	16.9	17.3	11.7	6.3	*	11.5	14.2	13.4	11.5	7.5	*	10.2	10.6	13.4	9.4
Rode with drunk driver	38.3	14.9	48.1	34.4	40.8	*	28.6	12.6	32.0	24.9	34.9	*	28.5	36.1	24.1	28.3
Drove drunk <sup>c</sup>							9.9	6.3	8.5	9.6	12.5		9.9	10.5	4.9	11.3
<i>Violence<sup>c</sup></i>																
Carried a weapon	33.5	20.5	34.4	35.6	27.9	*	14.8	8.0	12.0	13.6	18.4	*	18.5	19.0	16.4	18.7
Carried a gun							4.8	3.9	3.7	4.0	6.2		5.4	6.5	5.0	5.3
Fight	66.1	47.0	62.2	79.2	42.4	*	31.4	18.3	31.9	33.7	27.8	*	35.9	41.0	43.1	33.1
Injury treated by doctor	9.0	8.4	8.8	8.6	7.3		4.6	2.4	5.3	4.1	4.8		3.6	5.3	5.4	2.4
<i>At School</i>																
Weapon at school							6.9	3.2	5.9	6.4	7.7		6.5	8.2	5.1	6.1
Absent due to safety							7.2	8.7	9.7	6.3	5.0	*	6.0	10.2	8.7	4.4
Threatened/injured at school							8.5	5.5	7.4	8.8	9.5		7.9	9.8	8.1	7.2
Property damage at school							23.6	23.6	22.9	22.7	25.6		29.8	31.9	29.9	29.1
Fight at school							13.4	8.7	14.9	13.9	9.9	*	13.6	18.3	16.9	11.6

<sup>a</sup> If a cell is blank, no data are available.

<sup>b</sup> The National 2005 Sample is for comparison with Alexandria's high school sample.

<sup>c</sup> Middle school youth report if they EVER engaged in the behavior; high school students report in the last month.

<sup>d</sup> CDC does

## Co-Occurring Risk Behaviors

Although much of this report examines behaviors separately, risk behaviors are often interrelated and covary or cluster in predictable ways. For example, research has shown that substance use follows a predictable developmental progression, the use of alcohol and illicit drugs is associated with sexual behaviors that place adolescents at risk for unintended pregnancy and sexually transmitted diseases, and use of tobacco, drugs and becoming drunk are linked to lower use of seat belts and greater likelihood of other risky vehicle use<sup>6</sup>. In addition, risk behaviors have similar behavioral, social and environmental antecedents which suggest if one wants to improve adolescent health, the focus on individual behavior needs to be complemented with approaches that promote healthy youth development across multiple areas and create supportive environments that encourage healthy choices.

The following data present the co-occurrence of ten prevalent risk behaviors in young people. The list was developed by the Urban Institute for use with the YRBS and is not exhaustive, but attempts to encompass some of the greatest threats to adolescent health across the six core areas. Absent from the list are some of the common risk behaviors engaged in by Alexandria youth. For example, riding with a drunk driver was one of the most common risk behaviors (29%) and is not included on the list. The list also does not include any of the physical health indicators and we know that obesity is a rising epidemic that affects many adolescents and has significant negative social, emotional and health outcomes. Nonetheless, the list is useful for describing co-occurring behaviors. The consequences associated with these ten behaviors vary considerably, but each poses a range of potential immediate and long-term health problems. The definitions of the risk behaviors employed here address regular or established patterns of risk taking, not just exploratory behavior, by incorporating indicators of recent and frequent participation<sup>7</sup>.

The definition of the 10 health risk behaviors are:

1. Regular Alcohol Use: 3 or more drinks during the past 30 days
2. Regular Binge Drinking: 5 or more drinks in a row on 3 or more days during the past 30 days
3. Regular Tobacco Use: Smoked a cigarette daily during the past 30 days
4. Current Marijuana Use: Smoked marijuana at least once during the last 30 days
5. Current Cocaine Use: Used cocaine or crack at least once during the past 30 days
6. Physical Fighting: Was in a physical fight at least once during the past 12 months
7. Weapon Carrying: Carried a gun, knife or other weapon at least once during the past 30 days

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<sup>6</sup> Elliot, D. S. (1993). Health enhancing and health-compromising lifestyles. In S.G. Millstein, A.C. Petersen, and E.O. Nightingale (Eds.). *Promoting the health of adolescents* (pp. 119-145). NY: Oxford university Press.

