2020 State of Iowa Substance Use Epidemiological Profile

Authorship – Division of Behavioral Health, Bureau of Substance Abuse

June 2021

Iowa Department of Public Health

Protecting and Improving the Health of Iowans

Suggested Citation:
Iowa Department of Public Health. Division of Behavioral Health. Bureau of Substance Abuse. State Epidemiological Workgroup. *2020 State of Iowa Substance Use Epidemiological Profile*. Des Moines: Iowa Dept. of Public Health, 2020.
Web: https://idph.iowa.gov/substance-abuse/epidemiological-workgroup

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ACKNOWLEDGEMENT

The 2020 Iowa Substance Use Epidemiological Profile would not have been possible without the dedicated work of the following Workgroup members:

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EXECUTIVE SUMMARY

In 2006, the Iowa Department of Public Health received funding from the U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration's Center for Substance Abuse Prevention, for a State Epidemiological Outcome Workgroup (Workgroup) to develop a state epidemiological profile on substance abuse. The Workgroup included representatives from agencies directly involved with preventing substance misuse in the State of Iowa. A separate Data Task Group was formed to develop criteria for selecting adequate indicators for the profile and to use those criteria to identify, analyze, and select indicators for inclusion in Iowa's epidemiological profile. The following criteria were developed during the writing of the *2006 Iowa Epidemiological Profile* and were used for the subsequent profiles, as well:

- Data available at the state (Iowa) level;
- The sample covers age range;
- Data collected at least every two years;
- Measures directly related or strongly associated with Alcohol, Tobacco, and Other Drug (ATOD) use;
- Data pertain to consumption or consequence; and
- Data sets have an adequate sample size.

Approximately 45 indicators were included in the *2007 Iowa Epidemiological Profile*, and an additional six new indicators were added to the 2008 Profile. The 2009 Profile also introduced mapping for the major consumption and consequence indicators showing their distribution across Iowa's 99 counties. The magnitude of the indicators dictated the priorities chosen in the Strategic Prevention Framework State Incentive Grant application (SPF SIG). After receiving the SPF SIG Cooperative Agreement, the 2010 Profile introduced the analysis of mortality and hospital discharge data. Using Internal Classification of Diseases (ICD) 9th and 10th revision, conditions attributed to alcohol, tobacco, and drugs were identified and computed to generate rates. The 2012 Profile introduced Synar data, which assessed how tobacco outlets are compliant to the Alcohol, Drug Abuse, and Mental Health Administration Reorganization Act. The Synar amendment prohibits the sale or distribution of tobacco products to individuals under the age of 18.

The 2016 Profile built upon previous profiles and included new data including intervening variables associated with substance use. Mental health, suicide data, and recommendations were also added to the 2016 Profile. The *2018 Epidemiological Profile* and *2020 Epidemiological Profile* highlight data regarding over-the-counter medications, opioid-related hospitalizations, and opioid-related deaths. State and national maps were presented to provide visual presentations of the various substances.

Key Findings in the 2020 Epidemiological Profile

Alcohol

Adult Consumption

- Alcohol remains the most reported primary substance of choice at treatment admission; however, the data shows gradual decrease from 2013 to 2020 (490 per 100,000 population 12 years and older to 387 per 100,000 population 12 years and older; IDPH, 2021).
- Alcohol-related treatment admission was highest among adults aged 24-44 compared to other age groups.
- Black or African American aged 18 or older had the highest rates of alcohol-related treatment admission compared to Hispanic or Latino and White in the same age group.
- The percentage of primary substance of choice for treatment admission was highest among Iowans with bachelor's degree and higher compared to the other educational levels.
- The percentage of Iowans reporting alcohol use in the past 30 days has remained relatively stable over the past 10 years.
- Alcohol use in the past 30 days is higher among Iowans (63% of Iowans aged 18 or older) compared to the national estimate (55%).
- Among Iowa's six regions, the Central (61%) and North Central (60%) had the highest alcohol use in the past 30 days compared to other regions (range 57%-59%) (NSDUH, 2018).
- A greater proportion of men (27%) reported binge drinking in the past 30 days compared to women (17%) (BRFSS, 2019).
- One-third (33%) of Iowans aged 18-24 and 25-34 years old reported binge drinking in the past 30 days, respectively, which is the highest percentage among all age groups.

Youth Consumption

- From 2008 to 2018, alcohol use in the past 30 days and binge drinking among Iowa youth declined for all grade levels (Grades 6, 8, 11).
- From 2008 to 2018, alcohol use in the past 30 days decreased by 53 percent and binge drinking decreased by 62 percent among all grade levels.
- In 2018, 16 percent of youth in grade 6, 36 percent of youth in grade 8, and 64 percent of youth in grade 11 reported easy or very easy access to alcohol.

Tobacco

Adult Consumption

- In a ten-year period, cigarette use in the past 30 days decreased by 15 percent in Iowa from 26% of adults in 2008/2009 to 22% of adults in 2018/2019.
- The highest percentage of cigarette use in the past 30 days was among Iowans with less than high school (23%) compared to other educational levels (range 6-22 percent).
- Iowans earning $50,0000 or more annually reported the lowest percentage (13%) of cigarette use in the past 30 days compared to those earning less than $15,000 (30%).

Youth Consumption

- From 2008 to 2018, youth cigarette use in the past 30 days among students in 6th, 8th, and 11th grade combined decreased from 9% to 2%, respectively.
- The proportion of youth who reported cigarette use before age 13 continued to decline.
- Although cigarette use in the past 30 days declined, the perception of risk of smoking cigarettes every day declined from 82 percent of youth in 2008 who reported *Great risk* or *Moderate risk* to 79 percent in 2018 for all grade levels combined.
- In 2018, nearly one-quarter (23%) of youth in grade 11 reported e-cigarette use in the past 30 days. Overall, 11% of youth in grades 6/8/11 combined reported current e-cigarette use.

Marijuana and Illicit Drugs

Adult Consumption

- Marijuana use in the past 30 days increased from 4% of adults aged 18 or older in 2008/2009 to 7% in 2018/2019.
- Compared to other states, Iowa was among those states with the lowest marijuana and cocaine use in the past 30 days.
- The Central (8%) and Northeast (7%) regions of Iowa had the highest marijuana use in the past 30 days compared to the other Iowa regions (NSDUH, 2018).
- Cocaine use in the past 30 days was highest among Iowans aged 18-25 (5%) compared to those 26 years or older (1%).
- Methamphetamine-related treatment admissions increased by 44 percent since 2013 and the rates were higher for males (338 per 100,000) than females (270 per 100,000).
- Methamphetamine labs seized and methamphetamine production near a child (e.g., under the age of 18) has continually decreased since 2013.

Youth consumption

- Marijuana use in the past 30 days has declined among youth in grades 6/8/11 from 13% in 2008 to 10% in 2018 (Iowa Youth Survey, 2018).
- Iowa youth in grade 11 who reported marijuana use before age 13 declined from 5% in 2008 to 3% in 2018.
- Illicit drug use other than marijuana in the past 30 days was 3% among youth aged 12-17 years (NSDUH, 2019).
- In 2018, 82% of youth in grades 6/8/11 reported the belief that their peers would view the use of illegal drugs other than alcohol, cigarettes, or marijuana as *Very Wrong* or *Wrong*.
- Males in grades 6/8/11 had similar perceptions of risk of self-harm due to illicit drug use compared to females.

Over the Counter and Prescription Medications

Youth/Adult consumption

- In Iowa, the percentage of adults reporting prescription medication misuse in the past year has remained stable at 4%.
- Opioid-related poisoning emergency department visits and hospitalizations were higher among females compared to males. However, the rate of opioid-related poisoning mortality was higher among males.
- Opioid-related emergency department visits and deaths were highest among Iowans aged 25-44; however; opioid-related hospitalizations were highest among Iowans aged 45-64.
- All drug-related emergency department visits, hospitalizations, and mortality were highest among Iowans among Iowans aged 25-44 years old.
- All drug-related emergency department visits, hospitalizations, and mortality were higher among males compared to females
- From 2008 to 2018, the percentage of youth in grades 6/8/11 reporting over-the counter medication misuse in the past 30 days decreased from 4% to 3%, respectively.

Legal Consequences

- The percentage of prison admissions in which methamphetamine was cited as primary drug of choice increased 40 percent in the past 10 years from 47% in 2011 to 66% in 2020.
- Marijuana (18%) was the second highest percentage drug cited as primary drug of choice at prison admission.
- Three-percent of prison admissions cited opioids as primary drug of choice.

Mental Health

- In the ten-year period from 2008/2009 to 2018/2019, the percentage of Iowans aged 18 to 25 with major depressive episodes in the past year increased from 8% to 14%.
- In 2018/2019, a higher percentage (12%) of Iowans aged 18 to 25 years reported serious thoughts of suicide in the past year compared to Iowans 26 or older (4%).

Conclusion

In Iowa, progress continues to be made in addressing substance use and misuse, including reductions in youth alcohol use, cigarette use amongst all ages, and binge drinking. Despite this progress, usage rates and the harmful effects of substance use continue to affect too many Iowans. Although alcohol remains the most reported substance at treatment admission, methamphetamine was the second most cited drug of choice in Iowa.

BACKGROUND

Iowa, named after the Ioway Indian tribe, became the 29th U.S. state in 1846. Iowa is known as the Hawkeye State and Des Moines is the capital city. The State of Iowa had an estimated population of 3,130,869 in 2016 (U.S. Census, 2017). Two of its many attractions are the rare Loess Hills along the Missouri River, and the world-famous Iowa State Fair in Des Moines. Iowa is bordered by two great American rivers, the Mississippi and the Missouri on its east and west sides, thus making it part of the Lewis and Clark Expedition.

Iowa's population is 85.9 percent of Iowans are White, non-Hispanic, 6.3 percent Hispanic or Latino, 6.3 percent African American or Black, 2.9 percent Asian, 0.3 percent American Indian and Alaska Native. The majority (92.6 percent) of Iowans have a high school diploma or higher, and 29.3 percent have a bachelor's degree or higher.

Table 1: Iowa Population by Sex, Age, Race/Ethnicity, and Urban and Rural Designation, 2019

	Iowa	US
Total population[1]	3,155,070	328,239,523
Sex		
Female	50.2%	50.8%
Male	49.8%	49.2%
Age (in years)		
<1 (infancy)	1.2%	1.2%
1 – 14 (childhood)	18.0%	17.3%
15 – 24 (adolescence/ young adulthood)	13.8%	13.0%
25 – 44 (early working age)	24.8%	26.7%
45 – 64 (older working age)	24.7%	25.4%
65+ (older adult)	17.5%	16.5%
Race/Ethnicity		
White	85.9%	61.2%
Hispanic or Latino	6.3%	18.5%
Black or African American	4.5%	13.2%
Asian or Pacific Islander	2.9%	6.3%
American Indian and Alaska Native	0.3%	0.8%
Urban and Rural Designation[2]		
Urban	64.3%	80.7%
Rural	35.7%	19.3%

1. United States Department of Health and Human Services (US DHHS), Centers for Disease Control and Prevention (CDC), National Center for Health Statistics (NCHS). *Bridged-Race Population Estimates, 2019*.
Retrieved from https://wonder.cdc.gov/bridged-race-population.html
2. United States Census Bureau (2019). Retrieved from https://www.iowadatacenter.org/quickfacts

In 2006, the Iowa Department of Public Health (IDPH) received funding from the U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration's (SAMHSA) Center for Substance Abuse Prevention, for a State Epidemiological Outcome Workgroup (SEOW; name changed later to the State Epidemiological Workgroup (SEW)). In 2019, the SEW merged with the Prevention Partnerships Advisory Council due to a significant overlap in members and interests. This new group adopted the title of **State Epidemiological Workgroup and Prevention Partnerships Advisory Council (SEWPPAC)**. After the merger that created the SEWPPAC, a systematic review and recruitment to add members was instituted. Sectors that had previously not been engaged were identified with representation added in late 2019 and 2020. This included members from the following organizations:

- County Public Health Departments
- Iowa Hospital Association
- State of Iowa Youth Advisory Council

The IDPH Division of Behavioral Health, the Single State Authority for substance abuse prevention and treatment, administers the funds and activities of the SEWPPAC. Through SEWPPAC, Iowa initiated a systematic process to identify and analyze substance use and abuse epidemiology statewide. The resulting epidemiological profiles of substance use helped assess substance use issues and prioritize prevention services and treatment. Statewide profiles were divided into sections to summarize data by consumption patterns and consequences of use of various substances.

In 2009, IDPH was awarded a SAMHSA cooperative agreement, Strategic Prevention Framework State Incentive Grant (SPF SIG), to address underage drinking, as well as adult binge drinking and related consequences. In 2011, another one-year award, the Strategic Prevention Enhancement, was awarded to IDPH to expand the work of the SEW, as well as increase partnership, collaboration and data sharing between various state agencies. The new expanded SEW had the mission of redefining the scope of its work and identifying meaningful epidemiological products (in addition to the *Epidemiological Profiles*) for the public, researchers, prevention and treatment professionals statewide, plus state and federal legislators.

In September 2014, SAMSHA awarded IDPH a five-year Partnerships for Success Grant. This project continued to build upon the experience and established Strategic Prevention Framework (SPF) prevention infrastructure to address two of the nation's top substance abuse prevention priorities (i.e., underage drinking, adult binge drinking) in identified high need communities. The project is based on the premise that over time, community-level change will lead to measurable change at the state/tribal level.

In September 2016, SAMHSA awarded IDPH a five-year Strategic Prevention Framework (SPF) for Prescription Drugs (SPF Rx) grant. Some of the key elements of the SPF Rx project include:

- Identify highest need counties and prescription drug disparities;
- Create a SPF evidence-based prescription drug misuse prevention infrastructure to identify, promote, and evaluate evidence-based practices, programs, and policies;
- Create and disseminate a statewide media campaign focused on the misuse of prescription drugs; and
- Direct funding, through a competitive RFP process, to the 3 "*highest need*" counties identified with data indicators focused on prescription drug misuse.

Process

The SEW emphasized including applicable National Outcome Measures (NOM) in the identified indicators. The following criteria were used in the selection process:

- Data available at State (Iowa) level;
- Sample includes all geographic areas;
- Sample includes age range;
- Data collected at least every two years;
- Measures directly related or strongly associated with Alcohol, Tobacco, and Other Drugs (ATOD) use;
- Data pertain to consumption or consequence; and
- Datasets have adequate sample size.

Additional criteria were applied where similar indicators existed:

- Historical data available;
- Data available at local level;
- Limited redundancy between indicators; and
- Alignment with consequence data.

After the master indicator list was complete and the selection criteria developed, the DTG began to select indicators for the Epidemiological Profile. The indicator selection process culminated in DTG assistance in obtaining state-level data. Most indicators were discarded for at least one of the following reasons:

- No useful data source was available;
- Significant problems existed with the data source (e.g., inadequate sample size, unavailability of raw data, inconsistent reporting); and
- Lack of a strong relationship or association between ATOD use and a given consequence.

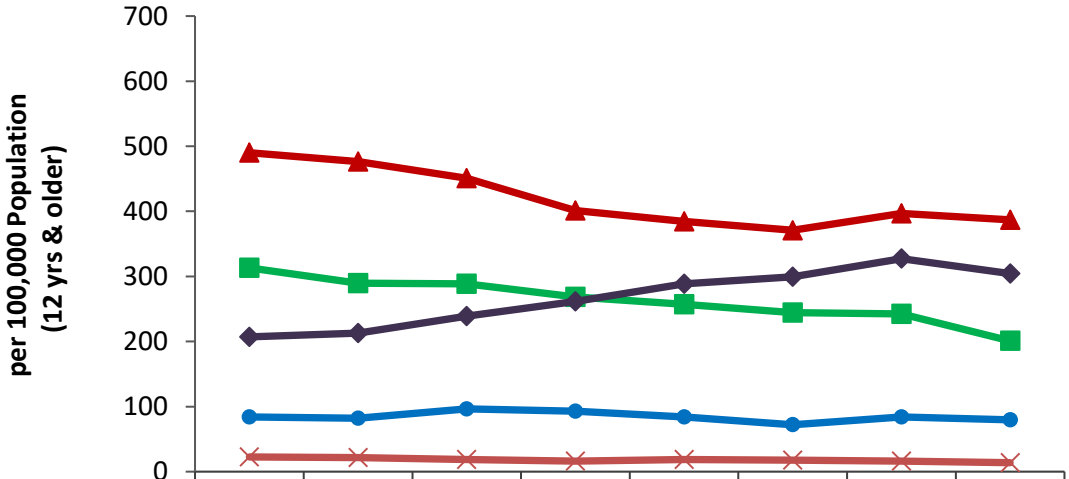
The DTG prioritized the indicators according to consumption or consequences for alcohol, tobacco, and illicit drugs. National Datasets were rejected if they were not representative of Iowa due to small sample size.

ALCOHOL CONSUMPTION

Primary Substance of Choice

- Alcohol is the primary substance of choice by Iowa adults admitted for treatment.
- The total number of substance use disorder treatment admissions decreased 13 percent from 2013 to 2020 (from 29,873 to 25,903, respectively).
- Alcohol remains the most reported substance at treatment admission albeit at a decreasing rate (2013 admissions 490 per 100,000 population 12 years or older; 2020 admissions 387 per 100,000 population 12 years or older; Figure 1).
- Methamphetamine was the second most-cited drug of choice indicated on 2020 treatment admissions (i.e., 304 per 100,000 100,000 population 12 years or older), followed by marijuana (i.e., 201 per 100,000 population), and opioids (i.e., 80 per 100,000 population; Figure 1).

Figure 1: Rate of Treatment Admission among Iowans 12 Years of Age and Older by Primary Substance of Choice, IDPH, 2013-2020

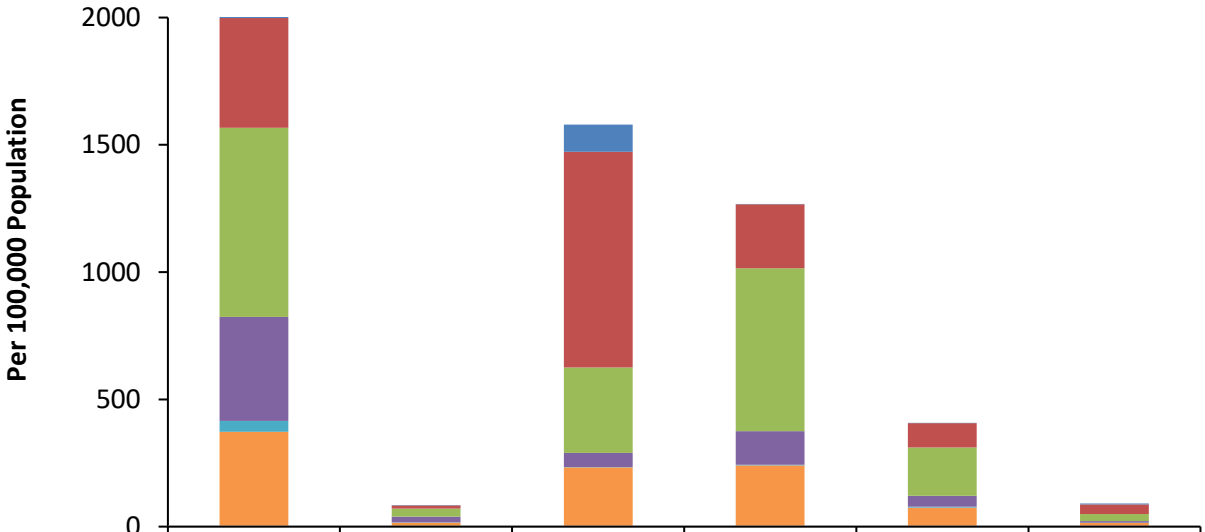


	2013	2014	2015	2016	2017	2018	2019	2020
Alcohol	490	476	451	401	384	371	397	387
Cocaine/Crack	23	22	19	16	19	18	16	14
Marijuana	313	290	288	269	257	244	242	201
Methamphetamine	207	213	239	261	289	299	327	304
Opiates	84	82	96	93	84	72	84	80

Figure 2 illustrates the average rate of treatment admission by primary substance of choice and age group. The average rates are based on combined 2013-2020 treatment admissions data from the Iowa Service Management and Reporting Tool (I-SMART).

- The 2013-2020 data indicated that the average rate of treatment admissions for marijuana was highest among people aged 15 to 24 (846 per 100,000 population) compared to other age groups.
- The average rate of treatment admissions for alcohol was highest among people 24 to 44 (742 per 100,000 population) followed by people aged 15 to 24 (432 per 100,000 population) and 45 to 65 (409 per 100,000 population).
- Overall, across all age groups combined, alcohol (372 per 100,000 population) was the primary substance of choice followed by methamphetamine (240 per 100,000 population) and marijuana (233 per 100,000 population).

Figure 2: Average Rate of Treatment Admission by Primary Substance of Choice by Age, IDPH, 2013-2020



	Alcohol	Cocaine/Crack	Marijuana	Methamphetamine	Opioids	Other/Unknown
10-14	14	0	107	2	1	4
15-24	432	13	846	251	95	38
24-44	742	31	337	640	190	28
45-65	409	23	54	132	43	6
65+	43	1	2	2	4	0
All Ages	372	16	233	240	75	15

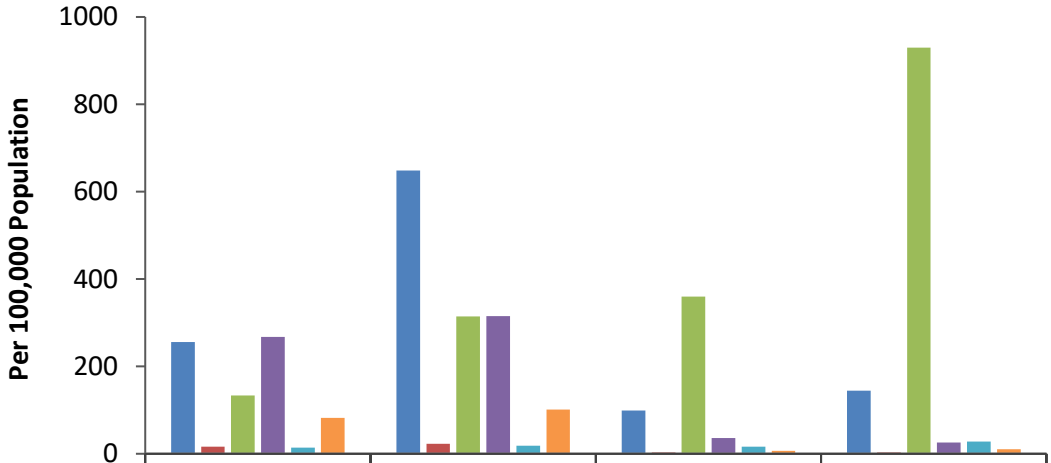
Figure 3 illustrates the average annual rate of treatment admissions by primary substance of choice, age group (i.e., aged 12 to 17, 18 or older), and sex. The average rates are based on combined 2013-2020 treatment admission data from the Iowa Service Management and Reporting Tool (I-SMART).

- Among youth aged 12 to 17 years old, the average rate of treatment admission was highest for marijuana for both females and males:
  - 360 admissions per 100,000 population females aged 12 to 17 years old
  - 930 admissions per 100,000 population males aged 12 to 17 years old

- Among adults aged 18 or older, the average rate of treatment admission was highest for methamphetamine for females (268 admissions for methamphetamine per 100,000 population adult females), and for alcohol for males (648 admissions for alcohol per 100,000 population adult males)

- The average rates of methamphetamine and opioids treatment admissions were highest among adult males.

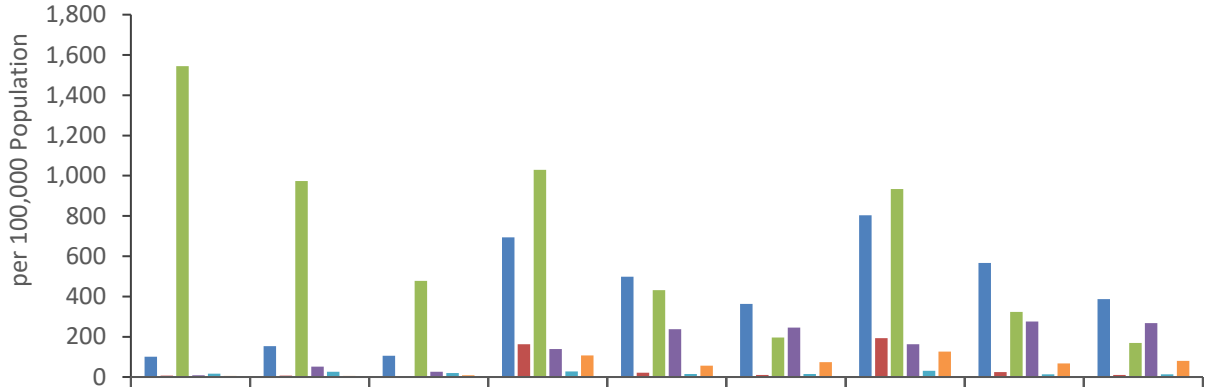
Figure 3: Average Rate of Treatment Admission by Primary Substance of Choice by Sex, IDPH, 2013-2020



	Adults (18+) Females	Adults (18+) Males	Juveniles (12-17) Females	Juveniles (12-17) Males
Alcohol	256	648	99	145
Cocaine/Crack	16	23	3	3
Marijuana	133	314	360	930
Methamphetamine	268	315	36	26
Other/Unknown	14	18	16	28
Opioids	82	101	6	11

Figure 4 illustrates the annual average rate of primary substance of choice for treatment admission among three different age groups (i.e., 12 to 17, 12 or older, and 18 or older) by race/ethnicity. From 2013-2020, the rate of marijuana treatment admission was significantly higher among Black or African Americans 12 to 17 years old.

Figure 4: Rate of Primary Substance of Choice for Treatment Admission by Substance Type by Race/Ethnicity, IDPH, 2013-2020



	12-17			12+			18+		
	Black or African American	Hispanic or Latino	White	Black or African American	Hispanic or Latino	White	Black or African American	Hispanic or Latino	White
Alcohol	101	154	106	694	498	362	804	567	387
Cocaine/Crack	6	7	2	163	22	10	193	25	11
Marijuana	1,544	973	478	1,029	432	197	934	323	169
Methamphetamine	9	51	26	140	238	246	163	276	267
Other/Unknown	17	26	19	28	15	15	30	13	14
Opioids	5	5	8	107	56	73	126	67	80

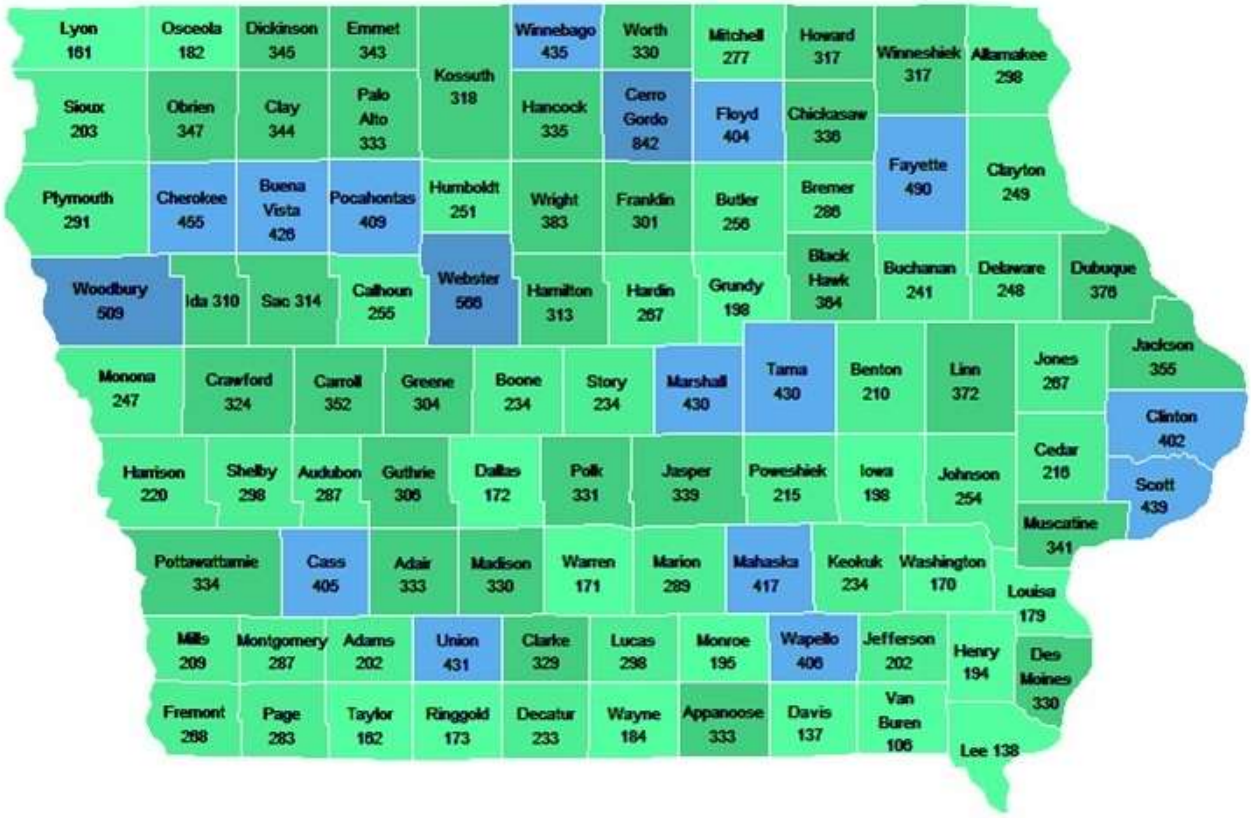
Table 2 illustrates the annual average number and percentage of treatment admission primary substance of choice among people aged 18 or older by education status. From 2013-2020, the percentage of alcohol treatment admission was disproportionately highest among people with a bachelor's degree and higher. Among Iowans with less than a high school diploma, the percentage of alcohol and methamphetamine treatment admission were similar. Treatment admissions for opioids were highest among people with some college or associate's degree.

Table 2: Average Number and Percentage of Primary Substance of Choice for Treatment Admission by Substance Type, Education Status, Aged 18 or Older, IDPH, 2013-2020

Education Status	Drug Type	Average Number of Admissions Per Year	Percentage of Admissions
Less than High School	Alcohol	1,497	30%
	Cocaine/Crack	92	2%
	Marijuana	1,446	29%
	Methamphetamine	1,565	31%
	Opiates	349	7%
	Other/Unknown	70	1%
High School Graduate or Equivalent	Alcohol	5,091	38%
	Cocaine/Crack	242	2%
	Marijuana	2,933	22%
	Methamphetamine	3,829	29%
	Opiates	1,064	8%
	Other/Unknown	189	1%
Some College or Associate's Degree	Alcohol	2,605	47%
	Cocaine/Crack	100	2%
	Marijuana	891	16%
	Methamphetamine	1,291	23%
	Opiates	587	11%
	Other/Unknown	86	2%
Bachelor's Degree and Higher	Alcohol	1,594	67%
	Cocaine/Crack	38	2%
	Marijuana	191	8%
	Methamphetamine	294	12%
	Opiates	207	9%
	Other/Unknown	41	2%

Figure 5 displays the average annual rates for alcohol-related treatment admission (primary mentions) by county. The county rates are based on the patient's county of residence and unique treatment admissions. The county rates varied greatly from 106 admissions per 100,000 population in Van Buren County to 842 in Cerro Gordo County. The five counties with the lowest rates included: Van Buren (106 admissions per 100,000 population), Davis (137), Lee (138), Lyon (161), and Taylor (162). The five counties with the highest rates of alcohol-related treatment admissions included: Cerro Gordo (842 admissions per 100,000 population), Webster (566), Woodbury (509), Fayette (490), and Cherokee (455).

Figure 5: Average Annual Rate of Alcohol Treatment Admissions, IDPH, 2016-2020



Rate per 100,000 population

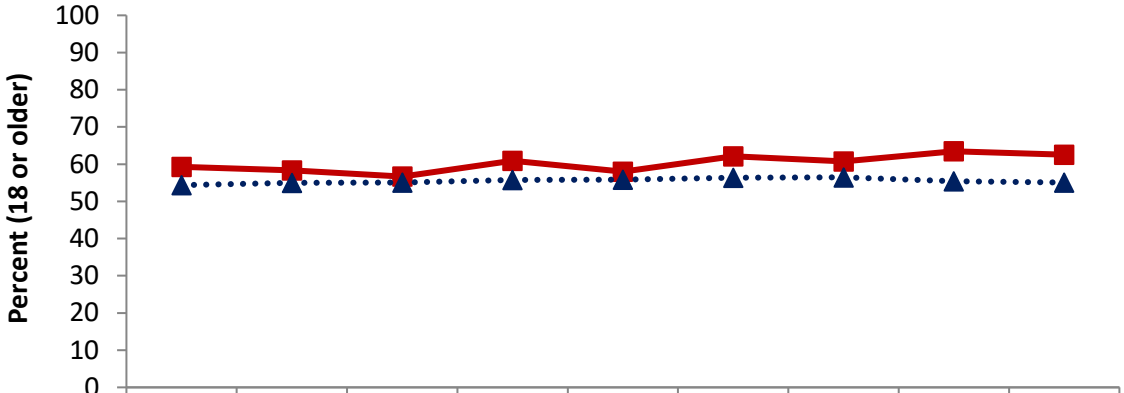
ADULT CONSUMPTION PATTERNS

Adult Alcohol Use in the Past 30 Days

Figure 6 illustrates the percentage of adults aged 18 or older reporting alcohol use in the past 30 days in Iowa and the United States.

Overall, the percentage of Iowans who reported alcohol use in the past 30 days has remained steady. In 2018-2019, NSDUH estimated 63 percent of Iowans aged 18 or older had used alcohol in the past month compared to 55 percent of the population aged 18 or older nationwide.

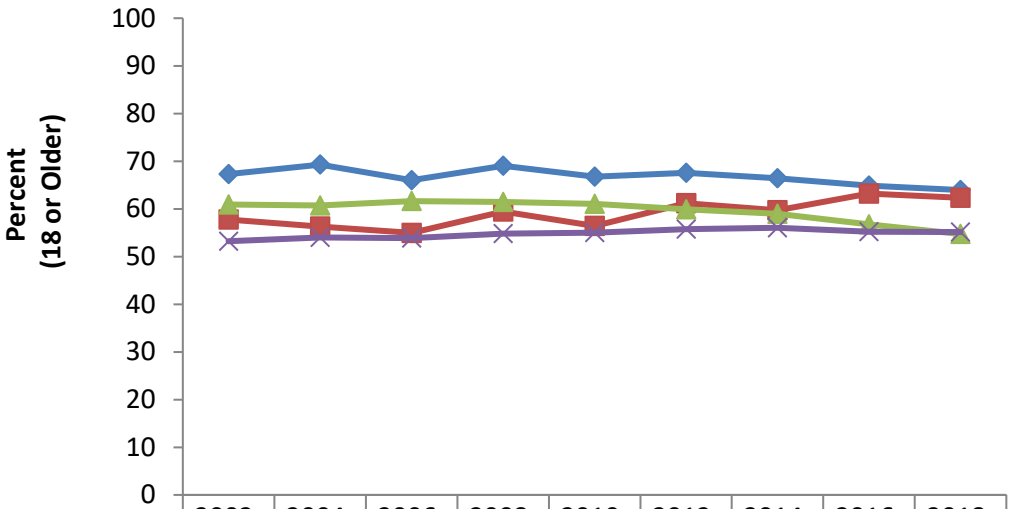
Figure 6: Past 30 Day Alcohol Use, Aged 18 or Older, Iowa & U.S., NSDUH, 2002-2019



	2002-03	2004-05	2006-07	2008-09	2010-11	2012-13	2014-15	2016-17	2018-19
Iowa	59	58	57	61	58	62	61	63	63
U.S.	54	55	55	56	56	56	56	55	55

Figure 7 illustrates the percentage of adults reporting alcohol use in the past 30 days by age group. In 2018-2019, the NSDUH estimated that 64 percent of Iowa adults aged 18-25 years and 62 percent of adults aged 26 or older used alcohol in the past 30 days. For both age groups, a greater proportion of Iowans reported alcohol use in the past 30 days compared to the national rate (18-25 year olds: 64 percent v. 55 percent; 26+ years: 62 percent v. 55 percent, respectively).

