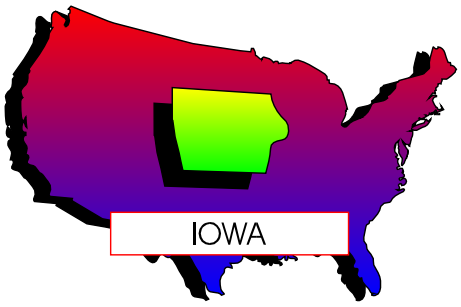
# 2013 Iowa YRBS




# Youth Risk Behavior Survey:
## Iowa High Schools

# FINAL REPORT

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**Prepared for:**
**Iowa Department of Education,**
**Nutrition & Health Services**

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# Introduction

The Youth Risk Behavior Surveillance System is an epidemiologic system established by the U.S. Centers for Disease Control and Prevention (CDC) to help monitor the prevalence of behaviors that put youth at risk for the most serious health and social problems that can occur during adolescence and adulthood. The Youth Risk Behavior Survey (YRBS) is the measurement instrument of this system. This survey is used by the State of Iowa to monitor these behaviors among its young people. Specifically, this survey focuses on students who were attending high schools (Grades 9 through 12) in Iowa during 2012-13.

The YRBS was developed cooperatively by the Division of Adolescent and School Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention (CDC), 19 other federal agencies, 71 state and local departments of education, and national education and health organizations. It was administered in about 40 states in 2013. The survey consists of 86 questions and is presented in Appendix A.

## Evidence of Health and Social Problems among Youth in the United States

According to the Children's Safety Network, of Iowa youth aged 15-19 who died, the majority are due to motor vehicle accidents, suicides, and homicides (Children's Safety Network, www.childrenssafetynetwork.org/state/Iowa/2013). These factors also cause acute and chronic morbidity among our youth.

Young people suffer significant morbidity from a high rate of unintended pregnancy that occurs among teenagers every year. This is one factor contributing to an infant mortality rate of 6.1 per 1000 live births occurring in the United States in 2011 (*The World Almanac and Book of Facts 2014*, 2014). The U.S. teen pregnancy rate was 31.3 (live births, per 1000 females 15-19 years of age) in 2011. Many of these pregnancies, especially among younger teens, were probably unintended. Both of these rates have been dramatically reduced over the past several decades (ibid.). Unintended pregnancy was also a factor leading to about 1.1 million abortions in the United States in 2011 (according to the Guttmacher Institute). The number of abortions has also begun to trend downward in the past few years. These positive trends may be attributed to improved health screening; advances in medical technology and contraception; and health education, policies, and programs in our schools.

In addition, serious health problems result from sexually transmitted diseases (STDs), including Acquired Immune Deficiency Syndrome (AIDS) that are contracted by young people every year. According to the National Center for Health Statistics in the U.S. Department of Health and Human Services, 8.6% of the 33,015 cases of AIDS diagnosed in the United States in 2010 were 13 to 24 years old (*The World Almanac and Book of Facts 2014*, 2014). In terms of risk behaviors, male-to-male sexual contact continues to be the highest "exposure category," followed by intravenous (IV) drug abuse. Along with membership in *both* exposure categories, these risk factors were identified as having caused or contributed to 78.6% of all AIDS cases among persons in the United States 13 years of age or older, from 1981 to 2011 (ibid.). Thus, from the standpoint of controlling AIDS, unprotected sex and illicit drug use/abuse (especially the intravenous type) are risk behaviors that need to be monitored among our youth. Other STDs include the HPV (human papilloma virus) infection, which has a much higher incidence than AIDS, currently has no cure (although a vaccine is now available), and is the leading cause of cervical cancer (ibid.). Unprotected sex is also important to monitor for controlling HPV and other STDs.

Other behaviors that lead to mortality, morbidity, and social problems among teenagers include the following:

- drinking and driving

- alcohol and other drug use (in addition to intravenous type)
- tobacco use (smoking or chewing)
- dietary excesses and imbalances
- insufficient physical activity

Some of these behaviors, such as substance abuse and driving, result in mortality, morbidity, and social problems during the teenage years. Others, such as tobacco use, dietary excesses and imbalances, and physical inactivity are known to lead to diseases that occur later in life (such as cancer, diabetes, and heart disease). *These behaviors and their associated problems are largely preventable (or remediable) through education, counseling, mentoring, treatment, and other programs*.

## The Six Risk Areas

In 1988, the CDC began a process to identify and monitor critical health behaviors among youth. Behaviors leading to mortality, morbidity, and social problems were analyzed and categorized into six risk areas:

(1) behaviors that lead to intentional or unintentional injuries

(2) tobacco use

(3) alcohol and other drugs

(4) sexual behaviors that can result in HIV (human immunodeficiency virus) infection, other STDs, or unintended pregnancies

(5) dietary behaviors

(6) physical activity/inactivity

Survey questions addressed behaviors in each of the above six risk areas. In addition, beginning in the 2007 YRBS, two questions about asthma were included; one of these was eliminated in the 2013 YRBS.

The purpose of the Iowa Youth Risk Behavior Survey (YRBS) is to assist educators and health professionals in the state in determining the prevalence of behaviors or factors that put Iowa youth at risk. This determination can be used to focus education and prevention/treatment programs in a continuing effort to reduce the prevalence of risk factors that affect Iowa youth.

A national YRBS is also administered to a sample of schools across the United States. This information may be used to assess the degree to which risk factors are more (or less) prevalent in Iowa relative to the country as a whole. In addition, there are other surveys that provide similar information on our state's youth, e.g., the Iowa Youth Survey and the Search Institute Survey. These surveys also provide information on various "protective factors" that can help students avoid becoming involved in risky behaviors. (See Veale (September 2007) for a "cross/comparative" analysis of the Iowa YRBS and the Iowa Youth Survey.) Finally, in alternate (even) years, the School Health Profiles (SHP) is administered to a sample of Iowa high school principals and lead health education teachers to assess support for various school health policies and practices/programs. The SHP complements the YRBS in that these health policies and practices/programs contribute to the reductions in negative risk behaviors and gains in positive behaviors we have observed in the YRBS.

## Presentation of the Results of the YRBS

The 2013 Iowa YRBS results are presented for each risk area in tabular form, followed by a brief discussion. Since the 2013 Iowa YRBS data were *not* weighted—the survey results apply only to those high school students in Iowa that completed the survey. Summary highlights for the 2013 Iowa YRBS total sample are presented graphically for questions selected over the six risk areas. For a more

detailed summary of the data, see the CD *2013 Youth Risk Behavior Survey Results: Iowa High Schools* (Centers for Disease Control and Prevention, 2013). A four-page administrative summary highlighting the 2013 Iowa YRBS is also being prepared for dissemination.

Trends for Iowa high school students were established for the period 1997-2011, during which weighted data were achieved four times. For a separate report addressing the trends in various risk behaviors surveyed in at least two of these four years, see *Significant Trends in the Iowa YRBS 1997 to 2011: Iowa High Schools* (Veale, February 2012a). Four poster (fact) sheets are also available with trend data and recommendations for the risk areas (1) injury and violence; (2) alcohol, tobacco, and other drug use; (3) sexual behaviors; and (4) nutrition and physical activity.

The text and graphics were developed using *WordPerfect Office X5* (Corel, Inc.). The map of the state of Iowa superimposed over a map of the United States was available from *WordPerfect Suite 6.1 for Windows* (Corel, Inc.).

> [NOTE: In many of the survey questions, a time reference is provided in an attempt to focus the response. For example, "past 12 months" refers to *the 12 months prior to the day on which the respondent answered the survey question* and "yesterday" refers to *the day before the one on which the respondent answered the survey question*. In general, phrases like "past *x* days/weeks/months" refers to the "*x*" units of time before the survey was completed by the respondent.]

# Survey Methods and Data Analysis

The 2013 Youth Risk Behavior Survey (YRBS) instrument consisted of 86 questions which were used to assess students in the six critical areas of health risk. Statistical sampling was used to reduce the number of students needed to complete the survey and control the accuracy and precision of the resulting estimates.

## Sampling Method

All regular (non-alternative) public schools containing Grades 9, 10, 11, or 12 were included in the sampling frame or population. Schools were selected systematically with probability proportional to size of enrollment in Grades 9 through 12 using a random starting point. Altogether, 40 schools were sampled.[1] This constitutes the school-level part of the sampling process.

All classes meeting during the second period of the day were included in the sampling frame. Systematic equal probability sampling with a random starting point was used to select classes from each school that participated in the survey. This constitutes the student- or class-level part of the sampling process.

## Survey Process

Superintendents and principals associated with schools selected for the YRBS were contacted in the winter of 2012-13 to obtain their cooperation. Each participating school submitted a list of second period classes and a random sample of these classes was selected for the survey. The survey booklets and instructions were then mailed to each school. Parent notification forms were provided participating schools to secure parental approval as needed. As stated in those forms, the survey procedures have been designed to protect their child's privacy and allow for anonymous participation. Only group-level statistical data were produced and no student or school name appears in this or any Iowa Department of Education report. Participation in the survey was voluntary.

## Response Rates and Weighted Data

At the school level, 22 of the 40 schools participated. Thus, the school level response rate was (22/40) x 100 or 55%. At the classroom level, 1,071 students out of 1,222 (86%) completed usable questionnaires. The overall response rate was

$$(.55)(.86) \times 100\%$$

or 47%.