<sup>7</sup> Lindberg, L.D., Boggess, S., & Williams, S. (2000). *Teen risk-taking: A statistical portrait*. Washington DC: Urban Institute.

8. Suicidal Thoughts: Seriously considered attempting suicide in the past 12 months
9. Suicide attempt: Attempted suicide in the past 12 months
10. Sexual intercourse: ever had sexual intercourse

Table 15 presents the prevalence estimates for each of the 10 health risk behaviors disaggregated by gender, grade and ethnicity. Only grades 9-12 are included in the analysis, as the same data are not available for middle school students. Of the ten behaviors, sexual activity was the most common among Alexandria youth (52%) and regular tobacco use and current cocaine use were the least common (3%). All of the behaviors were more prevalent in males, with the exception of suicidal thoughts and attempts. A number of the behaviors increased across the high school years, often with a significant jump noted between eleventh and twelfth grade. For example, regular alcohol use, regular binge drinking and current marijuana use all increased about 10 percentage points between the two grades. Sexual intercourse also increased across the grades, with a 20 percentage point difference between ninth and twelfth grade. The only behavior that showed a declining trend was physical fighting, which was most common in ninth grade (39%). Prevalence of suicidal thoughts were equivalent across the grades, although suicide attempts were highest in ninth grade. Many of the behaviors were most common among White youth including, regular alcohol use, regular binge drinking, current marijuana use and weapon carrying. Physical fighting and sexual intercourse were most prevalent among Black and Hispanic youth. Asian youth typically had the lowest incidence of all health risk behaviors examined.

Table 16 and Figure 8 present the number of risk behaviors Alexandria youth were engaging in by gender, grade and ethnicity. Nearly a third of students were not participating in any of the ten risk behaviors. About ¼ were participating in one risk behavior and slightly more than a third were participating in 2-4 risk behaviors. Less than 10% were participating in five or more risk behaviors.

Girls were more likely than boys to not engage in any of the risk behaviors. Seventy-eight percent of Asian students engaged in zero or only one risk behavior, compared to 59% of Hispanic and Black youth and 53% of White youth. White students were almost equally likely to engage in either 2-4 risk behaviors or no risk behaviors, with a significantly smaller percent engaging in only one risk behavior. Black and Hispanic students were roughly equally divided between the first three risk behavior levels.

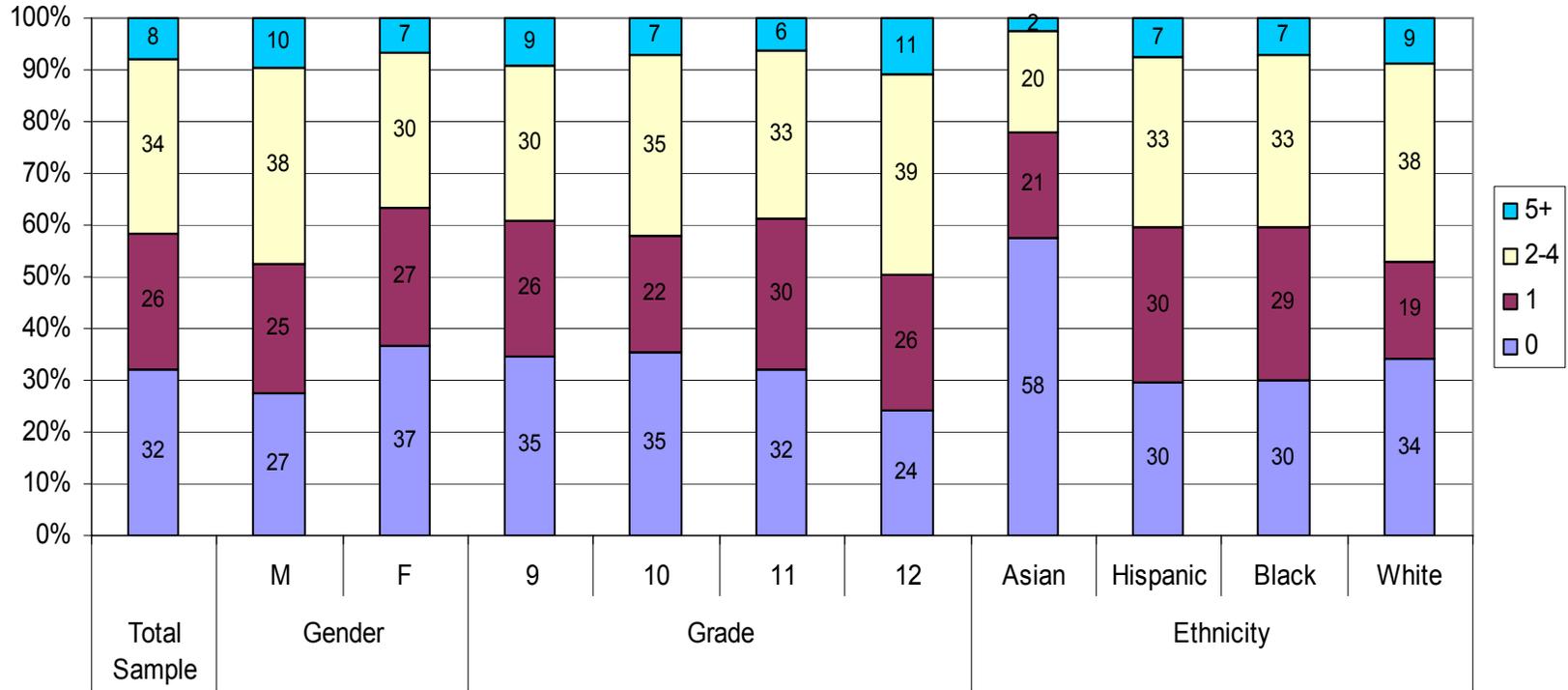
Table 15: Percentage of Youth Who Engage in High Risk Behaviors by Subgroup