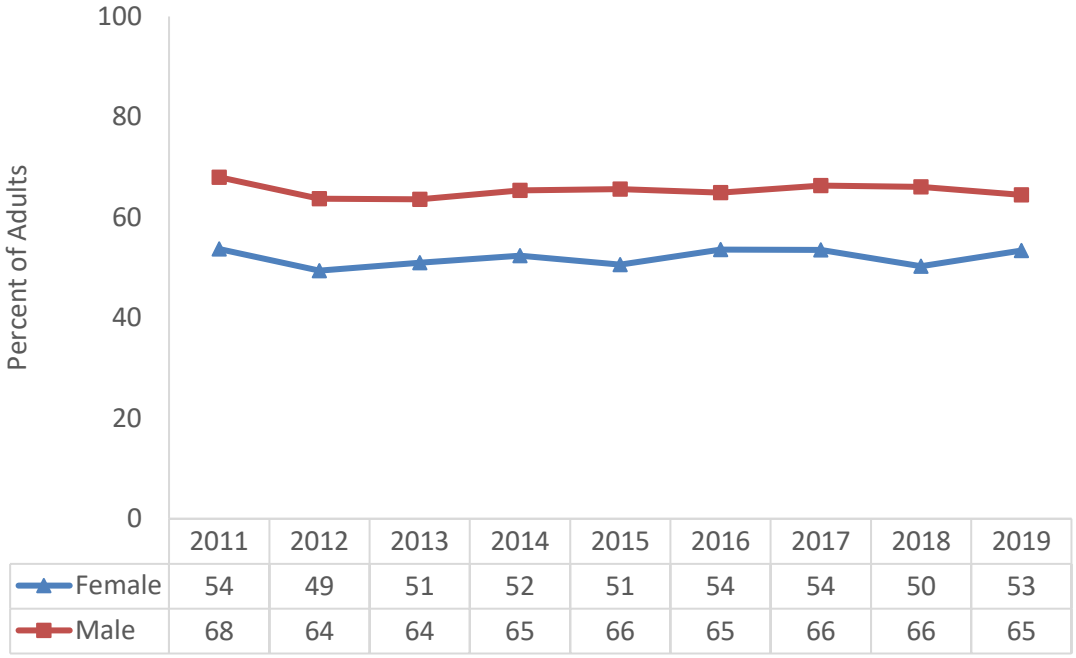
Figure 7: Past 30 Day Alcohol Use among Adults by Age, Iowa & U.S., NSDUH, 2002-2019



	2002-03	2004-05	2006-07	2008-09	2010-11	2012-13	2014-15	2016-17	2018-19
Iowa - 18 to 25	67	69	66	69	67	68	66	65	64
Iowa - 26 or Older	58	56	55	59	56	61	60	63	62
United States - 18 to 25	61	61	62	61	61	60	59	57	55
United States - 26 or Older	53	54	54	55	55	56	56	55	55

Figure 8 illustrates the percentage of adults aged 18 or older reporting alcohol use in the past 30 days in Iowa by gender. For all data years, a greater proportion of males reported alcohol use in the past 30 days compared to women. In 2019, 53 percent of females and 65 percent of males reported alcohol use in the past 30 days.

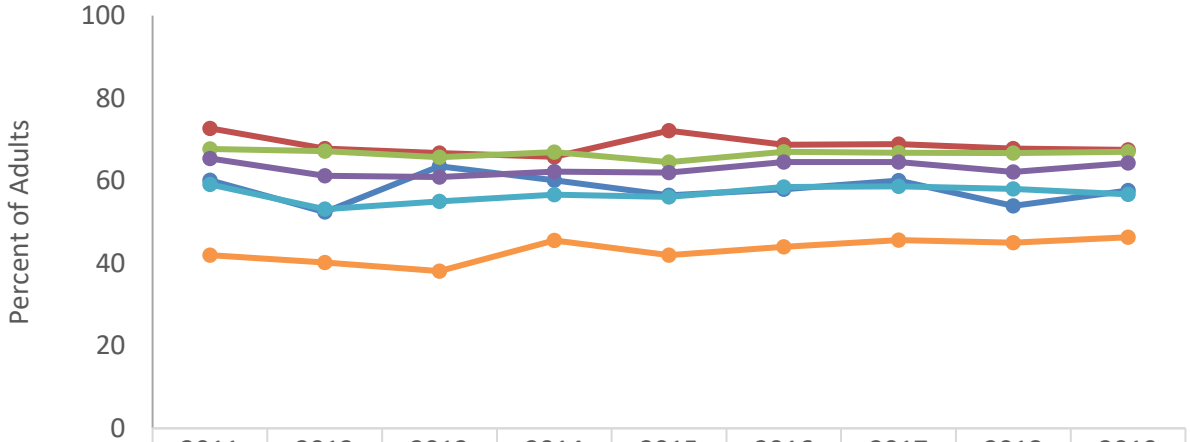
Figure 8: Past 30 Day Alcohol Use among Adults in Iowa by Sex, BRFSS, 2011-2019



	2011	2012	2013	2014	2015	2016	2017	2018	2019
Female	54	49	51	52	51	54	54	50	53
Male	68	64	64	65	66	65	66	66	65

Figure 9 illustrates the percentage of adults reporting alcohol use in the past 30 days in Iowa by age. Across all age groups, the highest proportion of reported alcohol use in the past 30 days was among adults aged 25-34 years (68 percent) and 35-44 years (67 percent).

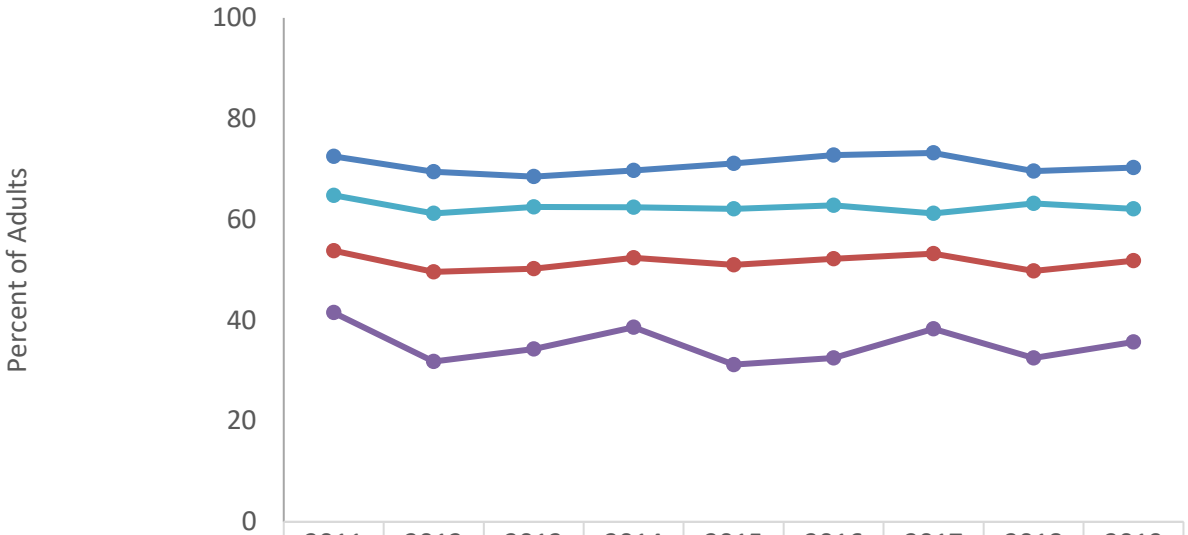
Figure 9: Past 30 Day Alcohol Use among Adults in Iowa by Age, BRFSS, 2011-2019



	2011	2012	2013	2014	2015	2016	2017	2018	2019
18-24	60.1	52.4	63.5	60.1	56.5	57.9	60	53.9	57.6
25-34	72.7	67.8	66.7	65.8	72.1	68.7	68.9	67.8	67.5
35-44	67.7	67.2	65.7	66.9	64.5	67	66.8	66.7	67
45-54	65.4	61.2	60.9	62.2	62	64.5	64.5	62.1	64.3
55-64	59.1	53.1	55	56.6	56.1	58.5	58.6	58	56.7
65+	42	40.2	38.1	45.5	42	44	45.6	45	46.3

Figure10 illustrates the percentage of adults age 18 or older reporting alcohol use in the past 30 days in Iowa by education level. The percentage of Iowans who drank alcohol in the past 30 days increased as the level of education increased with the highest level of alcohol use found among college graduates. In 2019, 70 percent of adults with a college graduate education reported alcohol use in the past 30 days compared to 62 percent of those with some education post high school, 52 percent of adults with a high school diploma or GED, and 36 percent of adults with less than a high school education, respectively.

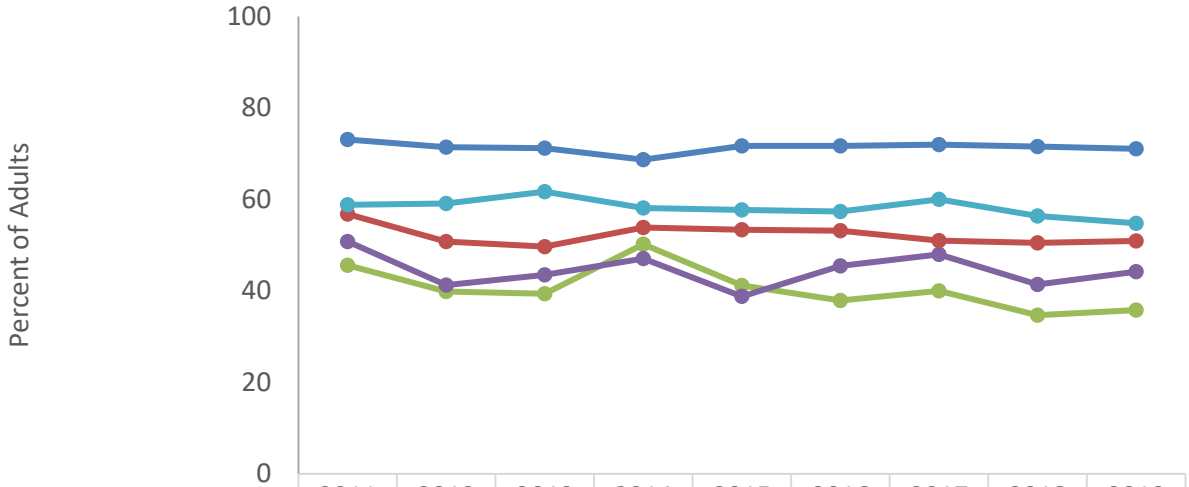
Figure 10: Past 30 Day Alcohol Use among Adults in Iowa by Education, BRFSS, 2011-2019



	2011	2012	2013	2014	2015	2016	2017	2018	2019
Less than H.S.	42	32	34	39	31	33	38	33	36
H.S. or G.E.D.	54	50	50	52	51	52	53	50	52
Some post-H.S.	65	61	63	62	62	63	61	63	62
College graduate	73	70	69	70	71	73	73	70	70

Figure 11 illustrates the percentage of adults reporting alcohol use in the past 30 days in Iowa by income level. A greater proportion of Iowans at higher annual incomes reported past 30 days alcohol use compared to those who earn less. In 2019, 71 percent of Iowa adults earning $50,000 or more annually reported alcohol use compared to 36 percent of adults earning less than $15,000 annually.

Figure 11: Past 30 Day Alcohol Use among Adults in Iowa by Income Level, BRFSS, 2011-2019



	2011	2012	2013	2014	2015	2016	2017	2018	2019
Less than $15,000	46	40	39	50	41	38	40	35	36
$15,000-$24,999	51	41	44	47	39	46	48	41	44
$25,000-$34,999	57	51	50	54	53	53	51	51	51
$35,000-$49,999	59	59	62	58	58	57	60	56	55
$50,000+	73	71	71	69	72	72	72	72	71

Figure 12 illustrates the percentage of people aged 18 or older reporting alcohol use in the past 30 days. States are grouped into quintiles based on the distribution of state rates of alcohol use in the past 30 days. Iowa (62.6%) was in the highest quintile nationally. The states with the highest proportion of adults reporting alcohol use in the past 30 days are in the upper Midwest and New England.

Figure 12: Past 30 Day Alcohol Use, Aged 18 or Older, NSDUH, 2018-2019

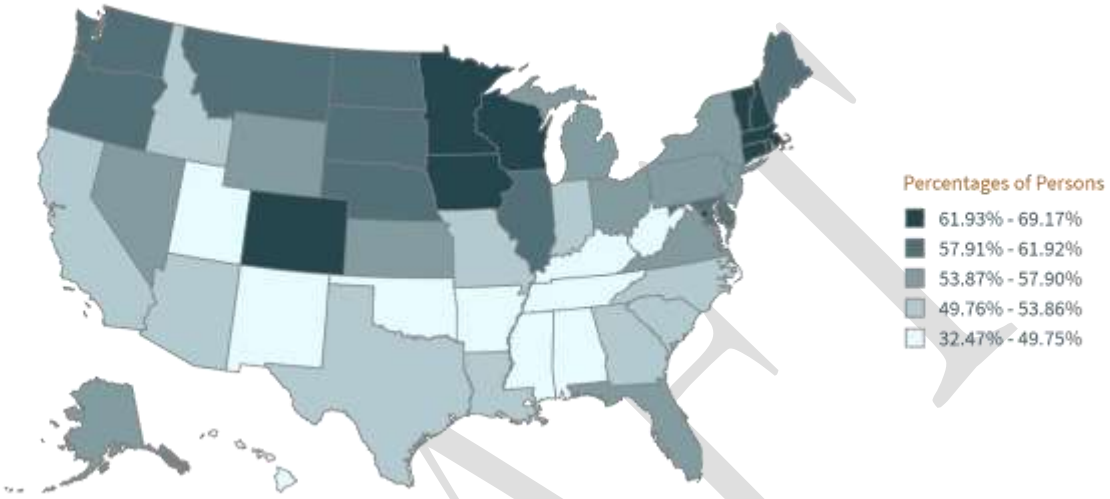


Figure 13 illustrates the percentage of adults aged 18 to 25 reporting alcohol use in the past 30 days. States are grouped by quintile based on the distribution of state rates for alcohol use in the past 30 days. Iowa (63.9%) was in the highest quintile for alcohol use in past 30 days among 18-25 year olds.

Figure 13: Past 30 Day Alcohol Use among Adults, Aged 18 to 25, NSDUH, 2018-2019

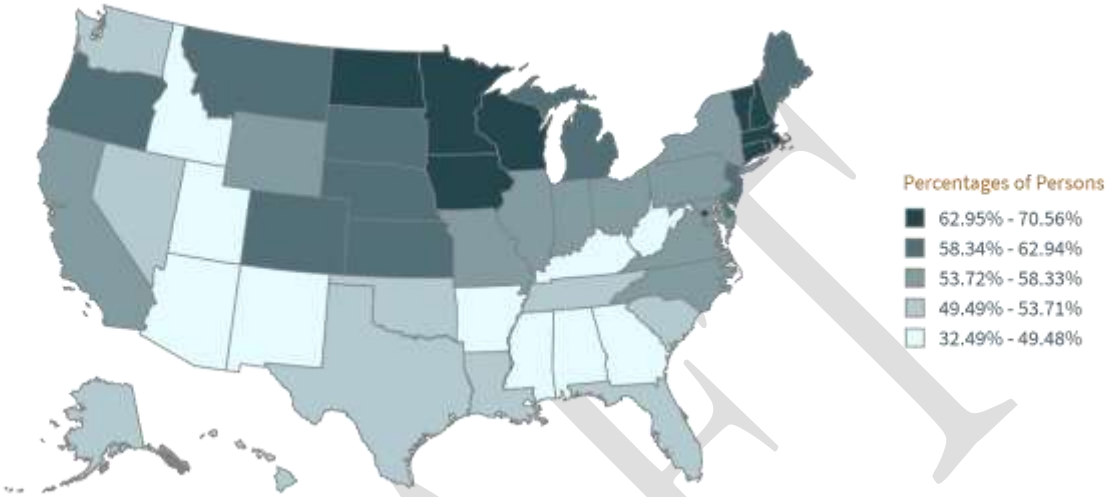
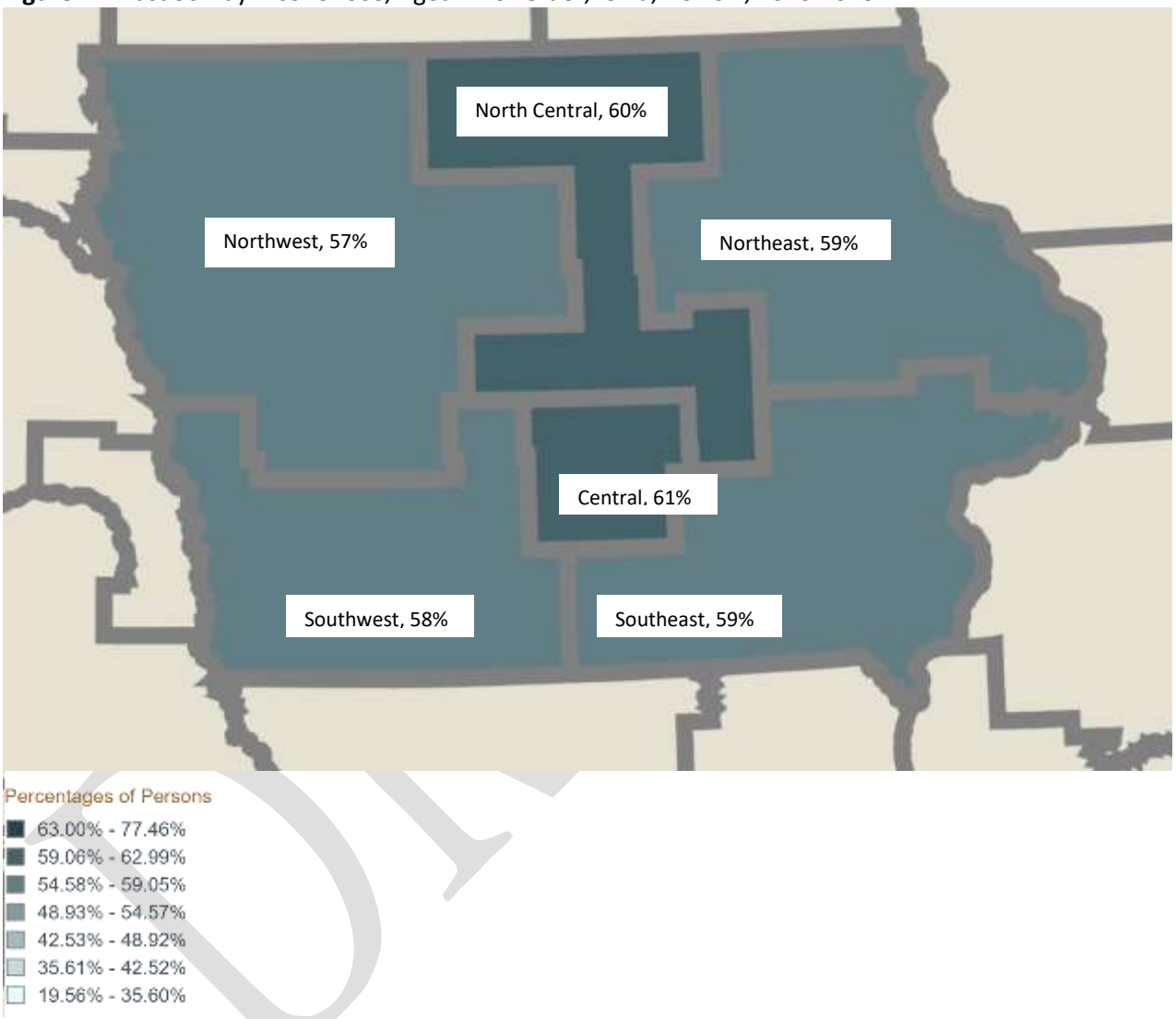


Figure 14 illustrates the percentage of Iowans aged 12 and older who used alcohol in the past 30 days in Iowa. The 2016-2018 NSDUH showed that Central and North Central regions were in the second highest group (59.06-62.99 percent). All six Iowa regions were in the third and second highest groupings of regions.

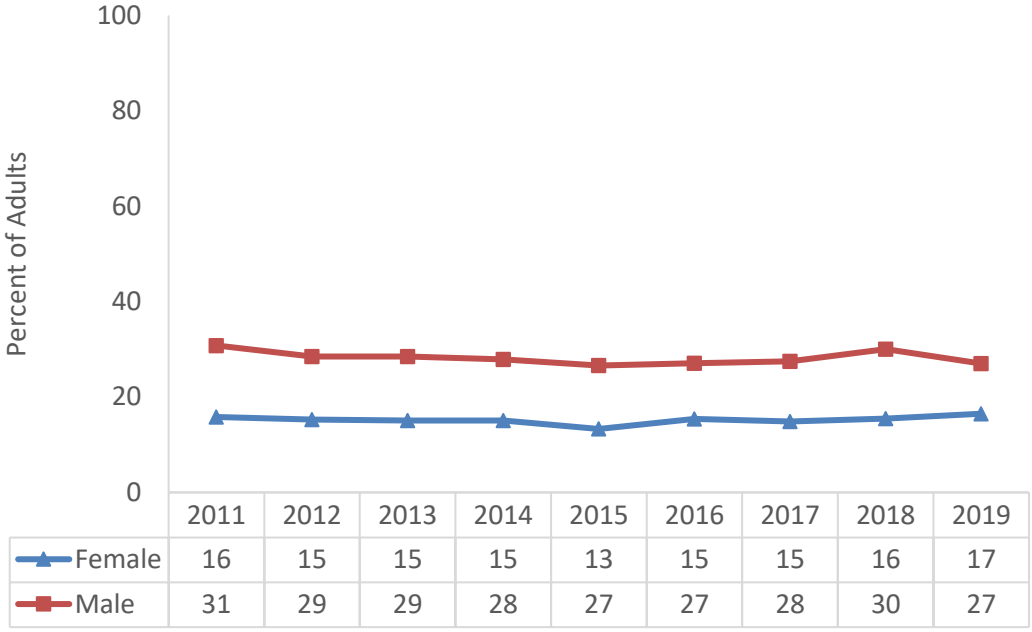
Figure 14: Past 30 Day Alcohol Use, Aged 12 or Older, Iowa, NSDUH, 2016-2018



Adult Binge Drinking

Figure 15 illustrates the percentage of adults in Iowa reporting binge drinking in the past 30 days by sex. According to the National Institute on Alcohol Abuse and Alcoholism (NIAAA; 2004), binge drinking is a pattern of drinking that brings blood alcohol concentration (BAC) to 0.08 gram percent or above (5 or more drinks for males and 4 or more drinks for females in about two hours). The data showed that men report binge drinking at nearly twice the rate of women. In 2019, 17 percent of females and 27 percent of males reported binge drinking in the past 30 days.

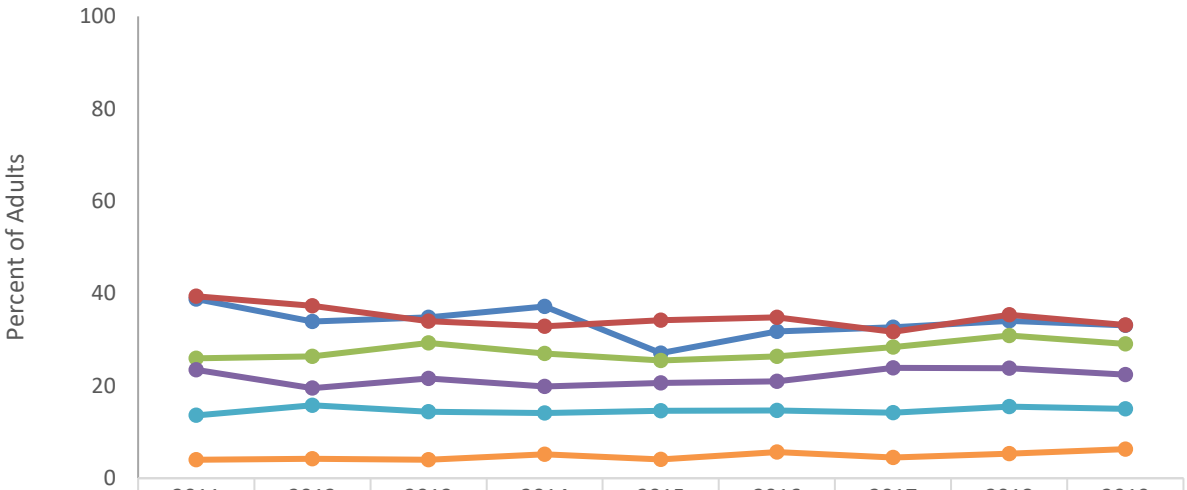
Figure 15: Past 30 Day Binge Drinking among Adults in Iowa by Sex, BRFSS, 2011-2019



	2011	2012	2013	2014	2015	2016	2017	2018	2019
Female	16	15	15	15	13	15	15	16	17
Male	31	29	29	28	27	27	28	30	27

Figure 16 illustrates the percentage of adults reporting binge drinking in the past 30 days by age. Binge drinking is defined as 5 or more drinks for males and 4 or more drinks for females in about two hours (NIAAA, 2004). The proportion of adults who reported binge drinking in the past 30 days decreases with each advancing age group with the highest among adults 18-24 and 25-34 years old (33 percent, respectively).

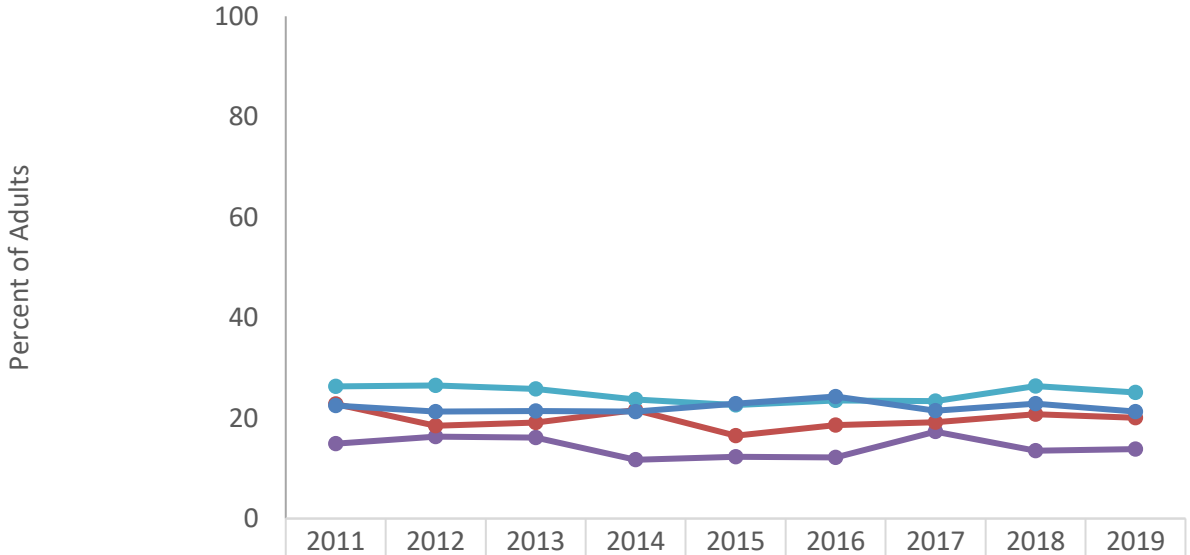
Figure 16: Past 30 Day Binge Drinking among Adults in Iowa by Age, BRFSS, 2011-2019



	2011	2012	2013	2014	2015	2016	2017	2018	2019
18-24	39	34	35	37	27	32	33	34	33
25-34	39	37	34	33	34	35	32	35	33
35-44	26	26	29	27	26	26	28	31	29
45-54	24	20	22	20	21	21	24	24	22
55-64	14	16	14	14	15	15	14	16	15
65+	4	4	4	5	4	6	5	5	6

Figure 17 illustrates the percentage of adults who reported binge drinking in the past 30 days in Iowa by education level. Binge drinking is defined as 5 or more drinks for males and 4 or more drinks for females in about two hours (NIAAA, 2004). Adults with some post-high school education or were a college graduate had a higher rate of binge drinking compared to the other education levels.

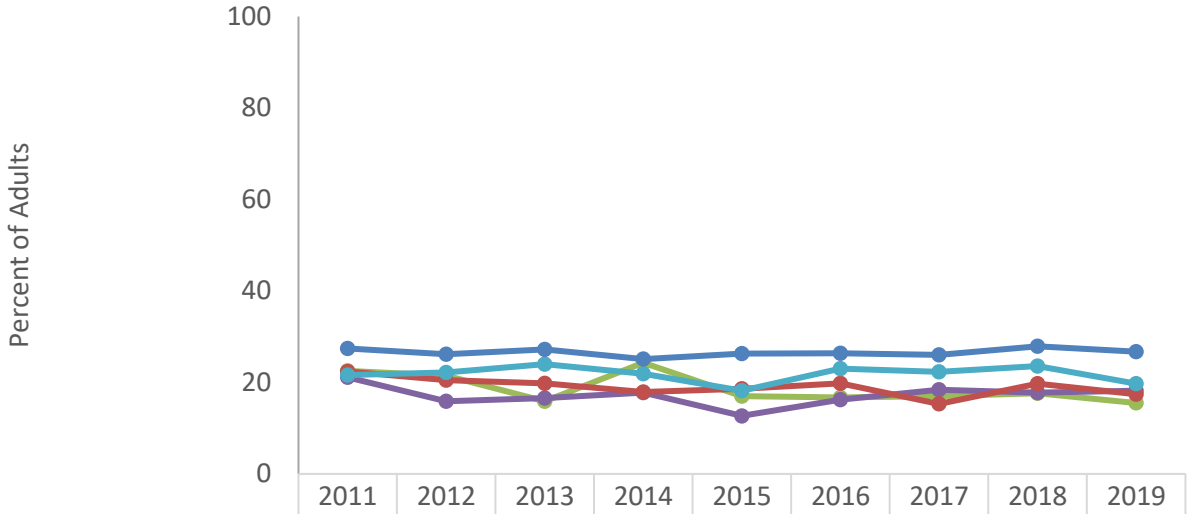
Figure 17: Past 30 Day Binge Drinking among Adults by Education Level, Iowa & U.S., BRFSS, 2011-2019



	2011	2012	2013	2014	2015	2016	2017	2018	2019
Less than H.S.	15	16	16	12	12	12	17	14	14
H.S. or G.E.D.	23	19	19	22	17	19	19	21	20
Some post-H.S.	26	27	26	24	23	24	23	26	25
College graduate	23	21	21	21	23	24	22	23	21

Figure 18 illustrates the percentage of adults who reported binge drinking in the past 30 days by income level. In 2019, Iowans with a household income of less than $15,000 reported the lowest binge drinking rate (16 percent) while Iowans earning $50,000 or more had the highest binge drinking rate (27 percent).

Figure 18: Past 30 Day Binge Drinking among Adults by Income Level, Iowa & U.S., BRFSS, 2011-2019



	2011	2012	2013	2014	2015	2016	2017	2018	2019
Less than $15,000	23	22	16	24	17	17	17	18	16
$15,000-$24,999	21	16	17	18	13	16	18	18	18
$25,000-$34,999	22	21	20	18	19	20	15	20	17
$35,000-$49,999	22	22	24	22	18	23	22	24	20
$50,000+	27	26	27	25	26	26	26	28	27

Figure 19 illustrates the percentage of people aged 18 or older reporting binge drinking in the past 30 days by state. States are grouped by quintiles based on the distribution of binge drinking in the past 30 days. Iowa (30.2 percent) was among states in the highest quintile (29.21 to 36.52 percent).

Figure 19: Binge Drinking in the Past 30 Days among Adults, Aged 18 or Older, NSDUH, 2018-2019

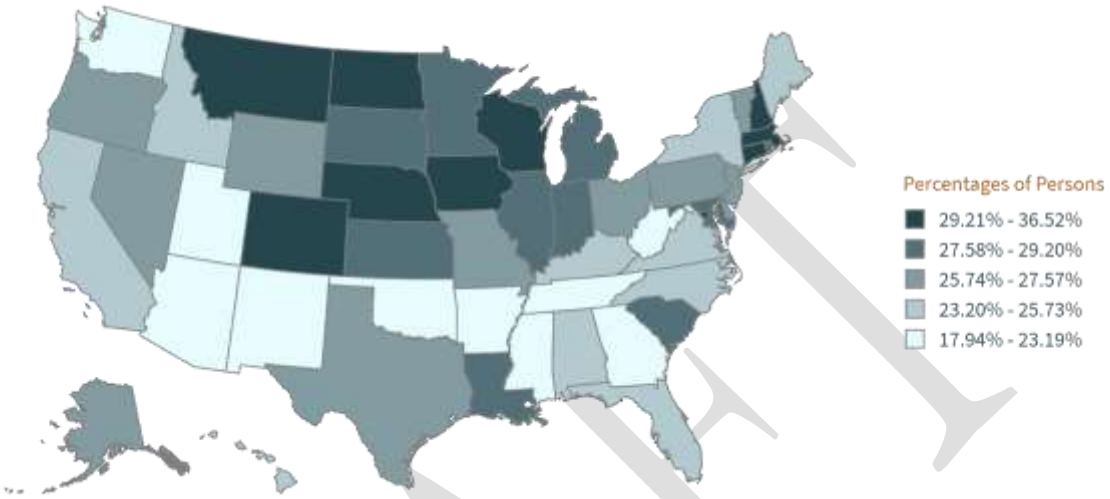
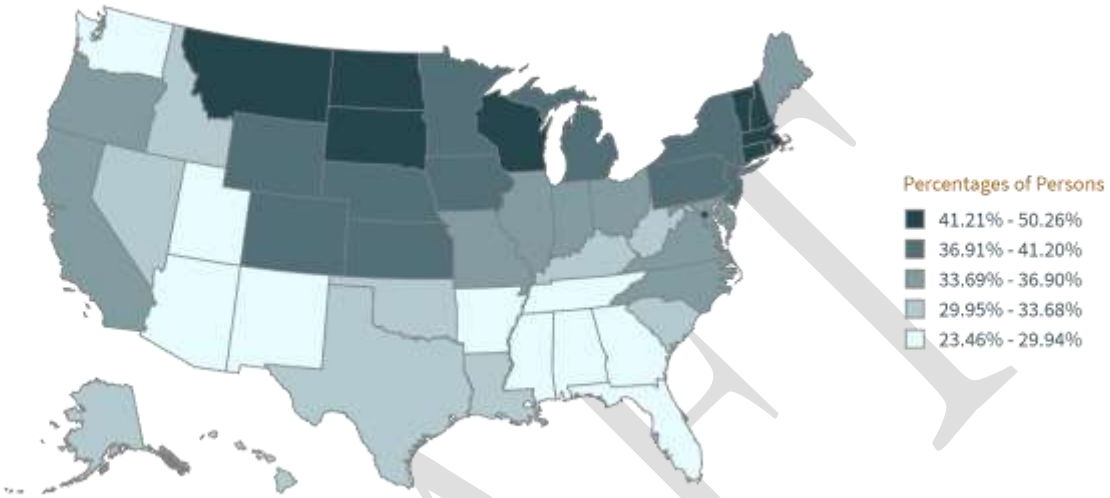


Figure 20 illustrates the percentage of people aged 18 to 25 reporting binge drinking in the past 30 days. States are grouped by quintile based on the distribution of binge drinking in the past 30 days for young adults. Iowa (40.0 percent) was among those in the second highest quintile (36.91 to 41.20 percent).

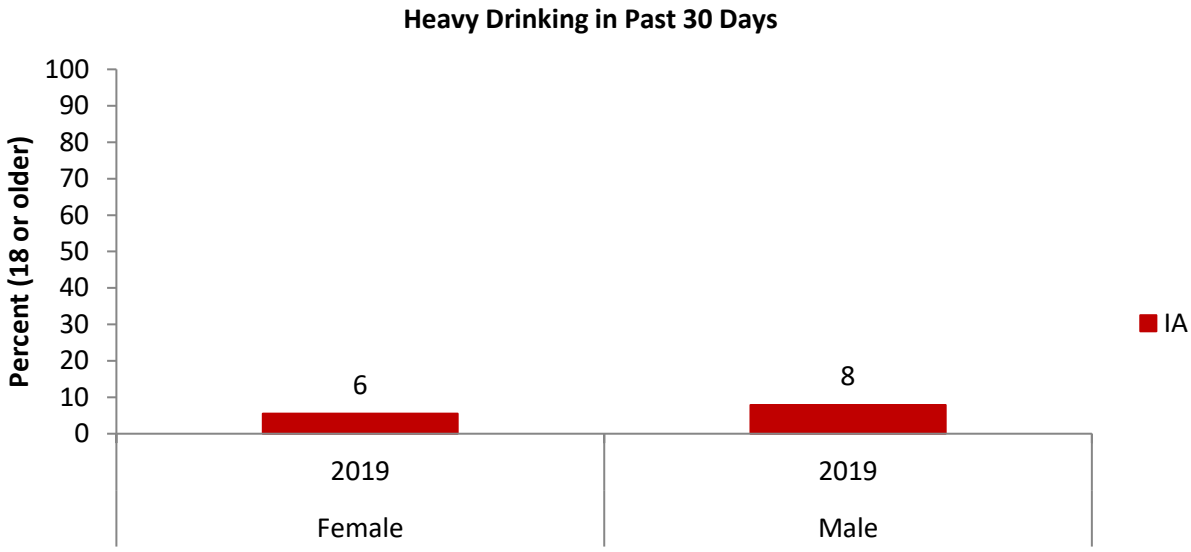
Figure 20: Binge Drinking in the Past 30 Days among Adults, Aged 18 to 25, NSDUH, 2018-2019



Adult Heavy Drinking

Figure 21 illustrates the percentage of adults 18 or older reporting heavy drinking in the past 30 days by sex. Heavy drinking was defined as an average of greater than 14 drinks per week for men and seven drinks per week for women. In 2019, a great proportion of Iowa males reported heavy drinking (8 percent) compared to Iowa females (6 percent).