Overall response rates equal to or exceeding 60% are required for the data to be weighted. Thus, the 2013 YRBS data were *not* weighted. This means that these results can *not* be generalized to all high school students in public schools in the state of Iowa—they are representative of only the 1,071 students who completed the questionnaire. However, the results are still useful for describing the sample and for providing an *indication*, albeit an imperfect one, of how Iowa's high school students are doing with respect to these risk behaviors. The full summary of the 2013 Iowa YRBS data by the CDC is available on CD (Centers for Disease Control and Prevention, 2013).

The author believes that the main factors that contributed to the low response rate on the 2013 YRBS were the following:

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[1] This (40) was the number of schools selected in 1997, the first year we achieved weighted data in Iowa. Selecting a higher number of schools would increase the opportunity for response and decrease the number of classes that need to be selected in each school, at some increase in administrative cost.

- financial incentives were insufficient for schools to participate in the survey;
- follow-up with principals of many of the schools was difficult-to-impossible by phone;
- some schools in the sample were among those often selected in the past, including one that participated in the 2011 YRBS;
- several of the principals of the nonparticipating schools indicated that 2012-13 was a particularly busy year in terms of student involvement in standardized testing and other similar surveys in their schools, including the Iowa Youth Survey (administered in the fall of the school year);
- the late start due to administrative factors beyond our control.

Recommendations for improving the response rate in 2015 are discussed in a later chapter.

## Data Analysis

The completed surveys were shipped to Westat, Inc., a contractor for the CDC. Data analyses were conducted by Westat which included unweighted percentages and breakdowns by gender, grade level, and race/ethnicity. The only non-Caucasian category with more than 100 respondents for most questions was Hispanic/Latino; thus, the only race/ethnicity comparisons were between this group and Caucasian/White students. Gender and grade level breakdowns were also used in this report. No formal tests of significance were applied since the data were not weighted. Only differences judged "substantial" over the two race/ethnicity groups, gender, and grade levels were noted.

## The Sample

A total of 1,071 students completed the 2013 Iowa YRBS. Based on this sample, 53.5% were female and 46.5% were male. In terms of race/ethnicity, 79.1% were Caucasian/White (non-Hispanic), 2.4% were African-American or Black (non-Hispanic), 11.1% were Hispanic/Latino, 3.6% were of multiple races, and 3.8% were classified as "all other races" (including, for example, Asian-Americans and Native American Indians). These breakdowns, all unweighted percentages, were roughly comparable to the state data for high school students in 2011-12 (the frame used to draw the sample). The percentages in the four grade levels were also roughly comparable to those of the sampling frame or population.

# Results

The results of the 2013 Iowa Youth Risk Behavior Survey (YRBS) are presented in two-column format, with the outcome addressed by the survey question in the column on the left. In the column on the right, the percentage of students surveyed who responded in the manner indicated by the outcome statement is presented, along with the total number on which the percentage was based (in parentheses). Differences over gender, race/ethnicity (Hispanic/Latino and Caucasian/White), and grade level that are judged to be "substantial" are cited. No statistical tests were used since the data were not weighted.

## Risk Area I: Behaviors that Lead to Intentional or Unintentional Injuries

This section contains summaries of survey data on behaviors that lead to intentional or unintentional injuries, including drinking and driving, violent behavior, weapons carrying, and suicide (Questions 8-28). "Students" refers to those who participated in the 2013 YRBS.

**1. Helmets, Seat Belts, and Drinking/Driving**

| Outcome | Percent (N) |
|---|---|
| *8. Among students who rode a bicycle during the past 12 months, the percentage who never or rarely wore a bicycle helmet.* | 88.0% (739) |
| *9. Percentage of students who never or rarely wear a seat belt when riding in a car driven by someone else.* | 4.2% (1,071) |
| *10. Percentage of students who during the past 30 days rode one or more times in a car or other vehicle driven by someone who had been drinking alcohol.* | 21.3% (1,070) |
| *11. Among students who drove a car or other vehicle during the past 30 days, the percentage who drove when they had been drinking alcohol one or more times during the past 30 days.* | 8.1% (843) |
| *12. Among students who drove a car or other vehicle during the past 30 days, the percentage who texted or e-mailed while driving on one or more of the past 30 days.* | 50.4% (850) |

On Question 11, substantially more (i) 11th and 12th graders than 9th graders and (ii) males than females indicated they drove a car or other vehicle during the past 30 days when they had been drinking.

Question 12 was added to the survey in 2013. Texting while driving is now illegal in Iowa and is considered to be an extremely dangerous activity. Over 50% of Iowa high school students taking this survey who drove indicated they had texted or e-mailed while driving on at least one occasion in the month prior to the survey. The percentage increased from 18.1% among 9th graders to 80.4% among 12th graders, increasing in almost perfect "stair-step" fashion each year (see Figure 1). Clearly, this is an area that requires more attention in school health and driver education classes.

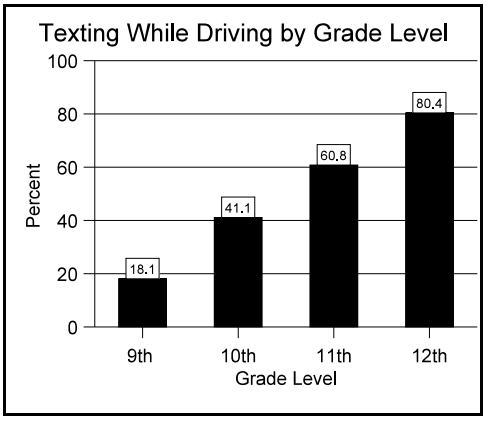


**Figure 1:** Percent who indicated they texted or e-mailed while driving at least once during the past 30 days, by grade level.

**2. Violent Behavior, Weapons, and Safety**

| Outcome | Percent (N) |
|---|---|
| *13. Percentage of students who carried a weapon such as a gun, knife, or club on one or more of the past 30 days.* | 15.4% (1,059) |
| *14. Percentage of students who carried a gun on one or more of the past 30 days.* | 5.0% (1,061) |
| *15. Percentage of students who carried a weapon such as a gun, knife, or club on school property on one or more of the past 30 days.* | 3.4% (1,067) |
| *16. Percentage of students who did not go to school on one or more of the past 30 days because they felt unsafe at school or on their way to or from school.* | 4.0% (1,070) |
| *17. Percentage of students who had been threatened or injured with a weapon on school property one or more times during the past 12 months.* | 4.9% (1,070) |
| *18. Percentage of students who were in a physical fight one or more times during the past 12 months.* | 20.5% (1,065) |
| *19. Percentage of students who were injured in a physical fight and had to be treated by a doctor or nurse one or more times during the past 12 months.* | 2.7% (1,069) |
| *20. Percentage of students who were in a physical fight on school property one or more times during the past 12 months.* | 6.6% (1,065) |
| *21. Percentage of students who have ever been physically forced to have sexual intercourse when they did not want to.* | 6.6% (1,066) |
| *22. Among students who had dated or gone out with someone in the past 12 months, the percentage of students who were ever hit, slapped, or physically hurt on purpose by that person(s) during the past 12 months.* | 8.6% (760) |
| *23. Among students who had dated or gone out with someone in the past 12 months, the percentage of students who were ever forced by that person(s) to do sexual things they did not want to during the past 12 months.* | 10.6% (761) |

There were substantial differences by gender in Questions 13-15, 17- 20 where proportionately more males than females indicated involvement in the corresponding risky behaviors involving carrying weapon(s), being threatened/injured by someone with a weapon on school property, and physical fighting. Proportionately more Caucasian/White than Hispanic/Latino students indicated they carried a gun, knife, or club, but more Hispanic/Latino than Caucasian/White students indicated they had been in a physical fight, in the past 30 days. In Question 21, proportionately more (i) female than male students and (ii) Hispanic/Latino than Caucasian/White students indicated they were physically forced to have sexual intercourse against their will.

Proportionately fewer seniors than 9$^{th}$ graders were involved in physical fights on school property during the past year. On the other hand, more 11$^{th}$ and 12$^{th}$ graders than 9$^{th}$ graders who had dated or gone out with someone in the past year indicated they had been physically hurt on purpose by that person(s).

### 3. Bullying

| Outcome | Percent (N) |
|---|---|
| *24. Percentage of students who had ever been bullied on school property during the past 12 months.* | 25.7% (1,070) |
| *25. Percentage of students who had ever been electronically bullied during the past 12 months.* | 19.7% (1,071) |

Question 24 was a new question in the 2009 YRBS (a year in which weighted data were *not* achieved in Iowa). Bullying is aggressive behavior—*deliberately intimidating, persecuting, or attacking those who are weaker*. Proportionately more bullying was indicated by 9th graders than those in the 12th grade. Question 25 was new in the 2011 YRBS. Proportionately more females (24.8%) indicated they were electronically bullied (e-mail, chat rooms, texting, etc.) than males (13.7%).

### 4. Suicide

| Outcome | Percent (N) |
|---|---|
| *26. Percentage of students who, during the past 12 months, ever felt so sad or hopeless almost every day for two weeks or more in a row that they stopped doing some usual activities.* | 22.3% (1,071) |
| *27. Percentage of students who seriously considered attempting suicide during the past 12 months.* | 15.3% (1,067) |
| *28. Percentage of students who made a plan about how they would attempt suicide during the past 12 months.* | 12.2% (1,068) |
| *29. Percentage of students who actually attempted suicide one or more times during the past 12 months.* | 7.2% (973) |
| *30. Percentage of students who made a suicide attempt during the past 12 months that resulted in an injury, poisoning, or overdose that had to be treated by a doctor or nurse.* | 2.3% (972) |

On Question 26, proportionately more females than males indicated that they felt sad or hopeless for two weeks in a row that made them stop doing some of their usual activities during the past 12 months (see Figure 2). Also, on Question 28, proportionately more females than males indicated they had made a plan about how they would attempt suicide during the past 12 months.

