

# **Contents**

INTRODUCTION	2
METHODS	2
SAMPLING	2
DATA COLLECTION	2
SIGNIFICANT DIFFERENCES	2
SAMPLE DEMOGRAPHICS	3
PHYSICAL ACTIVITY AND SEDENTARY BEHAVIORS	4
Daily Physical Activity	4
VIGOROUS PHYSICAL ACTIVITY	5
TELEVISION VIEWING	6
COMPUTER GAME USE	7
DIETARY BEHAVIORS	8
Daily Breakfast	8
VEGETABLE CONSUMPTION	g
Fruit Consumption	10
FREQUENCY OF FAST FOOD	11
Daily Soft Drinks	12
OBESITY, OVERWEIGHT, AND WEIGHT CONTROL	13
OBESITY	13
Overweight	14
DIETING	15
WELLNESS AND WELLNESS BEHAVIORS	16
TEETH BRUSHING	16
DENTAL EXAM	17
HEALTH CHECK-UP	18
Poor Health Rating	
BEHAVIORS THAT CONTRIBUTE TO VIOLENCE	20
DATING VIOLENCE	20
VICTIM OF DATING VIOLENCE	21
SUBSTANCE USE BEHAVIORS	22
WEEKLY ALCOHOL USE	22
Drunkenness	23
Marijuana Use	24
TORACCO LISE	25

### Introduction

The NEXT Generation Health Study is a four-year longitudinal study of a representative sample of U.S. students starting in the 10<sup>th</sup> grade. The goals of the study are to identify how adolescent health behaviors and health status change from mid-adolescence through the post high school year. This study will provide insight into the predictors of risk behaviors during adolescence and identify the family, peer, and other social factors that promote positive health behaviors over time.

The pages that follow provide national and Census Division results from the second year of the NEXT Generation Health Study student survey and anthropometric measurements.

### **Methods**

### **SAMPLING**

A three-stage stratified sampling design was used to select a sample of 10<sup>th</sup> graders that is representative of all 10<sup>th</sup> graders enrolled in public, private, and parochial high schools in the United States. First, school districts or groups of school districts were stratified across the nine Census Divisions in the U.S. and then sampled. Next, individual schools were sampled from within the school districts. Finally, one or more 10<sup>th</sup> grade classes were randomly sampled within a school.

### **DATA COLLECTION**

In year one, students in the selected 10<sup>th</sup> grade classrooms were invited to participate in the study. They were provided with information about the study as well as a parental consent form and student assent form. Only students who returned a signed parental consent and student assent form were enrolled in the study. Participation in the study is voluntary and student data is confidential.

Also in year one, trained Health Researchers visited the schools to administer the survey and collect anthropometric measurements (height, weight, and waist circumference). The survey consisted of 102 questions and took approximately 45 minutes to complete. The student survey focused on major health behaviors for adolescents including the following: diet, physical activity and sedentary behaviors, substance use, aggressive behaviors, driving habits, and the influences of peers and/or parents on health risk behaviors.

In year two, which data from this report is based upon, trained Health Researchers visited 45 out of the 81 participating schools in the sample to administer surveys and to collect anthropometric measurements (height, weight, and waist circumference). Surveys were administered to students from the other 36 schools via a web-based survey instrument.

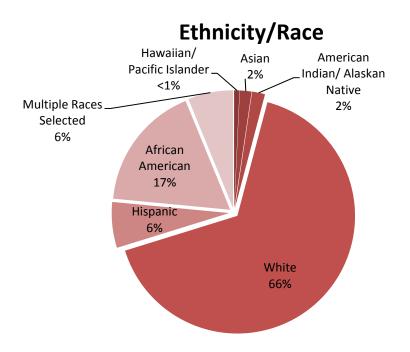
### **SIGNIFICANT DIFFERENCES**

The prevalence rates presented on each chart are based on equal weighting of each Census Division, regardless of differences in the achieved sample size. Chi-square tests were carried out to assess statistical significance of differences between each Census Division of the country as compared to the rest of the U.S. If a Census Division of the country was significantly different from the national average, it is noted in the text of the report and there is a symbol (\*\*) next to the prevalence rate. Occasionally, a Census Division will appear to be much higher or lower than the national average, but it will not be noted as significantly different from the national average. This is because the "confidence interval" for the prevalence rate overlaps with the national average. In other words, there was so much variability across schools within a Census Division that we could not confidently determine that the prevalence rate differed significantly from the national average.