Alexandria High School Students											
High Risk Behavior	Total Sample	Gender		Grade				Ethnicity			
		M	F	9	10	11	12	Asian	Hispanic	Black	White
Regular Alcohol Use	18.1	20.5	16.1	14.7	16.8	16.3	27.2	4.1	15.1	12.6	31.7
Regular Binge Drinking	8.6	11.9	5.9	6.8	7.0	6.8	16.4	2.4	6.7	6.9	15.6
Regular Tobacco Use	2.9	4.2	1.7	1.7	2.4	2.6	5.6	1.6	3.9	1.3	3.9
Current Marijuana Use	18.7	22.1	15.7	14.8	18.8	17.3	26.0	4.0	16.7	17.0	25.1
Current Cocaine Use	3.2	4.5	2.1	3.4	3.1	1.7	5.0	2.4	3.3	2.3	3.9
Physical Fighting	31.4	39.2	24.3	39.4	31.7	27.4	25.8	18.3	31.9	33.7	27.8
Weapon Carrying	14.8	20.7	9.7	19.8	14.6	10.3	14.7	8.0	12.0	13.6	18.4
Suicidal Thoughts	13.6	8.3	18.1	14.6	14.1	11.6	14.4	10.3	12.3	13.2	15.2
Suicide Attempts	8.4	6.3	10.1	11.1	8.5	6.8	7.5	8.0	9.4	7.9	7.1
Sexual Intercourse	51.6	58.7	45.5	43.5	47.0	56.1	63.3	24.6	58.4	57.9	39.7