Figure 21: Past 30 Day Heavy Drinking among Adults by Sex, Iowa, BRFSS, 2019



Adult Risk Perception of Binge Drinking

Figure 22 illustrates the percentage of people aged 18 or older reporting perceptions of great risk from binge drinking five or more drinks of an alcoholic beverage once or twice a week. Iowa (35.74 percent) is included in the quintile with the lowest percentage of residents 18 and older reporting a perception of binge drinking as a great risk (35.74 to 39.31 percent).

Figure 22: Perception of Great Risk from Binge Drinking Among Adults, Aged 18 or Older, NSDUH, 2018-2019

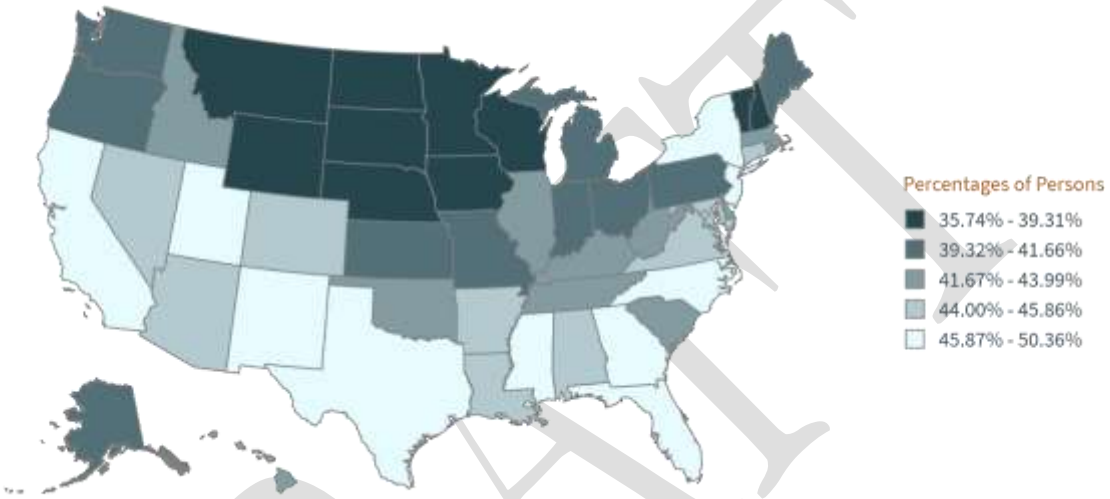
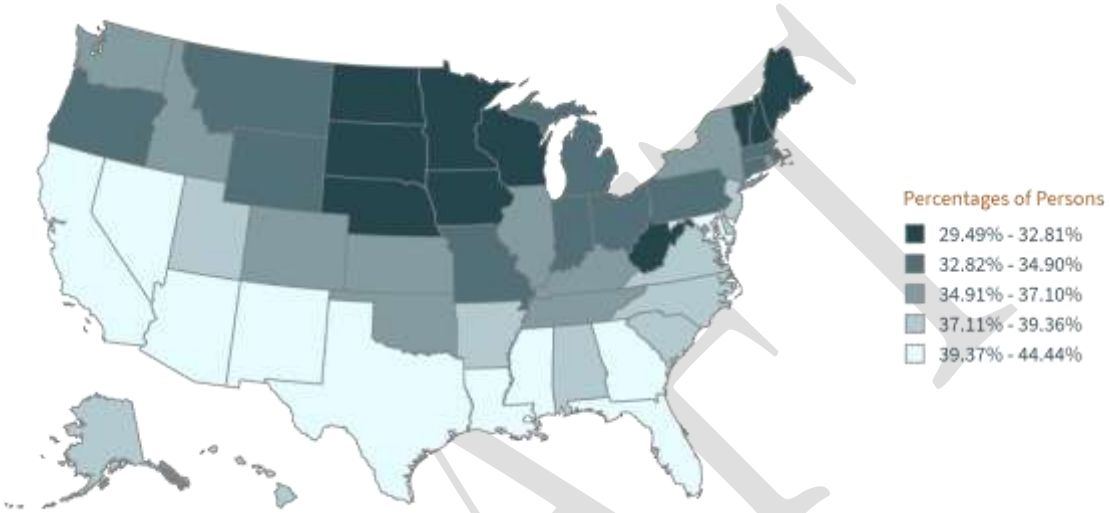


Figure 23 illustrates the percentage of people aged 18 to 25 reporting perceptions of great risk from binge drinking five or more drinks of an alcoholic beverage once or twice a week. Similar to the previous figure, Iowa (31.5 percent) was among the group of states with the lowest percentage of residents 18 and older reporting a perception of binge drinking as a great risk (29.49 to 32.81 percent).

Figure 23: Perception of Great Risk from Binge Drinking among Adults, Aged 18 to 25, NSDUH, 2018-2019

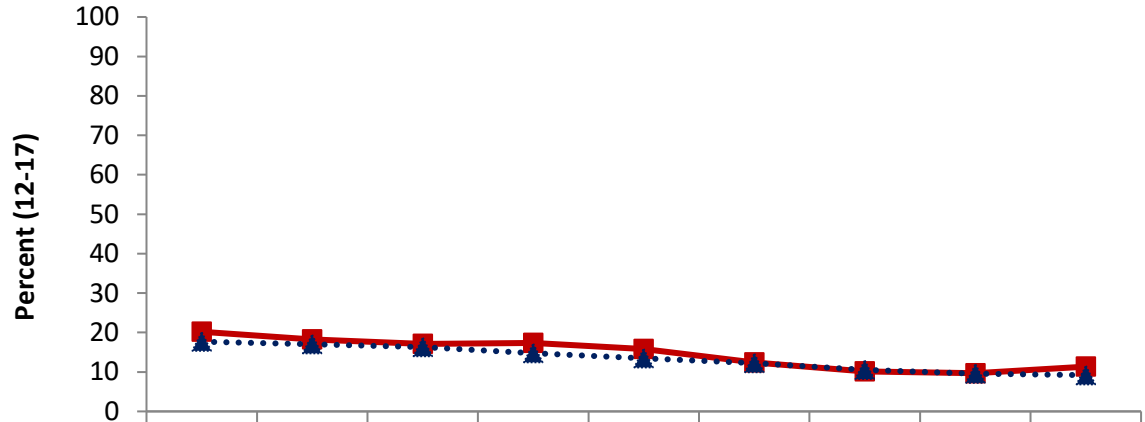


YOUTH ALCOHOL CONSUMPTION PATTERNS

Youth Alcohol Use in the Past 30 Days

Figure 24 illustrates the percentage of youth aged 12 to 17 reporting alcohol use in the past 30 days. From 2002 to 2019 NSDUH data showed a gradual decrease among youth alcohol use in the past 30 days both in Iowa and nationwide. In 2018-19, 11 percent of youth aged 12 to 17 in Iowa reported alcohol use in the past 30 days compared to 9 percent of youth in the same age group nationwide. For all data years, alcohol use in the past 30 days among Iowa youth was relatively similar to the national rates.

Figure 24: Past 30 Day Alcohol Use among Youth, Aged 12-17 Years, Iowa & U.S., NSDUH, 2002-2019



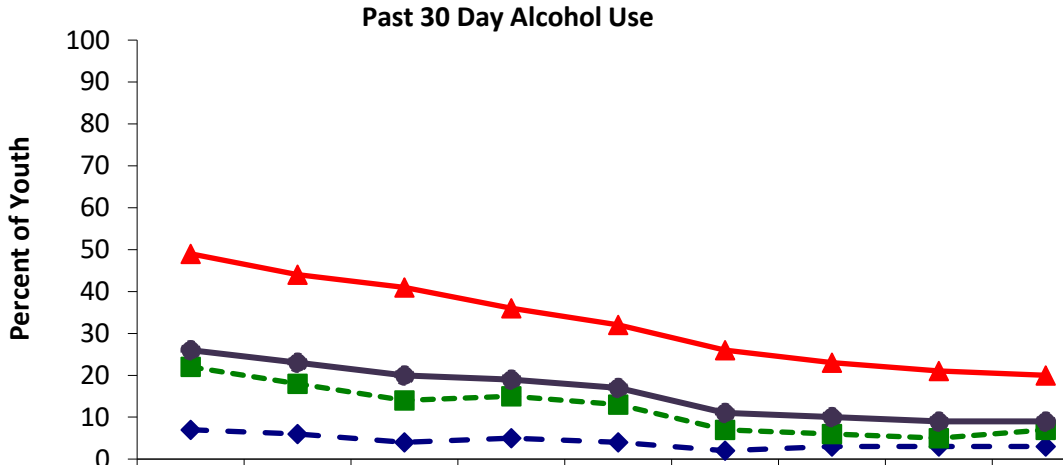
	2002-03	2004-05	2006-07	2008-09	2010-11	2012-13	2014-15	2016-17	2018-19
Iowa	20	18	17	17	16	12	10	10	11
U.S.	18	17	16	15	13	12	11	10	9

Figure 25 illustrates the percentage of youth reporting alcohol use in the past 30 days by grade. Students were asked the following question: "In the past 30 days, have you had at least one drink (glass, bottle, or can of beer, glass of wine, liquor, or mixed drink?"

Although Iowa youth continue to drink alcohol, alcohol use has decreased among youth in grades 6, 8, and 11. From 1999 to 2018, alcohol use in the past 30 days decreased by 57 percent for youth in sixth grade, 68 percent for youth in eighth grade, and 59 percent for youth in eleventh grade.

In 2018, 20 percent of youth in grade 11, 7 percent of youth in grade 8, and 3 percent of youth in grade 6 reported alcohol use in the past 30 days.

Figure 25: Past 30 Day Alcohol Use among Youth by Grade, IYS, 1999-2018

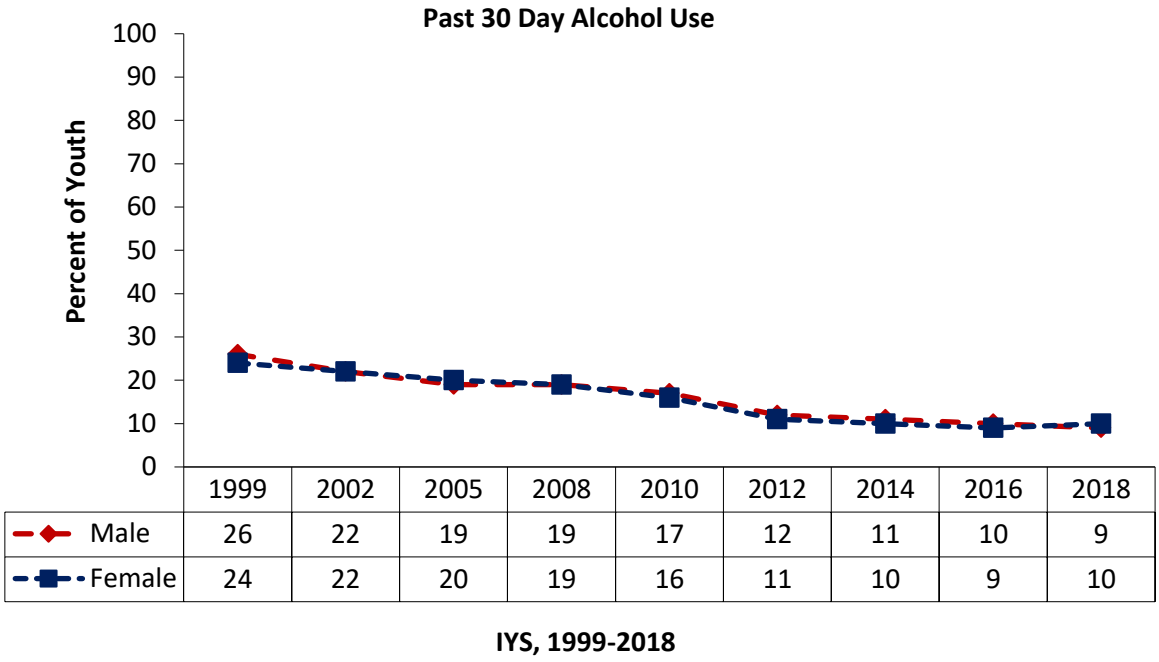


	1999	2002	2005	2008	2010	2012	2014	2016	2018
Grade 6	7	6	4	5	4	2	3	3	3
Grade 8	22	18	14	15	13	7	6	5	7
Grade 11	49	44	41	36	32	26	23	21	20
All Grades	26	23	20	19	17	11	10	9	9

IYS, 1999-2018

Figure 26 illustrates the percentage of youth reporting alcohol use in the past 30 days by sex. In 2018, 10 percent of females and 9 percent of males reported alcohol use in the past 30 days. Between 2008 and 2018 alcohol use in the past 30 days decreased by 52 percent for females and 61 percent for males. Since 1999, alcohol use in the past 30 days has been declining for both males and females.

Figure 26: Past 30 Day Alcohol Use among Youth by Sex, IYS, 1999-2018



	1999	2002	2005	2008	2010	2012	2014	2016	2018
Male	26	22	19	19	17	12	11	10	9
Female	24	22	20	19	16	11	10	9	10

IYS, 1999-2018

Figure 27 illustrates the percentage of eleventh grade youth reporting alcohol use in the past 30 days by county. The percentage of eleventh grade youth reporting alcohol use in the past 30 days was based on combined 2012-2018 data. Sixty-eight percent of public school districts and 7.6 percent of non-public schools participated in the 2018 Iowa Youth Survey.

The map illustrates a higher proportion of youth reporting alcohol use in the past 30 days in Iowa with increasingly darker colors. Counties with insufficient sample size are not reported and appear gray in the map. The top 5 highest prevalence of 11th grade youth reporting alcohol use in the past 30 days include: Lee (39%), Jackson (38%), Adair (36%), Appanoose (31%), Monroe and Webster (30%, respectively).

Figure 27: Past 30 Day Alcohol Use among 11th Grade Students by County, IYS, 2018

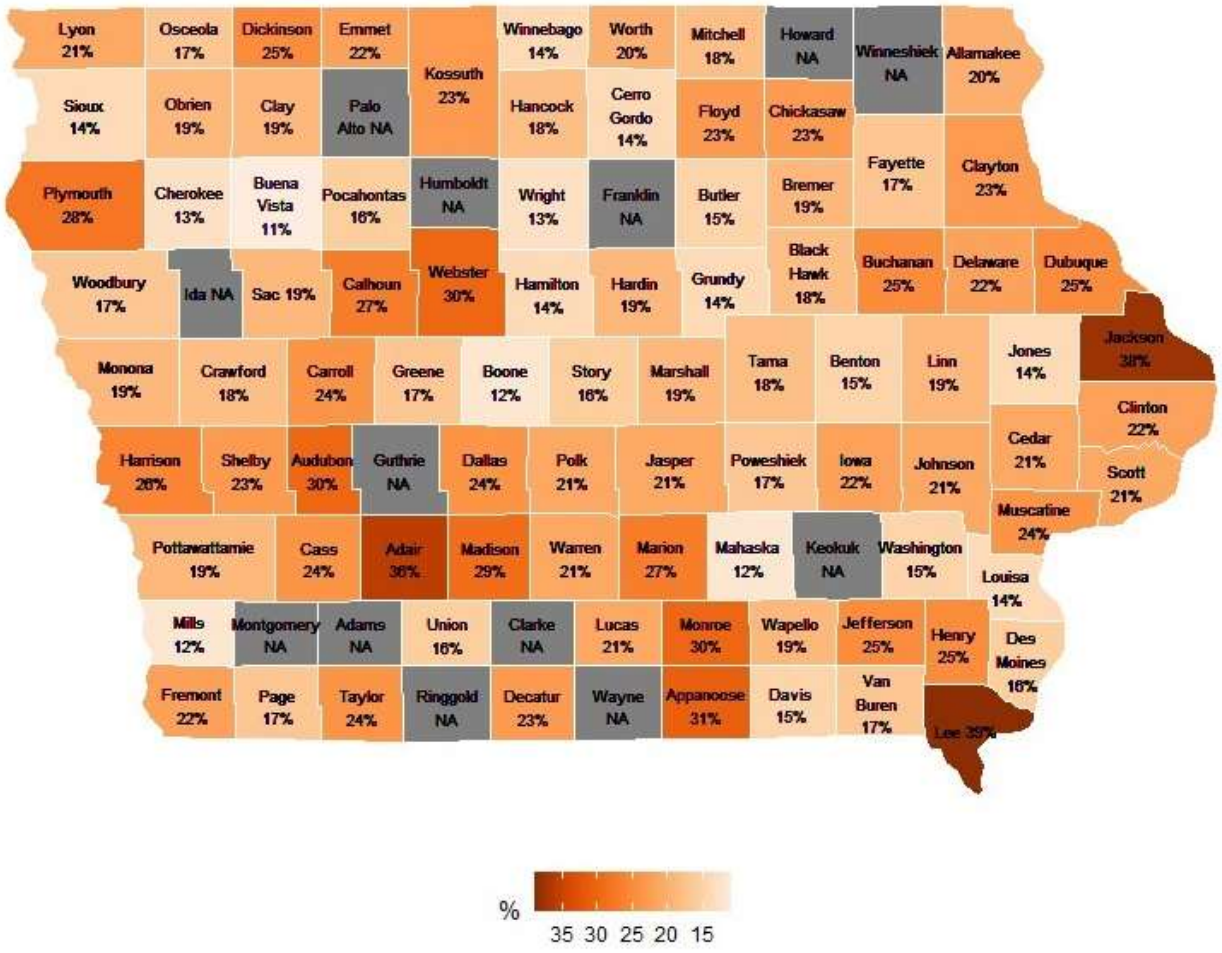
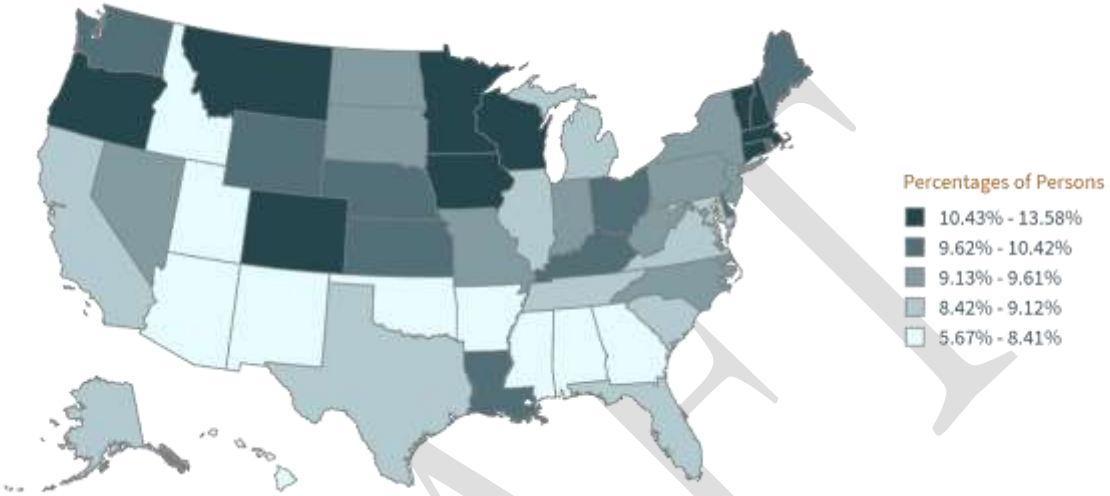


Figure 28 illustrates the percentage of youth aged 12 to 17 reporting alcohol use in the past 30 days. States are grouped by quintile based on the distribution of state rates for alcohol use in the past 30 days among youth aged 12 to 17. Iowa (11.4 percent) was among the states in the highest quintile (10.43 o 13.58 percent).

Figure 28: Alcohol Use in the Past Month among Youth Aged 12 to 17 by State, NSDUH, 2018-2019

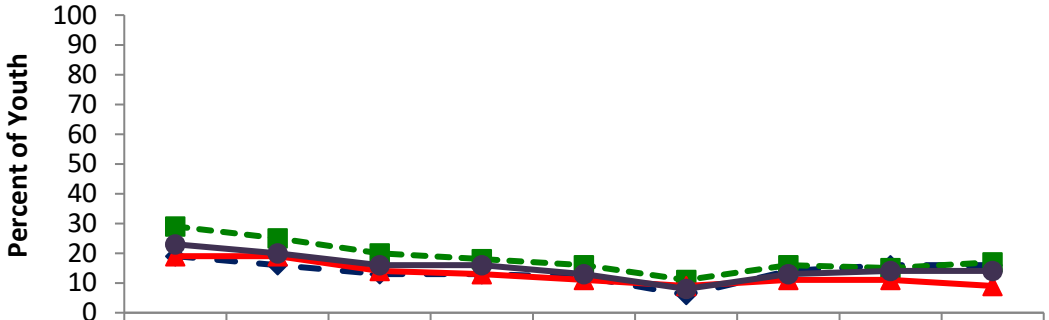


Youth First Alcohol Use Before Age 13

Figure 29 illustrates the percentage of youth reporting first alcohol use before age 13 by grade level. Youth were asked the following question: "*How old were you (if ever) when you first: Drank (more than a few sips) of alcohol (beer, wine, liquor)?*" Response options were "Never", "8 or younger", "9 or 10", "11 or 12", "13 or 14", "15 or 16", or "17 or older." Percentages presented in Figure 29 and Figure 30 reflect responses of "8 or younger", "9 or 10", and "11 or 12" combined.

In 2018, 14 percent of youth in all grades reported first use of alcohol before the age of 13 or 14; this represents a 39 percent decrease since 1999 (Figure 29). In 2018, 16 percent of youth in grade 6, 17 percent of youth in grade 8, and 9 percent of youth in grade 11 reported the first use of alcohol before the age of 13 or 14. From 1999 to 2018, the IYS results indicated a 16 percent decrease in the first use of alcohol before the age of 13 or 14 for youth in grade 6, a 41 percent for youth in grade 8; and a 53 percent for youth in grade 11.

Figure 29: Percent of Youth Reporting First Alcohol Use before Age 13 by Grade, IYS, 1999-2018

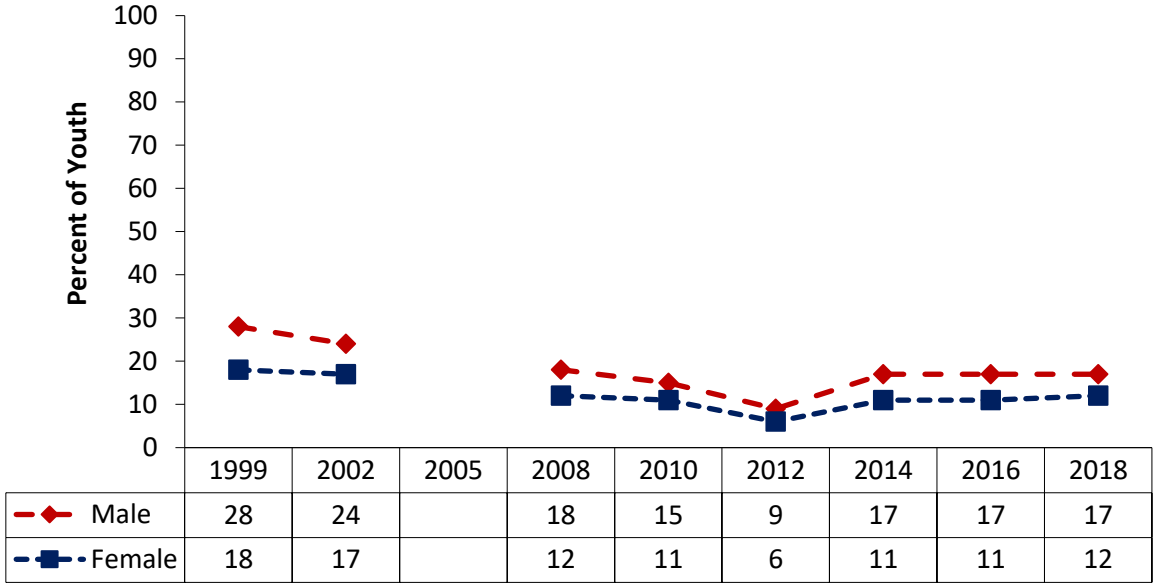


	1999	2002	2005	2008	2010	2012	2014	2016	2018
Grade 6	19	16	13	13	12	6	14	16	16
Grade 8	29	25	20	18	16	11	16	15	17
Grade 11	19	19	14	13	11	9	11	11	9
All Grades	23	20	16	16	13	8	13	14	14

Figure 30 illustrates the percentage of youth reporting first alcohol use before the age of 13 by sex. In 2018, 17 percent of males and 12 percent of females reported alcohol use before age 13.

Between 2008 and 2018, cigarette use before the age of 13 in the past 30 days remained nearly constant for both males and females

Figure 30: Percent of Youth Reporting First Alcohol Use before Age 13 by Sex, IYS, 1999-2018



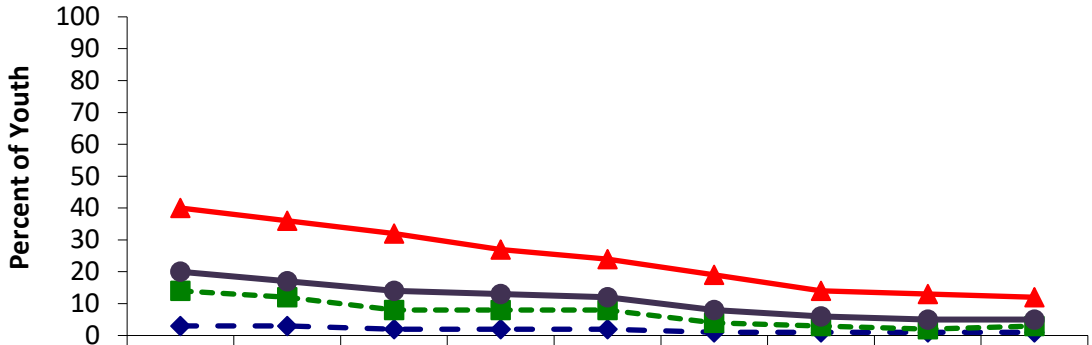
	1999	2002	2005	2008	2010	2012	2014	2016	2018
Male	28	24		18	15	9	17	17	17
Female	18	17		12	11	6	11	11	12

Note: The data on percent of youth reporting first alcohol use before age 13 by sex in the 2018 Epidemiological Profile (Figure 15) was incorrect for all years. The data has been updated for the 2020 Epidemiological Profile. Data not reported by sex for all grades combined in the 2005 Iowa Youth Survey report; however, subgroup percentages by sex and grade level for 2005 can be found online at https://iowayouthsurvey.idph.state.ia.us/Reports/State-of-Iowa.

Youth Binge Drinking

Figure 31 illustrates the percentage of youth reporting binge drinking in the past 30 days by grade. Youth were asked the following question: *"During the last 30 days, on how many days did you have 5 or more drinks of alcohol (glasses, bottles, or cans of beer, glasses of wine, liquor, mixed drinks) in a row, that is within a couple of hours?"* Binge drinking among Iowa youth has been declining since 1999. In 2018, 12 percent of youth in grade 11 reported binge drinking one or more times in the past 30 days compared to 27 percent in 2008. In the same period, 3 percent of youth in grade 8 reported binge drinking compared to 8 percent. Overall, binge drinking decreased by 62 percent in the ten year period from 2008 to 2018 (i.e., 13 percent in 2018 to 5 percent in 2018).

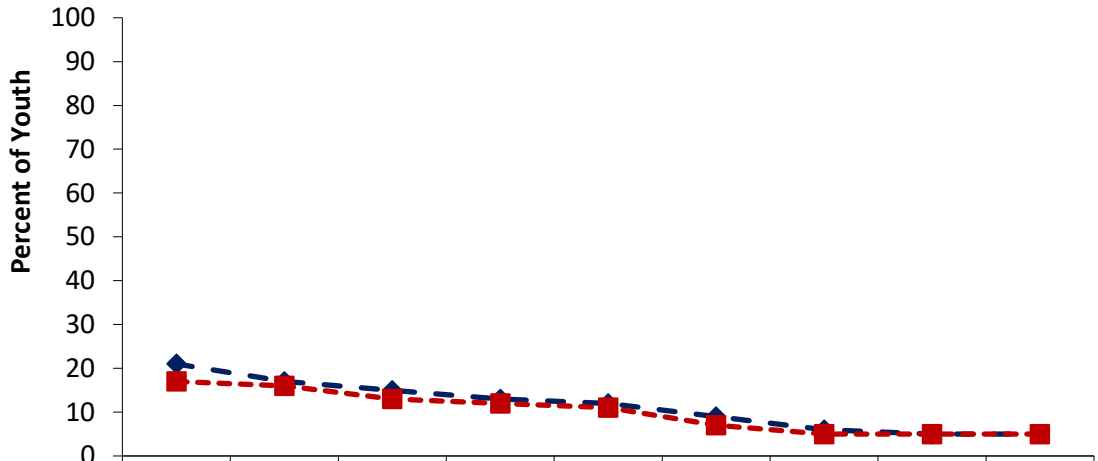
Figure 31: Past 30 Day Binge Drinking among Youth by Grade, IYS, 1999-2018



	1999	2002	2005	2008	2010	2012	2014	2016	2018
Grade 6	3	3	2	2	2	1	1	1	1
Grade 8	14	12	8	8	8	4	3	2	3
Grade 11	40	36	32	27	24	19	14	13	12
All Grades	20	17	14	13	12	8	6	5	5

Figure 32 illustrates the percentage of youth reporting binge drinking in the past 30 days by gender. In 2018, 5 percent of males and 5 percent of females reported binge drinking in past 30 days. Since 1999, binge drinking in the past 30 days has declined for both males and females. Between 2008 and 2018, binge drinking in the past 30 days decreased 62 percent for males and 58 percent for females.

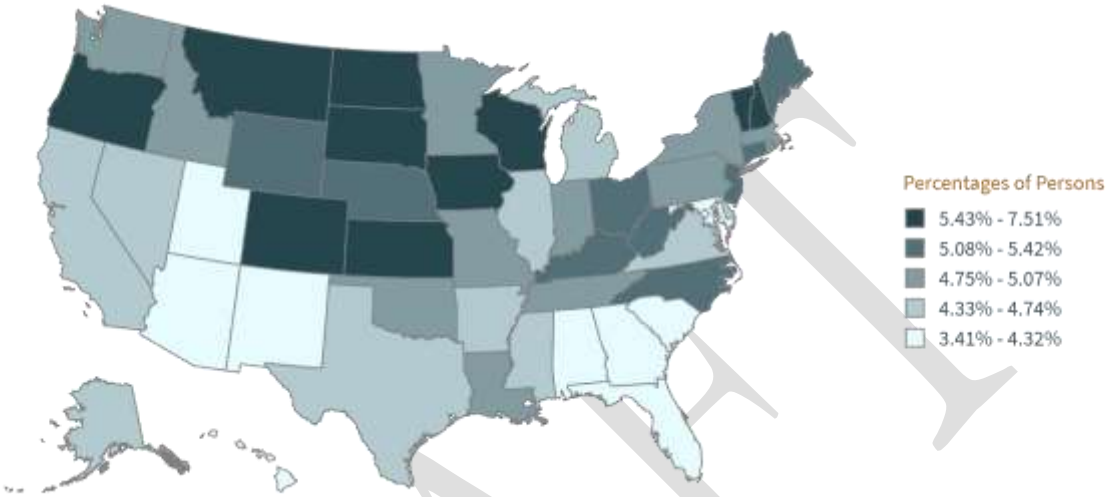
Figure 32: Past 30 Day Binge Drinking among Youth by Sex, IYS, 1999-2018



	1999	2002	2005	2008	2010	2012	2014	2016	2018
Male	21	17	15	13	12	9	6	5	5
Female	17	16	13	12	11	7	5	5	5

Figure 33 illustrates the percentage of youth aged 12 to 17 reporting binge drinking in the past 30 days. States are grouped into five quintiles based on the distribution of the proportion of youth reporting binge drinking in the past 30 days. Iowa (5.7 percent) was among the states in the highest group (5.43 to 7.51 percent).

Figure 33: Past 30 Day Binge Drinking among Youth Aged 12-17, by State, NSDUH, 2018-2019



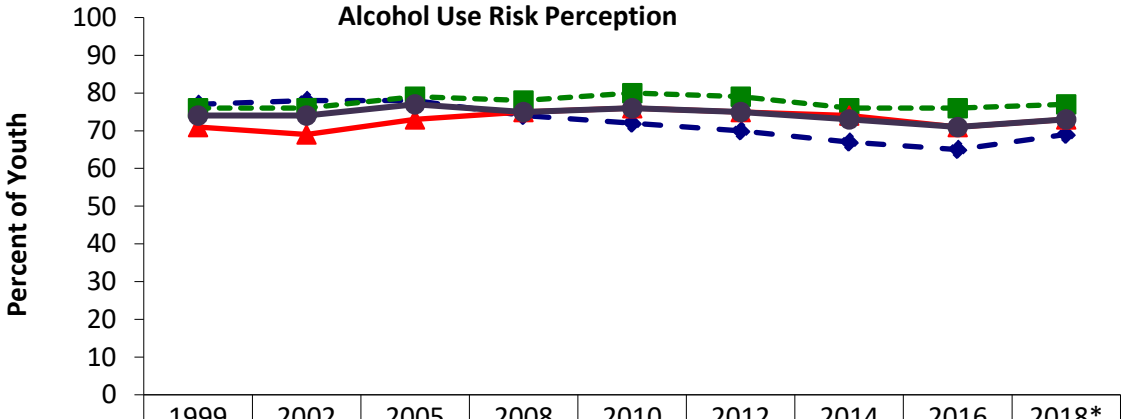
Risk Perceptions of Youth Alcohol Use

Figure 34 illustrates the percentage of youth reporting alcohol use risk perception by grade.

For years 1999-2016, the IYS asked youth *"How much do you think you risk harming yourself (physically or otherwise) if you: Drink **3 or more drinks** of alcohol (glasses, cans, bottles of beer; glasses of wine, liquor, or mixed drinks) **nearly every day**."* In 2018, the reference quantity and timeframe changed to ask, *"How much do you think you risk harming yourself (physically or otherwise) if you: Drink **5 or more drinks** of alcohol (glasses, bottles, or cans of beer, glasses of wine, liquor, mixed drinks) **within a couple of hours, more than once a week**?"* (Bolding added here for emphasis) Response options for all years were "Great risk", "Moderate risk", "Slight risk", "No risk", or "Don't know." Percentages presented in Figure 34 and Figure 35 reflect responses of "Great risk" and "Moderate risk" combined.

In 2018, 69 percent of youth in grade 6, 77 percent of youth in grade 8, and 73 percent of youth in grade 11 reported great-moderate risk of harm if 5 or more drinks are consumed within a couple of hours, more than once a week.

Figure 34: Percent of Youth Reporting Alcohol Use Risk Perception by Grade, IYS, 1999-2018



	1999	2002	2005	2008	2010	2012	2014	2016	2018*
Grade 6	77	78	78	74	72	70	67	65	69
Grade 8	76	76	79	78	80	79	76	76	77
Grade 11	71	69	73	75	76	75	74	71	73
All Grades	74	74	77	75	76	75	73	71	73

Note: Trend data should be interpreted with caution due to changes in question wording in 2018 versus 2016 and all years prior.