### Sample Demographics

In the first five months of 2011, data from 81 schools was collected for a total of 2,188 completed surveys of 11<sup>th</sup>-grade students. Of the total sample, 56% of the students were female and 44% of the students were male.

The average age of the students completing the survey was 17.3 years old. A breakdown of the sample by ethnicity/race is presented below. Of the total sample, 66% were white, 6% Hispanic, 17% African American, 2% American Indian/Alaskan Native, 2% Asian, less than 1% Hawaiian/Pacific Islander, and 6% selected more than one race.



<sup>\*</sup> Percentages add up to 99%, 1% of students did not provide race on survey.

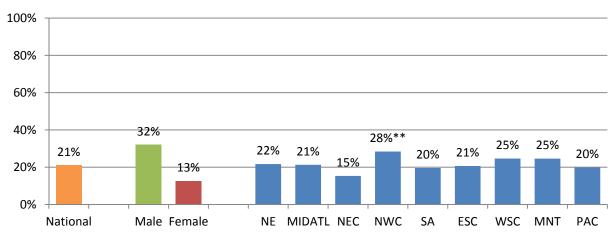
### **Physical Activity and Sedentary Behaviors**

### **DAILY PHYSICAL ACTIVITY**

Moderate-to-vigorous activity is related to decreased obesity, lower cholesterol and blood pressure, and improved mental health (anxiety, depression, self-concept). The establishment of healthy patterns of physical activity during childhood and adolescence is important because physical activity habits established early are maintained during adolescence and from adolescence to adulthood. The 2008 U.S. Department of Health and Human Services recommendation for children is that they should engage in 60 minutes or more of moderate-to-vigorous physical activity every day.

The chart below presents the proportion of 11<sup>th</sup>-grade students who meet national guidelines by reporting they engage in physical activity for at least 60 minutes per day. The North West Central division (28%) was significantly higher than the national average (21%).

# **Daily Physical Activity**

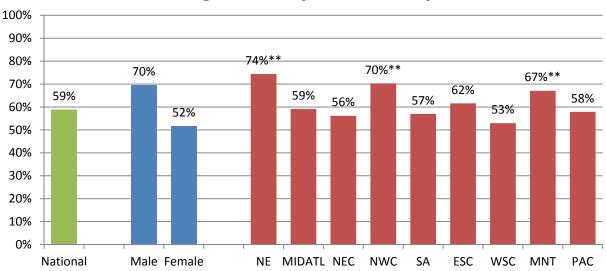


<sup>\*\*</sup> Significantly higher or lower than the national average

### **VIGOROUS PHYSICAL ACTIVITY**

The chart below presents the proportion of 11<sup>th</sup>-grade students who report they engage in vigorous physical activity at least 2 to 3 times per week for more than one hour. The New England (74%), North West Central (70%), and Mountain (67%) divisions were significantly higher than the national average (59%).

# **Vigorous Physical Activity**



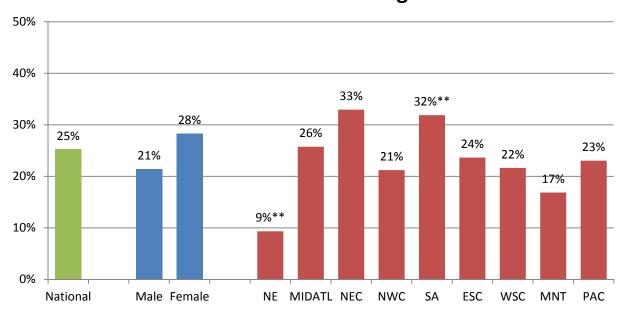
<sup>\*\*</sup> Significantly higher or lower than the national average