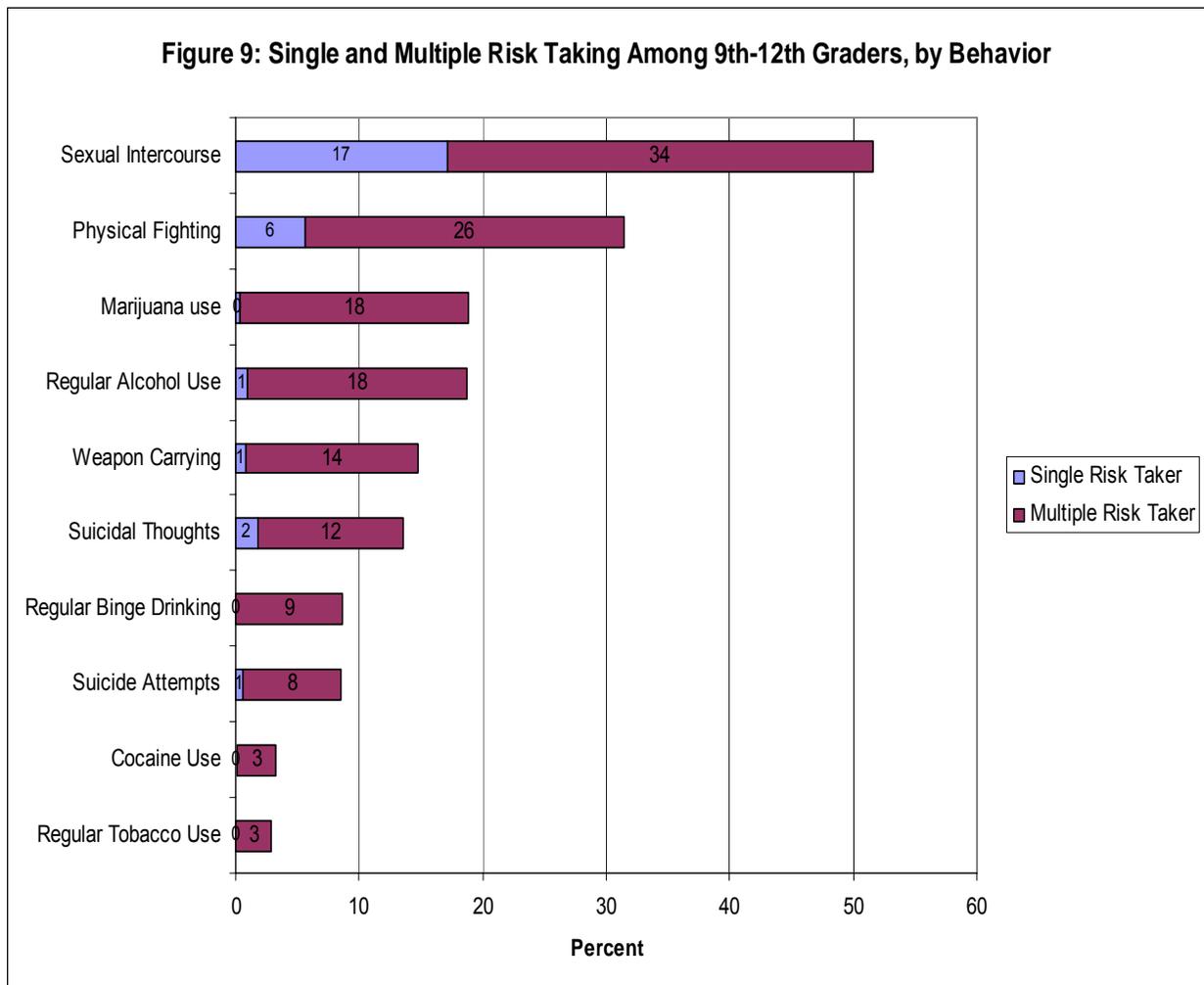
Table 16: Percentage of Youth Who Exhibit 0-5+ High Risk Behaviors by Subgroup

Alexandria High School Students											
Number of Risk Behaviors	Total Sample	Gender		Grade				Ethnicity			
		M	F	9	10	11	12	Asian	Hispanic	Black	White
0	32.2	27.3	36.7	34.7	35.4	32.0	24.3	57.5	29.5	30.1	34.2
1	26.0	25.1	26.7	26.1	22.4	29.5	26.2	20.5	30.1	29.4	18.8
2-4	33.7	38.0	30.0	30.2	35.1	32.6	38.5	19.7	33.0	33.3	38.1
5+	8.0	9.6	6.6	9.0	7.1	6.1	11.0	2.4	7.3	7.2	8.8

**Figure 8: Percent of Students by Subgroup that Engage in Different Levels of Risk Behavior: Alexandria HS Students**



The final analysis examined the ten common risk behaviors and determined if the behavior was typically engaged in by single risk takers or multiple risk takers. Figure 9 displays the results. Only approximately 26% of the sample engages in a single risk behavior and it is important to understand which, if any behavior this is associated with for youth. As can be seen, most of the health risk behaviors were engaged in by multiple risk-takers. For example, the 18% of students who currently use marijuana were all engaging in at least one other risk behavior. This was also true for regular tobacco use, current cocaine use, and regular binge drinking. The one notable exception to this theme was sexual intercourse. Seventeen percent of youth who have had sex have not engaged in any other risk behavior. A small percentage of the 34% of students who have been in a physical fight in the last year, also have not engaged in another risk behavior.