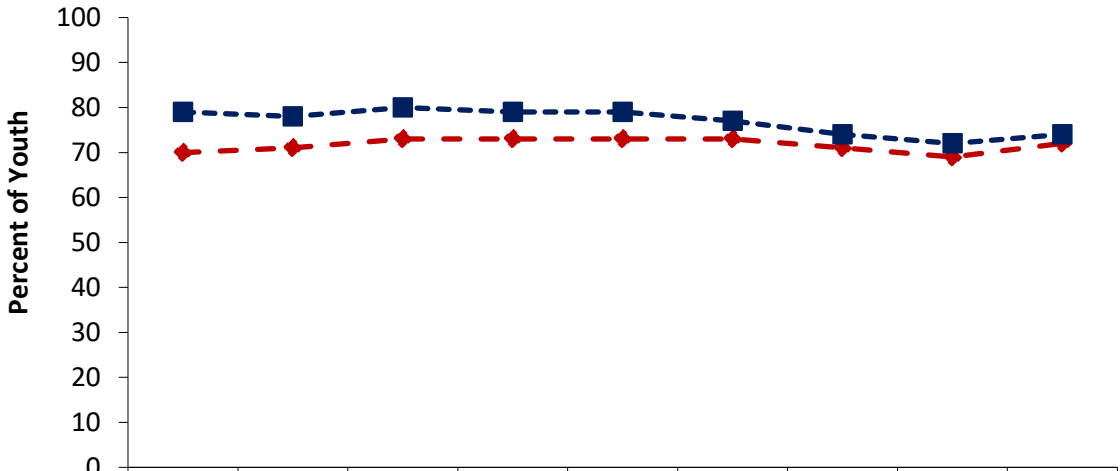
Figure 35 illustrates the percentage of youth perception of alcohol use risk by sex.

The IYS question wording for youth reporting perceived risk of harm from drinking alcohol has changed over time as follows:

- 1999-2016: How much do you think you risk harming yourself (physically or otherwise) if you: **Drink 3 or more drinks of alcohol** (glasses, cans, bottles of beer; glasses of wine, liquor, or mixed drinks) **nearly every day**?
- 2018: How much do you think you risk harming yourself (physically or otherwise) if you: **Drink 5 or more drinks of alcohol** (glasses, bottles, or cans of beer, glasses of wine, liquor, mixed drinks) **within a couple of hours, more than once a week**?

In general for all years, males had lower alcohol risk perception compared to females. In 2018, 72 percent of males, and 74 percent of females reported great or moderate risk of harm if 5 or more drinks are consumed within a couple of hours, more than once a week.

Figure 35: Percent of Youth Reporting Alcohol Use Risk Perception by Sex, IYS, 1999-2018



	1999	2002	2005	2008	2010	2012	2014	2016	2018*
Male	70	71	73	73	73	73	71	69	72
Female	79	78	80	79	79	77	74	72	74

Note: Trend data should be interpreted with caution due to changes in question wording in 2018 versus 2016 and all years prior.

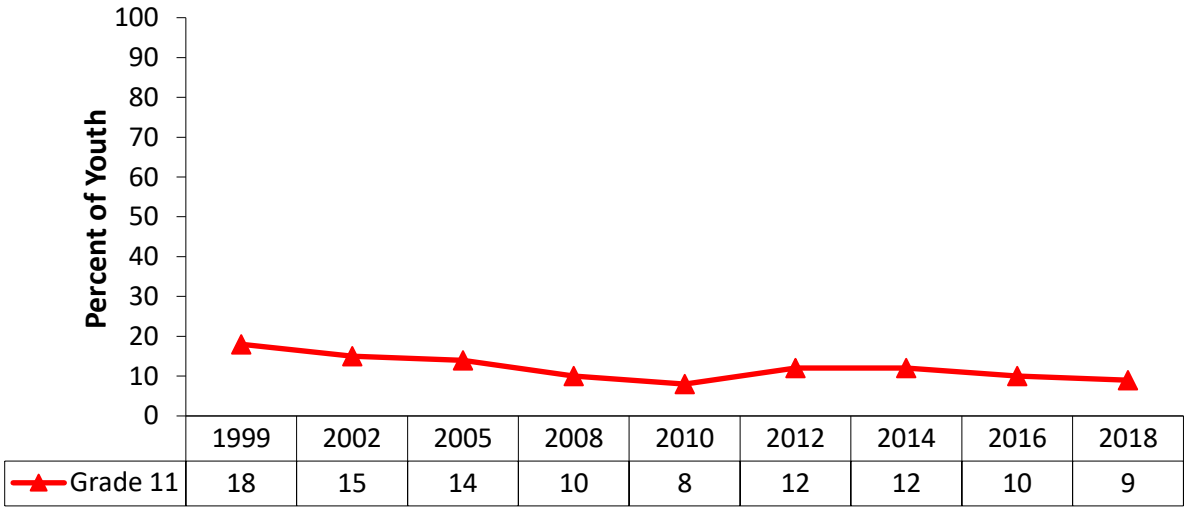
Figure 36 illustrates the percentage of youth reporting driving a car or motor vehicle after using alcohol or drugs.

The IYS question wording for youth report of driving a car or motor vehicle after using alcohol or drugs has changed over time as follows with figure proportions reflecting one or more occasions combined:

- 1999-2005: In the last 30 days, how many times have you driven a car or other motor vehicle after using any amount of alcohol or other drugs? (Response options: I don't drive, 0 days, 1 to 2 days, 3 to 5 days, 6 or more days)
- 2008, 2010: In the last 30 days, how many days have you driven a car or other motor vehicle after using any amount of alcohol or other drugs? (Response options: I don't drive, 0 days, 1 to 2 days, 3 to 5 days, 6 or more days)
- 2012-2018: Have you ever driven a car or other motor vehicle after using any amount of alcohol or other drugs? (Response options: 0 times, 1 time, 2 times, 3 or more times)

In 2018, 9 percent of students in grade 11 reported driving a car or motor vehicle after using alcohol or drugs.

Figure 36: Percent of Youth Reporting Driving a Car or Motor Vehicle After Using Alcohol or Drugs, Grade 11, IYS, 1999-2018

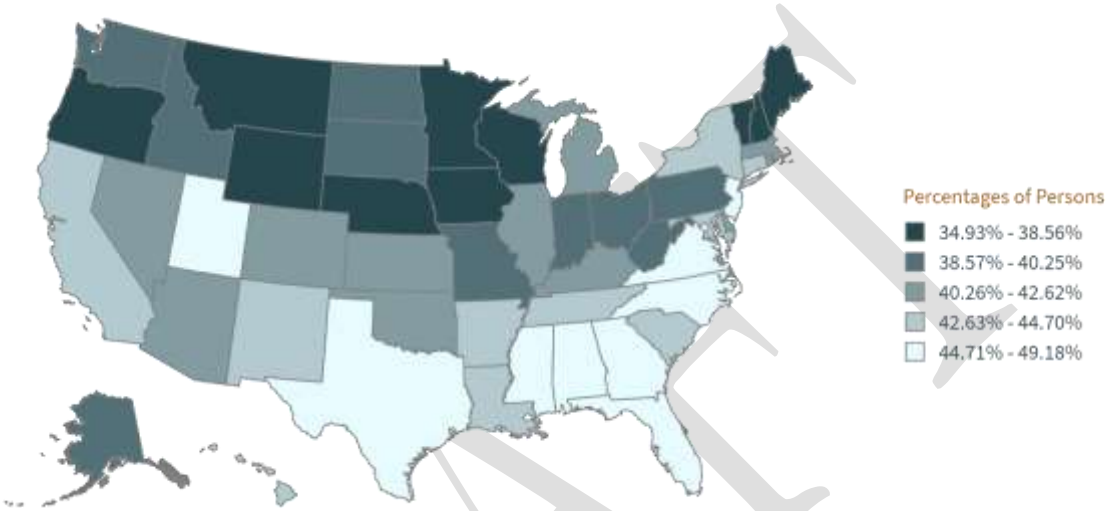


	1999	2002	2005	2008	2010	2012	2014	2016	2018
Grade 11	18	15	14	10	8	12	12	10	9

IYS, 1999-2016

Figure 37 illustrates the percentage of youth aged 12 to 17 reporting perceptions of great risk from binge drinking five or more drinks of an alcoholic beverage once or twice a week. States are grouped into five quintiles based on the distribution of youth reporting great risk from binge drinking. Iowa (34.93 percent) was among the states in the group with lowest proportion of youth reporting great risk (34.93 to 38.56 percent).

Figure 37: Perceptions of Great Risk from Binge Drinking among Youth Aged 12 to 17, by State, NSDUH, 2018-2019

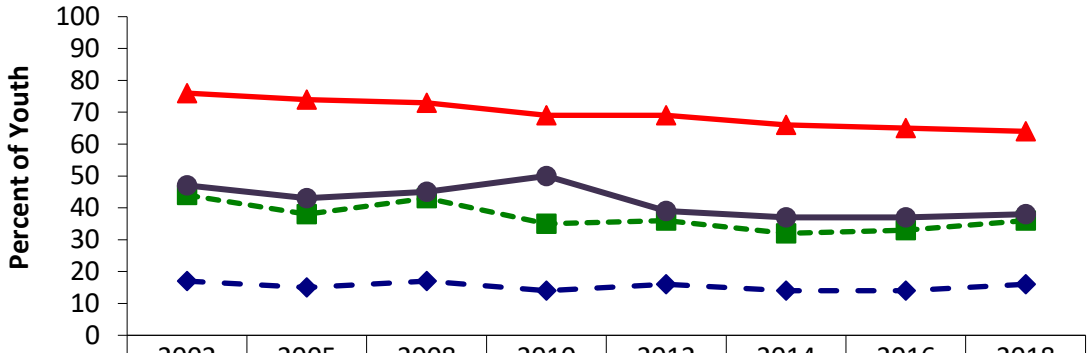


Youth Perceptions of Access to Alcohol

Figure 38 illustrates youth perceptions of access to alcohol in their neighborhood or community by grade level. The IYS question asked: *"In your neighborhood or community, how difficult do you think it would be for a kid your age to get alcoholic beverages (beer, wine or liquor)?"* Response options were "Very hard", "Hard", "Easy", "Very easy", or "Don't know." Proportions in Figure 38 and Figure 39 reflect the percentage of students responding "Easy" or "Very easy" combined

Perceptions of ease or difficulty of access to alcohol varied by grade level. In 2018, 16 percent of youth in grade 6, 36 percent of youth in grade 8, and 64 percent of youth in grade 11 reported easy or very easy access to alcohol (Figure 38).

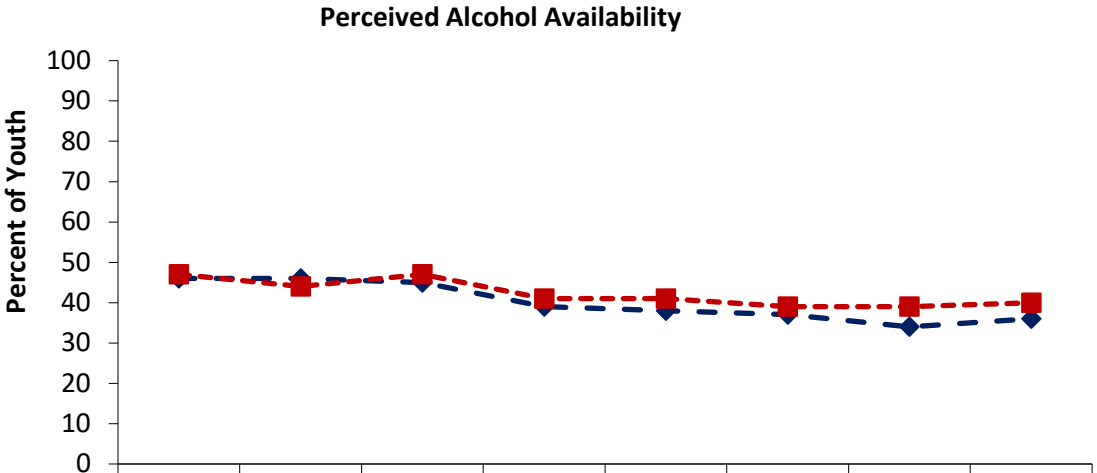
Figure 38: Percent of Youth Reporting *Very Easy-Easy* Access to Alcohol by Grade, IYS, 2002-2018



	2002	2005	2008	2010	2012	2014	2016	2018
Grade 6	17	15	17	14	16	14	14	16
Grade 8	44	38	43	35	36	32	33	36
Grade 11	76	74	73	69	69	66	65	64
All Grades	47	43	45	50	39	37	37	38

Figure 39 illustrates youth perceptions of access to alcohol in their neighborhood or community by sex. In 2018, 36 percent of males and 40 percent of females reported easy or very easy access to alcohol. For all years except 2005, the proportion of females was higher than the proportion of males reporting easy access to alcohol.

Figure 39: Percent of Youth Reporting *Very Easy-Easy* Access to Alcohol by Sex, IYS, 2002-2018



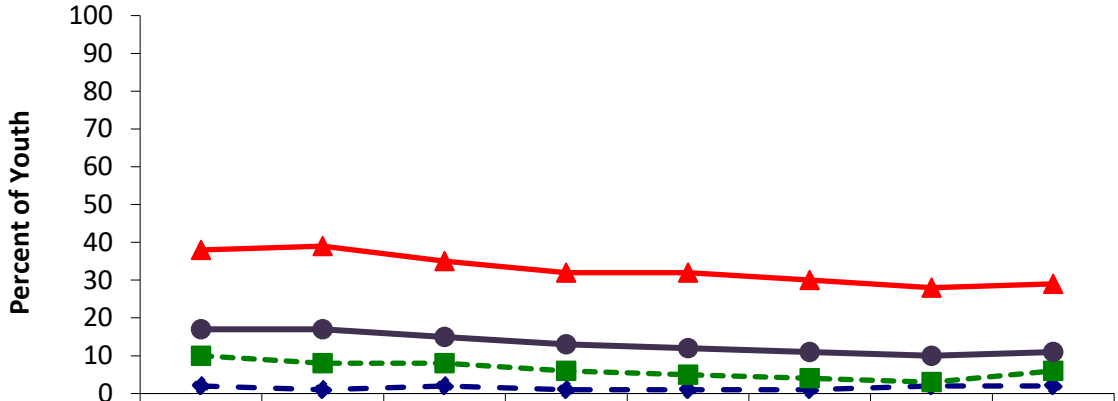
	2002	2005	2008	2010	2012	2014	2016	2018
Male	46	46	45	39	38	37	34	36
Female	47	44	47	41	41	39	39	40

Perceived Norms about Youth Alcohol Consumption

Figure 40 illustrates the percentage of youth reporting perceived norms about youth alcohol consumption by grade. Normative perceptions of peer alcohol consumption were evaluated in the IYS by asking: "*How wrong would most of the students in your school (not just your best friends) feel it would be for you to: Drink beer, wine, alcoholic drinks, or hard liquor?*" Response options were "Very wrong," "Wrong," "A little wrong," "Not wrong at all," and "Don't know." Figure proportions reflect "Not wrong at all" responses.

In 2018, 2 percent of youth in grade 6, 6 percent of youth in grade 8, and 29 percent of youth in grade 11 indicated other students viewed alcohol consumption as "Not wrong at all."

Figure 40: Percent of Youth Reporting Perceived Norms of Youth Alcohol Use by Grade, IYS, 2002-2018

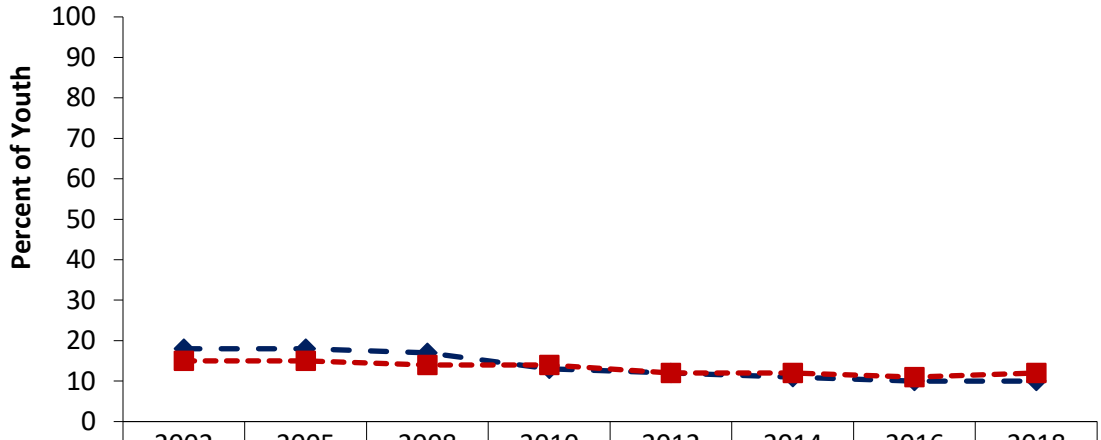


	2002	2005	2008	2010	2012	2014	2016	2018
Grade 6	2	1	2	1	1	1	2	2
Grade 8	10	8	8	6	5	4	3	6
Grade 11	38	39	35	32	32	30	28	29
All Grades	17	17	15	13	12	11	10	11

Figure 41 illustrates the percentage of youth reporting alcohol use normative beliefs by sex.

In 2018, 10 percent of males and 12 percent of females reported perceived norms of youth alcohol consumption as “Not wrong at all”.

Figure 41: Percent of Youth Reporting Perceived Norms of Youth Alcohol Use by Sex, IYS, 2002-2018



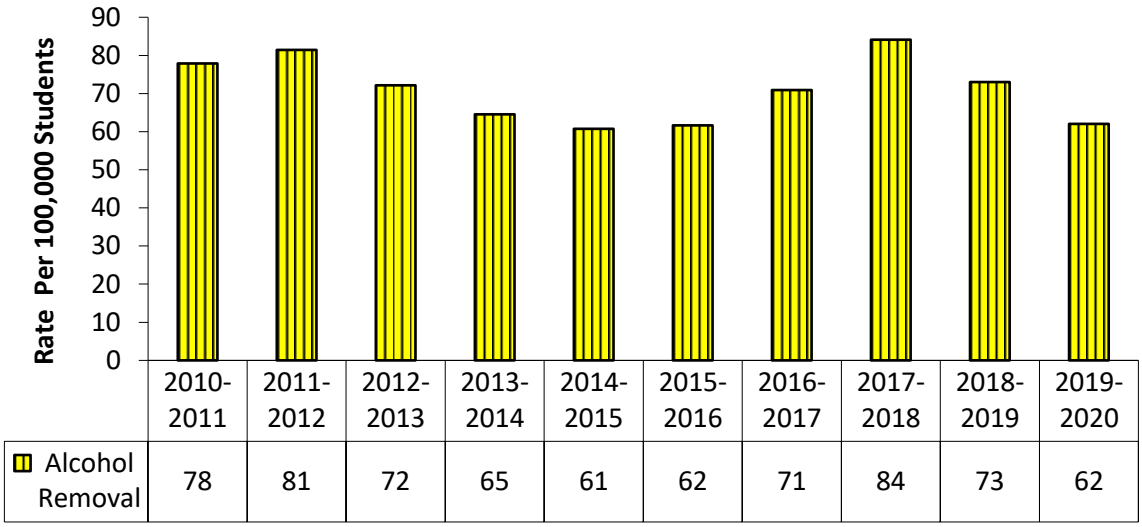
	2002	2005	2008	2010	2012	2014	2016	2018
Male	18	18	17	13	12	11	10	10
Female	15	15	14	14	12	12	11	12

CONSEQUENCES OF ALCOHOL USE

Education Consequences

Figure 42 illustrates the rate of youth suspensions and expulsions due to alcohol in Iowa schools. The 2010-2011 Iowa Department of Education (IDE) data showed that the rate of school suspensions and expulsions was 78 compared to 62 in 2019-2020. The Iowa school suspension and expulsion rate has averaged 71 removals per 100,000 students annually over the past 10 years.

Figure 42: Rate of Youth Suspensions and Expulsions Due to Alcohol in Iowa Schools, IDE, 2011-2020

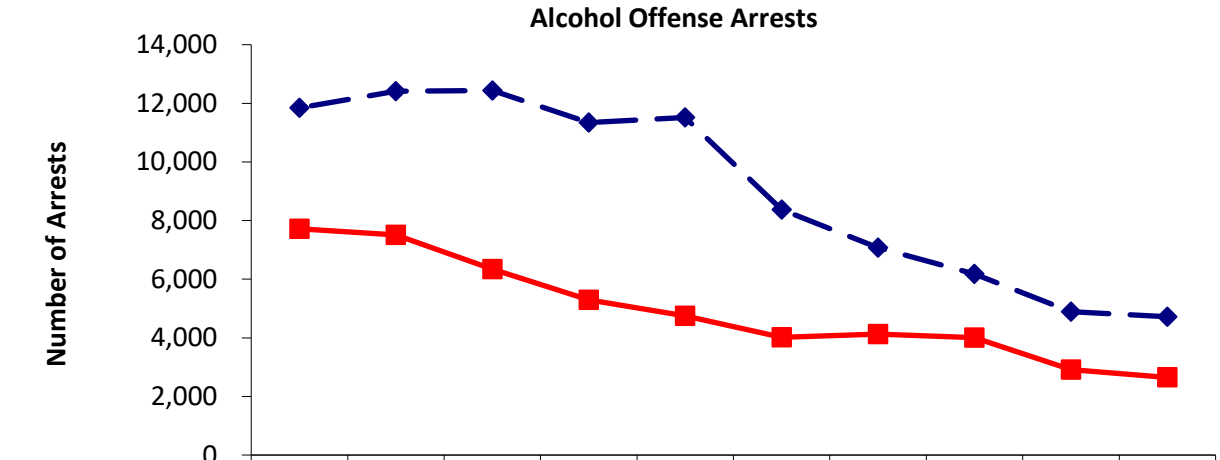


	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
Alcohol Removal	78	81	72	65	61	62	71	84	73	62

Legal Consequences

Figure 43 illustrates the counts of arrests where the most serious offense was alcohol-related due to drunkenness or liquor law violations in Iowa. Drunkenness is defined as "…when individuals drink alcoholic beverages to the extent that their mental faculties and physical coordination are substantially impaired (FBI-UCR, 2004)." Liquor law violation is defined as "…the violation of laws or ordinances prohibiting the manufacture, sale, purchase, transportation, possession, or use of alcoholic beverages, not including Operating a Vehicle While Intoxicated (OWI) or drunkenness offenses (FBI-UCR, 2004)." The 2010-2019 Federal Bureau of Investigation – Uniform Crime Reporting (FBI-UCR) data showed a decrease in liquor law and drunkenness violations in Iowa. Liquor law violations have been gradually decreasing since 2010. In 2011, there were more than 7,500 liquor law violations compared to more than 2,600 liquor law violations in 2019. Arrests where the most serious offense was due to drunkenness significantly decreased from 12,437 arrests in 2012 to 4,719 arrests in 2019.

Figure 43: Alcohol-related Primary Arrests Due to Liquor Law Violations and Drunkenness, FBI-UCR, 2010-2019

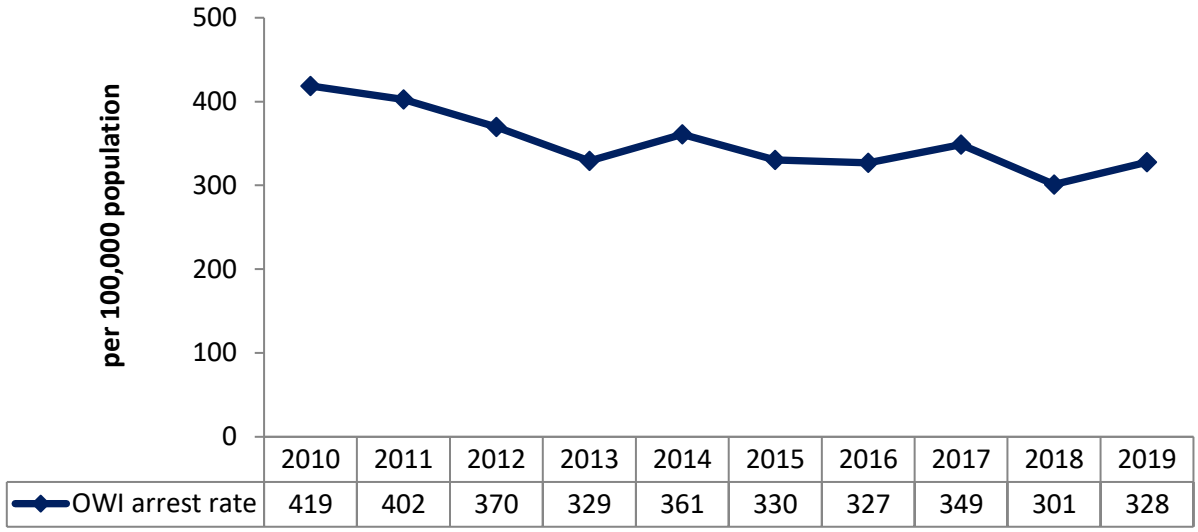


	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Drunkenness	11,843	12,417	12,437	11,343	11,515	8,377	7,069	6,181	4,886	4,719
Liquor Law	7,719	7,512	6,341	5,297	4,749	4,020	4,124	4,008	2,910	2,647

Note: Counts do not represent the total (absolute) number of arrests due to drunkenness or liquor law violations. Agencies report Group B offenses such as 90D=DUI and 90E=Drunkenness only when they are the most serious offense in an incident. For example, if an incident involves both a 35A=Drug/Narcotic Violation and a 90D=DUI, agencies report only the more serious drug offense to the Iowa UCR program.

Figure 44 illustrates the rate of Operating a Vehicle while Intoxicated (OWI) in Iowa. Drivers with a blood/breath/urine alcohol concentration (BAC) of 0.08 percent or greater are considered to be alcohol-impaired. OWI arrests in Iowa have been decreasing gradually since 2010. In 2019, the rate of OWI arrests was 328 per 100,000 resident population.

Figure 44: Rates of Operating a Vehicle While Intoxicated, FBI-UCR, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
OWI arrest rate	419	402	370	329	361	330	327	349	301	328

Alcohol-Related Poisoning

Table 3 illustrates the 2019 numbers and crude rates for emergency department (ED) visits, hospitalizations and mortality for alcohol-related poisoning by age and sex. The number of alcohol-related poisoning emergency department visits was highest for Iowans ages 25 to 44 years (4,590 ED visits or 585.9 visits per 100,000), followed by Iowans 45 to 64 years (4,386 ED visits or 563.6 visits per 100,000). Hospitalization due to alcohol-related poisoning was highest among Iowans aged 45 to 64 years (246 hospitalizations per 100,000); whereas, alcohol-related mortality was highest among Iowans 65+ year (40 deaths per 100,000, respectively) compared to all other age groups. ED alcohol-related poisoning visits (479.7 per 100,000) and hospitalizations (178.9 per 100,000) were highest among males compared to females (Table 3). However, the mortality rate of alcohol-related poisoning (25.7 per 100,000) was higher among males compared to females (Table 3).

Table 3: Iowa Rate of Alcohol-related Emergency Department Visits, Hospitalizations and Mortality by Age and Sex, 2019

Age (in years)	Emergency Department Visits		Hospitalizations		Deaths (Still 2016)	
	Number	Rate per 100,000	Number	Rate per 100,000	Number	Rate per 100,000
<25	1,473	141.6	152	14.6	1	0.1
25-44	4,590	585.9	1,518	193.8	78	10.0
45-64	4,386	563.6	1,916	246.2	298	38.3
65+	593	107.2	360	65.1	188	40.0
All Age Groups	11,042	350.0	3,946	125.1	598	19.0
Sex						
Female	3,504	221.2	1,136	71.7	194	12.2
Male	7,537	479.7	2,810	178.9	404	25.7

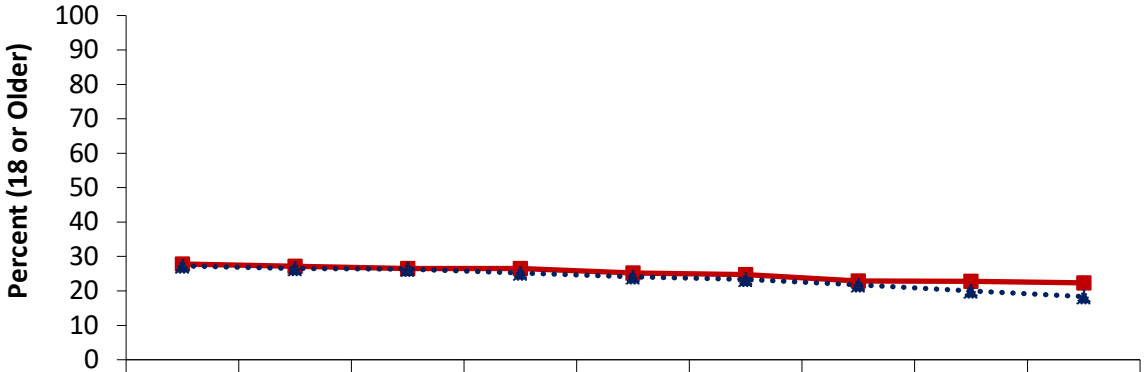
CIGARETTE AND TOBACCO CONSUMPTION

Adult Consumption Patterns

Adult Cigarette Use

Figure 45 illustrates the percentage of adults aged 18 or older reporting cigarette use in the past 30 days. Since 2002-2003, there has been a downward trend in the proportion of adults who reported cigarette use in the past month. In 2018-2019, 22 percent of adults aged 18 years or older in Iowa reported cigarette use in the past month compared to 18 percent of adults nationwide.

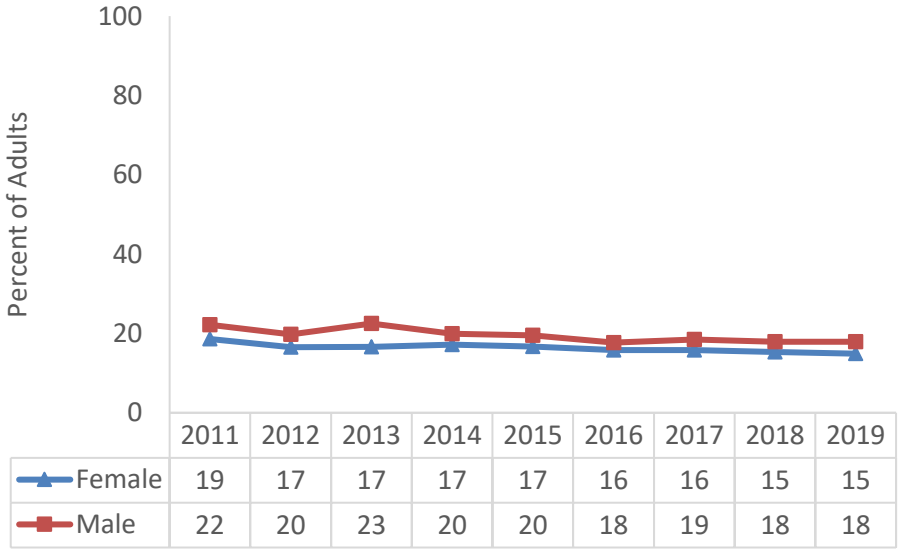
Figure 45: Past 30 Day Cigarette Use, Aged 18 or Older, Iowa & U.S., NSDUH, 2002-2019



	2002-03	2004-05	2006-07	2008-09	2010-11	2012-13	2014-15	2016-17	2018-19
Iowa	28	27	27	26	25	25	23	23	22
US	27	26	26	25	24	23	22	20	18

Figure 46 illustrates the percentage of adults reporting cigarette use in the past 30 days in Iowa by sex. The BRFSS surveyed Iowans 18 years of age and older about cigarette use. Respondents were asked if they smoked a cigarette "…every day, some days, or not at all" in the past month. Across all data years, the proportion of males who reported cigarette use was higher compared to females. In 2019, the rate of cigarette use among Iowa males (18 percent) was higher compared to females (15 percent.

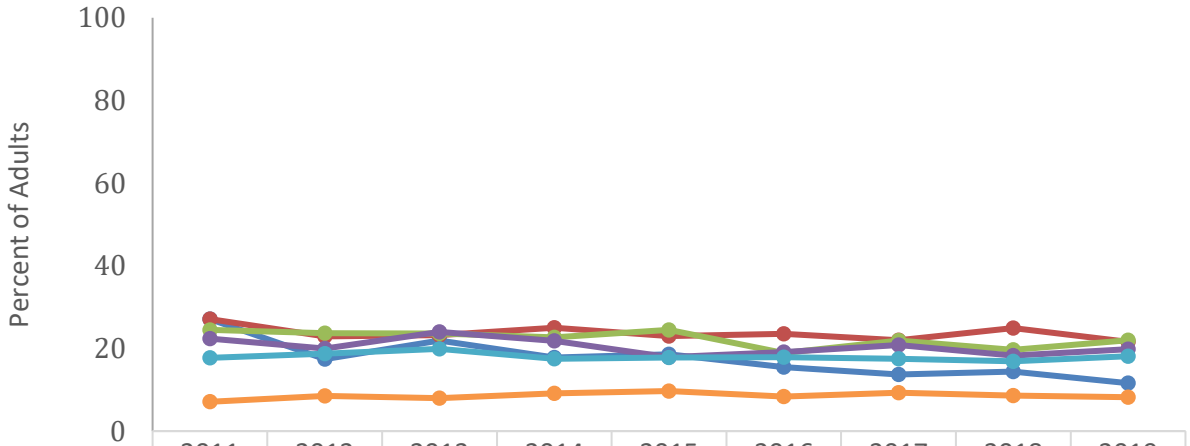
Figure 46: Past 30 Day Cigarette Use among Adults in Iowa by Sex, BRFSS, 2011-2019



	2011	2012	2013	2014	2015	2016	2017	2018	2019
Female	19	17	17	17	17	16	16	15	15
Male	22	20	23	20	20	18	19	18	18

Figure 47 illustrates the percentage of people reporting cigarette use in the past 30 days by age. The highest rate of past 30-day cigarette use was reported by Iowans 25—34 and 35-44-years of age (22 percent, respectively). Iowans aged 65 and older had the lowest rate of cigarette use in the past 30 days (8 percent).

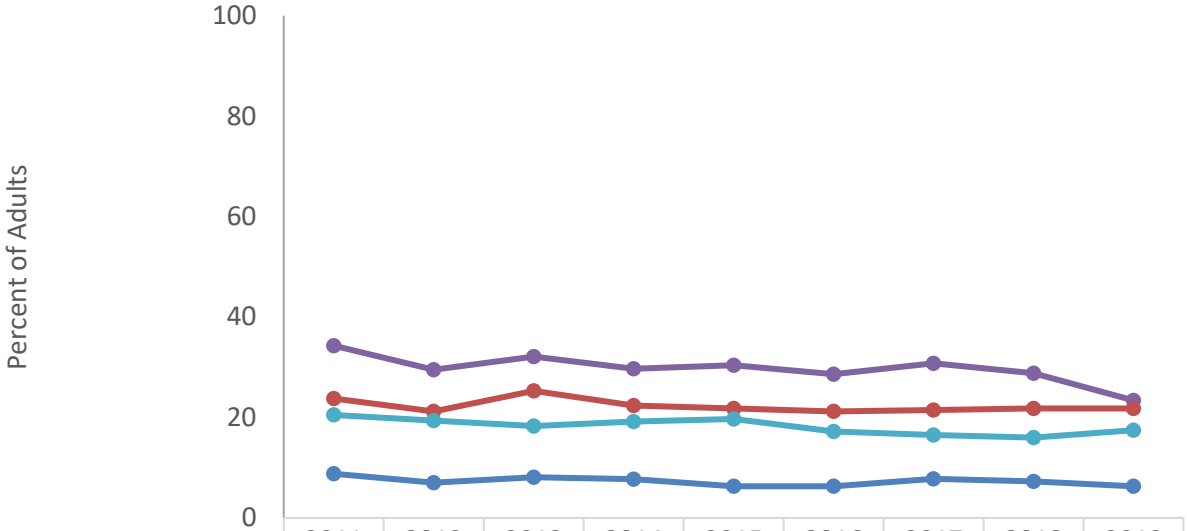
Figure 47: Past 30 Day Cigarette Use among Adults in Iowa by Age, BRFSS, 2011-2019



	2011	2012	2013	2014	2015	2016	2017	2018	2019
18-24	27	17	22	18	19	16	14	14	12
25-34	27	23	23	25	23	24	22	25	22
35-44	25	24	24	23	25	19	22	20	22
45-54	22	20	24	22	18	19	21	18	20
55-64	18	19	20	18	18	18	18	17	18
65+	7	9	8	9	10	8	9	9	8

Figure 48 illustrates the percentage of adults aged 18 or older who reported cigarette use in the past 30 days by education level. Respondents with less than high school had the highest rate of cigarette use in the past 30 days compared to other education levels.