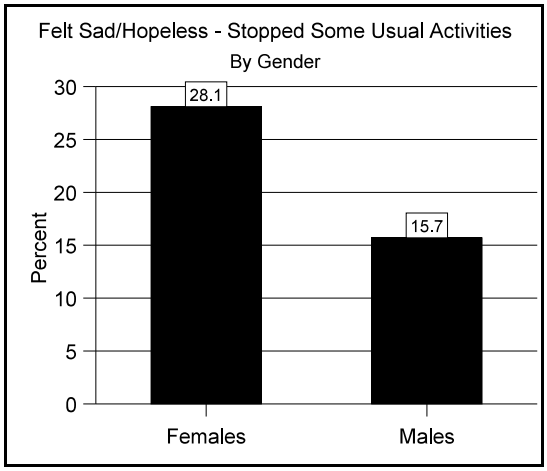


**Figure 2:** Percent who felt so sad or hopeless for two weeks or more in a row and stopped doing some of their usual activities during the past 12 months, by gender.

Proportionately more Hispanic/Latino students indicated risk in this area than did Caucasian/White students. For example, on Question 29, 18.0% of Hispanic/Latino and 5.2% of Caucasian/White students indicated they actually attempted suicide in the 12 months prior to the survey. Also, proportionately more Hispanic/Latino than Caucasian/White students indicated they felt sad or hopeless for two weeks in a row, seriously considered attempting suicide,

made a plan about how they would commit suicide, and made an attempt that resulted in injury, poisoning, or overdose that had to be treated by a doctor or nurse, in the past 12 months.

## Risk Area II: Tobacco Use

This section contains summaries of survey data on tobacco use, including cigarette smoking, cigar smoking, and the use of smokeless tobacco (Questions 31-40). "Students" refers to those who participated in the 2013 YRBS.

**1. Cigarette Smoking**

| Outcome | Percent (N) |
|---|---|
| *31. Percentage of students who ever tried cigarette smoking, even one or two puffs.* | 31.2% (1,054) |
| *32. Percentage of students who smoked a whole cigarette for the first time before age 13.* | 6.3% (1,041) |
| *33. (i) Percentage of students who smoked cigarettes on one or more of the past 30 days.* | 12.3% (1,039) |
| *33. (ii) Percentage of students who smoked cigarettes on 20 or more of the past 30 days.* | 5.7% (1,039) |
| *34. Among students who were current smokers, the percentage who smoked more than 10 cigarettes per day on the days they smoked during the past 30 days.* | 7.1% (127) |
| *35. Among students who were less than 18 years of age and current smokers, the percentage who usually got their own cigarettes by buying them in a store or gas station during the past 30 days.* | 8.8% (102) |
| *36. Percentage of students who smoked cigarettes on school property on one or more of the past 30 days.* | 3.5% (1,065) |
| *37. Percentage of students who ever smoked cigarettes daily, that is, at least one cigarette every day for 30 days.* | 7.6% (1,058) |
| *38. Of students who were current smokers, the percentage who tried to quit smoking during the past 12 months.* | 42.9% (126) |

There were substantial gender and race/ethnicity differences on Questions 31 and 32. Proportionately more (i) Hispanic/Latino than Caucasian/White and (ii) male than female students indicated they (a) had tried cigarette smoking and (b) smoked a whole cigarette for the first time before age 13 years.

On Question 33 (i) and (ii), the percentages of 12$^{th}$ graders who smoked on (i) at least one day and (ii) 20 or more days in the past month were substantially greater than for 9$^{th}$ and 10$^{th}$ graders, respectively. On Question 37, the percentage of 12$^{th}$ grade students who ever smoked cigarettes *daily* was substantially greater than for 9$^{th}$ and 10$^{th}$ graders.

**2. Smokeless Tobacco and Cigar Smoking**

| Outcome | Percent (N) |
|---|---|
| *39. Percentage of students who used chewing tobacco, snuff, or dip on one or more of the past 30 days.* | 7.4% (1,069) |

| Outcome | Percent (N) |
|---|---|
| *40. Percentage of students who smoked cigars, cigarillos, or little cigars on one or more of the past 30 days.* | 9.2% (1,067) |

There were substantial gender differences on both of the questions regarding smokeless tobacco and cigar smoking—proportionately more males were more involved in each of these risk areas than were females. Also on both of these questions, proportionately more students in 12th grade were involved in each of these risk areas than were those in 9th or 10th grade.

**3. Summary Question**

| Outcome | Percent (N) |
|---|---|
| *Percentage of students who smoked cigarettes or cigars, or used chewing tobacco, snuff, or dip on one or more of the past 30 days.* | 16.5% (1,036) |

Substantially more (i) 12th graders than 9th or 10th graders and (ii) males than females used some form of tobacco in the past month.

## Risk Area III: Alcohol and Other Drugs

This section contains summaries of survey data on the use of alcohol, marijuana, and other drugs, including cocaine (powder, crack, or freebase forms), methamphetamines, ecstasy, inhalants, steroid pills/shots, prescription drugs, heroin, and intravenous drugs (Questions 41-58). "Students" refers to those who participated in the 2013 YRBS.

**1. Alcohol**

| Outcome | Percent (N) |
|---|---|
| *41. Percentage of students who had at least one drink of alcohol on one or more days during their life.* | 61.9% (1,059) |
| *42. Percentage of students who had their first drink of alcohol other than a few sips before age 13.* | 15.6% (1,061) |
| *43. Percentage of students who had at least one drink of alcohol on one or more of the past 30 days.* | 29.7% (998) |
| *44. Percentage of students who had five or more drinks of alcohol in a row, that is, within a couple of hours ("binge drinking"), on one or more of the past 30 days.* | 17.3% (1,041) |
| *45. Percentage of students who had 10 or more drinks of alcohol in a row, that is, within a couple of hours (serious"binge drinking"), on one or more of the past 30 days.* | 4.1% (1,018) |
| *46. Percentage of students, among those reporting current alcohol use, who usually got the alcohol they drank from someone who gave it to them during the past 30 days.* | 43.4% (290) |

There were substantial grade level differences in responses to Questions 41-44, where generally higher percentages of students in the higher grades indicated involvement in these risk behaviors than

did those in the lower grades. The exception was in Question 42, where a higher percentage of 9th graders indicated they had their first drink of alcohol before age 13 than did 12th graders.[2]

The result for Question 44 on binge drinking is presented in Figure 3. Note the almost perfect "stair-step" nature of the graph, with binge drinking increasing proportionately in each grade. On the positive side, the percentage who indicated they engaged in binge drinking at least once in the 30 days prior to the survey was reduced significantly (by 14.5%) from 1997 to 2011—and it appears that this trend continued in 2013.

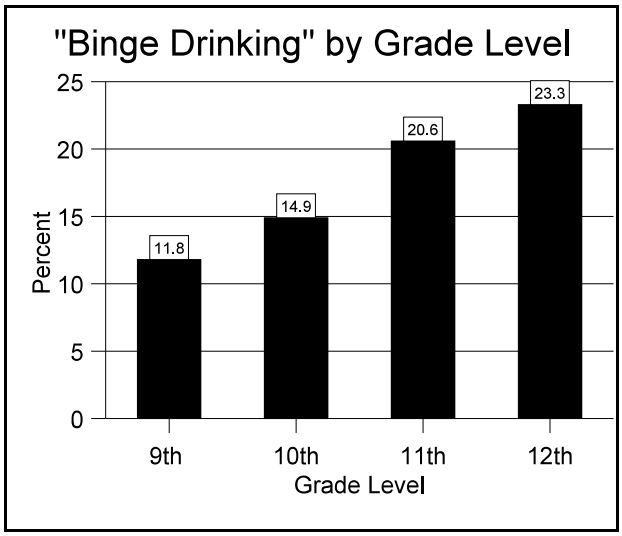


**Figure 3:** Percentage who engaged in "binge drinking" (5 or more drinks in about 2 hours), by grade level.

There was a substantial gender difference on Question 46—proportionately more females than males said they obtained the alcohol they drank from someone who gave it to them in the past 30 days. Also, there was a substantial race/ethnicity difference on Question 42—proportionately more Hispanic/Latino students than Caucasian/White students indicated they had their first drink of alcohol (other than a few sips) before the age of 13.

**2. Marijuana**

| Outcome | Percent (N) |
|---|---|
| *47. Percentage of students who used marijuana one or more times during their life.* | 22.4% (1,056) |
| *48. Percentage of students who tried marijuana for the first time before age 13.* | 3.7% (1,062) |
| *49. Percentage of students who used marijuana one or more times during the past 30 days.* | 11.3% (1,062) |

There were substantial race/ethnicity differences on all of these questions, with proportionately more Hispanic/Latino than Caucasian/White students reporting use of marijuana in their lives, before the age of 13, and in the 30 days prior to the survey. There were substantial grade level differences on Question 49, with proportionately more students in the higher grades reporting use of marijuana in the 30 days prior to the survey than did those in the lower grades.