## DISCUSSION

Indicators help us understand where we are, where we want to go and how far we are from the goal. Leading health indicators have been established for the United States, as part of the Health People 2010 agenda (HP2010). Although more than 100 of the 467 objectives of HP2010 concern adolescents directly or indirectly, a national consensus panel identified 21 Critical Adolescent Health Objectives and set targets for 2010 (see Table 17). This list provides one tool for the Alexandria schools and community to determine local objectives for its youth, establish targets, and determine appropriate actions to achieve those goals. Alexandria youth, in some cases, have already exceeded the 2010 targets set (e.g., tobacco use) and, in some cases, there is more work to be done (e.g., proportion overweight). Targets for Alexandria youth are proposed for 2009 to provide a starting point for community discussion. However, these same objectives may not be the focus for the Alexandria community.

City wide goals need to be established and persons and agencies need to take accountability for how the outcomes will be reached. Various stakeholders and organizations may target specific subgroups and behaviors. For example, the Progressive Men's Club might focus on fight among Black males and the Tenants and Workers might focus on sexual behaviors. Strategies that involve multiple influences, such as the schools, community service providers, families, media and health care settings are more likely to succeed. Moreover, it is not sufficient to have programs target single behaviors. Eliminating one problem, does not necessarily lead to health and well-being. The data also indicate that these behaviors co-occur in youth. Research shows that engagement in risk behaviors is influenced by the context in which youth live so that developing an environment that promotes adolescent health needs to become the primary effort, complemented with prevention and intervention programs for youth. It is important to consider the whole child, how to promote positive choices and how to create an environment that fosters healthy options and choices for all youth in all neighborhoods and cultural niches.

The data provided in this report are a baseline from which goals and benchmarks/targets can be established. Risk behaviors can be compared with one another to determine high risk activities unique to Alexandria and the Alexandria high school data can be compared to the national high school sample to determine if the incidence level is normative, lower or exceeds youth behaviors from around the country. The data will be summarized numerous ways below to help articulate these considerations.

The data presented here indicate that certain risk behaviors are more prevalent in Alexandria youth than others and some are more likely to occur among subpopulations defined by sex, ethnicity or grade level. However, it is important to remember that this data could not isolate the effects of individual demographic characteristics from socioeconomic status. When patterns are apparent, this unmeasured variable may be a contributing factor. Alexandria is a diverse community both ethnically and economically, but there is a relationship between the two so that higher socioeconomic status is differentially likely to be associated with non-minority youth and families. As well, it is important to state that demography is not destiny. There are examples of youth "overcoming the odds" as well as advantaged youth succumbing to negative and risky behaviors that prevent healthy development.

Table 17: The 21 Critical Health Objectives for Adolescents and Young Adults

	National Baseline (1999)	CDC 2010 Target <sup>a</sup>	Alexandria 2007 <sup>b</sup>	Alexandria 2009 Proposed
<b>Mortality</b>				
* Reduce deaths				
<b>Unintended Injury</b>				
* Reduce deaths caused by motor vehicle crashes				
* Reduce deaths and injuries caused by alcohol and drug-related motor vehicle crashes				
* Increase use of safety belts	84%	92%	89%	91%
* Reduce the proportion who report that they rode with a driver who had been drinking alcohol	33%	30%	29%	27%
<b>Violence</b>				
* Reduce homicides				
* Reduce physical fighting	36%	32%	31%	28%
* Reduce weapon carrying at school	7%	5%	7%	5%
<b>Mental Health</b>				
* Reduce suicide attempts	8%		8%	6%
* Reduce the rate of suicide attempts that require medical attention			3%	2%
* Reduce the proportion of those with disabilities who are reported to be sad, unhappy or depressed				
* Increase the proportion of those with mental health problems who receive treatment				
<b>Substance Abuse</b>				
* Reduce the proportion engaging in binge drinking of alcoholic beverages	32%		20%	18%
* Reduce past-month use of illicit substances (marijuana)	27%		19%	17%
<b>Reproductive Health</b>				
* Reduce pregnancies				
* Reduce the number of new HIV diagnoses				
* Reduce the proportion with Chlamydia trachomatis infections				
* Increase the proportion who :				
- Have never had sexual intercourse	50%	56%	48%	51%
- If sexually experienced, are not currently sexually active	64%	70%	62%	65%
- If currently sexually active, used a condom during the last time they had sexual intercourse	58%	65%	68%	70%
<b>Chronic Disease</b>				
* Reduce tobacco use	40%	21%	18%	15%
* Reduce the proportion who are overweight or obese	11%	5%	13%	10%
* Increase the proportion who engage in vigorous physical activity 3 days for 20min per wk	65%	85%	35% <sup>c</sup>	38%