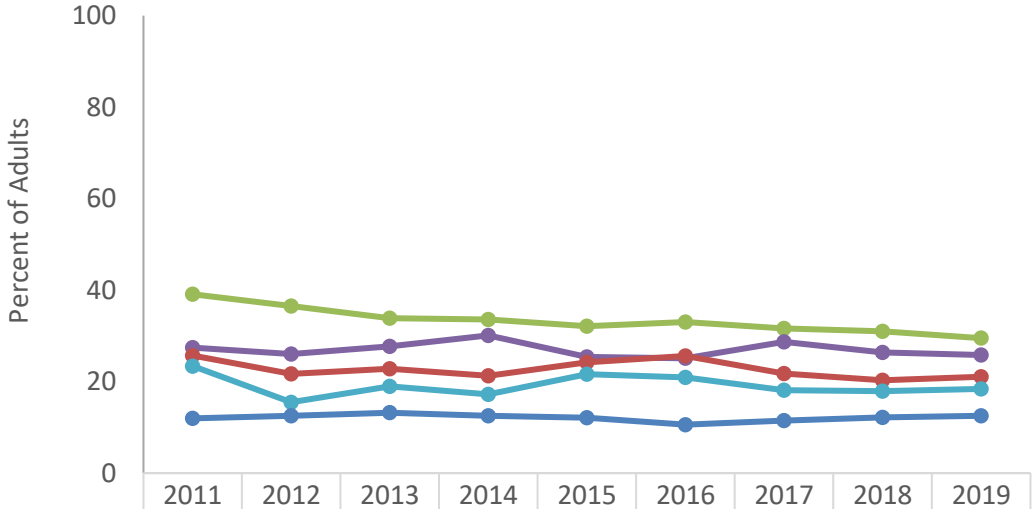
Figure 48: Past 30 Day Cigarette Use among Adults in Iowa by Education Level, BRFSS, 2011-2019



	2011	2012	2013	2014	2015	2016	2017	2018	2019
Less than H.S.	34	30	32	30	30	29	31	29	23
H.S. or G.E.D.	24	21	25	22	22	21	22	22	22
Some post-H.S.	21	19	18	19	20	17	17	16	18
College graduate	9	7	8	8	6	6	8	7	6

Figure 49 illustrates the percentage of adults who reported cigarette use in the past 30 days by income. Iowans earning $50,000 or more annually reported the lowest rates (13 percent) of cigarette use in the past 30 days compared to those earning less than $15,000 annually (30 percent).

Figure 49: Past 30 Day Cigarette Use among Adults in Iowa by Income, BRFSS, 2011-2019



	2011	2012	2013	2014	2015	2016	2017	2018	2019
Less than $15,000	39	37	34	34	32	33	32	31	30
$15,000-$24,999	27	26	28	30	25	25	29	26	26
$25,000-$34,999	26	22	23	21	24	26	22	20	21
$35,000-$49,999	23	16	19	17	22	21	18	18	18
$50,000+	12	13	13	13	12	11	12	12	13

Figure 50 illustrates the percentage of people aged 18 or older reporting cigarette use in the past 30 days. The map groups states into five quintiles based on the distribution of their percentages. Iowa (22.33 percent) was among the states in the second highest quintile (20.17 to 22.37 percent).

Figure 50: Cigarette Use in the Past Month among Adults, Aged 18 or Older, by State, NSDUH, 2018-2019

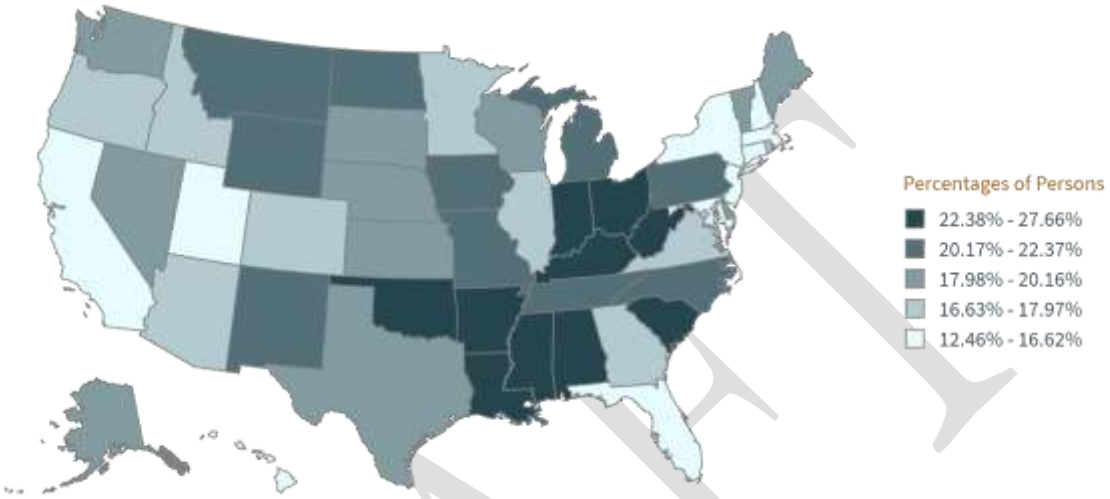
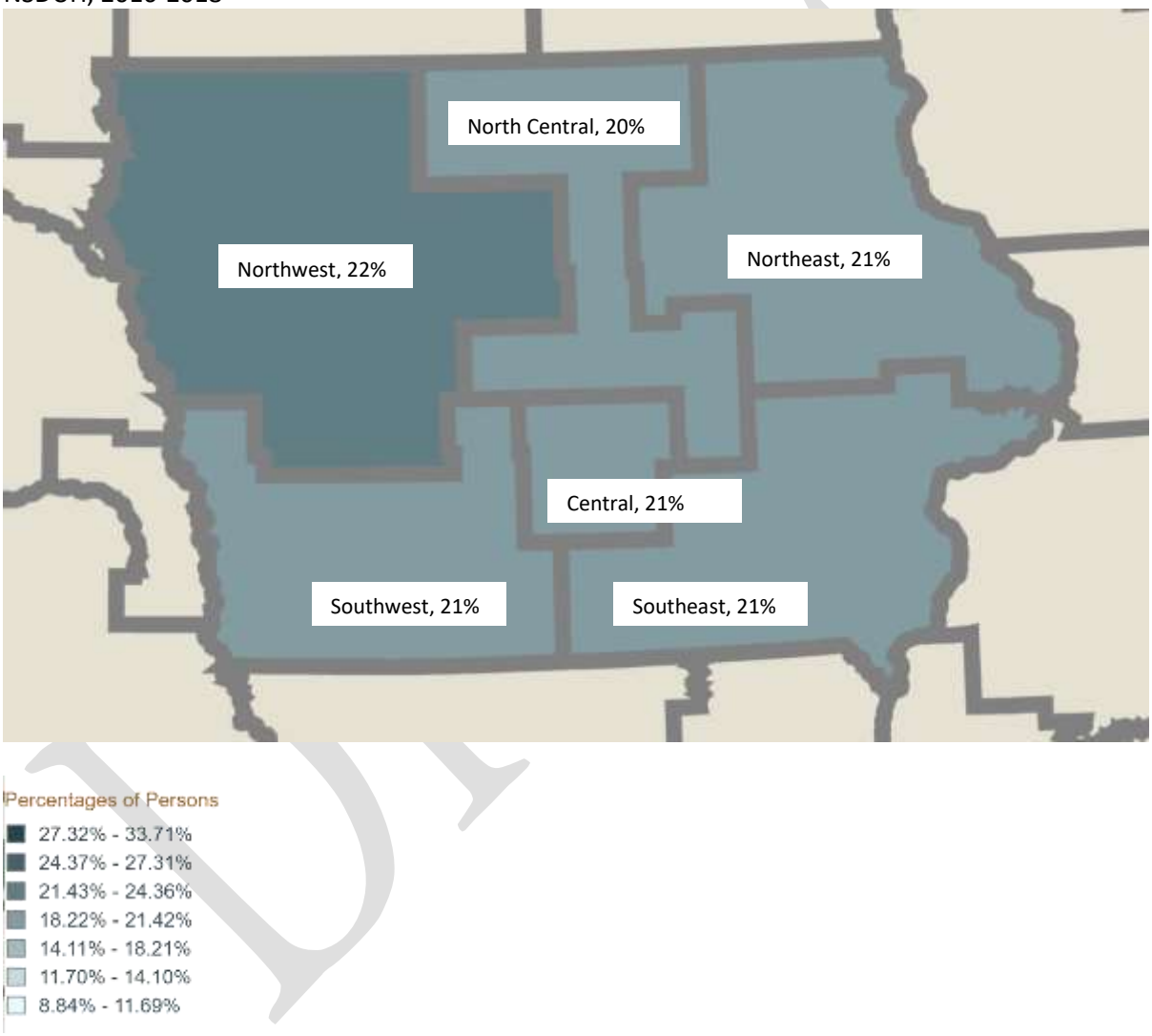


Figure 51 illustrates the proportion of Iowans aged 12 or older reporting cigarette use in the past 30 days. The color legend below the map illustrates the range of percentages for the frequency distribution of those reporting cigarette use in the past 30 days compared to all substate regions nationwide. The map groups substate regions into seven groups based on the distribution of their percentages. The 2016-2018 NSDUH showed that five out of six Iowa regions were in the middle group (18.22-21.42 percent) reporting cigarette use in the past 30 days.

Figure 51: Cigarette Use in the Past Month among Individuals, Aged 12 or Older, by Substate Region, NSDUH, 2016-2018

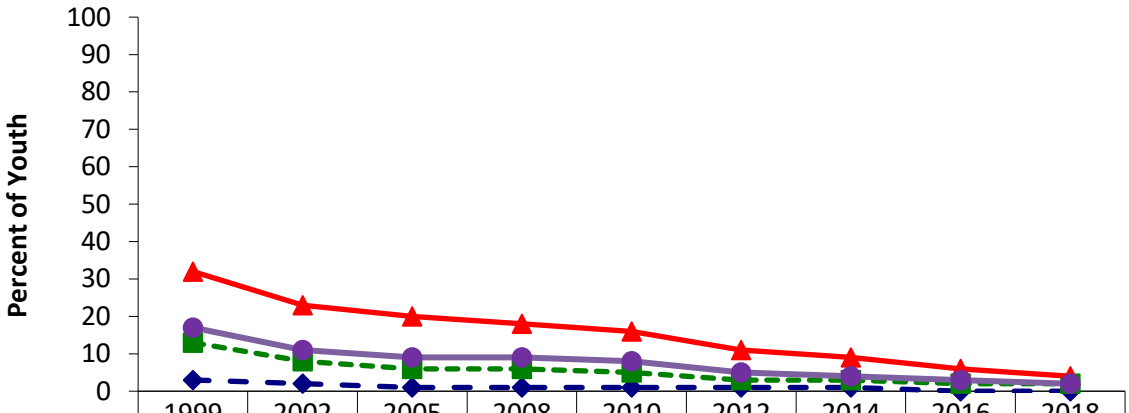


Youth Tobacco Use Patterns

Youth Cigarette Use

Since 1999, cigarette use among Iowa students in grades 6, 8, and 11 has declined. Youth were asked the following question in the Iowa Youth Survey: "*In the past 30 days, on how many days have you smoked cigarettes?*" Figure 52 illustrates the percentage of youth reporting cigarette use in the past 30 days by grade level. Although Iowa youth continue to smoke, cigarette use across all three grades has declined. Cigarette use in the past 30 days among sixth grade students decreased from 3 percent in 1999 to less than one percent in 2018. In 2018, 4 percent of eleventh grader students and 2 percent of eighth grade students reported cigarette use in the past 30 days. Between1999 and 2018, cigarette use in the past 30 days decreased 88 percent among youth across all grade levels participating in the IYS, and among youth in grade 11, from 32 percent to 4 percent.

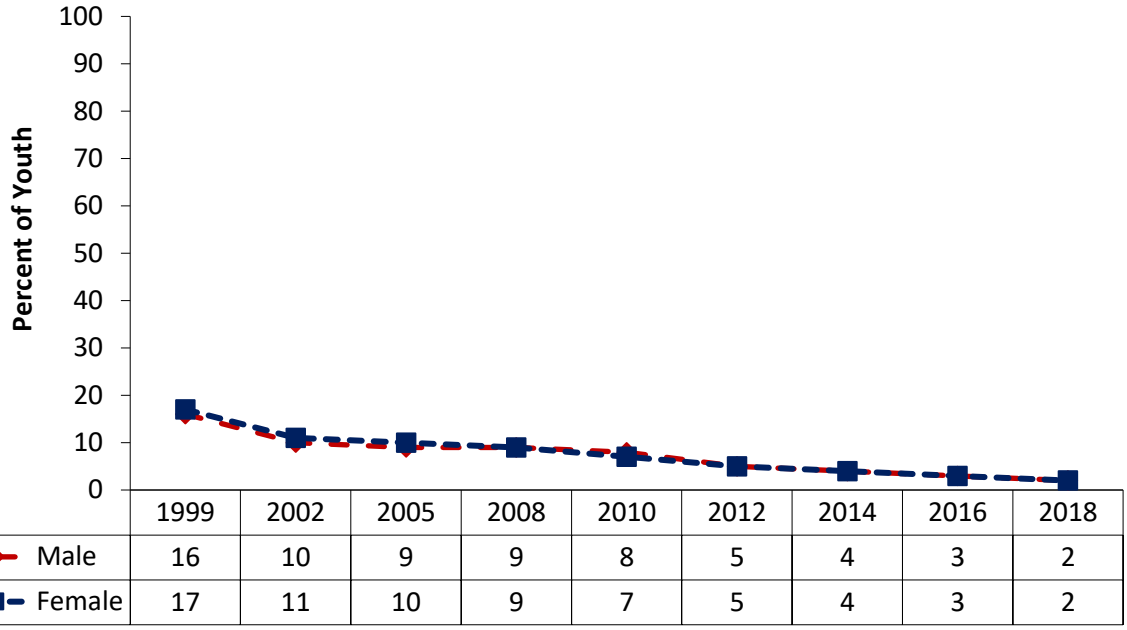
Figure 52: Past 30 Day Cigarette Use among Youth by Grade, IYS, 1999-2018



	1999	2002	2005	2008	2010	2012	2014	2016	2018
Grade 6	3	2	1	1	1	1	1	0	0
Grade 8	13	8	6	6	5	3	3	2	2
Grade 11	32	23	20	18	16	11	9	6	4
All Grades	17	11	9	9	8	5	4	3	2

Figure 53 illustrates the percentage of youth reporting cigarette use in the past 30 days by sex. Cigarette use in the past 30 days has declined among both males and females since 1999. In 2018, 2 percent of males and 2 percent of females reported cigarette use in the past 30 days.

Figure 53: Past 30 Day Cigarette Use among Youth by Sex, IYS, 1999-2018

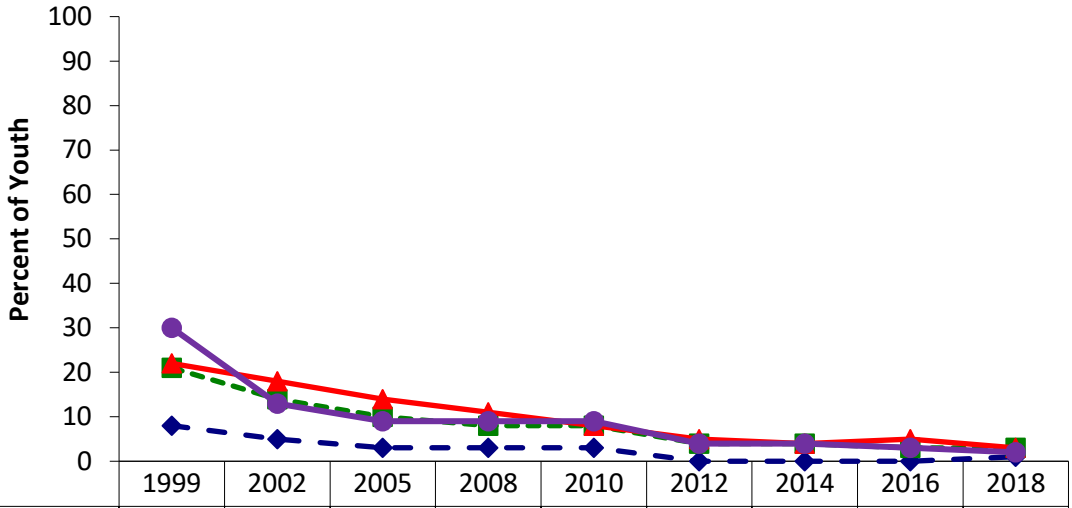


	1999	2002	2005	2008	2010	2012	2014	2016	2018
Male	16	10	9	9	8	5	4	3	2
Female	17	11	10	9	7	5	4	3	2

Figure 54 illustrates the percentage of youth reporting first cigarette use before age 13 by grade level. Youth were asked the following question: "How old were you when you first smoked a whole cigarette for the first time?" Response options were "Never", "8 or younger", "9 or 10", "11 or 12", "13 or 14", "15 or 16", or "17 or older." Percentages presented in Figure 54 and Figure 55 reflect responses of "8 or younger", "9 or 10", and "11 or 12" combined.

Between 1999 and 2018, first use of cigarettes before the age of 13 decreased 86 percent among youth in grade 11. Since 2012, the rates of cigarette use among youth in grade 6 were negligible (i.e., less than one percent). In 2018, 3 percent of youth in grade 8 and grade 11 reported first cigarette use before the age of 13 (Figure 54).

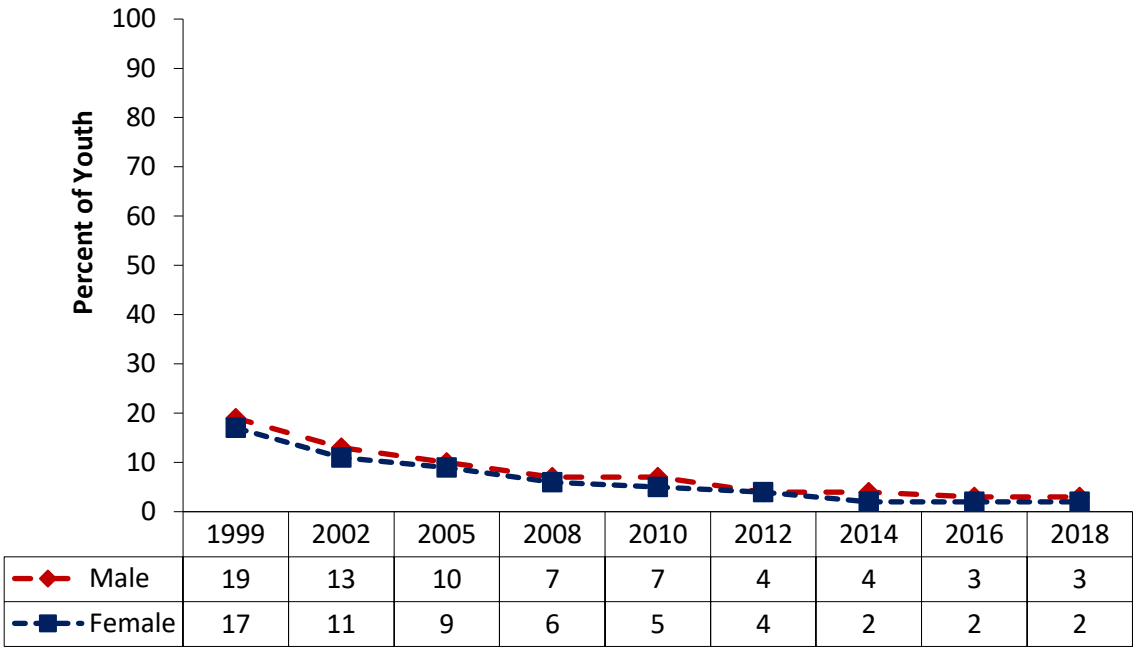
Figure 54: Cigarette Use before Age 13 by Grade, IYS, 1999-2018



	1999	2002	2005	2008	2010	2012	2014	2016	2018
Grade 6	8	5	3	3	3	0	0	0	1
Grade 8	21	14	10	8	8	4	4	3	3
Grade 11	22	18	14	11	8	5	4	5	3
All Grades	30	13	9	9	9	4	4	3	2

Figure 55 illustrates the percentage of youth reporting cigarette use before the age of 13 by sex. In 2018, 3 percent of males and 2 percent of females reported first cigarette use before the age of 13. Cigarette use before the age of 13 has declined for both males and females since 1999. Between 1999 and 2018, cigarette use before the age of 13 decreased 84 percent for males and 88 percent for females.

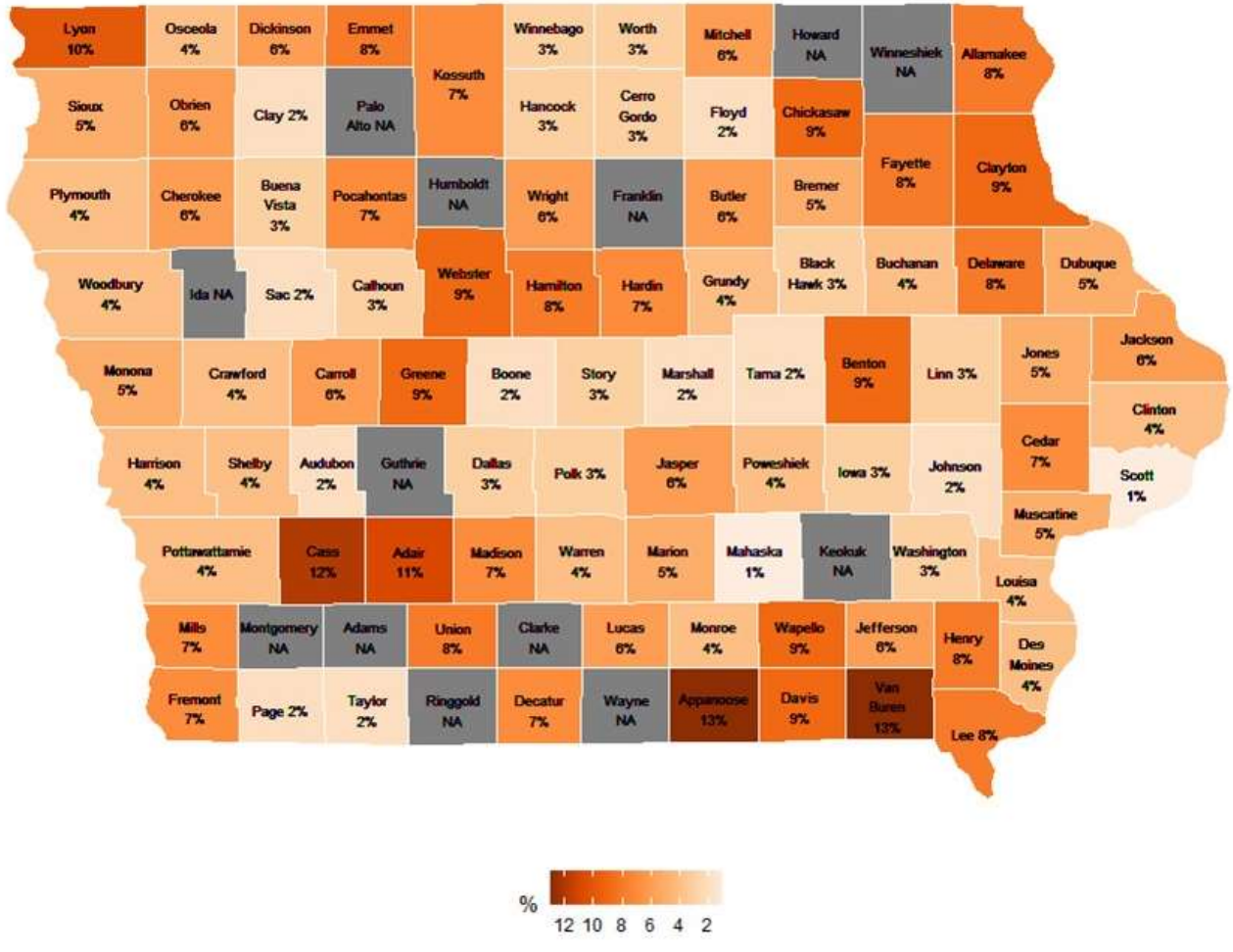
Figure 55: Cigarette Use before Age 13 by Sex, IYS, 1999-2018



	1999	2002	2005	2008	2010	2012	2014	2016	2018
Male	19	13	10	7	7	4	4	3	3
Female	17	11	9	6	5	4	2	2	2

Figure 56 illustrates the percentage of youth in grade 11 reporting cigarette use in the past 30-days by county. The map illustrates a higher proportion of youth reporting cigarette use in the past 30 days in Iowa with increasingly darker colors. Counties with insufficient sample size are not reported and appear gray in the map. The top 5 highest prevalence of 11th grade youth reporting cigarette use in the past 30 days include: Appanoose and Van Buren (13%, respectively), Cass (12%), Adair (11%), and Lyon (10%).

Figure 56: Past 30 Day Cigarette Use among 11th Grade by County, IYS, 2018

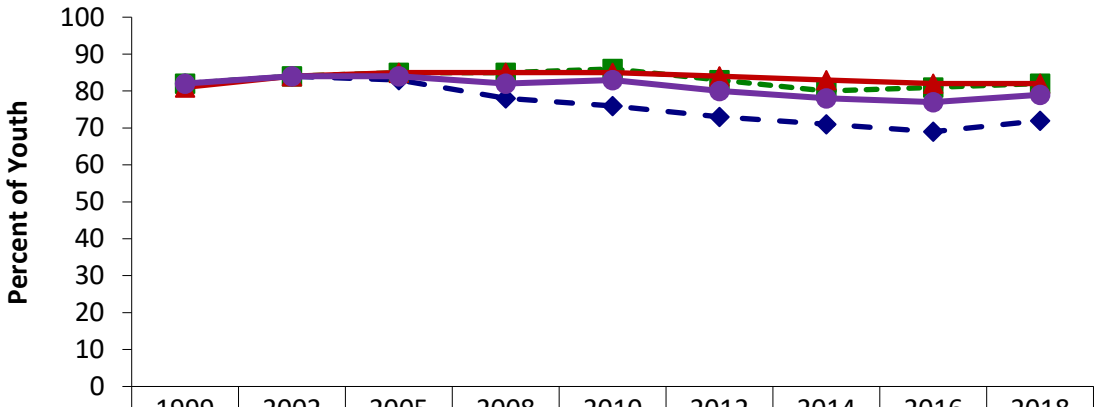


Youth Cigarette Use Risk Perception

Figure 57 illustrates the percentage of youth reporting cigarette risk perception by grade level. The IYS asked Iowa youth the following question: "How much do you think you risk harming yourself (physically or otherwise) if you smoke cigarettes every day?" Response options for all years were "Great risk", "Moderate risk", "Slight risk", "No risk", or "Don't know." Percentages presented in Figure 57 and Figure 58 reflect responses of "Great risk" and "Moderate risk" combined.

In 2002, the cigarette risk perception among sixth grade students was 84 percent compared to 69 percent in 2018 (Figure 57). In 2016, 69 percent of sixth graders believed smoking cigarettes every day posed a Great-Moderate Risk of self-harm. For the same period, the IYS did not find significant changes in cigarette risk perception among students in grades 8 and 11. However, between 2010 and 2016, a 5 percent decrease in cigarette risk perception for eighth graders and 3 percent decrease for eleventh graders was found. During the same timeframe, cigarette risk perception decreased 7 percent for grades 6, 8, and 11, from 83 percent to 77 percent.

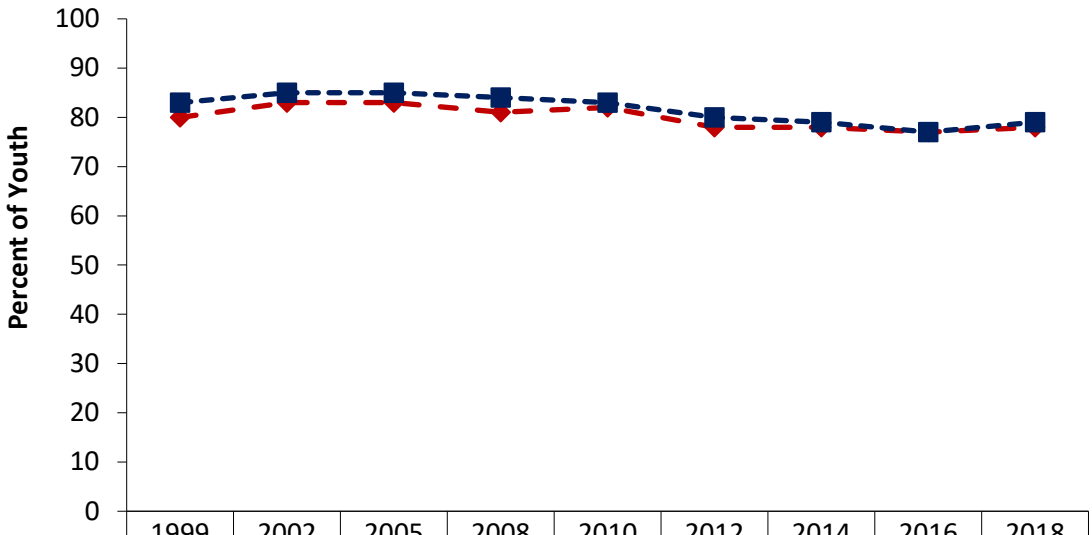
Figure 57: Risk Perception of Cigarette Use among Youth by Grade, IYS, 1999-2018



	1999	2002	2005	2008	2010	2012	2014	2016	2018
Grade 6	82	84	83	78	76	73	71	69	72
Grade 8	82	84	85	85	86	83	80	81	82
Grade 11	81	84	85	85	85	84	83	82	82
All Grades	82	84	84	82	83	80	78	77	79

Figure 58 illustrates the percentage of youth reporting great or moderate risk perception of cigarette use by sex. In 2018, female and male students reported similar rates of cigarette use risk perception; 78 percent of males and 29 percent of females perceived smoking cigarettes every day posed a great- or moderate risk of self-harm.

Figure 58: Risk Perception of Cigarette Use among Youth by Sex, IYS, 1999-2018



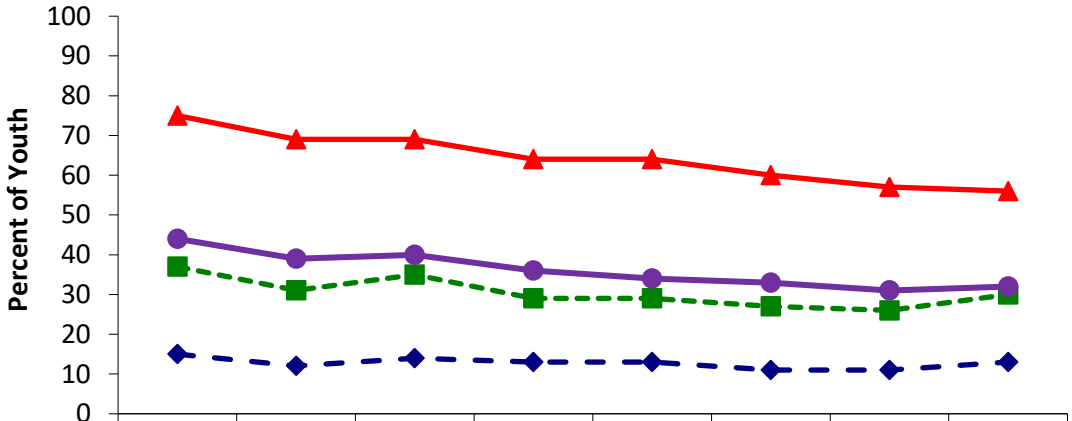
	1999	2002	2005	2008	2010	2012	2014	2016	2018
Male	80	83	83	81	82	78	78	77	78
Female	83	85	85	84	83	80	79	77	79

Youth Perceptions of Access to Cigarettes

Figure 59 illustrates youth perceptions of access to cigarettes in their neighborhood by or community grade level. The IYS question asked: *"In your neighborhood or community, how difficult do you think it would be for a kid your age to get cigarettes?"* Response options were "Very hard", "Hard", "Easy", "Very easy", or "Don't know." Proportions in Figure 59 and Figure 60 reflect the percentage of students responding "Easy" or "Very easy" combined.

Overall, 32 percent of Iowa youth in 2018 reported *Very Easy-Easy* access to cigarettes in their community or neighborhood (Figure 59). Eleventh grade students had the highest percentage of perceived cigarette availability among the three grade levels. In 2018, 56 percent of youth in grade 11 reported it was *Very Easy-Easy* to get cigarettes compared to 30 percent of youth in grade 8 and 13 percent of youth in grade 6. Since 2002, perception of cigarette availability decreased 25 percent for youth in grade 11, 19 percent for youth in grade 8, and 13 percent for youth in grade 6.

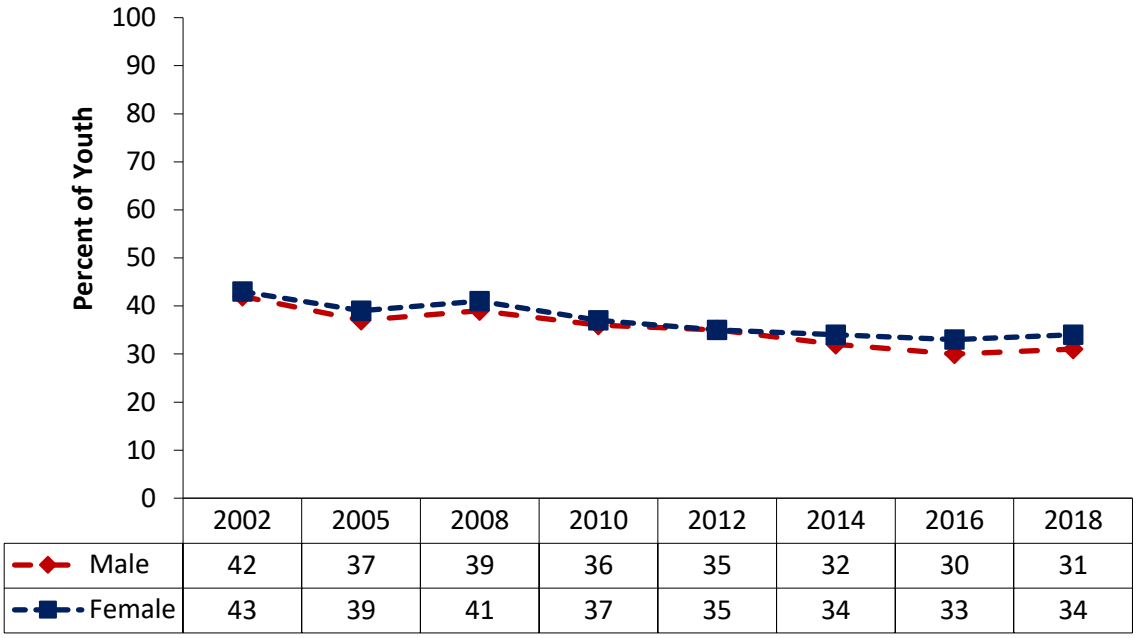
Figure 59: Percent of Youth Reporting *Very Easy-Easy* Access to Cigarettes by Grade, IYS, 2002-2018



	2002	2005	2008	2010	2012	2014	2016	2018
Grade 6	15	12	14	13	13	11	11	13
Grade 8	37	31	35	29	29	27	26	30
Grade 11	75	69	69	64	64	60	57	56
All Grades	44	39	40	36	34	33	31	32

Figure 60 illustrates youth perceptions of access to cigarettes in their neighborhood or community by sex. In 2018, more females perceived *Very easy-Easy access to* cigarettes (33 percent) compared to their male counterparts (31 percent).

Figure 60: Percent of Youth Reporting *Very Easy-Easy* Access to Cigarettes by Sex, IYS, 2002-2018



	2002	2005	2008	2010	2012	2014	2016	2018
Male	42	37	39	36	35	32	30	31
Female	43	39	41	37	35	34	33	34

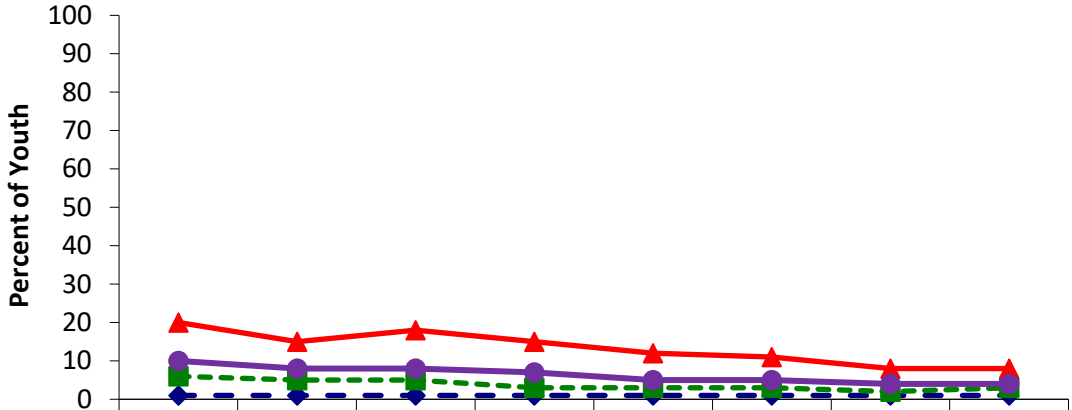
Perceived Norms of Youth Cigarette Use

Figure 61 illustrates the percentage of youth reporting cigarette peer normative beliefs by grade. Perception of cigarette normative beliefs was evaluated in the IYS in all three grades (6, 8, and 11). The IYS question was: "How wrong would most of the students in your school (not just your best friends) feel it would be for you to: Smoke cigarettes?" Response options were "Very wrong," "Wrong," "A little wrong," "Not wrong at all," and "Don't know." Figure proportions reflect "Not wrong at all" responses.