**3. Other Illegal Drugs**

| Outcome | Percent (N) |
|---|---|
| *50. Percentage of students who used any form of cocaine, including powder, crack, or freebase one or more times during their life.* | 3.3% (1,070) |

[2] This difference could be due to differential recall for students in the two grades, with the age of 13 being just one or two years ago for 9th graders, but a more distant 4 or 5 years ago for 12th graders.

| Outcome | Percent (N) |
|---|---|
| *51. Percentage of students who sniffed glue, breathed the contents of aerosol spray cans, or inhaled any paint or spray to get high one or more times during their life.* | 6.6% (1,068) |
| *52. Percentage of students who used heroin one or more times during their life.* | 1.7% (1,068) |
| *53. Percentage of students who used methamphetamines one or more times during their life.* | 2.0% (1,065) |
| *54. Percentage of students who used ecstasy one or more times during their life.* | 4.6% (1,068) |
| *55. Percentage of students who have taken steroid pills or shots without a doctor's prescription one or more times during their life.* | 3.1% (1,070) |
| *56. Percentage of students who have taken a prescription drug (such as OxyContin, Percocet, Vicodin, codeine, Adderall, Ritalin, or Xanax) without a doctor's prescription one or more times during their life.* | 12.3% (1,069) |
| *57. Percentage of students who used a needle to inject any illegal drug into their body one or more times during their life.* | 1.3% (1,067) |
| *58. Percentage of students who were offered, sold, or given an illegal drug on school property during the past 12 months.* | 10.4% (1,065) |

Grade level differences were observed on Questions 55 and 56, with proportionately more 12th grade students reporting use of steroid pills and other prescription drugs (without a doctor's prescription) than 9th grade students. There were substantial race/ethnicity differences on Questions 50, 52, 53, and 57, with proportionately more Hispanic/Latino than Caucasian/White students reporting that they used cocaine, heroin, methamphetamines, or a needle to inject an illegal drug. Substantially more males than females indicated they used cocaine, inhalants, heroin, methamphetamines, ecstacy, steroids (without a doctor's prescription), or injection drugs.

## Risk Area IV: Sexual Behaviors that Can Result in HIV Infection, Other STDs, or Unintended Pregnancies

This section includes summaries of survey data on behaviors that can lead to HIV and/or AIDS, other sexually transmitted diseases (STDs), and unintended pregnancies (Questions 59-65 and 85). "Students" refers to those who participated in the 2013 YRBS.

### 1. Sexual Activity

| Outcome | Percent (N) |
|---|---|
| *59. Percentage of students who have ever had sexual intercourse.* | 39.6% (1,019) |
| *60. Percentage of students who had sexual intercourse for the first time before age 13.* | 3.4% (1,021) |
| *61. Percentage of students who had sexual intercourse with four or more people during their life.* | 11.4% (1,019) |

| Outcome | Percent (N) |
|---|---|
| *62. Percentage of students who had sexual intercourse with one or more people during the past three months.* | 29.7% (1,020) |
| *63. Among students who had sexual intercourse during the past three months, the percentage who drank alcohol or used drugs before last sexual intercourse.* | 19.5% (302) |
| *64. Among students who had sexual intercourse during the past three months, the percentage who used a condom during their last sexual intercourse.* | 59.4% (298) |
| *65. Among students who had sexual intercourse during the past three months, the percentage who used birth control pills to prevent pregnancy before last sexual intercourse.* | 23.2% (289) |
| *Related outcome:*<br>*Among students who had sexual intercourse during the past three months, the percentage who used an IUD or implant, a shot, patch, or birth control ring to prevent pregnancy before last sexual intercourse.* | 12.1% (289) |

There were substantial grade level differences in Questions 59, 61, and 62—a higher percentage of students in the two higher grades than 9th or 10th graders indicated they had sexual intercourse (i) sometime in their lives and (ii) with four or more people during their lives, and (iii) with one or more people in the past three months. There was a substantial gender and race/ethnicity difference in Question 60—a higher percentage of (i) males than females and (ii) Hispanic/Latino than Caucasian/White students indicated they had sexual intercourse for the first time before the age of 13 years.

**2. HIV/AIDS Education**

| Outcome | Percent (N) |
|---|---|
| *85. Percentage of students who had ever been taught about AIDS or HIV infection in school.* | 78.5% (1,070) |

The percentage responding affirmatively to the HIV/AIDS education question continued to decline from its high point in 1997 (92.4%). (See the later section on trend results.)

## Risk Area V: Dietary Behaviors

This section contains summaries of survey data on dietary behaviors, including weight and dieting issues, eating disorders, nutrition, and fat intake (Questions 66-79). "Students" refers to those who participated in the 2013 YRBS.

**1. Weight, Dieting, and Eating Disorders**

| Outcome | Percent (N) |
|---|---|
| *66. Percentage of students who described themselves as slightly or very overweight.* | 33.1% (1,068) |
| *Related outcome 1: Percentage of students who were overweight (at least 85th percentile but less than 95th percentile, based on body mass index).* | 14.6% (938) |

| Outcome | Percent (N) |
|---|---|
| *Related outcome 2: Percentage of student who were obese (at or above 95th percentile, based on body mass index).* | 12.7% (938) |
| *67. Percentage of students who were trying to lose weight.* | 48.2% (1,069) |
| *68. Percentage who went without eating for 24 hours or more to lose weight or to keep from gaining weight during the past 30 days.* | 11.6% (1,068) |
| *69. Percentage of students who took diet pills, powders, or liquids without a doctor's advice to lose weight or to keep from gaining weight during the past 30 days.* | 4.7% (1,068) |
| *70. Percentage of students who vomited or took laxatives to lose weight or to keep from gaining weight during the past 30 days.* | 3.7% (1,066) |

There were several substantial gender differences in this section—on Questions 66 and 67, both with higher percentages for female students. Proportionately more female students than male students described themselves as overweight, although there were slightly more male than female students who were actually overweight or obese[3] (see Figure 4). In addition, substantially more female students than male students indicated they were trying to lose weight (by some method).

Proportionately more Hispanic/Latino students were overweight, trying to lose weight, including going without eating for 24 hours (or more), than Caucasian/White students.

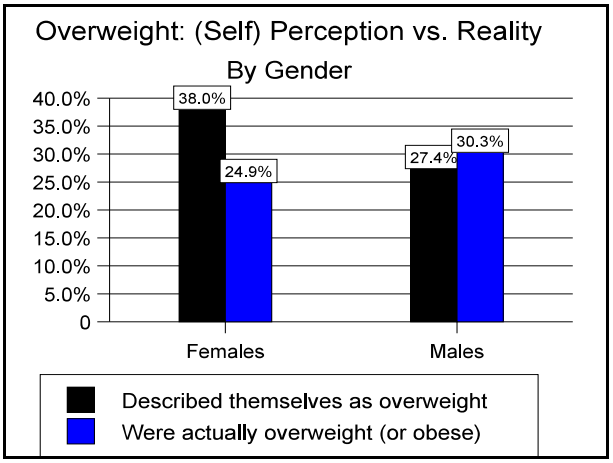


**Figure 4**: Percentage of students who described themselves as being overweight versus actually being overweight, based on BMI (85th percentile or higher), by gender.

### 2. Nutrition and Fat Intake

| Outcome | Percent (N) |
|---|---|
| *71. Percentage of students who drank 100% fruit juice one or more times during the past seven days.* | 75.6% (1,069) |
| *72. Percentage of students who ate fruit one or more times during the past seven days.* | 92.6% (1,067) |

[3] Note that the definition "actual overweight" according to the students' self-reported height and weight has changed from the 95th percentile of the BMI (body mass index) to the 85th percentile. Previously, the 85th percentile was considered "at-risk" of being overweight and the 95th percentile was actually overweight. Now, the 95th percentile is considered "obese." The percentages of students of each gender who were actually overweight (or obese), as depicted in Figure 5, were obtained by simply adding the percentages of each gender who were (1) "overweight" (related outcome 1) and (2) "obese" (related outcome 2). (See the CD containing the gender data (Centers for Disease Control and Prevention, 2013.)

| Outcome | Percent (N) |
|---|---|
| *73. Percentage of students who ate green salad one or more times during the past seven days.* | 64.3% (1,069) |
| *74. Percentage of students who ate potatoes one or more times during the past seven days.* | 75.8% (1,068) |
| *75. Percentage of students who ate carrots one or more times during the past seven days.* | 52.5% (1,066) |
| *76. Percentage of students who ate other vegetables one or more times during the past seven days.* | 84.9% (1,066) |
| *Related outcomes:*<br>*Percentage of students who ate fruits and vegetables five or more times per day during the past seven days.* | 21.6% (1,063) |
| *Percentage of students who ate vegetables one or more times per day during the past seven days.* | 64.3% (1,065) |
| *Percentage of students who ate fruits or drank 100% fruit juices one or more times per day during the past seven days.* | 64.9% (1,067) |
| *77. Percentage of students who drank a can, bottle, or glass of (non-diet) soda or pop one or more times per day during the past seven days.* | 26.1% (1,067) |
| *78. Percentage of students who drank three or more glasses per day of milk during the past seven days.* | 22.6% (1,067) |
| *79. Percentage of students who ate breakfast on all of the past seven days.* | 37.8% (1,070) |
| *Related outcome:*<br>*Percentage of students who ate breakfast on none of the past seven days.* | 11.9% (1,070) |

There were substantial gender differences in Questions 77 and 78—proportionately more males than females drank (i) at least one soda or pop and (ii) three or more glasses per day of milk during the past seven days. Non-diet soft drinks are typically high in sugar/calories and have no or little nutritional value.

The milk and breakfast questions were new in the 2013 Iowa YRBS. The percentages responding positively to these questions indicate that there is considerable room for improvement in these areas.