<sup>a</sup> Provided if: (1) it matches a YRBS indicator and (2) if approved by the HP2010 Steering Committee

<sup>b</sup> Alexandria HS data

<sup>c</sup> Recommended physical activity changed in 2007 to 5 days/wk for 60min

### Overall Summary of Common Risk Behaviors in Alexandria:

- Across the six categories of risk behavior, ten of the most common current<sup>8</sup> risk behaviors for high school students in descending order are:
  - No helmet while bike riding: 78%
  - Watch television 3+ hours/day: 42%
  - Currently sexually active: 38% (52% have had sex)
  - Current alcohol use: 36% (67% have had alcohol one or more times)
  - Fighting (last 12 months): 31%
  - One or more servings of soda/day: 31%
  - Riding with a driver who had been drinking (last 30 days): 29%
  - Sad and hopeless feelings that caused a stop in usual activities: 29%
  - Computer usage for non-school activities: 27%
  - Described self as overweight: 26%
  
- Middle school engagement in risk behaviors were fewer in number and were assessed slightly differently, so the results are not directly comparable to high school. Across the six categories, ten common risk behaviors include:
  - No helmet while bike riding: 70%
  - Fighting (ever): 66%
  - Watch television 3+ hours/day: 55%
  - Tried alcohol: 44%
  - Riding with a driver who had been drinking (ever): 38%
  - Carried a weapon (ever): 34%
  - Computer usage for non-school activities: 34%
  - Sex (ever): 27%
  - Described self as overweight: 26%
  - Seriously considered suicide: 23%

The above lists are descriptive in that certain types of behavior are over-represented and some behaviors are clearly absent, indicating lower frequency of engagement. The percentage of youth involved also varies across the most common ten behaviors, but at a minimum approximately ¼ of the student population meets the criterion for the health risk indicator. Also, although the middle school survey is different, the common indicators between the two groups overlap.

No helmet while bike riding tops the list for both middle school and high school. On the surface, this may seem like a lesser concern, as compared to alcohol use. However, bicycle related injuries and fatalities are common among children and the use of bicycle helmets are the single most effective way of reducing head injuries and fatalities<sup>9</sup>. Not all youth are riding bikes, but those that do need to be supported to wear helmets.

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<sup>8</sup> Responses to questions that focused on lifetime engagement or experimentation with a behavior were not included if there was an item that addressed current engagement. Healthy choices were also excluded.

<sup>9</sup> National Highway Traffic Safety Administration. Traffic Safety Facts, Laws: Bicycle Helmet Use Laws. National Highway Traffic Safety Administration Web site. Available at: <http://www.nhtsa.dot.gov>.

Television overexposure and excessive computer use, common to both middle and high school youth, may also seem less distressing. Although not related to fatalities, both are associated with decreased educational achievement, physical inactivity and being overweight. Recommended physical activity is defined as a healthy indicator, so was not evaluated in relation to the most common risk behaviors. However, the negative or opposite of the current indicator (i.e., students not meeting recommended physical activity guidelines) could be a health risk indicator. In this case then, 65% of high school students and 48% of middle school students would be classified. Moreover, twenty-six percent of middle and high school students described themselves as overweight. As well, daily soda consumption by high school students (not assessed in middle school) contributes to the emerging picture of the physical health of Alexandria youth.

The other behaviors of students that top the list are sexual activity, alcohol related behaviors, fighting and sadness. More than 50% of high school students and approximately ¼ of middle school students have had sex. Condom use, a healthy behavior if engaging in sexual activity, is high among students; however use of effective methods of contraception varied. Nearly 13% of students employed no method of contraception, 7% used withdrawal and nearly 7% were unsure or used another method of contraception. Moreover, condom use is the only way to protect against sexually transmitted diseases.

Alcohol is the most common illegal substance used by teenagers. Tobacco, marijuana and other hard drugs did not make the list of the most common behaviors. Any tobacco use (18%) and marijuana (19%) were far more common than use of other drugs (which in the case of most drugs was less than 5%; inhalant use was the notable exception, particularly with middle school youth). In addition to individual alcohol consumption, youth are making poor decisions about riding in a vehicle with someone who has been drinking.