#### **TELEVISION VIEWING**

Sedentary behavior usually refers to leisure-time activities such as watching television, playing video or computer games, or using a computer that do not require vigorous physical activity. For adolescents, time spent in sedentary activities has been associated with obesity and obesity-related health problems as well as behavioral problems such as aggression and substance use. Television viewing has been associated with bullying, higher consumption of sweets and soft drinks, and lower consumption of fruit and vegetables. Current recommendations from the American Academy of Pediatrics suggest that children should not have more than one to two hours of quality television and video viewing per day.

The chart below presents the proportion of 11<sup>th</sup>-grade students who exceed national guidelines by reporting they watch two hours or more of television per day on weekdays and weekends. The South Atlantic division (32%) was significantly higher than the national average (25%). The New England division (9%) was significantly lower than the national average.

### **Television Viewing**



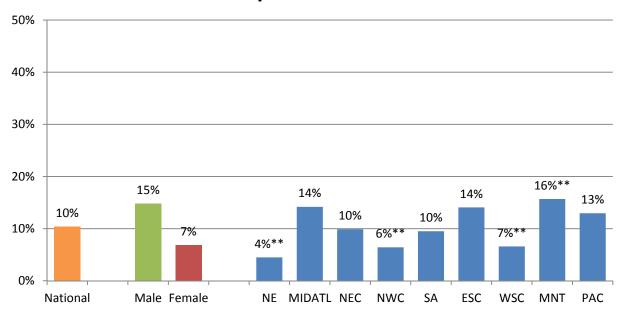
<sup>\*\*</sup> Significantly higher or lower than the national average

#### **COMPUTER GAME USE**

Less is known about the health effects of playing computer games than for television viewing, but some recommendations for reduced time playing computer or video games parallel the recommendations for reduction of television viewing.

The chart below presents the proportion of 11<sup>th</sup>-grade students who report they play computer games for two hours or more per day on weekdays and weekends. The Mountain division (16%) was significantly higher than the national average (10%). The New England (4%), North West Central (6%), and West South Central (7%) divisions were significantly lower than the national average.

### **Computer Game Use**



<sup>\*\*</sup> Significantly higher or lower than the national average

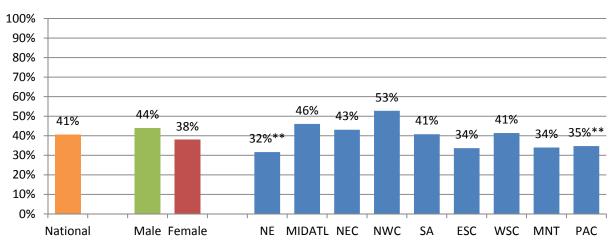
### **Dietary Behaviors**

A diet with low fruit, vegetable, and fiber intake and high sodium and fat intake puts adolescents at increased risk for long-term health problems, such as cancer and cardiovascular diseases. The American Dietetic Association and U.S. Department of Health and Human Services' recommendations suggest that successful cognitive and physical development, weight management, and chronic disease prevention can be obtained through a combination of following the dietary guidelines and getting adequate physical activity.

#### **DAILY BREAKFAST**

Breakfast makes a significant contribution to a child's daily nutrition. Skipping breakfast may limit a student's ability to take advantage of learning opportunities in school and affect school performance. Skipping breakfast has also been associated with poorer nutrition behaviors throughout the day and with subsequent obesity. The causes of skipping breakfast can be both economic and lifestyle. The chart below presents the proportion of 11<sup>th</sup>-grade students who report they eat breakfast every weekday. The New England (32%) and Pacific (35%) divisions were significantly lower than the national average (41%). None of the divisions were significantly higher than the national average.