## Risk Area VI: Physical Activity/Inactivity

This section contains summaries of survey data related to physical activity/inactivity, including vigorous exercise, involvement in physical education and organized sports, watching TV, and playing video/computer games (Questions 80-84). "Students" refers to those who participated in the 2013 YRBS.

| Outcome | Percent (N) |
|---|---|
| *80. (i) Percentage of students who were physically active for a total of 60 minutes or more per day on five or more of the past seven days.* | 55.6% (1,070) |
| *80. (ii) Percentage of students who were physically active for a total of 60 minutes or more per day on (all) seven of the past seven days.* | 32.6% (1,070) |

| Outcome | Percent (N) |
|---|---|
| *81. Percentage of students who watched three or more hours of TV per day on an average school day.* | 26.2% (1,068) |
| *82. Percentage of students who played video or computer games or used a computer for something that was not school work three or more hours per day on an average school day.* | 38.0% (1,068) |
| *83. (i) Percentage of students who attended physical education (PE) class one or more days in an average school week when they were in school.* | 72.0% (1,069) |
| *(ii) Percentage of students who attended physical education (PE) classes daily in an average week when they were in school.* | 30.7% (1,069) |
| *84. Percentage of students who played on one or more sports teams during the past 12 months.* | 67.6% (1,070) |

There were substantial gender differences in Question 80 (both (i) and (ii)). Proportionately more males than females were physically active for at least 60 minutes per day on (i) five or more and (ii) (all) seven of the past seven days. There were substantial race/ethnicity differences on Question 81. Proportionately more Hispanic/Latino than Caucasian/White students watched three or more hours per day of TV on an average school day. On Question 83 (i), proportionately more students in grades 9, 10, and 11 attended PE class one or more days in an average school week than did 12$^{th}$ graders.

## Additional Health Question: Asthma

This section contains summaries of survey data related to a question on asthma (Question 86). "Students" refers to those who participated in the 2013 YRBS.

| Outcome | Percent (N) |
|---|---|
| *86. Percentage of students who had ever been told by a doctor or nurse that they had asthma.* | 17.3% (1,069) |

There were no substantial differences by gender, grade level, or race/ethnicity on this question.

# Highlights of the 2013 Iowa YRBS

Summary highlights of the 2013 Iowa Youth Risk Behavior Survey (YRBS) for high school students are presented in Figure 5 below, with the abbreviated outcome statement on the left and the horizontal bar graph for the total sample on the right. The selection was somewhat subjective, based in part on the seriousness of the consequences of the unhealthy activities, the benefits of the healthy activities, and the magnitude of the response to each.

Note that some of these outcomes are negative (indicating presence of a risk factor), while others are positive (indicating a healthy behavior). An example of a negative outcome is "ever tried cigarette smoking." An example of a positive outcome is "attended physical education class at least once per school week."

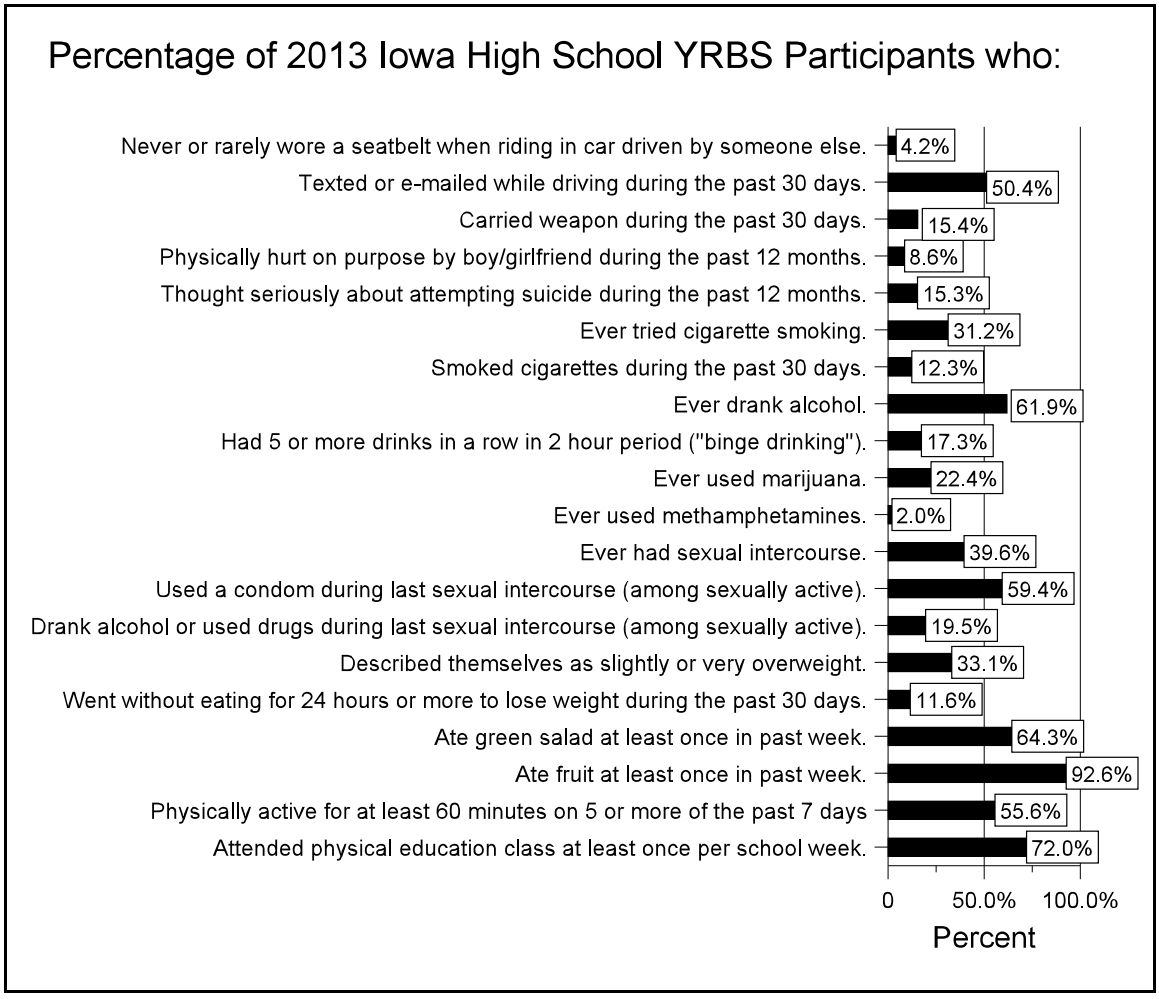


**Figure 5:** Highlights of the 2013 Iowa Youth Risk Behavior Survey for high school students.

# Iowa YRBS 1997-2011:

# Statistically Significant Trends

Comparisons or trends on the YRBS questions from 1997 to 2011 were made using logistic regression analysis, controlling for changes in distributions by sex, race/ethnicity, and grade level. The years, 1997, 2005, 2007, and 2011 were the only years to date in which the Iowa YRBS data were weighted according to current criteria (minimum overall response rate of 60%). Data that were available from 2011 and at least one other of the years 1997, 2005, and 2007 were used in establishing whether of not the linear trend was statistically significant. (Some questions were asked for the first time in some year after 1997.) However, the main focus is on earliest year the question was included in the YRBS (typically, but not always, 1997) and the most recent year, 2011—and the comparison based on the *difference* in the weighted percentages in those years on the summary questions or outcomes.

The following outcomes corresponding to YRBS survey questions showed *statistically significant linear trend* in responses for the years 1997-2011 in which weighted survey data were available, using data for the total samples. Thirty-eight (38) of the 77 questions asked in at least two of the four years yielded statistically significant changes; of these, all but three yielded positive results (improvement) or about 45%.[4] Trends that appeared to continue in 2013 were also noted. However, since the 2013 YRBS data were not weighted (i.e., not generalizable to all Iowa high school students), they were not included in the formal trend analysis presented in the following table. [Note: The question numbers in the first column refer to the *2011 YRBS* questionnaire, not the 2013 one.]

**Table**: Summary of Iowa YRBS trend data 1997-2011

| Question # in 2011 YRBS | Risk Area/Outcome | 1997 to 2011 Percentage Change (Signed Difference) |
|---|---|---|
| *8-28* | *I - Behaviors that Lead to Intentional or Unintentional Injuries:* | |
| 8 | Among students who rode a bicycle during the past 12 months, never or rarely wore a bicycle helmet | -4.5 |
| 9 | Never or rarely wore a seat belt when riding in a car driven by someone else | - 8.2 |
| 10 | Rode in a car or other vehicle one or more times during the past 30 days that was driven by someone who had been drinking alcohol | - 16.6 |
| 11 | Drove a car or other vehicle one or more times during the past 30 days when they had been drinking alcohol | - 9.7 |

[4] These figures refer to the survey questions. Thus, for example, the two parts of Question 31 (i and ii) are counted as one "question." Also, the questions on height and weight, used to compute the student's body mass index, were counted as one "question," since this information was used to compute the percentage of respondents who were "obese" or "overweight."