Fighting and feelings of sadness/hopelessness (HS) or seriously considering suicide (MS) were also common among Alexandria youth. Middle school youth also reported a high incidence of, at some point in their life, carrying a weapon. A theme also noted from the results of the developmental assets survey ([http://www.acps.k12.va.us/mes/reports/20080101\\_yrbs\\_full.pdf](http://www.acps.k12.va.us/mes/reports/20080101_yrbs_full.pdf)). The indicators were different; sad/depressed all of the time in the last month (20% for high school) or so sad for 2 or more weeks in a row, in the last year, that caused the young person to stop participation in their regular activities (29%). However, the concern is apparent.

## **Comparison of Alexandria and National Sample High School Students**

### **Physical Health:**

- Alexandria students were less likely to describe themselves as overweight and more likely to use the computer for non-school related activities.

### **Sexual Behavior**

- Alexandria youth were more likely to be sexually active and also more likely to use condoms.

### **Tobacco Use**

- Alexandria youth were less likely to use any of the tobacco products.

### Alcohol and Other Drug Use

- Alcohol use was less prevalent in Alexandria youth, but the use of all other substances was comparable with the national sample.
- Alexandria youth did report less experience of being offered or sold drugs at school.

### Mental Health

- Similar prevalence estimates were noted in the Alexandria and national sample.

### Unintentional Injuries and Violence

- Although lack of use of bicycle helmets topped the use of Alexandria high risk behaviors, more youth in the national sample reported not using a helmet.
- Alexandria youth also reported less experience of property damage at school.

Many similarities are noted between the Alexandria and national high school samples. However, there are a few notable exceptions. Tobacco and alcohol use are lower. However, more Alexandria students reported being sexually active.

### Gender Differences

Differences among boys and girls conform to known sex-stereotyped behaviors. Girls were more likely to describe themselves as overweight; they were also more likely to not get recommended physical activity and play on sports teams. In addition, girls were more likely to be associated with internalizing behaviors (sadness, suicide), while boys were more likely to be associated with externalizing behaviors (fighting, carrying a weapon). Boys were also more likely to have used all tobacco products and marijuana. Alcohol use was similar between boys and girls. Finally, onset of sexual behavior, sexual activity and a higher number of sexual partners was more common among boys. Boys were also more likely to use alcohol or drugs before sex.

### Ethnic Differences

The Asian population is the smallest ethnic subgroup in Alexandria. These students' engagement in negative or risky behaviors was typically uniformly low and lower than other groups. However, Asian high school youth did report the highest prevalence of computer use for non-school related activities and the lowest prevalence of participation on a sport team, a healthy behavior. Asian middle school youth were also more likely to describe themselves as overweight; this was not noted in the high school sample. Asian students were far more likely than all other groups of students to engage in zero risk behaviors (60%). While White youth were more likely to play sports and get recommended amounts of activity, White youth reported the most healthy physical activity and dietary behaviors; however they also reported more tobacco, alcohol and marijuana use. The proportion of Black youth watching 3+ hours of television, fighting and having multiple sexual partners was the highest. They also reported the highest use of condoms, if sexually active, a healthy choice. Tobacco use was low compared to Hispanic and White youth. Hispanic youth were most likely to describe themselves as overweight and trying to lose weight; they also got the lowest amount of recommended physical activity and reported high rates of television and computer usage. Across the other categories of risk behavior, Hispanic youth although not typically having the highest rate of engagement, were close to the subgroup that did, whether it be alcohol and other drug use (White students highest) or sexual behavior (Black students highest). Mental health behaviors did not differ by ethnicity.

## **Summary**

Adolescence represents a unique period in the life cycle, bringing with it special challenges and opportunities. Youth are no longer children whose behavior can be managed by adults; however they are also not adults capable of understanding the long term consequences of their behavior. Choices made during this time period can establish health-related attitudes and practices that continue for a lifetime. Research shows that many of these behaviors and choices are preventable.

The data compiled from the administration of the YRBS with Alexandria youth provides descriptive information about the current behaviors and choices youth are making in regard to their health. These prevalence estimates can be used to inform and guide future activities and plans for the city of Alexandria to promote positive outcomes for youth. There is no single model or plan, but rather it is important for the community to begin a public dialogue about its priorities for youth and establish long-term goals that can be measured to track change over time in meeting those goals.