# **Breakfast Daily**



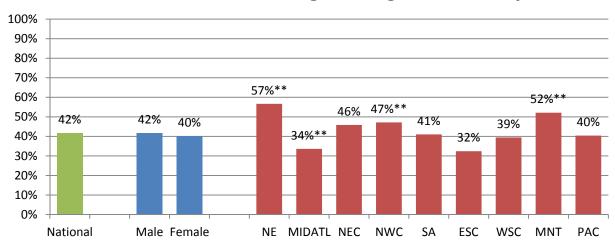
<sup>\*\*</sup> Significantly higher or lower than the national average

#### **VEGETABLE CONSUMPTION**

The U.S. dietary guidelines emphasize adequate daily consumption of fruits, vegetables, whole grains, and fat-free or low-fat milk. Fruits and vegetables provide a variety of important micronutrients and fiber. Unfortunately, most children in the U.S. do not meet the guidelines for consumption of at least five servings of fruits and vegetables daily.

The chart below presents the proportion of 11<sup>th</sup>-grade students who reported they eat three or more servings of vegetables daily. The New England (57%), North West Central (47%), and Mountain (52%) divisions were significantly higher than the national average (42%). The Middle Atlantic division (34%) was significantly lower than the national average.

# **Three or More Servings of Vegetables Daily**

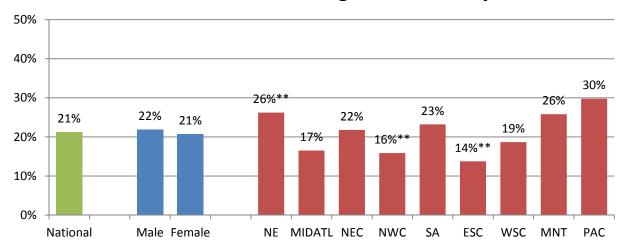


<sup>\*\*</sup> Significantly higher or lower than the national average

#### FRUIT CONSUMPTION

The chart below presents the proportion of 11<sup>th</sup>-grade students who reported they eat two or more servings of fruit daily. The East South Central (14%) and North West Central (16%) divisions were significantly lower than the national average (21%). The New England division (26%) was significantly higher than the national average.

# Two or More Servings of Fruit Daily



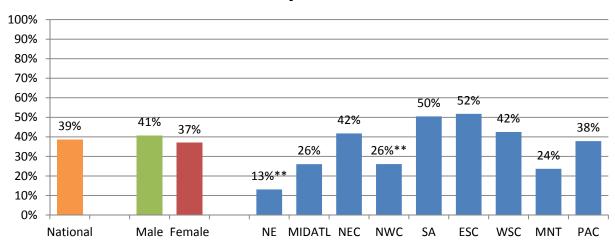
<sup>\*\*</sup> Significantly higher or lower than the national average

### FREQUENCY OF FAST FOOD

According to the American Dietetics Association, fast foods usually do not contribute to the consumption of fruits and vegetables and instead tend to be high in calories and fats. In comparison, children who eat more meals at home have higher intake of fruits, vegetables, vitamins, and minerals. Another potential problem with fast food restaurants is the size of servings ('super size'); children eat more when provided with larger portion sizes.

The chart below presents the proportion of 11<sup>th</sup>-grade students who report they eat at a fast food restaurant at least once a week. The New England (13%) and North West Central (26%) divisions were significantly lower than the national average (39%). None of the divisions were significantly higher than the national average.

# **Weekly Fast Food**



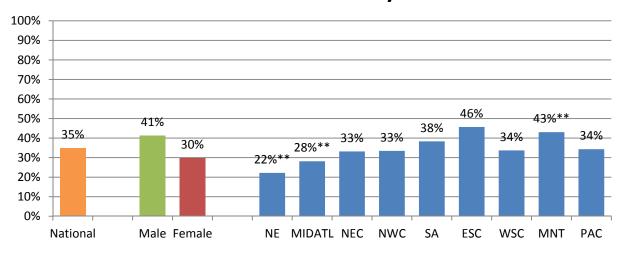
<sup>\*\*</sup> Significantly higher or lower than the national average

#### **DAILY SOFT DRINKS**

Although results are mixed, trends in children's dietary intake suggest an increase in caloric intake over the previous two decades, mainly from increasing consumption of snacks, soft drinks, fruit drinks, and pizza and eating away from home. The problem with most of these foods is that they are 'empty' calories that do not contribute to the range of nutrients necessary for healthy growth and development. Energy intake from 'empty' calories competes with consumption of nutrient rich foods and thus decreases the intake of fiber, calcium, and protein. Another problem is that the consumption of refined sugars contributes to dental caries.