| Question # in 2011 YRBS | Risk Area/Outcome | 1997 to 2011 Percentage Change (Signed Difference) |
|---|---|---|
| 12 | Carried a weapon such as a gun, knife, or club on one or more of the past 30 days | - 2.8 |
| 14 | Carried a weapon such as a gun, knife, or club on school property on one or more of the past 30 days | - 4.1 |
| 17 [a] | In physical fight one or more times during the past 12 months | - 6.6 |
| 19 [b] | In physical fight on school property one or more times during the past 12 months | - 3.9 |
| 25 | Seriously considered attempting suicide during the past 12 months | - 8.4* |
| 26 | Made a plan about how they would attempt suicide during the past 12 months | - 7.1 |
| 27 | Actually attempted suicide one or more times during the past 12 months | - 3.0 |
| 28 | Made a suicide attempt during the past 12 months that resulted in an injury, poisoning, or overdose that had to be treated by a doctor or nurse | - 1.3 |
| *29-39* | *II - Tobacco Use:* | |
| 29 | Ever tried cigarette smoking, even one or two puffs | - 27.8 |
| 30 | Smoked a whole cigarette for the first time before age 13 years | - 11.1 |
| 31 (i) | Smoked cigarettes on one or more of the past 30 days | - 19.4 |
| 31 (ii) | Smoked cigarettes on 20 or more of the past 30 days | - 11.2 |
| 32 | Among students who reported current cigarette use, smoked more than 10 cigarettes per day on the days they smoked during the past 30 days | - 9.4 |
| 34 | Smoked cigarettes on school property on one or more of the past 30 days | - 12.4 |
| 36 | Among students who reported current cigarette use, ever tried to quit smoking cigarettes during the past 12 months | - 8.4[a] |
| 37 | Used chewing tobacco, snuff, or dip on one or more of the past 30 days | - 2.4* |
| *40-59* | *III - Alcohol and Other Drugs:* | |
| 40 | Had at least one drink of alcohol on one or more days during their life | - 13.6 |

| Question # in 2011 YRBS | Risk Area/Outcome | 1997 to 2011 Percentage Change (Signed Difference) |
|---|---|---|
| 41 | Had their first drink of alcohol other than a few sips before age 13 years | - 13.2 |
| 42 | Had at least one drink of alcohol on one or more of the past 30 days | - 15.0 |
| 43 | Had five or more drinks of alcohol in a row, that is, within a couple of hours, on one or more of the past 30 days ("binge drinking") | - 14.5 |
| 45 | Had at least one drink of alcohol on school property on one or more of the past 30 days | - 2.1* |
| 46 | Used marijuana one or more times during their life | - 6.7 |
| 48 | Used marijuana one or more times during the past 30 days | - 2.9 |
| 50 | Used any form of cocaine, including powder, crack, or freebase one or more times during their life | - 2.1 |
| 51 | Used any form of cocaine, including powder, crack, or freebase one or more times during the past 30 days | - 1.2 |
| 52 | Sniffed glue, breathed the contents of aerosol cans, or inhaled any paints or sprays to get high one or more times during their life | - 8.3 |
| 59 | Was offered, sold, or given an illegal drug on school property by someone during the past 12 months | - 10.9 |
| *60-66 & 84* | *IV - Sexual Behaviors that Can Result in HIV Infection, Other STDs, or Unintended Pregnancies:* | |
| 64 | Among students who had sexual intercourse during the past three months, drank alcohol or used drugs before last sexual intercourse | - 6.3 |
| 65 | Among students who had sexual intercourse during the past three months, used a condom during last sexual intercourse | 13.8* |
| 84 | Had ever been taught in school about AIDS or HIV infection | - 8.4 |
| *67-78* | *V - Weight Management and Dietary Behaviors:* | |
| 71 | Vomited or took laxatives to lose weight or to keep from gaining weight during the past 30 days | - 1.2 |
| 73 | Ate fruit one or more times during the past seven days | 2.8[a] |

| Question # in 2011 YRBS | Risk Area/Outcome | 1997 to 2011 Percentage Change (Signed Difference) |
|---|---|---|
| *79-83* | *VI - Physical Activity:* | |
| 80 | Watched three or more hours of TV per day on an average school day | - 5.1[a] |
| 81 | Played video or computer games or used a computer for something that was not school work three or more hours per day on an average school day | 8.8[b] |
| 82 | Attended physical education (PE) classes daily in an average week when they were in school | 13.5 |

[a] Amount of change between 2005 (first year question asked) and 2011. [b] Amount of change between 2007 (first year question asked) and 2011. * Quadratic change also statistically significant, due to a leveling off and increase (or decrease) in the percentage on this outcome.

Most all of the above statistically significant results were considered positive or desirable (negative outcomes had negative percentage change, positive ones had positive percentage change)—except for three outcomes: (1) among students who reported current cigarette use, ever tried to quit smoking cigarettes during the past 12 months; (2) played video/computer games or used a computer for something not related to school work; and (3) ever been taught in school about AIDS or HIV infection. In regard to the second of these outcomes, the percentage of Iowa students who played video or computer games or used a computer for something that was not school work three or more hours on an average school day *increased* during 2007-2011 and this trend unfortunately continued in 2013.[5] The increase in video gaming may be due, in part, to the increase in the number of electronic toys on which to play such games (e.g., smartphones and tablet computers), as well as the emergence of various forms of "social media" on the Internet in the past several years. Such activities are problematic since they take away from students' time that can be used more productively (on school homework/projects) or to improve their health (physical activity). The increased use of the computer for "social" media may be particularly problematic, since such media have been associated with *anti*-social activity such as electronic bullying and physical assaults (e.g., *The Des Moines Register*, February 7, 2012). Recall that 16.8% of Iowa high school students indicated they had been electronically bullied in 2011; this was slightly higher (19.7%) in 2013.

Behaviors that lead to intentional or unintentional injuries (e.g., violent behavior and suicide), tobacco use, and alcohol and other drug abuse were risk areas showing the most statistically significant improvement from 1997 to 2011. For example, the percentage who reported being in a physical fight during the past 30 days decreased from 31.0% in 1997 to 24.4% in 2011; the percentage who reported smoking cigarettes on at least one of the past 30 days decreased from 37.5% in 1997 to 18.1% in 2011; and the percentage of students involved in "binge drinking" decreased from 37.5% in 1997 to 23.0% in 2011. In fact, some degree of improvement was evidenced in all of the health risk areas by high school students in Iowa from 1997 to 2011, even in the area of physical activity/inactivity where no improvement had been previously demonstrated. Many of these improvements were in the average magnitude of 1-2% per year, in terms of students' responses to the various questions.

[5] Recall that proportionately more males than females indicated involvement in playing video or computer games or using the computer for something that was not school work at least three hours on an average school day. However, students in *each gender* increased their involvement in this activity from 2007 to 2011, and by 2013 there was little difference between genders on this question.

The YRBS is a monitoring or surveillance system that is not linked to any educational program or treatment. Although causal relationships are not provable, drug and violence prevention programs, Iowa's School-Based Youth Services and similar collaborative services programs, Success 4, Positive Behavior Supports, character education, HIV prevention education and refusal skill-building, afterschool and other programs, as well as legislation supporting children and families in Iowa have undoubtedly contributed to some of these positive results. The dramatic improvement in the risk area of tobacco use may be due in part to federal rules regarding cigarette advertising directed to children, increased and improved education regarding tobacco use as a serious health risk, and the increasing social unacceptability of smoking—in particular, the recent passage of state laws against smoking in restaurants and bars. *Iowa's K-12 public education system itself deserves credit for at least some of these positive results in the health of our students.* From our survey conducted in the even years (the School Health Profiles) we have learned that most schools have provided HIV and other STD prevention education, adopted tobacco-use policies for students and staff, increased student knowledge about the health risk of smoking, improved student knowledge of violence prevention, provided action plans for students with asthma, required physical education, and taught the benefits of physical activity and health-related fitness (Veale, February 2011 and February 2013).

*Most of the positive trends for the 1997-2011 period appeared to continue in 2013.* However, since the 2013 YRBS data were not weighted, we focused the trend discussion on the aforementioned 14 year span.

For more statistical detail and analysis, see the "Trend Report" section of the 2011 Iowa YRBS statistical report (Centers for Disease Control and Prevention, 2011) and Veale (February 2012a).

# Process Review of the 2013 Iowa YRBS and Recommendations for 2015

The 2013 Iowa YRBS for high schools was conducted according to strict guidelines for two-stage cluster sampling provided by Westat, Inc., a CDC contractor. The sample was approved and recommended procedures for administering the survey were followed. Unfortunately, the sampling response rate was not sufficient for "weighting" the data. This means that the results were *not* generalizable to all high school students in Iowa in 2013. In this chapter we review factors that may have contributed to this low response rate and make recommendations for improving it in the next YRBS scheduled for 2015.

## Factors Contributing to the Response Rate

In 1999 through 2003, we experienced severely reduced school-level response to the YRBS in Iowa. This downward trend was reversed in 2005, when the school-level response rate rebounded to just under the 1997 level, remained at about this level in the years 2007-2011, but dropped again to the 2003 level (55%) in 2013 (see Figure 6).

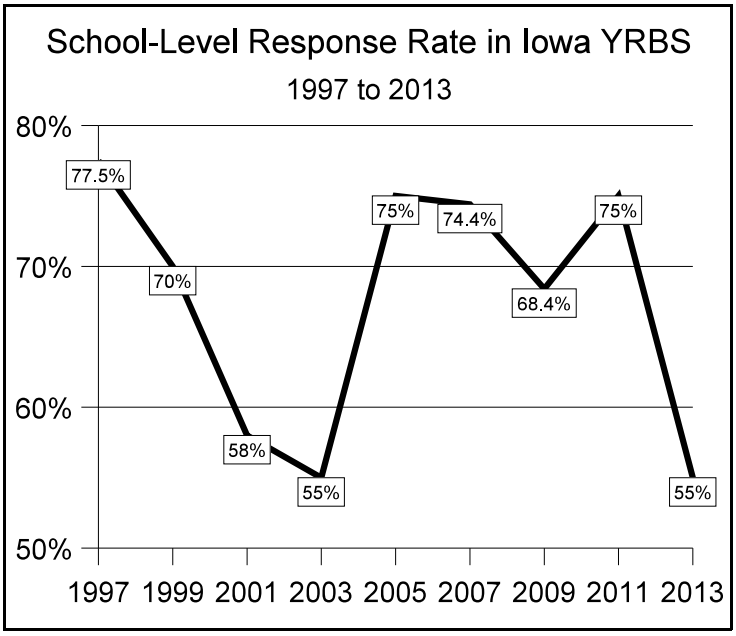


**Figure 6:** School-level response rate in Iowa YRBS from 1997 to 2013.

The author attended workshops conducted by Westat, Inc. in Rockville, Maryland in 2004 and 2010. The purpose of these workshops was to instruct participants regarding the administration of the next YRBS. Based on ideas generated in the 2004 workshop and internal discussions about improving the response rate, we decided to provide financial remuneration ($500) to schools that participated in the 2005 YRBS. This remuneration was increased to $600 in the 2009 and 2011 YRBS. In addition, we decided to pay each school survey administrator (typically, a school counselor or teacher) $25 for their time and effort in the 2005 survey. The payment for survey administrators was increased to $50 in 2009 and 2011.