The 2018 IYS data indicated that 1 percent of youth in grade 6 reported "Not wrong at all" followed by 3 percent of youth in grade 8, and 8 percent of youth in grade 11.

Between 2002 and 2018, the percentage of youth reporting perceived norms of youth cigarette use as "Not wrong at all" decreased 60 percent. In 2018, 4 percent of youth in all grades reported perceived norms of youth cigarette use as "Not wrong at all" compared to 10 percent in 2002.

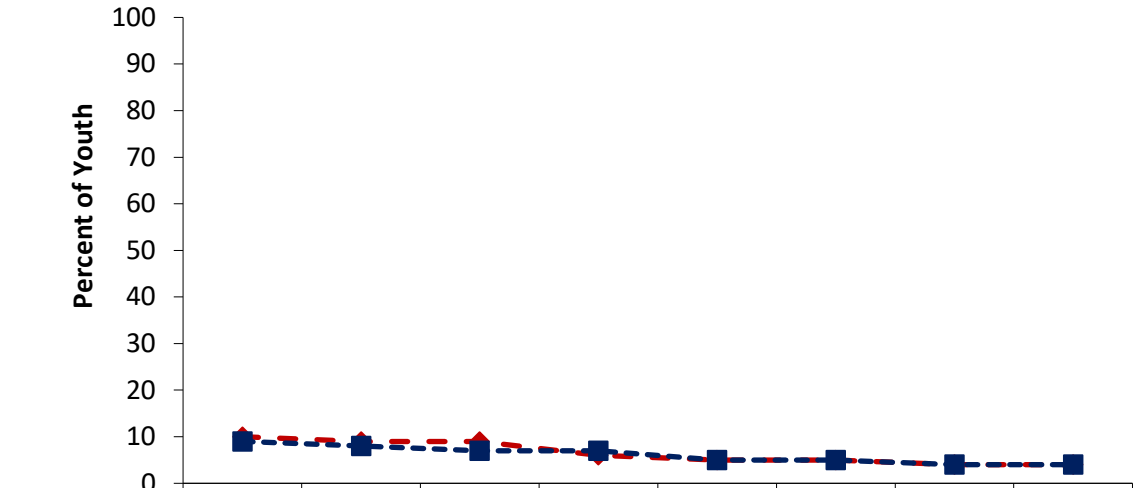
Figure 61: Percent of Youth Reporting Perceived Norms of Youth Cigarette Use by Grade, IYS, 2002-2018



	2002	2005	2008	2010	2012	2014	2016	2018
Grade 6	1	1	1	1	1	1	1	1
Grade 8	6	5	5	3	3	3	2	3
Grade 11	20	15	18	15	12	11	8	8
All Grades	10	8	8	7	5	5	4	4

Figure 62 illustrates the percentage of youth reporting perceived norms of youth cigarette use as "Not wrong at all" by sex. The 2018 IYS data found that 4 percent of both males and females believed cigarette use was considered "Not wrong at all" by their peers. Across all years overall, the perceived norms of youth cigarette use were relatively similar among both males and females.

Figure 62: Cigarette Normative Beliefs among Youth by Sex, IYS, 2002-2018



	2002	2005	2008	2010	2012	2014	2016	2018
Male	10	9	9	6	5	5	4	4
Female	9	8	7	7	5	5	4	4

Youth Tobacco Use

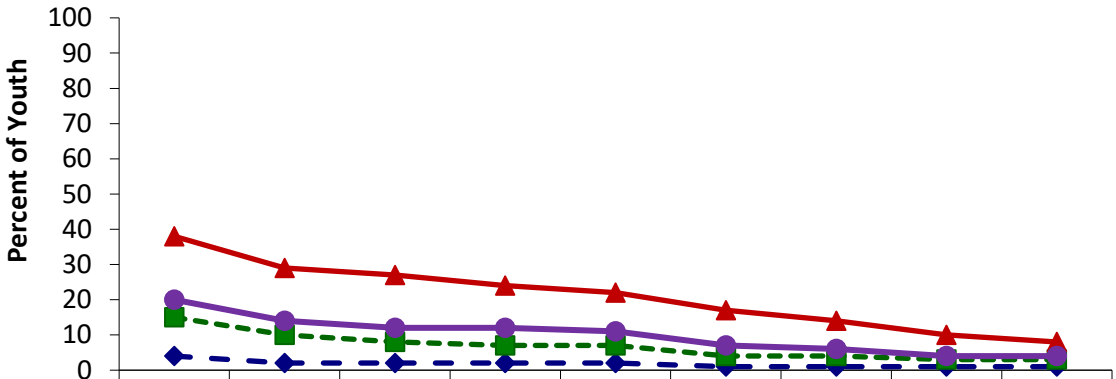
Figure 63 illustrates the percentage of youth reporting tobacco use (excluding e-cigarettes) in the past 30 days by grade level.

The IYS composite variable for youth report of tobacco use (excluding e-cigarettes) in the past 30 days has changed over time as follows:

- 1999-2012: Cigarettes, cigars, smokeless tobacco
- 2014: Cigarettes, cigars, smokeless tobacco, dissolvable tobacco (tobacco that looks like mints, toothpicks, or breath strips)
- 2016: Cigarettes, cigars, smokeless tobacco, tobacco smoked with a water pipe, tobacco smoked with regular pipe, and menthol cigarettes
- 2018: Cigarettes, cigars, smokeless tobacco, tobacco smoked with a water pipe, and menthol cigarettes

Although Iowa youth continue to use tobacco, it has declined across all grade levels since 1999. In 2018, 8 percent of youth in grade 11 and 3 percent of youth in grade 8 reported tobacco use in the past 30 days.

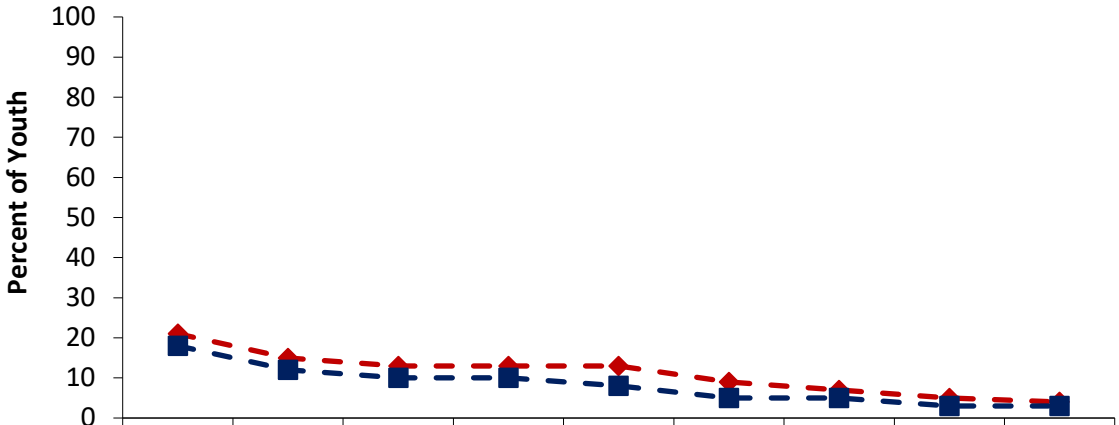
Figure 63: Past 30 Day Tobacco Use (Excluding e-cigarettes) among Youth by Grade, IYS, 1999-2018



	1999	2002	2005	2008	2010	2012	2014	2016	2018
Grade 6	4	2	2	2	2	1	1	1	1
Grade 8	15	10	8	7	7	4	4	3	3
Grade 11	38	29	27	24	22	17	14	10	8
All Grades	20	14	12	12	11	7	6	4	4

Figure 64 illustrates the percentage of youth reporting tobacco use (excluding e-cigarettes) in the past 30 days by sex. In 2018, 4 percent of males reported tobacco use in the past 30 days compared to 3 percent of females.

Figure 64: Past 30 Day Tobacco Use (excluding e-cigarettes) among Youth by Sex, IYS, 1999-2018



	1999	2002	2005	2008	2010	2012	2014	2016	2018
Male	21	15	13	13	13	9	7	5	4
Female	18	12	10	10	8	5	5	3	3

e-CIGARETTE CONSUMPTION

Table 4 illustrates the percentage of youth reporting e-cigarette use in the past 30 days by grade and sex.

The IYS question about e-cigarette use in the past 30 days, first asked in 2014, has had some small wording modifications in each subsequent survey year. It is important to note that modifications to the survey question may change the meaning for respondents and result in different responses across survey years. Respectively, the IYS question asked:

- 2014: *In the past 30 days, on how many days have you used electronic cigarettes or e-cigarettes (battery-powered cigarettes)?*
- 2016: *In the past 30 days, on how many days have you used e-cigarettes (vape-pens, hookah-pens, e-hookahs, e-cigars, e-pipes, personal vaporizers or mods)?*
- 2018: *In the past 30 days, on how many days have you used e-cigarettes (vape-pens, JUUL, hookah-pens, e-hookahs, e-cigars, e-pipes, personal vaporizers or mods)?*

Response options for all years were *0 days, 1-2 days, 3-5 days, 6-9 days, 10-19 days, 20-29 days,* or *30 days*. Percentages in Table 4 reflect responses to *1-2 days* or more combined.

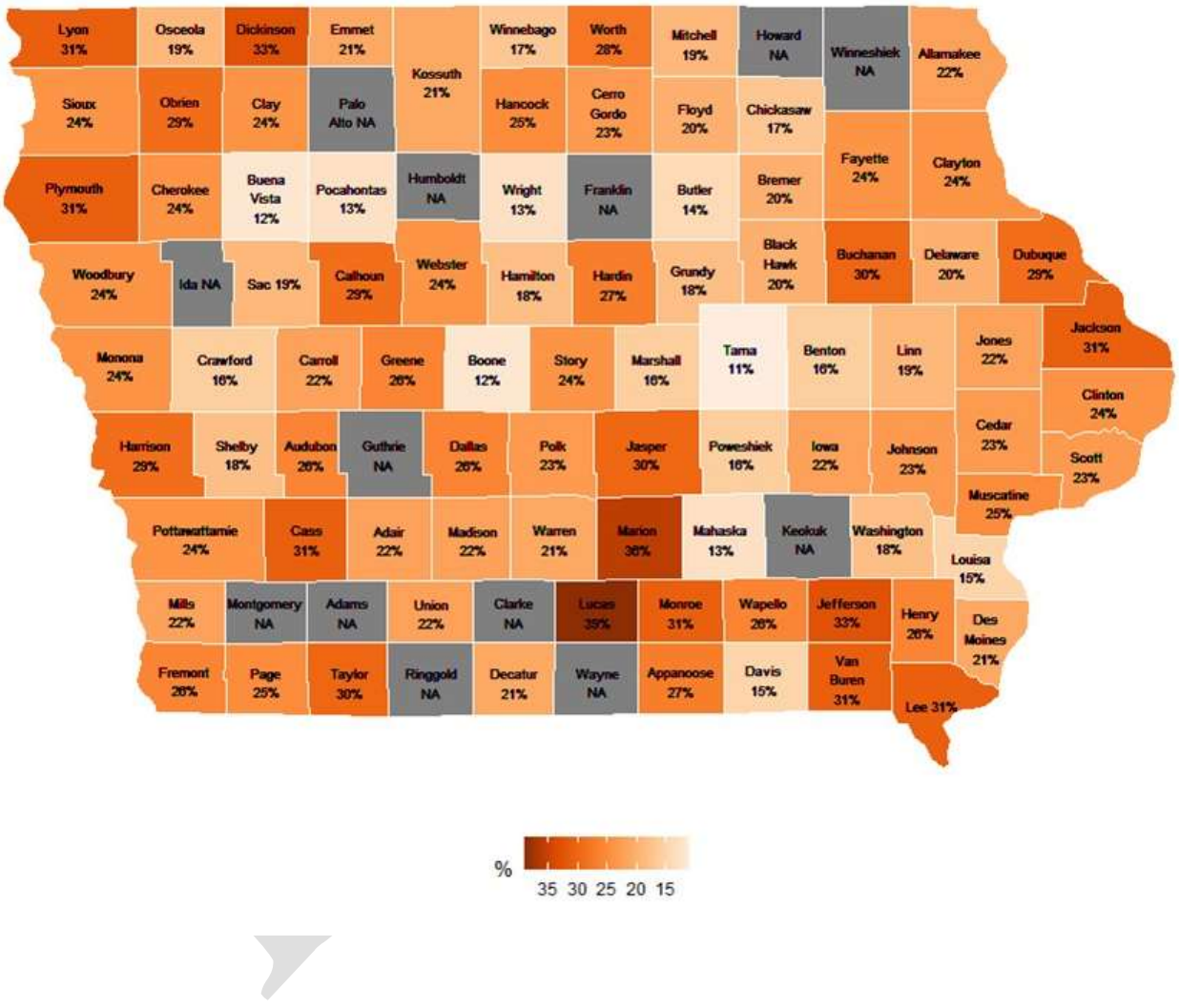
E-cigarette use has increased across all grade levels and by sex. In 2018, 23% of youth in grade 11, 9% of youth in grade 9, and 3% of youth in grade 6 reported having used e-cigarettes in the past 30 days. In 2018, 11 percent of both males and females, respectively, reported having used e-cigarettes in the past 30 days. In 2016, 4 percent of females and 5 percent of males reported e-cigarette use in the past 30 days.

Table 4: Past 30 Day E-Cigarette Use among Youth by Grade & Sex, IYS, 2014-2018

Grade	2014	2016	2018
6th	3%	1%	3%
8th	4%	3%	9%
11th	11%	9%	23%
All Grades	6%	5%	11%
Sex			
Male	7%	5%	11%
Female	5%	4%	11%

Figure 65 illustrates the percentage of youth in grade 11 reporting e-cigarette use in the past 30-days by county. The map illustrates a higher proportion of youth reporting e-cigarette use in the past 30 days in Iowa with increasingly darker colors. Counties with insufficient sample size are not reported and appear gray in the map. The top 5 highest prevalence of current e-cigarette use among youth by county include: Lucas (39%), Marion (36%), and Dickinson and Jefferson (33%, respectively). The percentage of youth in 11th grade reporting e-cigarette use was 31% in Jackson, Lee, Lyon, Monroe, Plymouth, and Van Buren counties, respectively.

Figure 65: Past 30 Day e-Cigarette Use among 11th Grade by County, IYS, 2018

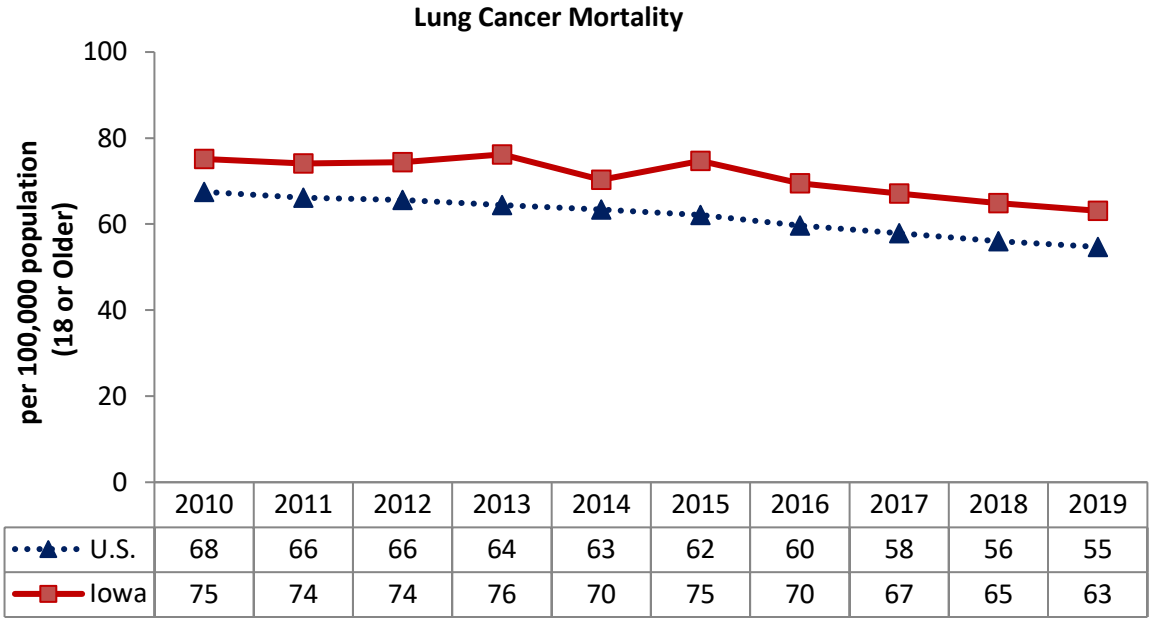


TOBACCO USE CONSEQUENCES

Lung Cancer Mortality Attributed to Tobacco

Figure 66 illustrates the lung cancer mortality rates for adults (i.e., 18 years of age and older) in Iowa and nationally. Overall, the lung cancer mortality rate was higher among Iowans compared to the U.S. In 2019, the lung cancer mortality rate was 63 per 100,000 compared to 55 per 100,000 population nationally.

Figure 66: Adult Lung Cancer Mortality Rate, Iowa & U.S., CDC WONDER, 2010-2019

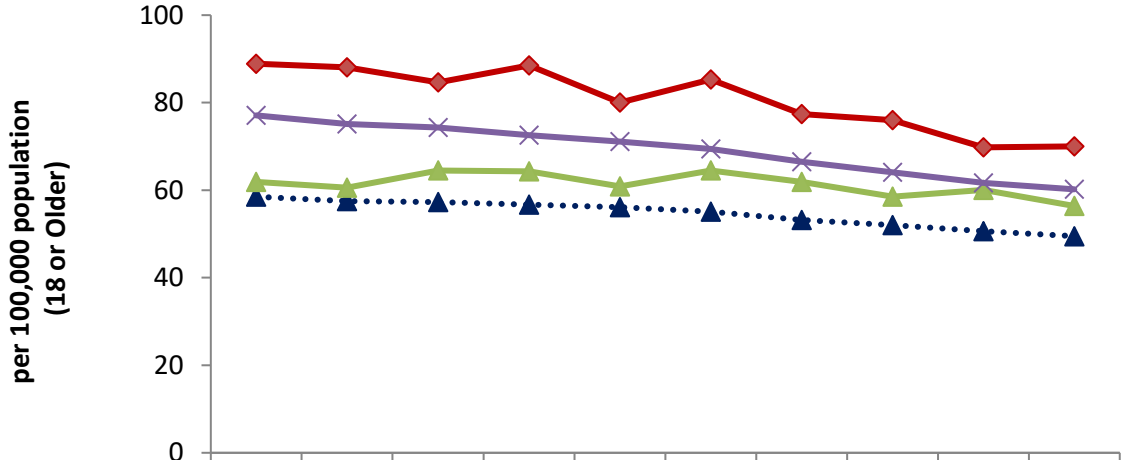


	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
U.S.	68	66	66	64	63	62	60	58	56	55
Iowa	75	74	74	76	70	75	70	67	65	63

Note: ICD-10 codes: C33-C34

Figure 67 illustrates the adult (i.e., 18 years of age and older) lung cancer mortality rates by sex in Iowa and nationally. Iowa males had a higher lung cancer mortality rate compared to Iowa females. Sex appeared to be associated with lung cancer mortality. Compared to the U.S., Iowa males and females had higher rates of lung cancer mortality.

Figure 67: Lung Cancer Mortality Rates among Adults by Sex, Iowa & U.S., CDC WONDER, 2010-2019

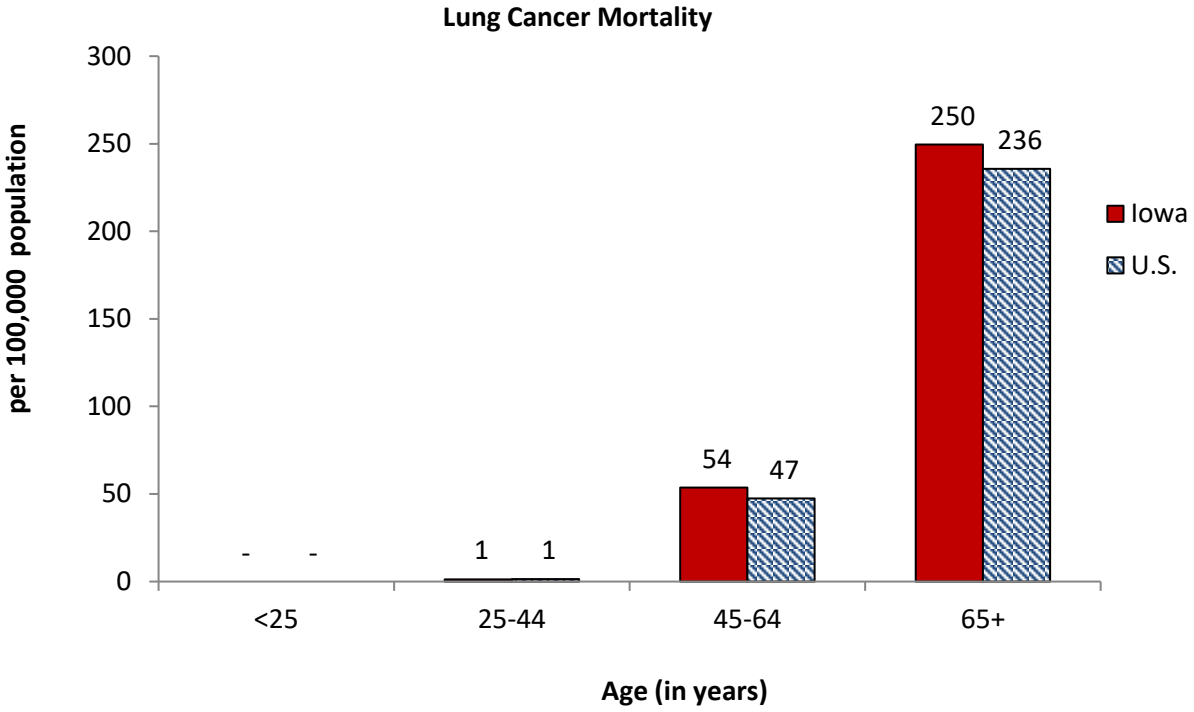


	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
US - Female	59	58	57	57	56	55	53	52	51	50
US - Male	89	88	85	89	80	85	77	76	70	70
Iowa - Female	62	61	65	64	61	65	62	59	60	56
Iowa - Male	77	75	74	73	71	69	67	64	62	60

Note: ICD-10 codes: C33-C34

Figure 68 illustrates adult lung cancer mortality rates by age groups in Iowa and the U.S. Lung cancer mortality was highest among persons aged 65 or older for both Iowa (250 per 100,000 population) and the U.S. (236 per 100,000 population). People aged 44 and younger had the lowest rates of lung cancer mortality in both Iowa and the U.S. Lung cancer mortality among people aged 45 to 64 was 54 per 100,000 for Iowa and 47 per 100,000 for the U.S..

Figure 68: Adult Lung Cancer Mortality Rate by Age Group, Iowa & U.S., CDC WONDER, 2010-2019



Note: ICD-10 codes: C33-C34. Rates suppressed for 18-24 year olds due to the unreliability of rates using small counts.

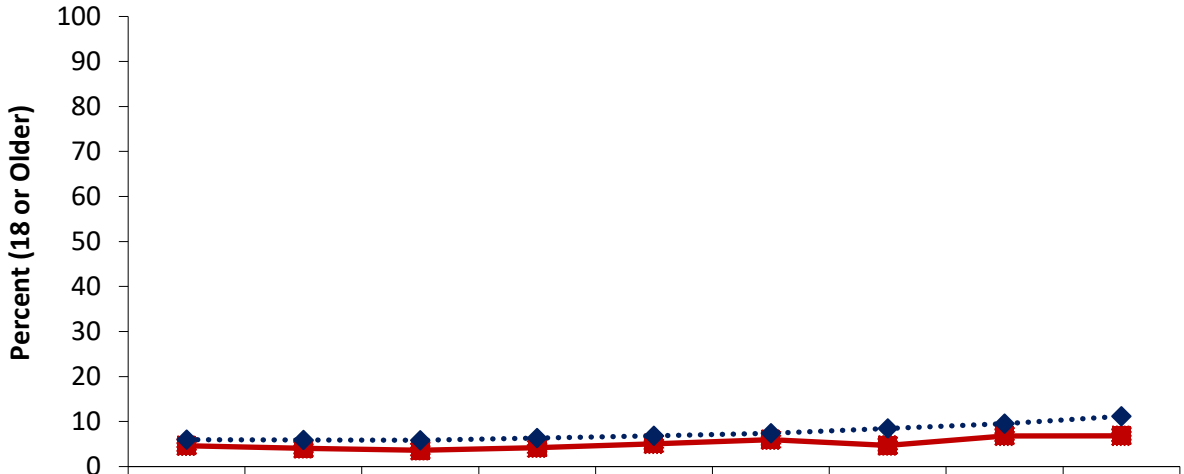
MARIJUANA AND ILLICIT DRUGS

Adult Consumption Patterns

Adult Marijuana Use

Figure 69 illustrates the percentage of adults aged 18 or older reporting marijuana use in the past 30 days. From 2002-2003 to 2018-2019, marijuana use has increased among adults aged 18 or older. In 2018-2019, an estimated 7 percent of Iowans aged 18 or older reported marijuana use in the past 30 days compared to 11 percent nationally.

Figure 69: Marijuana Use in the Past 30 Days among Adults, Aged 18 or Older, Iowa & U.S., NSDUH, 2002-2019



	2002-03	2004-05	2006-07	2008-09	2010-11	2012-13	2014-15	2016-17	2018-19
Iowa	5	4	4	4	5	6	5	7	7
U.S.	6	6	6	6	7	7	8	10	11

Figure 70 illustrates the percentage of people aged 18 or older reporting marijuana use in the past 30 days. States are grouped by quintiles based on the distribution of adults reporting marijuana use in the past 30 days across the United States. Iowa (6.8 percent) was among the states in the lowest group (6.49 to 8.13 percent).

Figure 70: Marijuana Use in the Past 30 Days among Adults, Aged 18 or Older, by State, NSDUH, 2018-2019

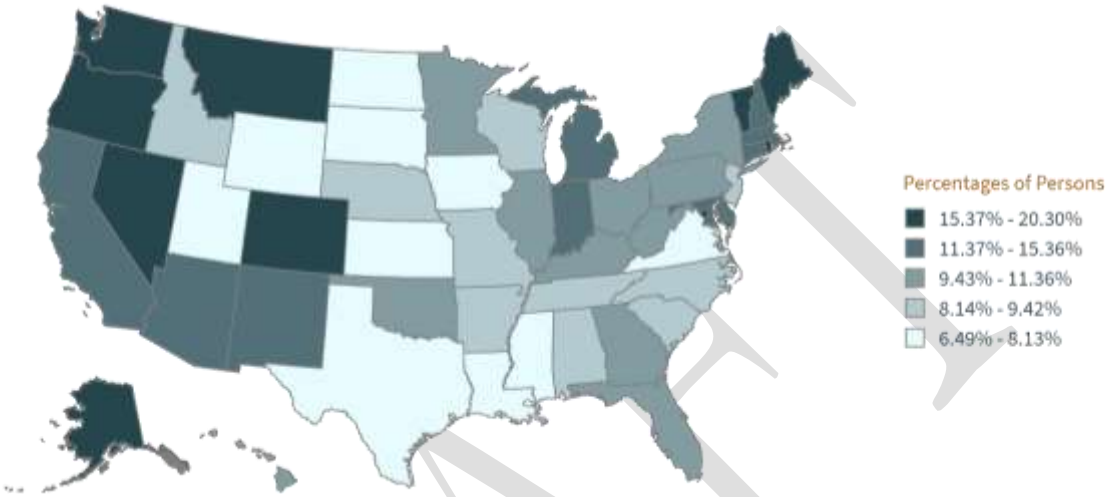


Figure 71 illustrates marijuana use in the past 30 days among Iowans aged 12 or older. The color legend below the map illustrates the range of percentages of marijuana use in the past 30 days across all substate regions in the US. The seven groups are based on the frequency of the percentages. The 2016-2018 NSDUH showed that Northwest and Southwest Iowa were in the lowest group (3.95-5.78 percent). Regions in the next lowest group (5.79-6.71 percent) were North Central and Southest Iowa.

Figure 71: Marijuana Use in the Past 30 Days among Adults, Aged 18 or Older, by Substate Region, NSDUH, 2016-2018

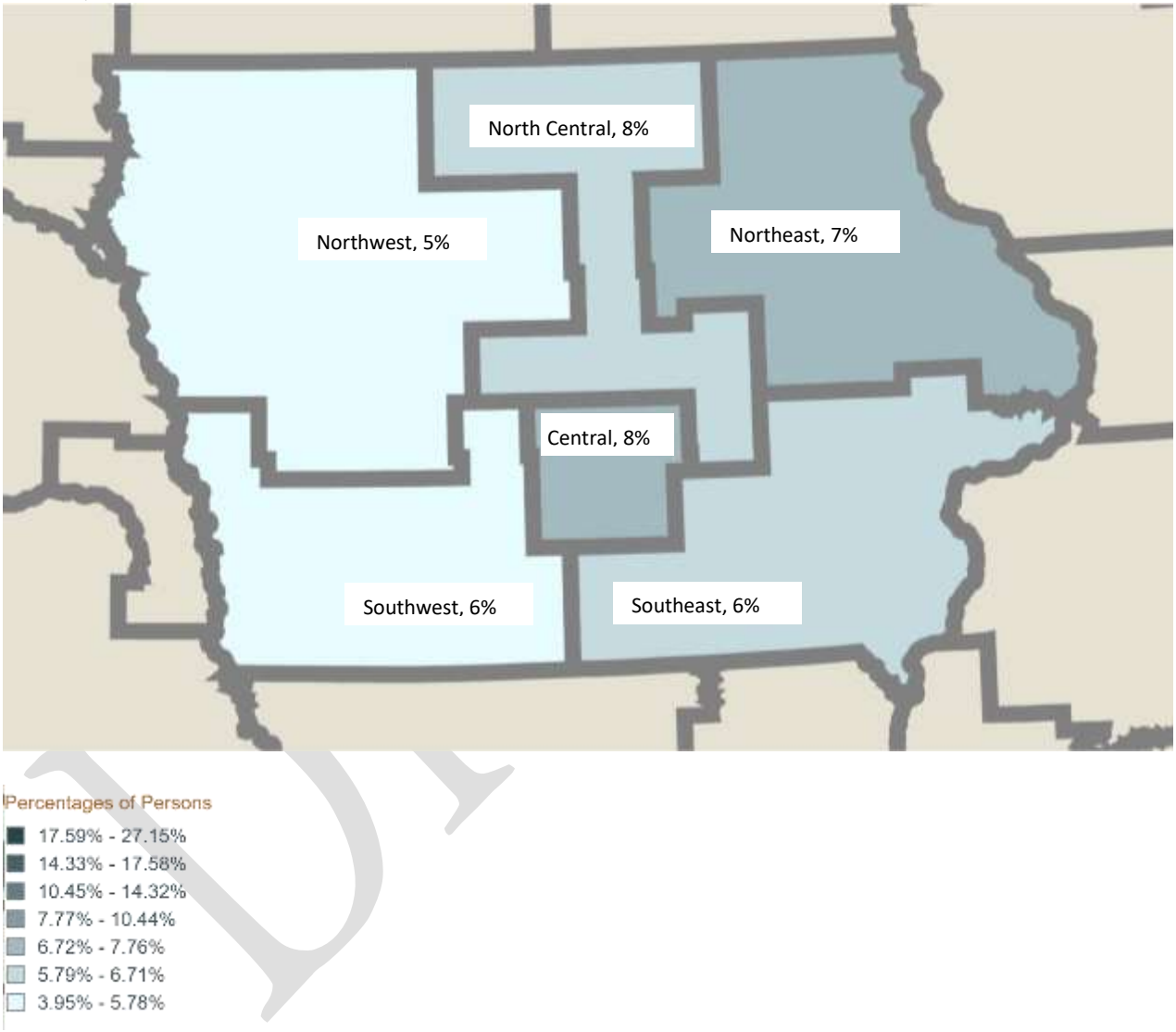
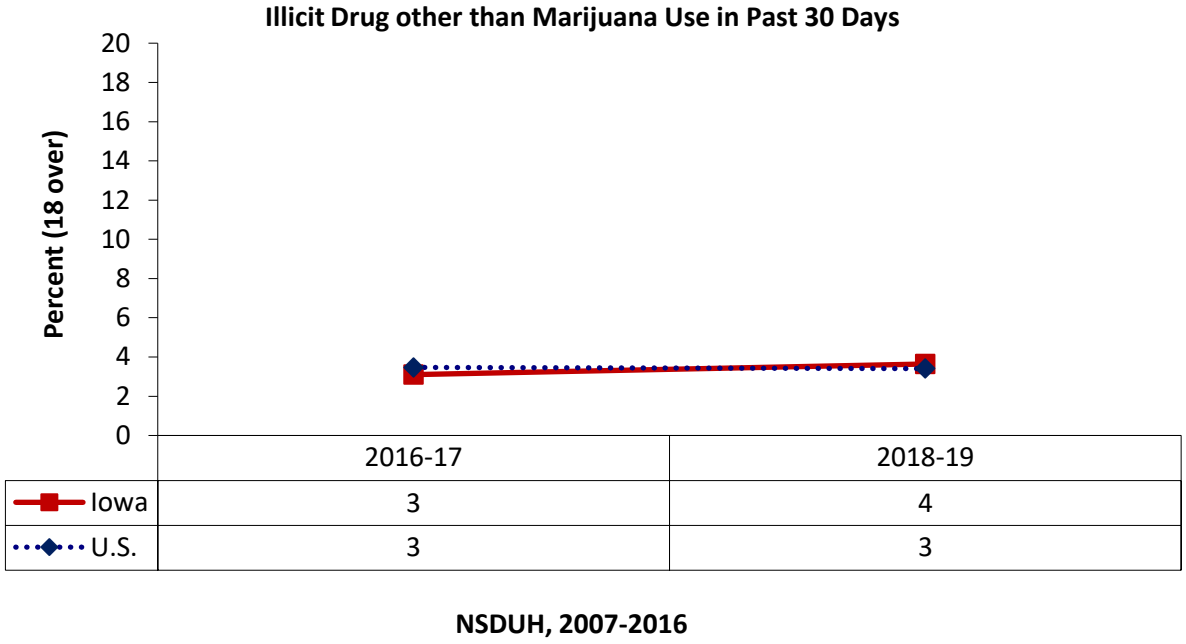


Figure 72 illustrates illicit drug use other than marijuana in the past 30 days among adults aged 18 or older. Illicit drug use other than marijuana in the past 30 days has remained relatively stable. In 2018-2019, 4 percent of Iowa adults aged 18 or older reported illicit drug use other than marijuana in the past 30 days compared to 3 percent of adults nationwide.