The chart below presents the proportion of 11<sup>th</sup>-grade students who report they drink soft drinks at least once a day. The Middle Atlantic (28%) and New England (22%) divisions were significantly lower than the national average (35%). The Mountain division (43%) was significantly higher than the national average.

### **Soft Drinks Daily**



<sup>\*\*</sup> Significantly higher or lower than the national average

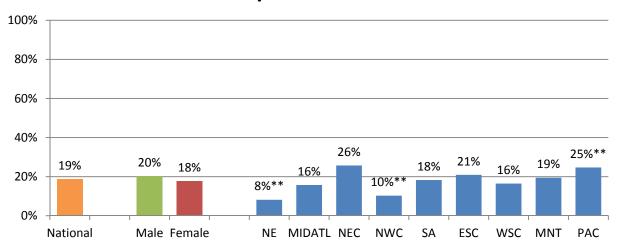
### Obesity, Overweight, and Weight Control

Among the leading causes of death are coronary heart disease, cerebrovascular diseases, and chronic obstructive pulmonary disease. Obesity is a risk factor for many of these chronic conditions and there is an increasing prevalence of obesity and type 2 diabetes in U.S. children and adults, with resulting increases in morbidity and mortality. Childhood obesity has been associated with the incidence of type 2 diabetes among adolescents and neurologic, endocrine, cardiovascular, pulmonary, gastrointestinal, renal, musculoskeletal, and psychosocial complications.

#### **OBESITY**

The chart below presents the proportion of 11<sup>th</sup>-grade students who are obese; that is, based on our measurements of their height and weight, they substantially exceed the recommended weight for children their height, age and gender. The New England (8%) and North West Central (10%) divisions were significantly lower than the national average (19%). The Pacific (25%) division was significantly higher than the national average.

### **Proportion Obese**

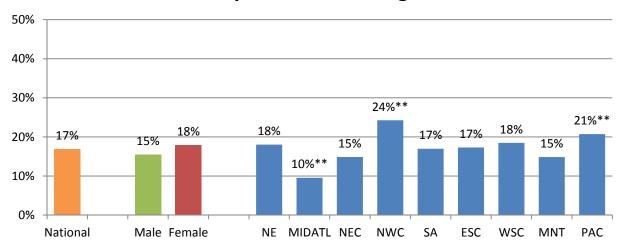


<sup>\*\*</sup> Significantly higher or lower than the national average

#### **OVERWEIGHT**

The chart below presents the proportion of 11<sup>th</sup>-grade students who are overweight; that is, based on our measurements of their height and weight, they fall between the recommended weight for their height, age and gender and the criterion for obesity. The Middle Atlantic division (10%) was significantly lower than the national average (17%). The Pacific (21%) and North West Central (24%) divisions were significantly higher than the national average.

# **Proportion Overweight**



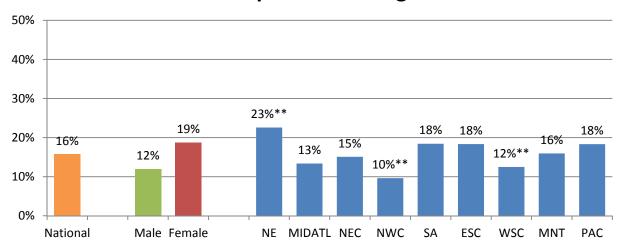
<sup>\*\*</sup> Significantly higher or lower than the national average

#### **DIETING**

Dieting can contribute to weight loss. However, there are also risks associated with dieting, particularly in children. Unless the energy balance is maintained, dieting can be followed by subsequent weight gain. There is a risk, particularly for adolescent girls, that dieting can include a cycle of dieting and binge eating. Another risk is excessive weight loss associated with anorexia. Extreme dieting has been associated with low self-esteem, depression, anxiety, eating disorders, and suicidal ideation.