In 2011, teachers who gave up a class period for their students to participate in the survey were paid $50 each. Also, in 2011, we subcontracted with an individual to conduct monitoring and follow-up with principals who were considering participation to facilitate the timely completion of the surveys. We feel that these factors were critical to our exceeding the 60% response rate required for weighted data in 2011.

In 2013, we continued with follow-up by the subcontracted individual and a modified reward system. The following were factors in not achieving weighted data in 2013:

- initially, financial incentives (due to cutbacks in funding) were insufficient for schools to participate in the survey; when additional funding was provided, it was "too little, too late;"
- follow-up with principals of many of the schools was difficult-to-impossible by phone;
- some schools in the sample were among those often selected in the past, including one that participated in the 2011 YRBS;
- several of the principals of the nonparticipating schools indicated that 2012-13 was a particularly busy year in terms of student involvement in standardized testing and other similar surveys in their schools, including the Iowa Youth Survey (administered in the fall of the school year) and Iowa Safe and Supportive Schools grant surveys;
- the late start due to administrative factors beyond our control.

## Recommendations for Improving the Response Rate in the 2015 Iowa YRBS

According to the CDC, Iowa data have been weighted via current requirements four times (in 1997, 2005, 2007, and 2011)[6] since the YRBS was first conducted in the state in 1989.[7] The following are administrative recommendations for improving the school-level response rate to achieve weighted data in the 2015 Iowa YRBS:

- Increase the financial reward to cooperating schools and survey administrators provided by the school or school district.
- Continue to provide a financial reward to cooperating classroom teachers, since they are the ones who are giving up their class time for the survey.
- *Start the survey administration process in the fall semester of the school year (around September 1, 2014) with the initial contact to get principals on board with the survey*. Then get the surveys to them early in the winter semester to give educators a chance to budget school time to complete the survey.
- Continue to coordinate the sampling process with other national health surveys and include any Iowa schools selected for the national YRBS in the state sample.
- As part of the agreement to participate, have schools set a date for the administration of the survey. If they are not able to administer the survey on that date, suggest another date and consider use of an on-site survey administrator to insure that the surveys get completed.
- Encourage the schools to use passive (rather than active) permission, which is sufficient for this survey, since it is funded by the Department of Health and Human Services.
- Make sure the classroom documentation forms are completed properly so we know that the classes selected were actually surveyed and have accurate information regarding actual enrollment in those classes.

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[6] In 1997, an overall response rate slightly over 70% was achieved in the Iowa YRBS (Veale, January 1998). This was considered sufficient for weighting the Iowa data that year. Generally, response rates over 70% are considered very good in mail surveys (Mangionne, 1995). In 2005 and 2007, the overall response rates were 65% and 60%, respectively.

[7] The Iowa YRBS was "weighted" in 1989, but according to a Westat representative, only a 50% overall response rate was required at that time (Nancy Speicher, personal communication, July, 2003). The data from that year would *not* have been weighted according to the *current* requirement of 60%.

- Utilize a survey assistant for follow-up communications with schools that are considering participation or have agreed to participate, to insure that surveys are completed and returned in a timely manner.
- "Market" the survey by more face-to-face meetings with principals of schools selected to increase the likelihood of their participation.
- Conduct more presentations of the Iowa YRBS data in conferences to further "market" the survey among Iowa educators.
- Utilize the electronic checklist developed by Westat to keep track of schools that have agreed to participate, those who have been sent the surveys, and those who have sent their completed surveys back in 2015. This will guard against problems with postal delivery mishaps, misplaced surveys, etc.

In addition to the above recommendations regarding administration of the 2015 YRBS, the following suggestions relate to the sampling process:

- Select samples for *two consecutive years* (2015 and 2017), so that schools can be assured that they will *not* be selected in both years.
- Select among only *required classes* in the school; this should decrease the tendency to select many more classes in small schools than in the larger schools (due to the different sized sampling intervals for different sized schools).
- *Allow school administrators to select the classes* to participate, based on teachers' willingness to be involved in this survey and their judgement.

The last suggestion is admittedly controversial, in that it goes against the idea of (total) randomness that sampling purists insist is necessary for scientific surveys. The schools would still be selected at random, with probability proportional to size (9-12 enrollment), and the number of classes determined by the sampling process. However, we have found that getting the school to provide the class list is a major hurdle. Allowing the school administrators to select willing teachers to participate would "put the ball in their court" as soon as they agreed to participate. It would also give the schools a degree of *ownership* in the survey process, increasing the likelihood of participation and completing the survey. This would help us in the "marketing" of the survey with school administrators and teachers.

The author realizes that allowing principals to select their classes could bias the results somewhat. However, no school is ever identified in any reporting of this survey. Thus, there would be no reason for a principal to, for example, select classes with mostly "low risk" students to make the school "look good." Moreover, the current random sampling is far from perfect, due to (a) low nonresponse rates and (b) more classes being selected in small schools than large ones. Even when weighted data are achieved, the overall response rate is usually at or just above 60%; the best we have ever achieved in Iowa was in 1997 when we got 71% responding. The problem of over-sampling in the small schools is apparently an attempt to achieve more or less equal numbers of students in each school, but this has not always worked well. Finally, there is the problem of what to do with schools that are using whole grade sharing, block scheduling, etc. If principals were allowed to select their classes (among the required ones), these problems would be mitigated.

We will continue to work closely with Westat, Inc. and the CDC to maintain or improve our response rates and achieve data that are generalizable to all Iowa high school students in 2015.

## Recommendations for Reducing Health Risk Behaviors among Iowa's Youth

Progress has been made over the past 16 years in *all six* of the major health risk areas among Iowa's high school students. This progress in self-reported student health behaviors is a *major success story* for Iowa's public education system.

Of course, many health risk behaviors remain among our high school students. Obesity has been identified as a major health issue with long term implications for our state. The percentage of Iowa's high school students who were classified as either overweight or obese has remained at around 27-28% since 2005. The increases in the percentages of students who indicated they attended physical education classes daily in an average school week and who ate fruit regularly is encouraging. Continued improvement in the areas of physical activity and nutrition should help to reduce the percentages of students who are overweight or obese.

### 1. Tobacco, Alcohol, Marijuana, and Other Drug Use/Abuse

The progress in the areas of tobacco, alcohol, and other drug use among high school youth in Iowa has been especially dramatic. The reduction in tobacco use/abuse may be due in part to federal rules regarding cigarette advertising directed to children, as well as increased and improved education regarding tobacco use as a serious health risk, the decreasing social acceptability of smoking, and the recent Iowa state law making smoking illegal in restaurants and bars.

The progress in reducing marijuana and cocaine use/abuse may be related, in part, to the progress regarding tobacco. Tobacco has been considered a "gateway drug"—a drug that may be used by students to learn the *totally unnatural behavior* of smoking and then apply this learned behavior to experiment with other drugs such as marijuana, (crack) cocaine, and methamphetamines. Fortunately, our data indicate that most do not and the percentages using/abusing marijuana and cocaine (as well as inhalants) are also trending downward in Iowa. The percentage who indicated they had used methamphetamines has been reduced somewhat (to around 2-3% of Iowa high school students) since 2005. This fact may be due, in large part, to tough state laws enacted early in the last decade that (1) imposed life sentences upon persons convicted of selling methamphetamines to minors and (2) established controls on the purchase of cold medicines containing ingredients used to produce the drug. ("Meth" is a dangerous illicit drug that is either smoked, injected, or snorted.)

There were several grade level differences in these risk areas, with proportionateley more students in higher grades involved in tobacco and other substance use/abuse than those in the lower grades (e.g., the result for binge drinking). There were also several race/ethnicity differences, with proportionately more Hispanic/Latino students indicating involvement in tobacco and other substance use/abuse than Caucasian/White students. Thus, students in higher grades and Hispanic/Latino students are more at-risk in these health risk areas.

The newer synthetic drugs such as salvia, K-2, and bath salts (which are smoked) are not yet being monitored in the YRBS. A question concerning the use of these and other "designer drugs" should be added to the YRBS in 2015.

### 2. "Medical Marijuana" and Risk Behaviors

The smoking of marijuana has now been made legal for "medical use" in 18 states and legalized for "recreational use" in two states (Colorado and Washington)—not yet, for either use, in Iowa.[8] Some research studies have shown this drug to have a palliative effect on chronic pain and to be an appetite stimulant, e.g., for cancer or AIDS patients. Currently, a purified form of the drug (ingested, not smoked) is being tested by researchers at the University of California at San Francisco to determine its effect in treating children with epilepsy.

[8] The *smoking* of marijuana for "medical use" is referred to as "medical marijuana" by its proponents. This may be confusing to some, since Marinol—a pharmaceutical product that contains synthetic THC (the active ingredient in marijuana), already has Food and Drug Administration (FDA) approval, and is *ingested as a pill*—is also sometimes referred to as medical marijuana. This approved drug has been used to treat nausea in cancer patients and to stimulate appetite in AIDS patients. Research is being conducted on other THC "delivery systems," such as a patch and vaporization, which may be more effective than Marinol for some patients, and more efficient, less offensive, and less likely to lead to "recreational" use/abuse or addiction than smoking marijuana.