Figure 72: Past 30 Day Illicit Drug Use Other than Marijuana, Aged 18 or Older, Iowa & U.S., NSDUH, 2016-2019



	2016-17	2018-19
Iowa	3	4
U.S.	3	3

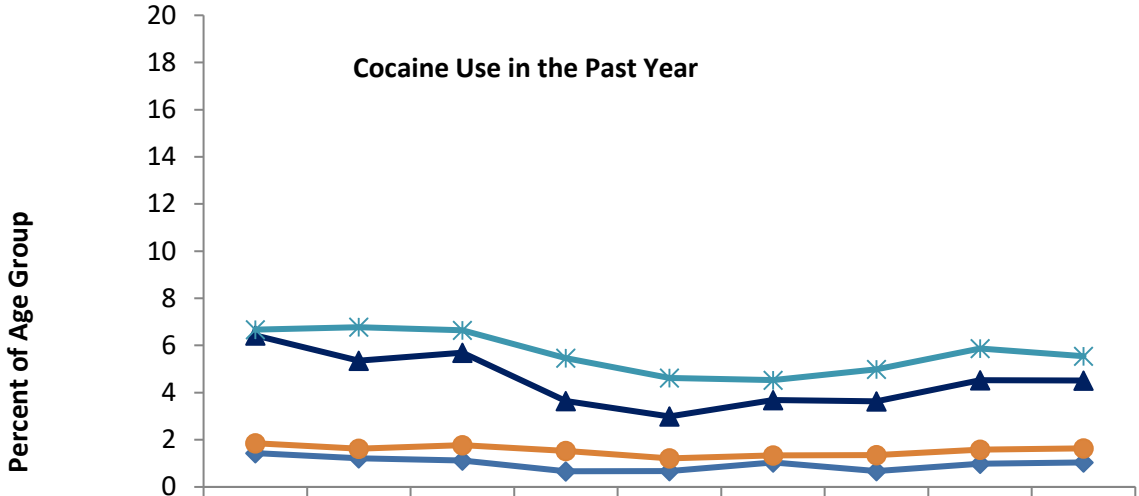
NSDUH, 2007-2016

Note: In 2015, changes were made to the NSDUH questionnaire and data collection procedures that do not allow comparisons to years prior.

Adults Cocaine Use in the Past Year

Figure 73 illustrates cocaine use in the past year by age group. The percentage of adults who reported cocaine use in the past year was higher among adults aged 18 to 25 compared to 26 or older both in Iowa and nationwide. In 2018-2019, 5 percent of Iowans aged 18-25 and 1 percent of Iowans aged 26 or older reported cocaine use in the past year compared to 6 percent and 2 percent of adults nationwide, respectively.

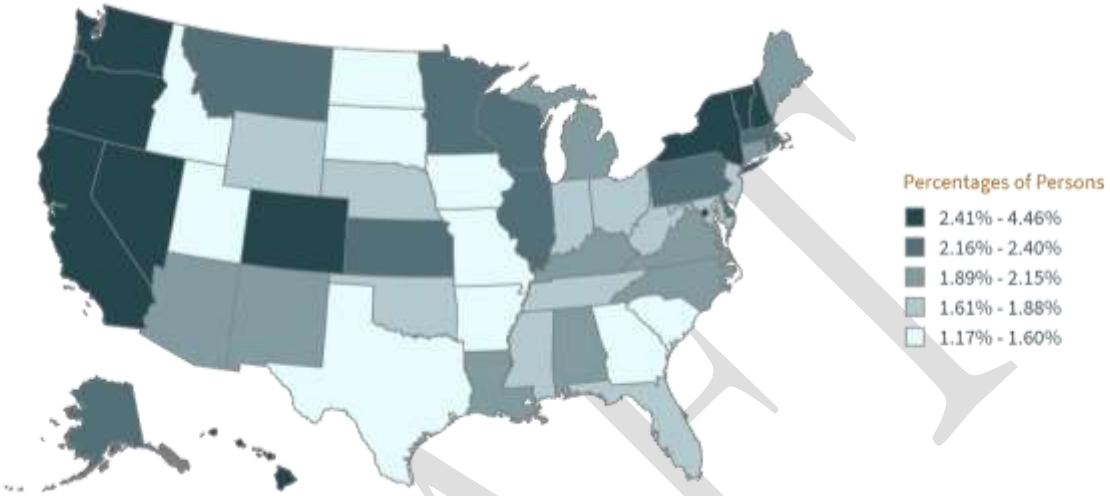
Figure 73: Cocaine Use in the Past Year among Adults, Iowa and the U.S., by Age Group, NSDUH, 2002-2019



	2002-03	2004-05	2006-07	2008-09	2010-11	2012-13	2014-15	2016-17	2018-19
Iowa - 18-25	6	5	6	4	3	4	4	5	5
Iowa - 26 or Older	1	1	1	1	1	1	1	1	1
US - 18-25	7	7	7	5	5	5	5	6	6
US - 26 or Older	2	2	2	2	1	1	1	2	2

Figure 74 illustrates cocaine use in the past year among adults aged 18 or older. The legend shows the distribution of adults reporting cocaine in the past year in the US. States are grouped into quintiles based on the frequency of percentages. Iowa (1.54 percent) was among the states in the lowest quintile (1.17 to 1.60 percent).

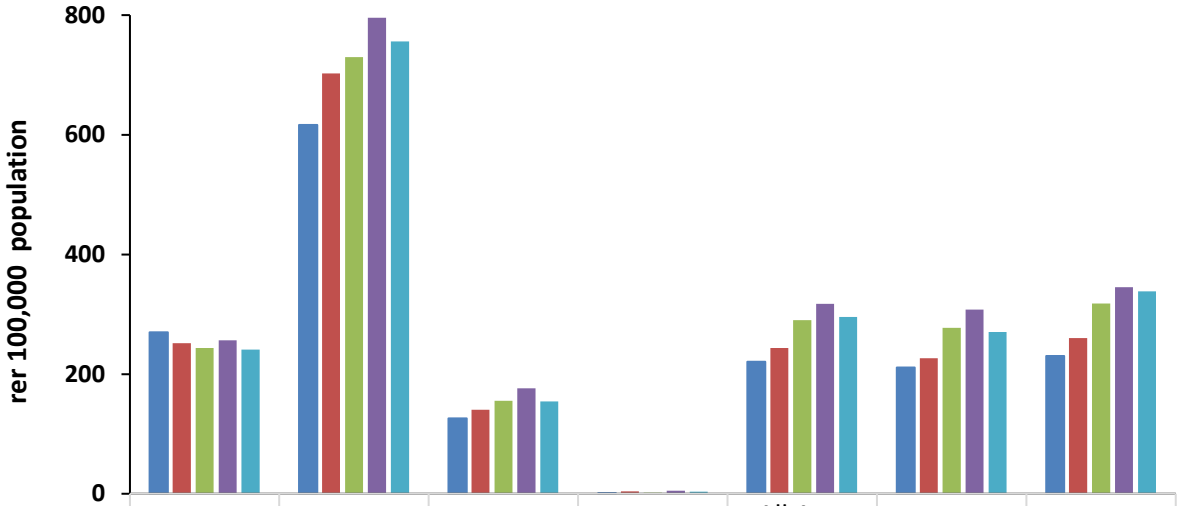
Figure 74: Cocaine Use in the Past Year among Adults Aged 18 or Older, by State NSDUH, 2018-2019



Methamphetamine Treatment

The rate of methamphetamine-related treatment admissions in Iowa has nearly doubled since 2012. In 2020, more than 7,800 Iowans were admitted for methamphetamine use disorder treatment. The methamphetamine-related treatment admission rate increased from 221 per 100,000 population in 2016 to 295 per 100,000 population in 2020 (Figure 75). Iowans aged 25 to 44 had the highest rates of methamphetamine-related treatment admissions compared to other age groups. Rates were higher for males than females. Among males, the rate increased from 230 per 100,000 population in 2016 to 338 in 2020. Among females, the rate increased from 211 per 100,000 population in 2016 to 270 in 2020.

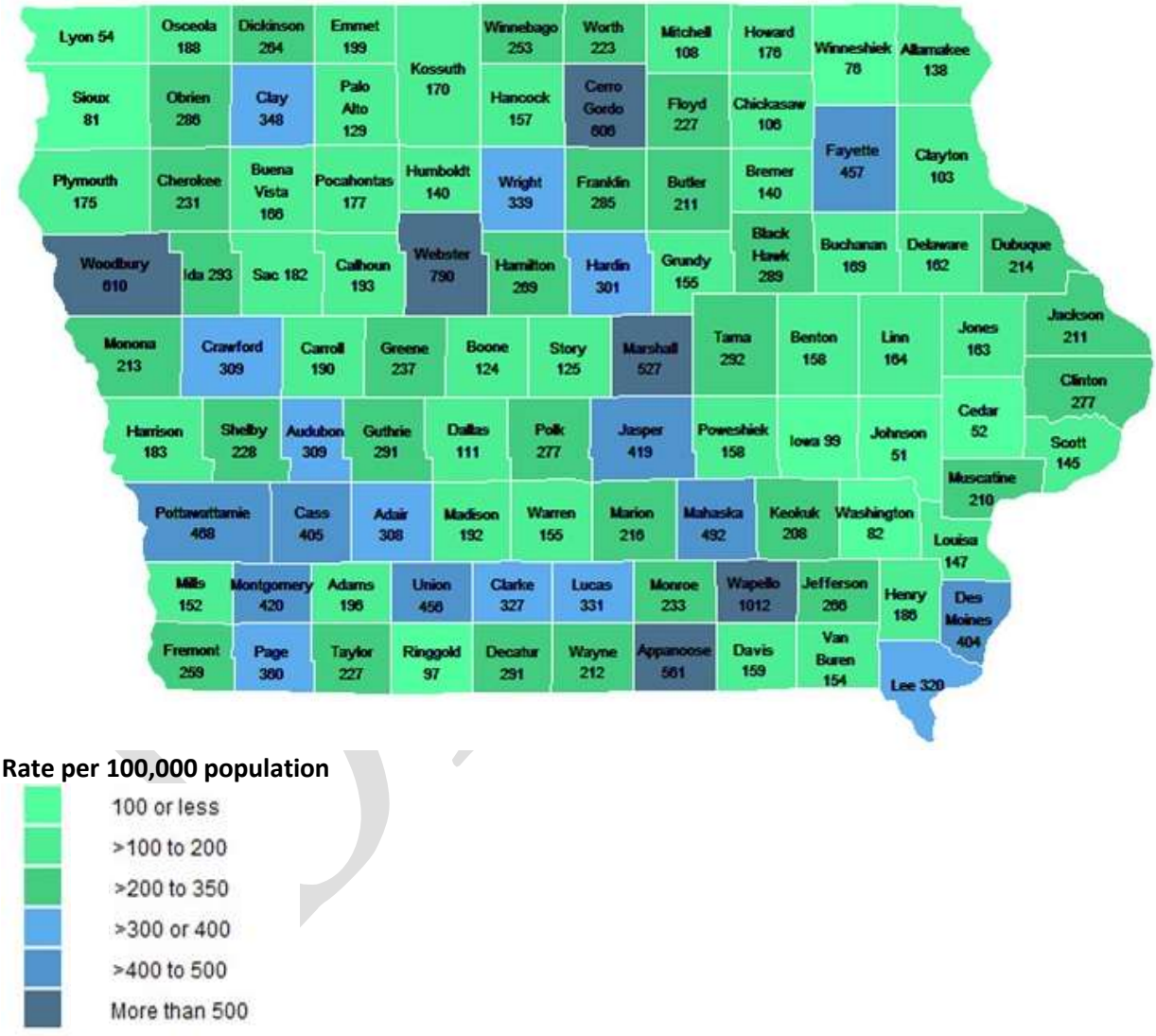
Figure 75: Methamphetamine Treatment Admissions Rate by Age and Sex, IDPH, 2016-2020



	15-24	25-44	45-64	65+	All Age Groups	Female	Male
2016	270	616	126	1	221	211	230
2017	252	703	141	4	244	227	260
2018	244	730	155	2	290	277	318
2019	256	796	176	5	317	308	345
2020	241	756	154	4	295	270	338

Figure 76 displays the average annual rates for methamphetamine-related treatment admission (primary mentions) by county. The county rates are based on the patient's county of residence and unique treatment admissions. The county rates varied greatly from 51 admissions per 100,000 population in Johnson County to 1,011 in Wapello County. The five counties with the lowest rates included: Johnson (51 admissions per 100,000 population), Cedar (52), Lyon (54), Winneshiek (76), and Sioux (81). The five counties with the highest rates of methamphetamine-related treatment admissions included: Wapello (1,011 per 100,000 population), Webster (790), Woodbury (610), Cerro Gordo (606), and Appanoose (561).

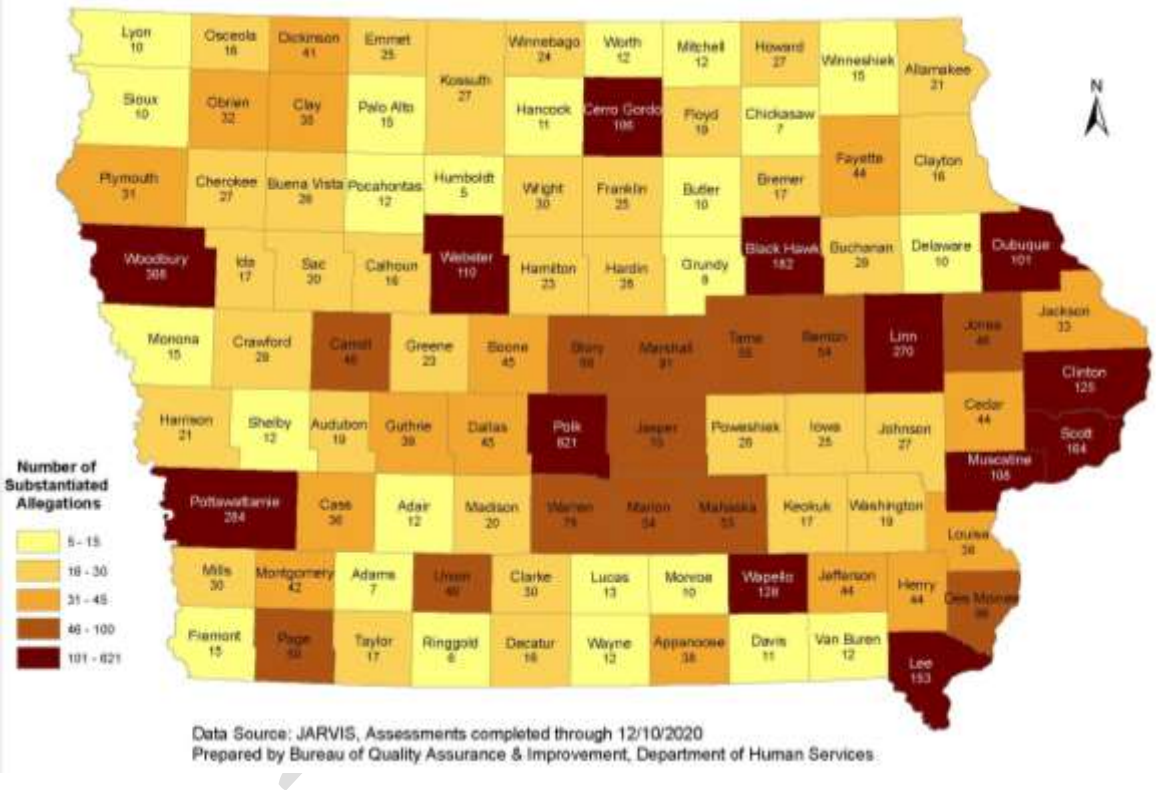
Figure 76: Average Annual Rate of Methamphetamine Treatment Admissions, IDPH, 2016-2020



Methamphetamine-Related Substantiated Allegation of Abuse

Figure 77 maps the number of methamphetamine-related substantiated allegations of abuse in Iowa. The Iowa Department of Human Services (DHS; 2020) defines substantiated allegation as "…abuse based on a preponderance of credible evidence available to DHS, the allegation of abuse is confirmed and it is the type of abuse that requires placement on the Child Abuse Registry." The color legend below the map illustrates the frequency distribution of methamphetamine-related substantiated allegation of abuse. The data is based on the county of residence. The 2016-2020 Department of Human Services (DHS) data showed that 24 Iowa counties were in the lowest group (5 to 15) and 13 were in the highest group (101 to 621). The number of substantiated allegations of methamphetamine abuse for counties varied greatly from five in Humboldt to 621 in Polk County. The five counties with the highest number of substantiated allegation of methamphetamine abuse included: Polk (621), Woodbury (368), Pottawattamie (284), Linn (270), and Scott (164).

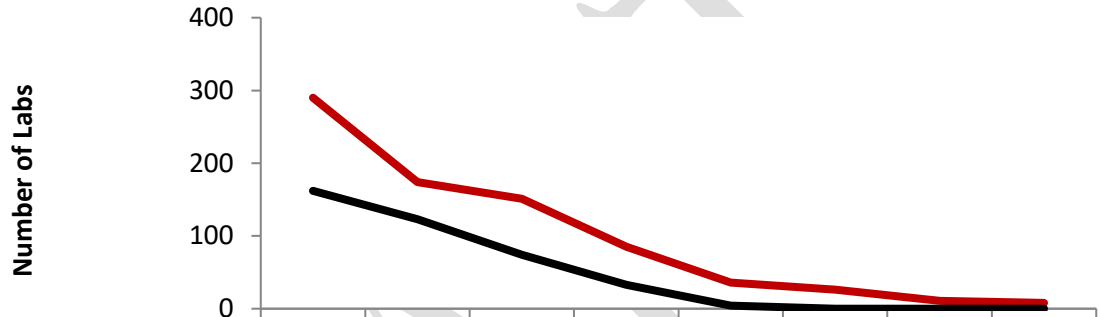
Figure 77: Number of Methamphetamine-related Substantiated Allegations of Child Abuse, DHS, 2016-2020



Methamphetamine Production

The number of methamphetamine labs seized by Iowa local or state law enforcement decreased from 290 in 2013 to 8 in 2020 (Figure 78). Between 2013 and 2017, methamphetamine production in the presence of a minor decreased from 162 cases to 4 cases. Clandestine methamphetamine lab seizures are reported by local or state law enforcement agencies to the Iowa Department of Public Safety.

Figure 78: Number of Methamphetamine Labs Seized by Iowa Law Enforcement Agencies and Number of Methamphetamine Production Cases in the Presence of a Minor , IDPS & IDHS, 2013-2020

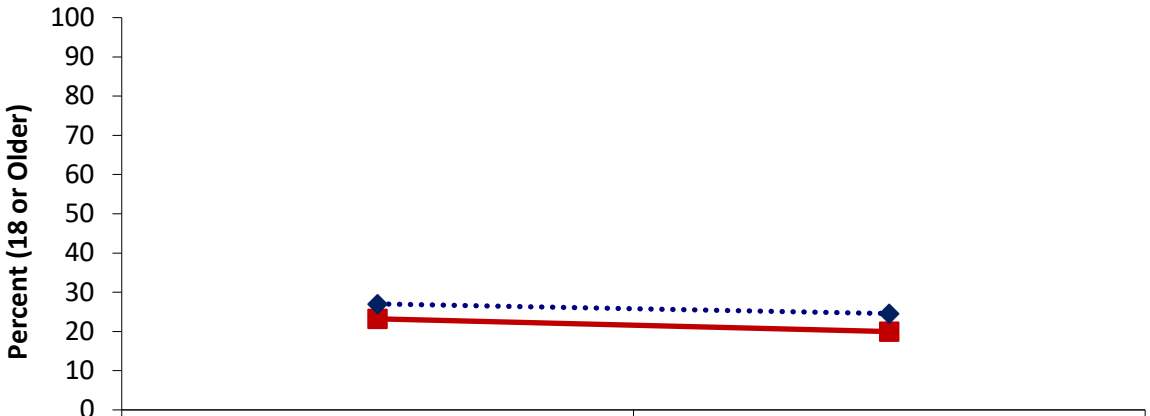


	2013	2014	2015	2016	2017	2018	2019	2020
Meth Labs Seized	290	174	151	85	36	26	11	8
Meth Production Near Minor	162	123	74	33	4	0	0	0

Adult Risk Perception of Marijuana and Illicit Drug Use

Figure 79 illustrates the percentage of adults reporting perception of great risk from smoking marijuana once a month. In 2018-2019, 20 percent of Iowa adults reported perceptions of great risk from smoking marijuana once a month compared to 25 percent of adults nationwide.

Figure 79: Adult Perception of Great Risk from Smoking Marijuana Once a Month, Aged 18 or Older, NSDUH, 2016-2019

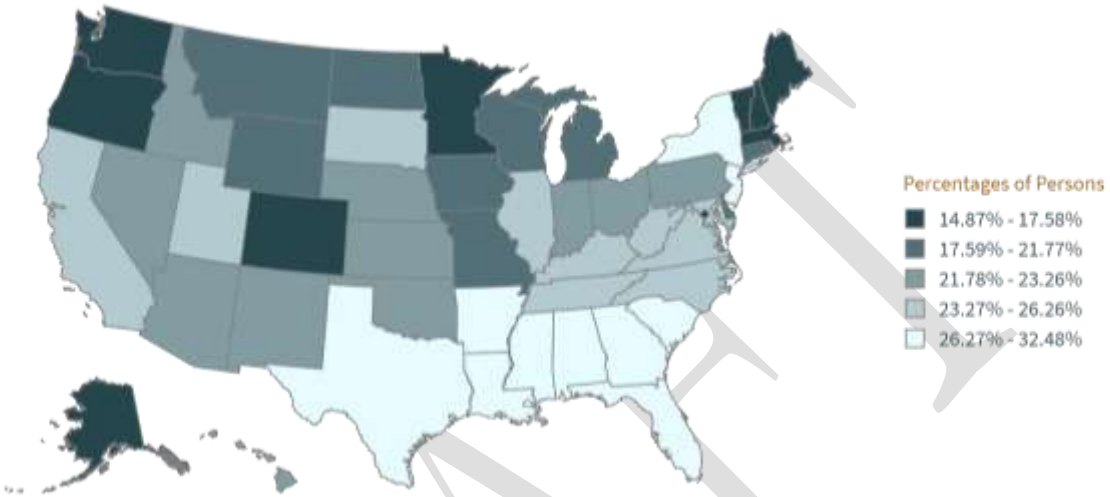


	2016-17	2018-19
Iowa	23	20
U.S.	27	25

Note: In 2015, changes were made to the NSDUH questionnaire and data collection procedures that do not allow comparisons to years prior.

Figure 80 illustrates the percentage of adults aged 18 or older reporting perceptions of great risk from smoking marijuana once a month by state. The color legend illustrates the ranges of states grouped into quintiles based on the distribution of their percentages. Iowa (19.97 percent) was among the states in the second-highest group (17.59 to 21.77 percent).

Figure 80: Perceptions of Great Risk from Smoking Marijuana Once a Month among Adults Aged 18 or Older, by State, NSDUH, 2018-2019



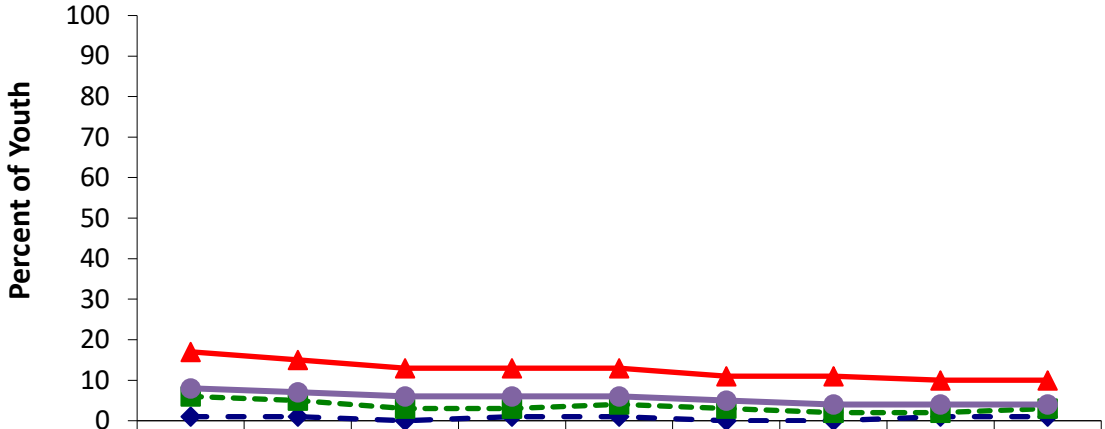
Youth Consumption Patterns

Youth Marijuana Use

Figure 81 illustrates the percentage of youth reporting marijuana use in the past 30 days by grade. The IYS asked youth: *In the past 30 days, have you used marijuana (pot, grass, hash, weed)?*

Although Iowa youth continue to use marijuana, use has declined among students in grade 8 and 11. In 2018, marijuana use in the past 30 days was 10 percent among youth in grade 11, 3 percent among youth in grade 8, and 1 percent among youth in grade 6.

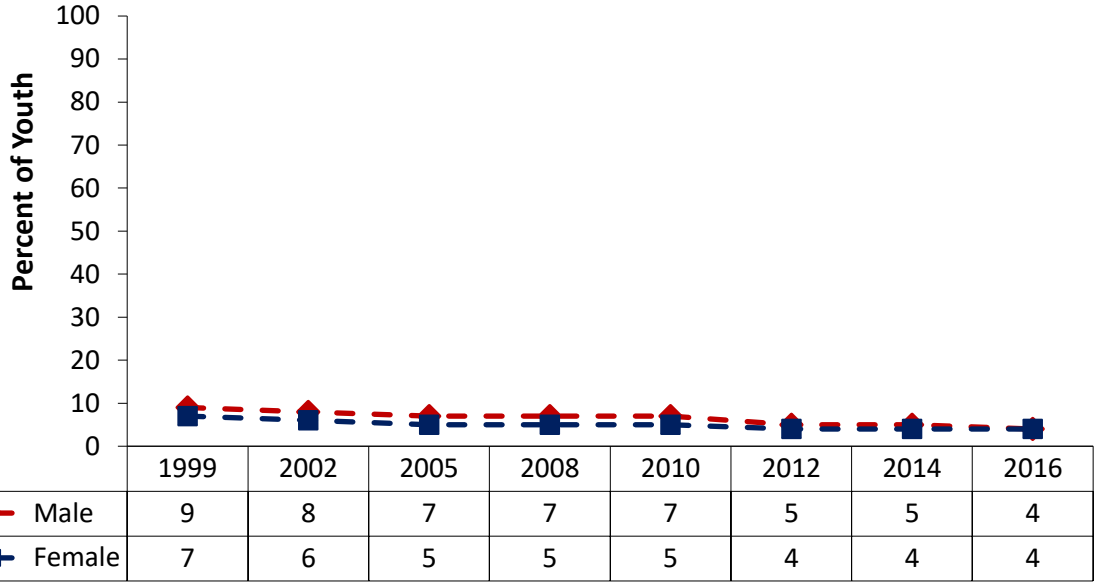
Figure 81: Past 30 Day Marijuana Use among Youth by Grade, IYS, 1999-2018



	1999	2002	2005	2008	2010	2012	2014	2016	2018
Grade 6	1	1	0	1	1	0	0	1	1
Grade 8	6	5	3	3	4	3	2	2	3
Grade 11	17	15	13	13	13	11	11	10	10
All Grades	8	7	6	6	6	5	4	4	4

Figure 82 illustrates the percentage of youth reporting marijuana use in the past 30 days by sex. The 2018 IYS data demonstrated similar rates of marijuana use among males and females in the past 30 days. In 2018, the rate of marijuana use among both males and females was 4 percent.

Figure 82: Past 30 Day Marijuana Use among Youth by Sex, IYS, 1999-2018



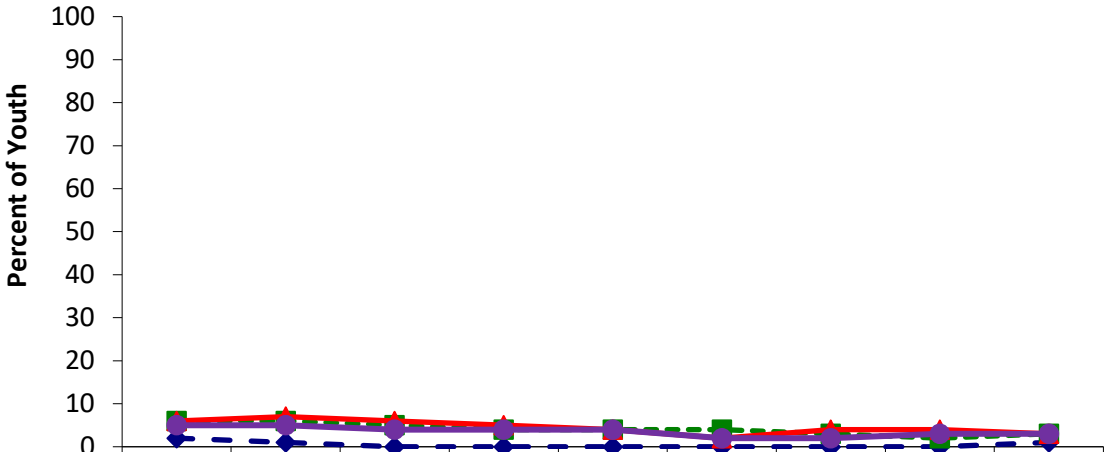
	1999	2002	2005	2008	2010	2012	2014	2016
Male	9	8	7	7	7	5	5	4
Female	7	6	5	5	5	4	4	4

Age First Smoked Marijuana

Figure 83 illustrates the percentage of youth reporting first marijuana use before age 13 or 14 by grade level. Youth were asked: *"How old were you when you first tried marijuana (pot, grass, hash, weed)?"* Response options were "Never", "8 or younger", "9 or 10", "11 or 12", "13 or 14", "15 or 16", or "17 or older." Percentages presented in Figure 83 and Figure 84 reflect responses of "8 or younger", "9 or 10", and "11 or 12" combined.

In 2018, 3 percent of youth in grades 8 and grade 11 reported marijuana first use before the age of 13 or 14 (Figure 83).

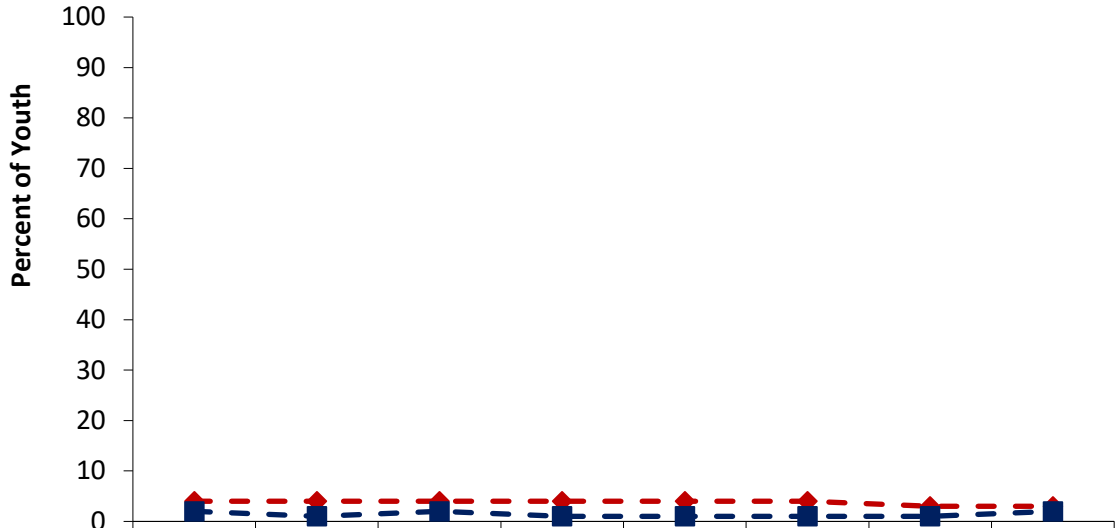
Figure 83: Marijuana Use before Age 13 by Grade, IYS, 1999-2018



	1999	2002	2005	2008	2010	2012	2014	2016	2018
Grade 6	2	1	0	0	0	0	0	0	1
Grade 8	6	6	5	4	4	4	3	2	3
Grade 11	6	7	6	5	4	2	4	4	3
All Grades	5	5	4	4	4	2	2	3	3

Figure 84 illustrates the percentage of youth reporting marijuana use before age 13 by age. In 2018, 3 percent of males and 2 percent of females reported marijuana use before the age of 13. Although males have a higher rate, marijuana use before the age of 13 has declined for both males and females since 1999.

Figure 84: Marijuana Use before Age 13 by Sex, IYS, 1999-2018



	2002	2005	2008	2010	2012	2014	2016	2018
Male	4	4	4	4	4	4	3	3
Female	2	1	2	1	1	1	1	2

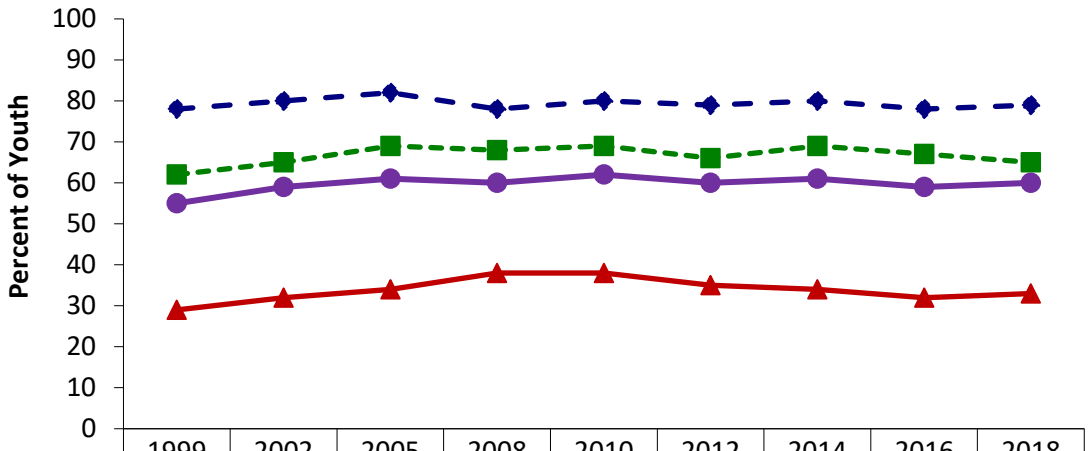
Youth Perceptions of Access to Marijuana

Figure 85 illustrates youth perceptions of access to marijuana in their neighborhood or community by grade level. The IYS question asked was: "*In your neighborhood or community, how difficult do you think it would be for a kid your age to get marijuana (pot, weed, hash)?*" Response options were "Very hard", "Hard", "Easy", "Very easy", or "Don't know." Proportions in Figure 85 and Figure 86 reflect the percentage of students responding "Very hard" or "Hard" combined.

In 2018, 33 percent of youth in grade 11, 65 percent of youth in grade 8, and 79 percent of youth in grade 6 reported accessing marijuana as *Very Hard-Hard* (Figure 85).

In the same time period, 65 percent of youth in grade 8 reported accessing marijuana as *Very Hard-Hard*.

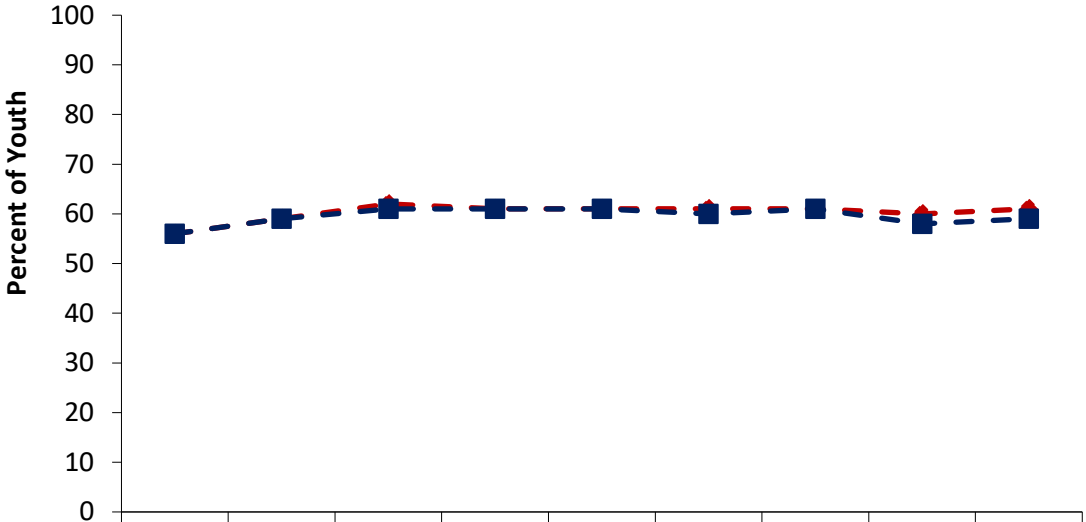
Figure 85: Percent of Youth Reporting *Very Hard-Hard* Access to Marijuana by Grade, IYS, 1999-2018



	1999	2002	2005	2008	2010	2012	2014	2016	2018
Grade 6	78	80	82	78	80	79	80	78	79
Grade 8	62	65	69	68	69	66	69	67	65
Grade 11	29	32	34	38	38	35	34	32	33
All Grade	55	59	61	60	62	60	61	59	60

Figure 86 illustrates youth perceptions of access to marijuana in their neighborhood or community by sex. In 2018, 61 percent of males reported marijuana availability was *Very Hard-Hard* compared to 59 percent of females.