The chart below presents the proportion of 11<sup>th</sup>-grade students who report they are dieting. The New England (23%) division was significantly higher than the national average (16%). The North West Central (10%) and West South Central (12%) divisions were significantly lower than the national average.

### **Proportion Dieting**



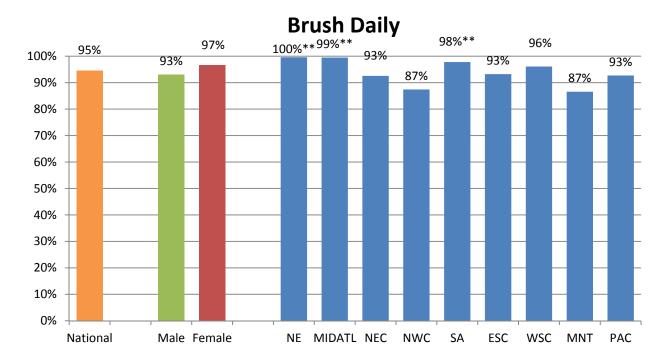
<sup>\*\*</sup> Significantly higher or lower than the national average

### Wellness and Wellness Behaviors

#### **TEETH BRUSHING**

Along with daily flossing, daily teeth brushing is an important part of dental hygiene and is among the health behaviors practiced by the vast majority of Americans. Daily brushing reduces the risk of dental caries and gum disease. Recent studies have linked dental problems to other chronic illnesses, including cardiovascular disease.

The chart below presents the proportion of 11<sup>th</sup>-grade students who report they brush their teeth at least once a day. The Middle Atlantic (99%), New England (100%\*), and South Atlantic (98%) divisions were significantly higher than the national average (95%).



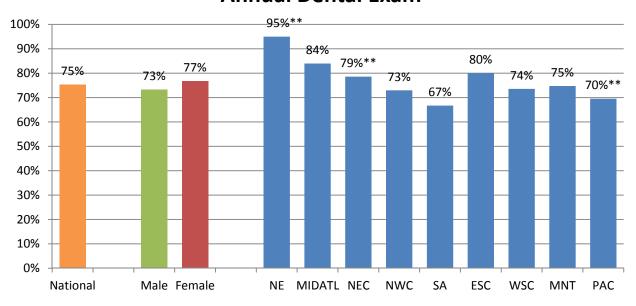
<sup>\*</sup>Actual Percentage for NE is 99.6, allowing for statistical significance to be tested

<sup>\*\*</sup> Significantly higher or lower than the national average

### **DENTAL EXAM**

The chart below presents the proportion of 11<sup>th</sup>-grade students who report they had a dental examination in the last 12 months. The New England (95%) and North East Central (79%) divisions were significantly higher than the national average (75%). The Pacific division (70%) was significantly lower than the national average.