Other research studies have shown that smoking marijuana has negative effects on memory and tobacco-smoking cessation (making it harder to quit). Loss of control from marijuana use/abuse could also lead to unprotected sex and a resulting increase in the incidence of STDs, including HIV infection and AIDS. There is also the issue of second-hand marijuana smoke (e.g., for a spouse and/or children living in a home, neighbors in an apartment complex or nursing home, or people riding in a car or bus—where someone is smoking marijuana), which may be as serious as second-hand tobacco smoke. (A good resource for research on marijuana is the National Institute on Drug Abuse (NIDA), which is part of the National Institutes of Health (NIH), a component of the U.S. Department of Health and Human Services. Their web page:

http://www.drugabuse.gov/ResearchReports/marijuana/marijuana3.html

contains useful summaries and references to many research articles.)

The move to legalize marijuana got its start with the generation that came of age in the 1960s. The use of this drug increased among our youth until the late 1990s, and then declined somewhat to its present levels (e.g., Veale, 2012a, b). The passage of measures making marijuana smoking legal in 20 states (not yet, in Iowa) is in stark contrast to the rapidly *decreasing* social acceptance of cigarette (cigar, pipe, and cigarillo) smoking in the country and our state. In fact, the smoking of tobacco or *any* drug is increasingly being viewed as a problem by a growing majority of our younger generation(s)—and proportionately fewer of them are indicating they are using these smoked drugs.

Regarding the issue of legalizing the smoking of marijuana in Iowa, it is important to consider *all* research data, both favorable and unfavorable, as well as the data from surveys like the Iowa YRBS and the Iowa Youth Survey, when considering the potential impact on our population. Political agendas aside, we do not want to see a reversal in the critical gains we have made on these risk factors among our youth during the past 16 years. According to our surveys, most high school students in Iowa are *not* smoking cigarettes, binge drinking, smoking marijuana, or using/abusing other illicit drugs—and the percentage who report that they are engaging in these risky behaviors is, in most cases, on the decline. It is *not* true that "Everybody is doing it." It is important to continue to reduce *all* of these risk behaviors among our young people, who are our future. *We need federal and state laws and/or rules—as well as health education policies and programs—that work toward this end (like those concerning tobacco and methamphetamines), not against it.*

### 3. Co-occurring Risk Behaviors

These health risk behaviors do not exist as isolated problems for high school students. For example, *smoking cigarettes is associated with several other risk behaviors*, including problem alcohol behavior, marijuana use/abuse, other drug use/abuse, unprotected sex, persistent sadness, and fighting. Among US high school students in 2007 who were then self-reported (tobacco) smokers, 75% also had problem alcohol behavior (either "binge" drinking or driving while intoxicated), 70% used marijuana in the past month, 63% had used other drugs (e.g., crack cocaine or meth), 44% had persistent sadness, 43% had unprotected sex (during their last intercourse), and 42% had been in two or more fights, based on data from the YRBS national survey (Fox, McManus, & Arnold, 2010). Similarly, students who were self-reported marijuana smokers in that school year showed a high likelihood of many of these co-occurring risk behaviors, including problem alcohol behavior, other drug use/abuse, persistent sadness, and fighting (ibid.).

This does *not* mean that smoking tobacco (or marijuana) *causes* the other risk behaviors, but rather that they are *associated* student health risk behaviors—a student who smokes (tobacco or marijuana) is likely to also have the other aforementioned health risk behaviors. Specifically, there were a greater number of risk areas associated with smoking tobacco and marijuana, and at higher levels of occurrence, than with almost all other risk areas considered. The one exception was sexual intercourse before age 13, which had about the same number of associated risk areas, and similarly high levels of occurrence, as did smoking tobacco (ibid.). (See the section "Sexual Risk Behaviors" below for more on this risk factor.)

Regarding remediation, a holistic approach to dealing with these issues is deemed more effective than treatment for any single risk behavior. Risk assessment tools are available for identifying student needs based on these and other risk behaviors (e.g., Morley & Veale, 2005), as are programs and processes for effectuating positive outcomes in students (e.g., Veale, July 2010, 2011, 2013).

### 4. Prescription Drug Abuse

According to Substance Abuse and Mental Health Services Administration's National Survey on Drug Use and health, approximately 2.8 million teens have abused prescription drugs. Dealing with pressures and school-related stress are reasons cited for adolescents' misuse of prescription drugs (U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration (SAMHSA), 2009). Drug "diversion"—the use or reselling of any medication by people who do not have a prescription for it—is a serious problem in this country. (The legalization of smoking marijuana for "medical" purposes would undoubtedly add to this problem in Iowa and make this drug more readily accessible for "recreational" purposes.) A question was added to the YRBS questionnaire dealing with this health risk issue in 2011, based in part on recommendations by educators and evaluators in the states using this survey.

In 2011, 17.4% of Iowa's high school students reported using prescription drugs without a doctor's prescription. The data on this question provide a baseline by which to measure the impact of policies/programs to reduce the prevalence of this serious health risk behavior in the future. (The percentage reporting using prescription drugs without a doctor's prescription was reduced to 12.3% in 2013, but since the data were not weighted, it is not known whether this represents a statistically significant decrease generalizable to all Iowa high school students.)

### 5. Sexual Risk Behaviors

Regarding sexual risk behaviors, progress was made in (1) increasing the percentage of students who reported using condoms and (2) decreasing the percentage of students who reported using alcohol or (illegal) drugs, before their last intercourse. These results indicate that Iowa students are at least being more careful regarding their sexual behavior. On the other hand, the percentages of Iowa high school students engaged in sexual intercourse have been fairly constant at a high level (40-44%) during the past 16 years. Since the most effective protection against HIV/AIDS or other STDs is *postponement* of sexual activity, more improvement is needed on this outcome.

Finally, the only question in this risk area on which there was a statistically significant gender difference was the one regarding age of first sexual intercourse. On this question in the 2011 YRBS, 4.2% of Iowa high school students responded either "12 years old" or "11 years old or younger," i.e., under 13 years. Proportionately, more than twice as many males (5.6%) as females (2.5%) indicated they had sexual intercourse before the age of 13 years—a statistically significant difference, indicating that boys are more at-risk in this health risk area. (This ratio remained about the same in the 2013 YRBS.) How many of these Iowa students had sexual intercourse with (a) the opposite sex and (b) the same sex (either primarily or exclusively) before the age of 13 is unknown. However, according to national YRBS results for nine sites (five states, not including Iowa, and four major cities) in which high school students were asked to indicate their sexual orientation, about *four times* as many self-identified homosexuals (just under 20%) responded affirmatively to the question about sexual intercourse before age 13 compared with self-identified heterosexuals, indicating that gay students may be more at-risk than "straight" students in this regard[9] (see Centers for Disease Control and Prevention, June 6, 2011).

It is not known how many of these students in the national survey (or those in Iowa) had sexual intercourse before age 13 with *adults* (of the same or opposite sex), which would be criminal behavior on the part of the adults. This would be good information to collect and monitor, beginning

[9] This was based on the median percentages responding affirmatively to this question among the nine states in which this information was obtained.

with the 2015 YRBS. Moreover, any student who confides with school teachers, counselors, or administrators about such assaults needs to be supported and protected—as much as possible—against further assaults. In light of the many scandals of recent years in churches, state universities, secondary and even elementary public schools involving allegations of pedophilia, schools need to make sure that they have rules in place to provide such protection, including required reporting of these (alleged) assaults to local law enforcement.

### 6. Violence Prevention

More emphasis should be given to teaching violence prevention *skills* to increase healthy behaviors among our youth. Violence prevention skills include the development of de-escalation, mediation, and conflict resolution skills through role-playing, as well as a planned process for whole school discipline and safety (Dr. Lee Halverson, former Consultant at Heartland Area Education Agency, personal communication, November 29, 1995). This should begin at the elementary level or earlier with families of newborn to pre-school age children. An example of such a program was the Safe and Drug Free Schools through Supportive Community Partnerships Program at Woodbury Elementary School in Marshalltown (formerly the Drug and Violence Prevention Program, cited by the Iowa Department of Public Health for "best prevention practices" in 1998), which was operational from 1996-97 to 2009-10 (Veale, 2010). Another example is Community Connections in Allamakee County, where schools have utilized Olweus Bullying (prevention), Character Counts, Success 4, and other instructional incentives for positive student behavior/development to reduce the number of disciplinary referrals. The latter program began in 1998 as part of Iowa's School-Based Youth Services Program, continued under a Safe Schools/Healthy Students grant (2004-08), Reduce Alcohol Abuse (2008-2012), and currently provides K-12 services to children, youth, and their families under two 21st Century grants (e.g., Veale, 2013). These programs have utilized cooperation and collaboration among multiple agencies and other components of the support system in the delivery of these services.

Emergency preparedness, response, and recovery is another area that needs more attention. Schools must be prepared for violent incidents (such as school shootings), as well as natural disasters (such as floods and tornados) that can severely impact student health and safety. Violence prevention remains the most frequently selected area for professional development in the past two years among lead health education teachers (49%), as well as the most frequently selected area for *preferred* professional development in the future (78%) (Veale, February 2013).

In addition to special programs such as those cited above, School Resource Officers (SROs) can be used to reduced bullying, increase safety, and steer children away from drugs. These SROs are law enforcement officers who "provide campus security, intelligence and help change the attitudes young people have towards law enforcement." They often serve as guest speakers on issues of interest to students and can also provide informal counseling and mentoring (Quinn, December 2013).

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# APPENDIX A

The 2013 Iowa Youth Risk Behavior Survey