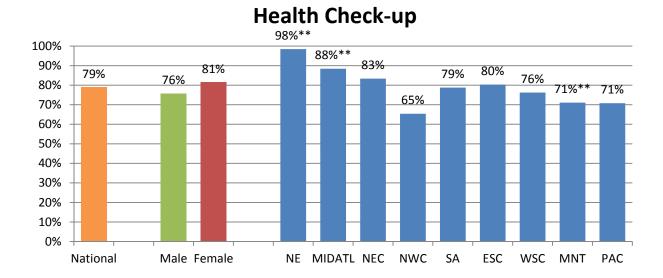
### **Annual Dental Exam**



<sup>\*\*</sup> Significantly higher or lower than the national average

#### **HEALTH CHECK-UP**

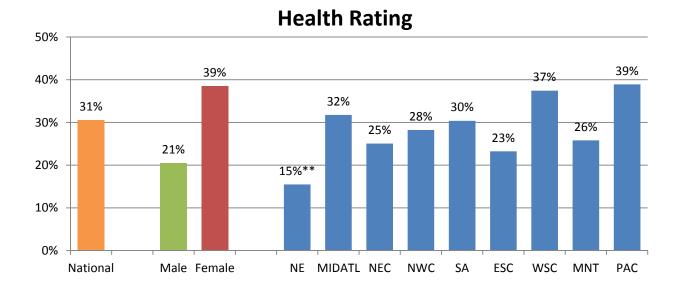
The chart below presents the proportion of 11<sup>th</sup>-grade students who report they had a routine check-up in the last 12 months. The Middle Atlantic (88%) and New England (98%) divisions were significantly higher than the national average (79%), whereas the Mountain division (71%) was significantly lower than the national average.



<sup>\*\*</sup> Significantly higher or lower than the national average

#### **POOR HEALTH RATING**

The chart below presents the proportion of 11<sup>th</sup>-grade students who rated their health as fair or poor. The New England division (15%) was significantly lower than the national average (31%). No divisions were significantly higher than the national average.



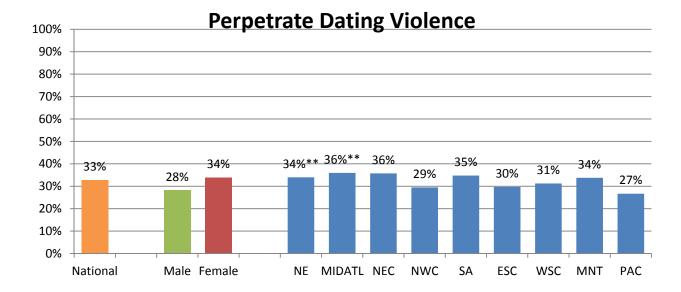
<sup>\*\*</sup> Significantly higher or lower than the national average

### **Behaviors that Contribute to Violence**

The consequences of adolescent dating violence, fighting, and violence in schools are now recognized as a significant public health problem. Physical aggression has been associated with an increase in injuries, violent crime, school adjustment problems, substance use, and mental health problems.

#### **DATING VIOLENCE**

The chart below presents the percent of 11<sup>th</sup>-grade students who reported they perpetrated dating violence against a boyfriend or girlfriend in the last 12 months. The New England (34%) and Middle Atlantic (36%) divisions were significantly higher than the national average (33%).

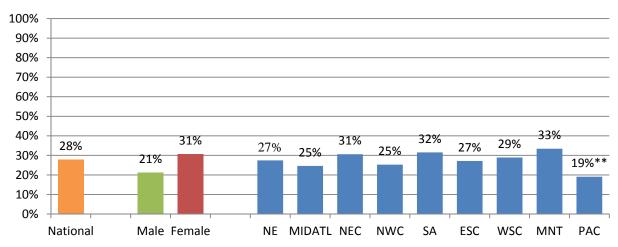


<sup>\*\*</sup> Significantly higher or lower than the national average

### **VICTIM OF DATING VIOLENCE**

The chart below presents the percent of 11<sup>th</sup>-grade students who reported they experienced dating violence from a boyfriend or girlfriend in the last 12 months. The Pacific division (19%) was significantly lower than the national average (28%).

# **Victim of Dating Violence**



<sup>\*\*</sup> Significantly higher or lower than the national average

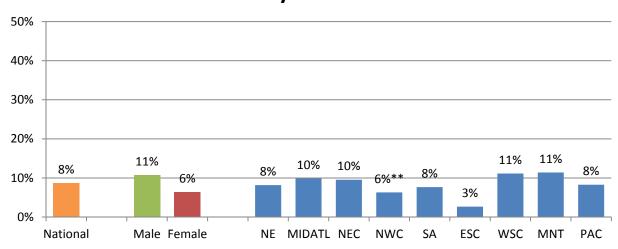
### **Substance Use Behaviors**

### **WEEKLY ALCOHOL USE**

Alcohol use has been related to some of the leading causes of mortality in children: accidental injuries, suicide, and homicide. Frequent or heavy adolescent alcohol use has been associated with tobacco and illegal drug use, risky sexual behavior, behavioral problems, depression, anxiety disorders, eating disorders, and obesity.

The chart below presents the percent of 11<sup>th</sup>-grade students who reported they drink alcohol at least once a week. The North West Central division (6%) was significantly lower than the national average (8%).

# **Weekly Alcohol Use**

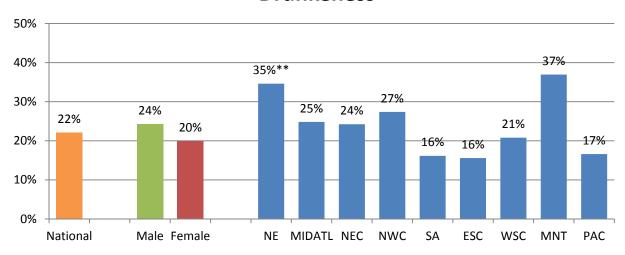


<sup>\*\*</sup> Significantly higher or lower than the national average

### **DRUNKENNESS**

The chart below presents the percent of 11<sup>th</sup>-grade students who reported they have been drunk at least once in the last 30 days. The New England division (35%) was significantly higher than the national average (22%).

# **Drunkeness**



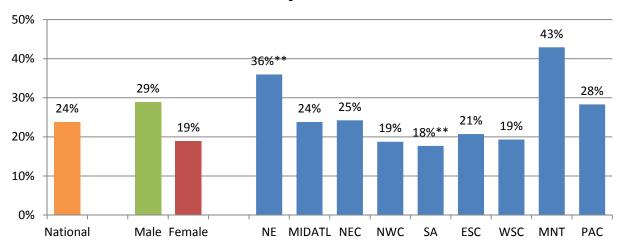
<sup>\*\*</sup> Significantly higher or lower than the national average

#### **MARIJUANA USE**

Although there has been some inconsistency in the research findings, early marijuana use and chronic marijuana use have been related to negative long-term consequences such as increased risk of other illicit drug use, subsequent dependence and addiction to illicit drugs, and psychosocial adjustment and mental health problems in late adolescence and early adulthood.

The chart below presents the percent of 11<sup>th</sup>-grade students who reported they smoked marijuana at least once in the last 12 months. The New England division (36%) was significantly higher than the national average (24%). The South Atlantic division (18%) was significantly lower than the national average.

# Marijuana Use



<sup>\*\*</sup> Significantly higher or lower than the national average

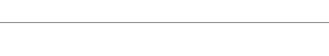
#### **TOBACCO USE**

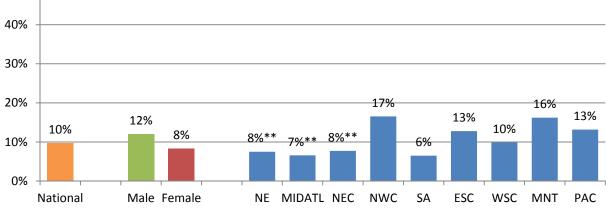
50%

Cigarette smoking is related to an increased risk of some of the major causes of disease and death in the U.S., including heart disease, cancer, and chronic lung disease. It is estimated that half the people who smoke today will suffer premature death due to their tobacco use. The earlier children begin smoking, the more likely they are to become addicted to tobacco, making it difficult to quit, and the more likely they will suffer its long-term consequences. In addition, most smokers begin during adolescence, making this time a focus for efforts to prevent the addiction to tobacco.

The chart below presents the percent of 11<sup>th</sup>-grade students who reported they smoke at least once a week. The New England (8%), Middle Atlantic (7%), and North East Central (8%) divisions were significantly lower than the national average (10%).

**Tobacco Use** 





<sup>\*\*</sup> Significantly higher or lower than the national average

### Acknowledgements

We owe a special thanks to the students who participated in the NEXT Generation Health Study and the parents who granted permission. We also acknowledge and thank the school administrators, principals, and teachers who facilitated the data collection, especially the individuals who served as the contacts at each school.

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