Figure 86: Percent of Youth Reporting *Very Hard-Hard* Access to Marijuana by Sex, IYS, 1999-2018



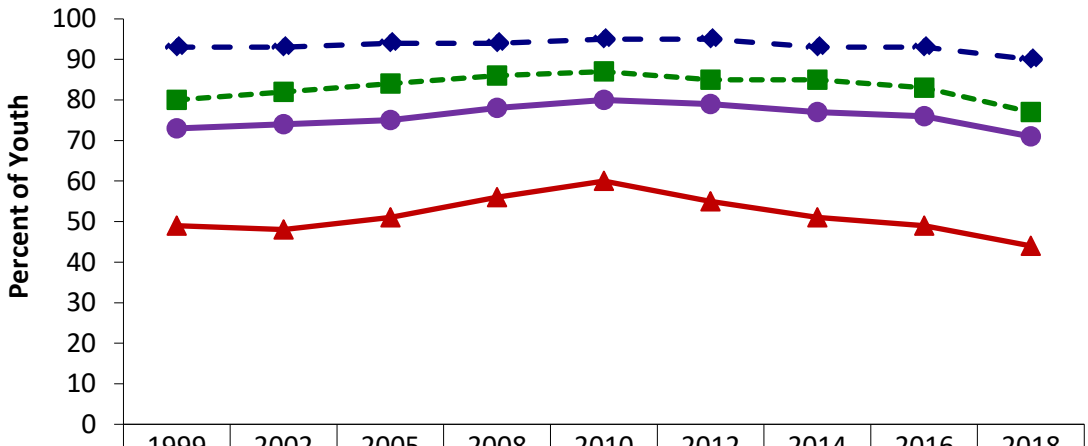
	1999	2002	2005	2008	2010	2012	2014	2016	2018
Male	56	59	62	61	61	61	61	60	61
Female	56	59	61	61	61	60	61	58	59

Perceived Norms of Youth Marijuana Use

Figure 87 illustrates the percentage of youth reporting perceived norms regarding marijuana use by grade. Youth perception of peer norms regarding marijuana use was asked with the following question: "*How wrong would most of the students in your school (not just your best friends) feel it would be for you to smoke marijuana?*" Response options were "Very wrong," "Wrong," "A little wrong," "Not wrong at all," and "Don't know." Proportions in Figure 87 and Figure 88 reflect "Very wrong" and "Wrong" responses combined.

In 2018, 44 percent of youth in grade 11, 77 percent of youth in grade 8, and 90 percent of youth in grade 6 indicated peers would regard marijuana use as *Very wrong-Wrong* (Figure 87). Perceived norms of peers regarding marijuana use as *Very wrong-Wrong* decreased from a high of 60 percent of youth with this view in grade 11 in 2010 to 44 percent in 2018.

Figure 87: Peer Marijuana Normative Beliefs by Grade, IYS, 2002-2018

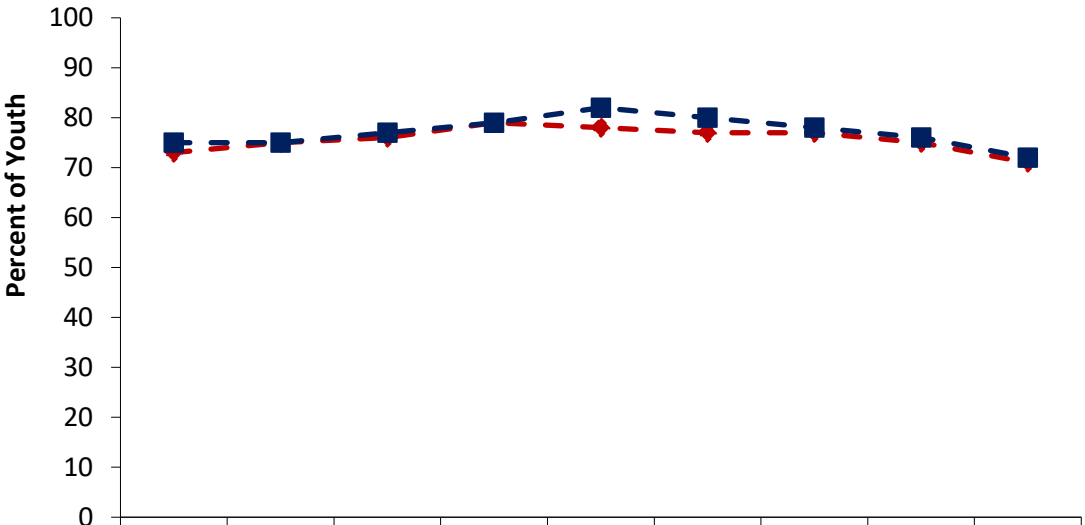


	1999	2002	2005	2008	2010	2012	2014	2016	2018
Grade 6	93	93	94	94	95	95	93	93	90
Grade 8	80	82	84	86	87	85	85	83	77
Grade 11	49	48	51	56	60	55	51	49	44
All Grade	73	74	75	78	80	79	77	76	71

Figure 88 illustrates the percentage of youth reporting perceived norms of marijuana use by sex.

In 2018, 71 percent of males and 72 percent of females believed peers would regard marijuana use as *Very Wrong-Wrong*. Across most years, a higher proportion of females reported peer disapproval of marijuana use compared to males.

Figure 88: Peer Marijuana Normative Beliefs by Sex, IYS, 1999-2018



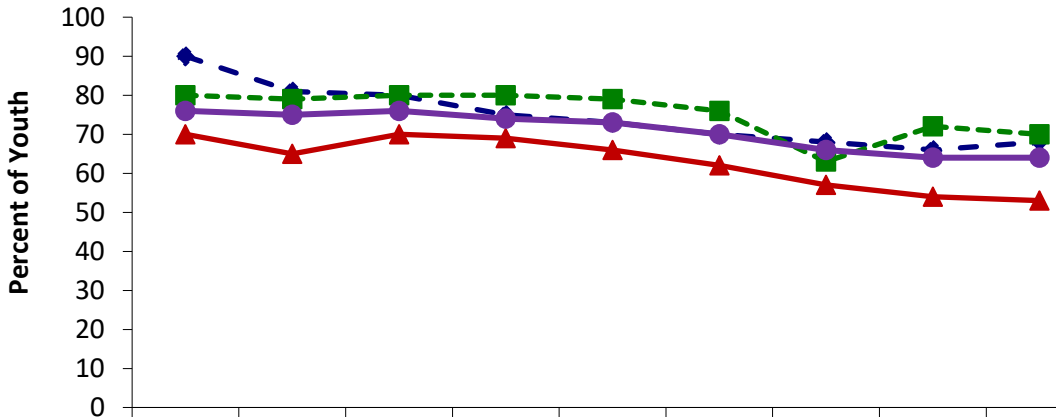
	1999	2002	2005	2008	2010	2012	2014	2016	2018
Male	73	75	76	79	78	77	77	75	71
Female	75	75	77	79	82	80	78	76	72

Youth Risk Perceptions of Marijuana Use

Figure 89 illustrates the percentage of youth reporting perceived risk of self-harm of marijuana use by grade. Perception of risk was assessed with the following question: "*How much do you think you risk harming yourself if you smoke marijuana once a week?*" Response options were "Great risk", "Moderate risk", "Slight risk", "No risk", or "Don't know." Percentages presented in Figure 89 and Figure 90 reflect responses of "Great risk" and "Moderate risk" combined.

In 2018, 53 percent of youth in grade 11, 70 percent of youth in grade 8, and 68 percent of youth in grade 6 reported *Great-Moderate Risk* of self-harm from marijuana use (Figure 89). Among youth in grade 11, perceived risk of marijuana use decreased from a high of 70 percent in 2005 to 53 percent in 2018.

Figure 89: Perceived Risk of Self-Harm of Marijuana Use by Grade, IYS, 1999-2018

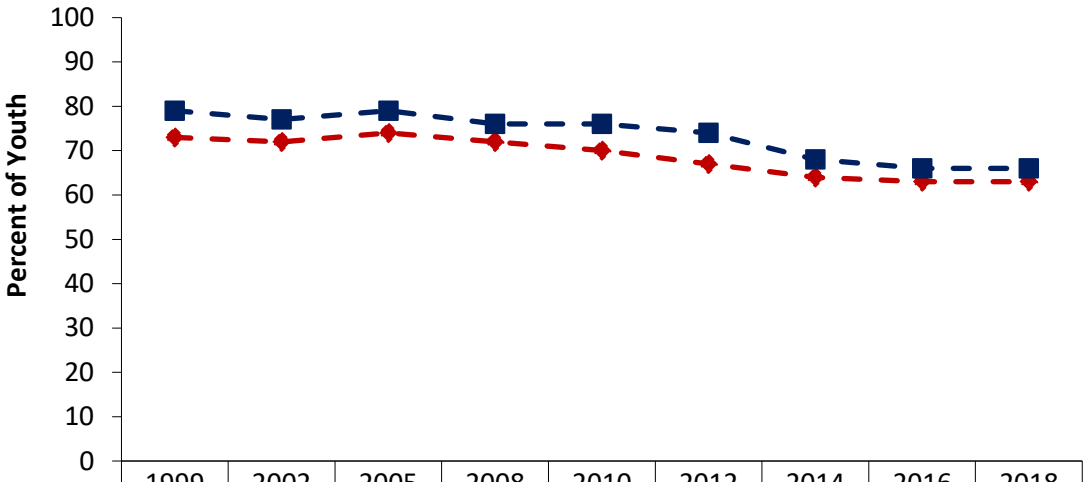


	1999	2002	2005	2008	2010	2012	2014	2016	2018
Grade 6	90	81	80	75	73	70	68	66	68
Grade 8	80	79	80	80	79	76	63	72	70
Grade 11	70	65	70	69	66	62	57	54	53
All Grades	76	75	76	74	73	70	66	64	64

Figure 90 illustrates the percentage of youth reporting perceived risk of self-harm of marijuana use by sex.

In 2018, 63 percent of males and 66 percent of females reported *Great-Moderate Risk* of self-harm from marijuana use. Across all years, a higher proportion of females reported *Great-Moderate Risk* from marijuana use compared to their male counterparts.

Figure 90: Perceived Risk of Self-Harm of Marijuana Use by Sex, IYS, 1999-2018

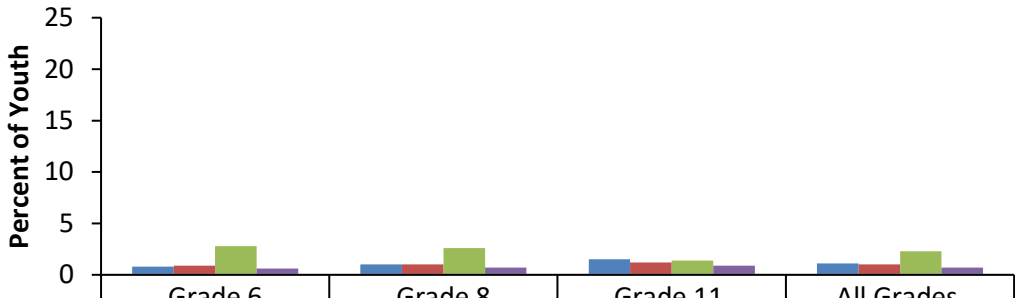


	1999	2002	2005	2008	2010	2012	2014	2016	2018
Male	73	72	74	72	70	67	64	63	63
Female	79	77	79	76	76	74	68	66	66

Youth Illicit Drug Use

Figure 91 illustrates the percentage of youth reporting illicit drug use in the past 30 days by grade. In 2018, 3 percent of youth in grade 6 and 8 reported inhalant use in the past 30 days compared to 1 percent of youth in grade 11. Less than one percent of youth in grade 6 reported methamphetamine use in the past 30 days compared to nearly 1 percent for students in grade 11. About 1 percent of youth in grades 6, 8, and 11 reported amphetamine use in the past 30 days. Overall, illicit drug use in the past 30 days was less than or equal to 2 percent for all three grade levels.

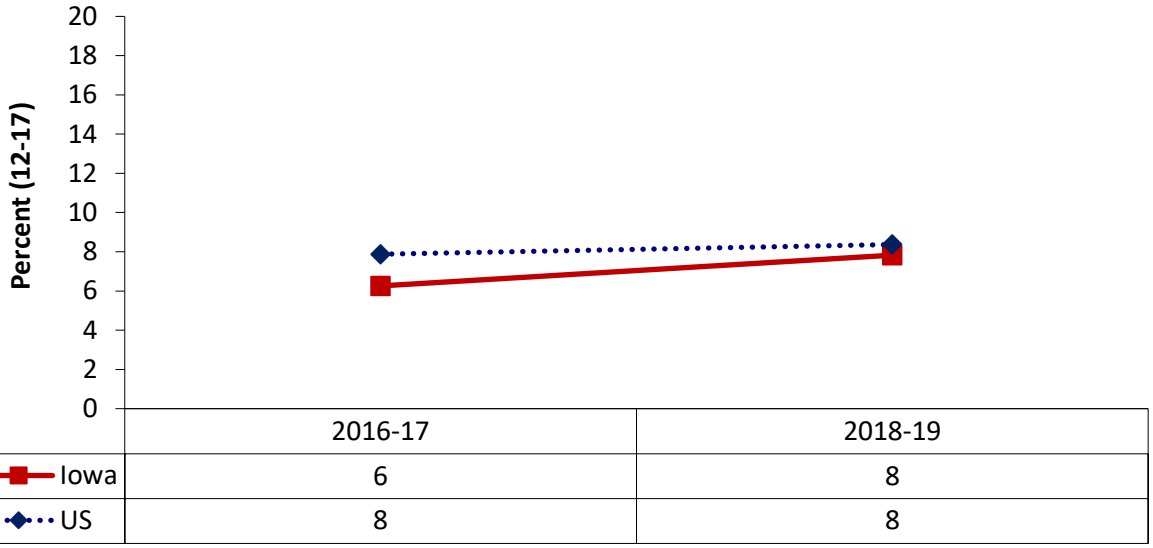
Figure 91: Past 30 day Illicit Drug Use among Youth by Grade and Drug Type, IYS, 2018



	Grade 6	Grade 8	Grade 11	All Grades
Amphetamine	0.8	1.0	1.5	1.1
Cocaine	0.9	1.0	1.2	1.0
Inhalant	2.8	2.6	1.4	2.3
Methamphetamine	0.6	0.7	0.9	0.7

Figure 92 illustrates the percentage of youth aged 12 to 17 reporting any illicit drug use in the past 30 days. The overall national and state rates of illicit drug use in the past 30 days did not differ significantly. In 2018-2019, 8 percent of Iowa youth aged 12 to 17 years reported any illicit drug use in the past 30 days compared to 8 percent nationally.

Figure 92: Past 30 day Any Illicit Drug Use among Youth, Aged 12 to 17, NSDUH, 2016-2019



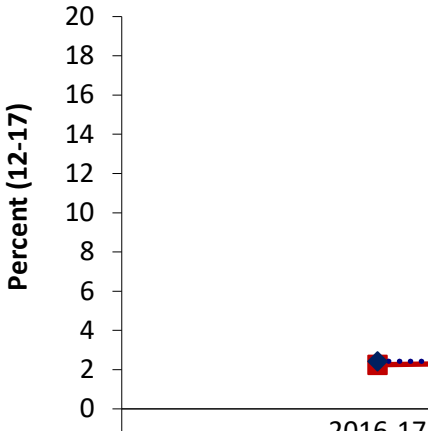
	2016-17	2018-19
Iowa	6	8
US	8	8

NSDUH, 2007-2016

Note: In 2015, changes were made to the NSDUH questionnaire and data collection procedures that do not allow comparisons between 2015 and years prior.

Figure 93 illustrates the percentage of youth aged 12 to 17 reporting any illicit drug use other than marijuana in the past 30 days. In 2018-2019, 3 percent of youth aged 12-17 years in Iowa compared to 2 percent nationwide reported illicit drug use other than marijuana in the past 30 days.

Figure 93: Past 30 Day Illicit Drug Use Other than Marijuana, Aged 12 to 17, NSDUH, 2016-2019



	2016-17	2018-19
Iowa	2	3
US	2	2

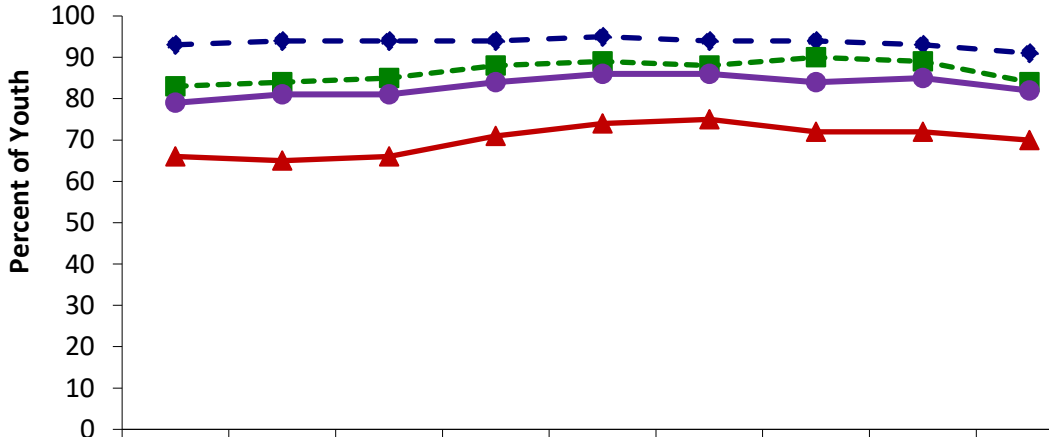
Note: In 2015, changes were made to the NSDUH questionnaire and data collection procedures that do not allow comparisons between 2015 and years prior.

Perceived Norms of Youth Illicit Drug Use

Figure 94 illustrates peer normative beliefs regarding illicit drug use by grade. Youth perception of peer norm beliefs regarding illicit drug use was evaluated in the IYS in all three grades (6, 8, and 11) with the following question: *"How wrong would most of the students in your school (not just your best friends) feel it would be for you to use any illegal drug other than alcohol, cigarettes, or marijuana?"* Response options were "Very wrong," "Wrong," "A little wrong," "Not wrong at all," and "Don't know." Proportions in Figure 94 and Figure 95 reflect "Very wrong" and "Wrong" responses combined.

In 2018, 82 percent of youth reported peers believed illegal drug use was *Very Wrong-Wrong* (Figure 94). By grade level, 70 percent of youth in grade 11, 84 percent of youth in grade 8, and 91 percent of youth in grade 6 indicated peers would regard illegal drug use as *Very wrong-Wrong*.

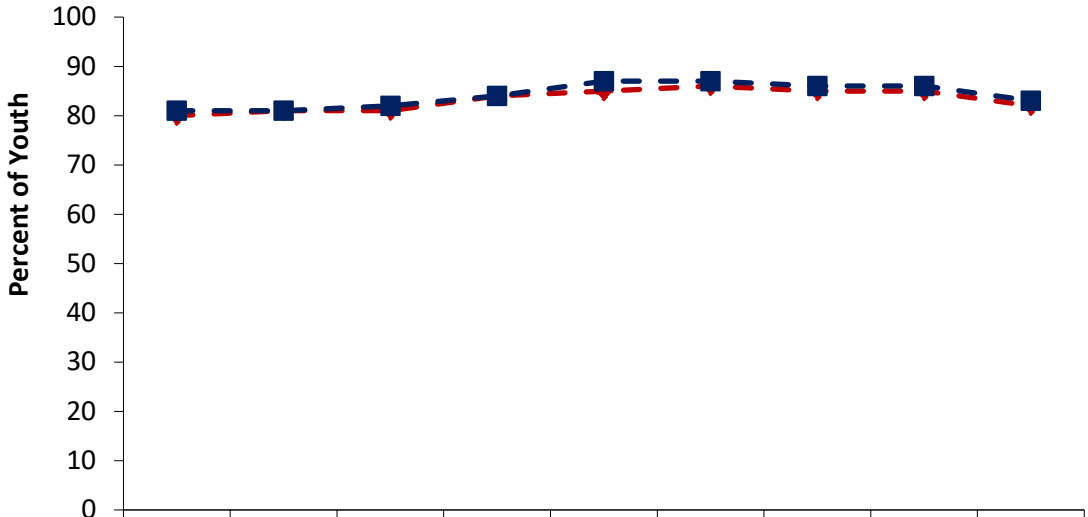
Figure 94: Peer Normative Beliefs Regarding Illicit Drug Use among Youth by Grade, IYS, 1999-2018



	1999	2002	2005	2008	2010	2012	2014	2016	2018
Grade 6	93	94	94	94	95	94	94	93	91
Grade 8	83	84	85	88	89	88	90	89	84
Grade 11	66	65	66	71	74	75	72	72	70
All Grades	79	81	81	84	86	86	84	85	82

Figure 95 illustrates the percentage of youth reporting peer normative beliefs regarding illicit drug use by sex. In 2018, 82 percent of males and 83 percent of females said peers would view illicit drug use as *Very Wrong-Wrong*.

Figure 95: Peer Normative Beliefs Regarding Illicit Drug Use among Youth by Sex, IYS, 1999-2018



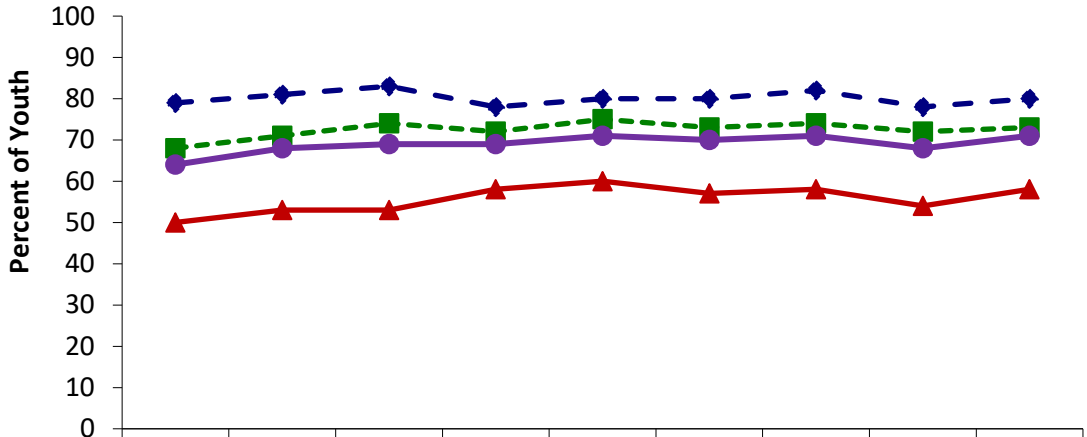
	1999	2002	2005	2008	2010	2012	2014	2016	2018
Male	80	81	81	84	85	86	85	85	82
Female	81	81	82	84	87	87	86	86	83

Youth Perceptions of Access to Illicit Drugs

Figure 96 illustrates youth perceptions of access to illegal drugs in their neighborhood or community by grade level. The IYS question asked: "*In your neighborhood or community, how difficult do you think it would be for a kid your age to get any other illegal drug (cocaine, etc.)*?" Response options were "Very hard", "Hard", "Easy", "Very easy", or "Don't know." Proportions in Figure 96 and Figure 97 reflect the percentage of students responding "Very hard" or "Hard" combined.

In 2018, 58 percent of youth in grade 11, 73 percent of youth in grade 8, and 80 percent of youth in grade 6 reported access to illegal drugs as *Very Hard-Hard* (Figure 96).

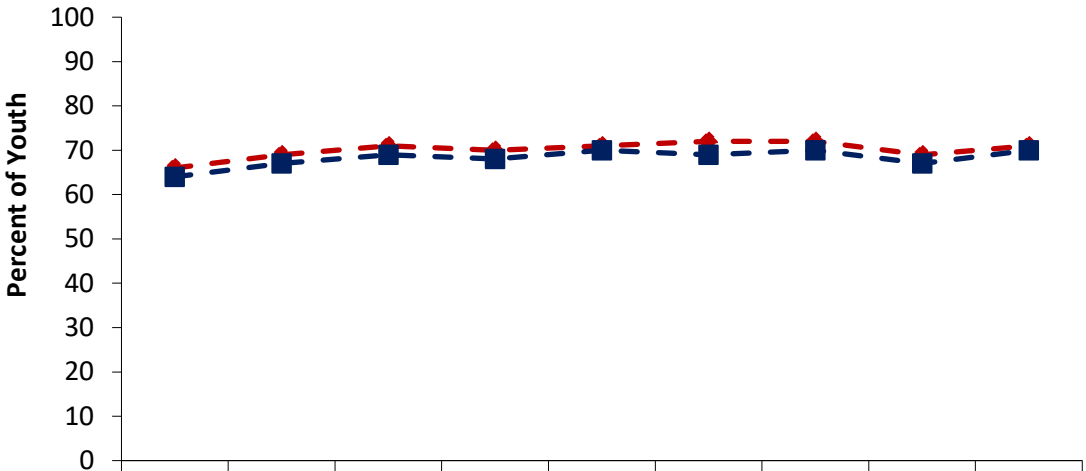
Figure 96: Percent of Youth Reporting *Very Hard-Hard* Access to Other Illegal Drugs by Grade, IYS, 1999-2018



	1999	2002	2005	2008	2010	2012	2014	2016	2018
Grade 6	79	81	83	78	80	80	82	78	80
Grade 8	68	71	74	72	75	73	74	72	73
Grade 11	50	53	53	58	60	57	58	54	58
All Grades	64	68	69	69	71	70	71	68	71

Figure 97 illustrates youth perceptions of access to illegal drugs by sex. In 2018, 71 percent of males and 70 percent of females reported access to illegal drugs in their neighborhood or community as *Very Hard-Hard*.

Figure 97: Percent of Youth Reporting *Very Hard-Hard* Access to Marijuana by Sex, IYS, 1999-2018



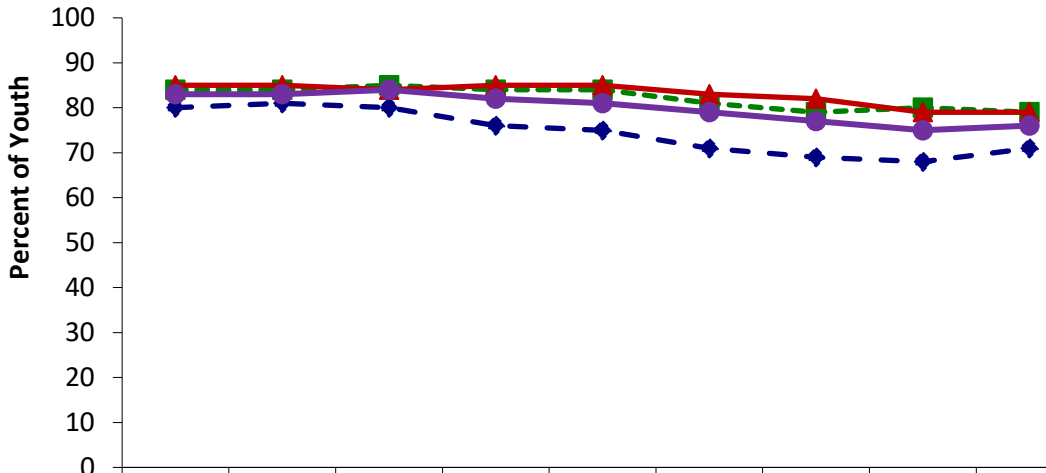
	1999	2002	2005	2008	2010	2012	2014	2016	2018
Male	66	69	71	70	71	72	72	69	71
Female	64	67	69	68	70	69	70	67	70

Youth Risk Perceptions of Illicit Drug Use

Figure 98 illustrates the percentage of youth reporting perceived risk of self-harm of illegal drug use by grade. Perception of risk was assessed with the following question: *"How much do you think you risk harming yourself (physically or otherwise) if you use any other illegal drug once a week?"* Response options were "Great risk", "Moderate risk", "Slight risk", "No risk", or "Don't know." Percentages presented in Figure 98 and Figure 99 reflect responses of "Great risk" and "Moderate risk" combined.

In 2018, 79 percent of youth in grade 11, 79 percent of youth in grade 8, and 71 percent of youth in grade 6 reported *Great-Moderate Risk* of self-harm from other illegal drug use (Figure 98).

Figure 98: Perceived Risk of Self-Harm of Other Illegal Drug Use by Grade, IYS, 1999-2018

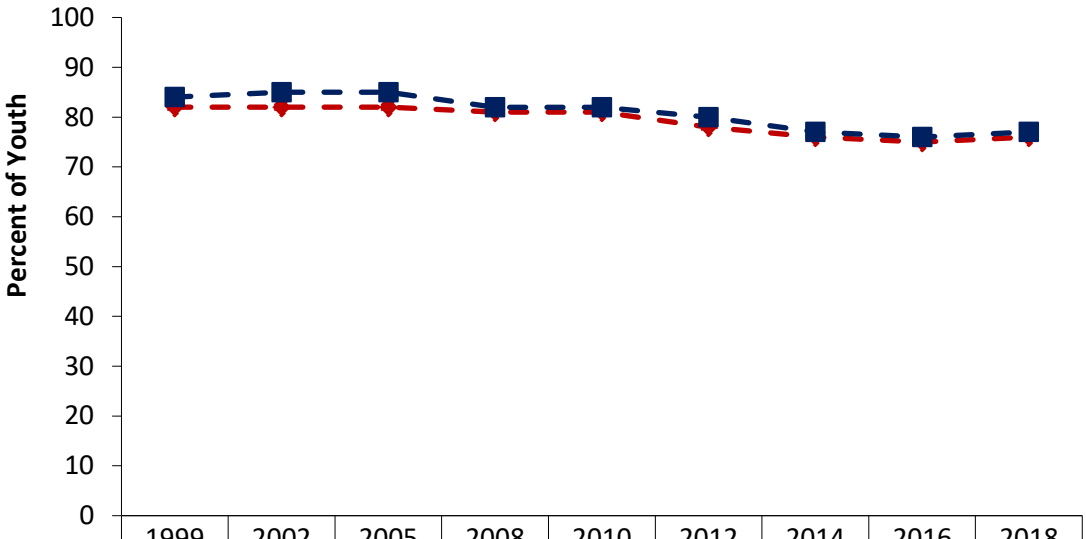


	1999	2002	2005	2008	2010	2012	2014	2016	2018
Grade 6	80	81	80	76	75	71	69	68	71
Grade 8	84	84	85	84	84	81	79	80	79
Grade 11	85	85	84	85	85	83	82	79	79
All Grades	83	83	84	82	81	79	77	75	76

Figure 99 illustrates the percentage of youth reporting perceived risk of self-harm of other illegal drug use by sex.

In 2018, 76 percent of males and 77 percent of females reported *Great-Moderate Risk* of self-harm from other illegal drug use. Across all years, a higher proportion of females reported *Great-Moderate Risk* from other illegal drug use compared to their male counterparts.

Figure 99: Perceived Risk of Self-Harm of Other Illegal Drug Use by Sex, IYS, 1999-2018



	1999	2002	2005	2008	2010	2012	2014	2016	2018
Male	82	82	82	81	81	78	76	75	76
Female	84	85	85	82	82	80	77	76	77

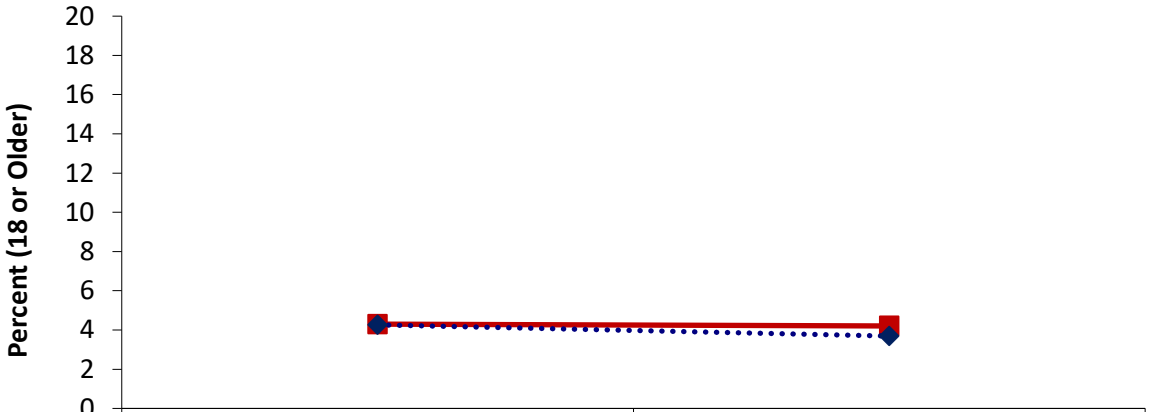
OVER THE COUNTER AND PRESCRIPTION MEDICATIONS

Adult Consumption Patterns

Prescription Medications Misuse

Figure 100 illustrates the percentage of adults aged 18 or older reporting prescription medication misuse in the past year. Misuse of four categories of prescription drugs (i.e., pain relievers, tranquilizers, stimulants, and sedatives) is defined as "…use in any way not directed by a doctor, including use without a prescription of one's own; use in greater amounts, more often, or longer than told to take a drug; or use in any other way not directed by a doctor (NSDUH, 2018)." The overall national and state rates of prescription medication misuse in the past year did not differ significantly, nor were there significant differences in the previous years. In 2018-2019, 4 percent of adults aged 18 years or older in Iowa and nationwide, respectively, reported prescription medication misuse in the past year.

Figure 100: Prescription Medication Misuse in the Past Year, Aged 18 or Older, NSDUH, 2016-2019



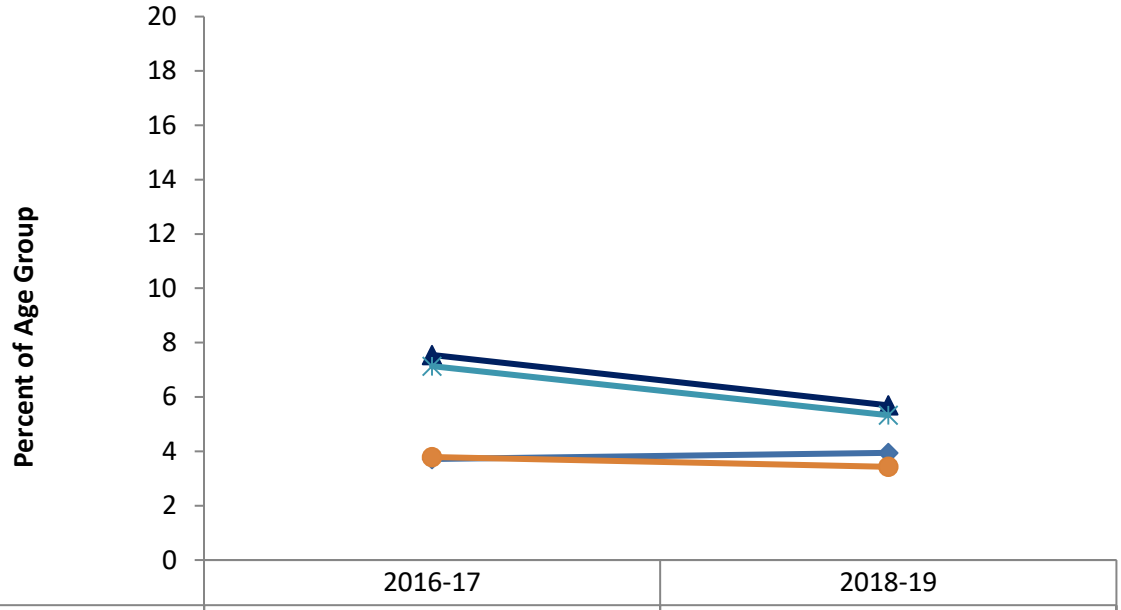
	2016-17	2018-19
Iowa	4	4
US	4	4

Note: In 2015, changes were made to the NSDUH questionnaire and data collection procedures that do not allow comparisons between 2015 and prior years.

Figure 101 illustrates the percentage of adults by age group reporting prescription medication misuse in the past year. Misuse of four categories of prescription drugs (pain relievers, tranquilizers, stimulants, and sedatives) is defined as use in any way not directed by a doctor, including use without a prescription of one's own; use in greater amounts, more often, or longer than told to take a drug; or use in any other way not directed by a doctor.

In 2018-2019, 6 percent of adults aged 18-25 reported prescription medication misuse in the past year compared to 5 percent of adults 18-25 years old nationwide. In the same time period, 4 percent of Iowans aged 26 or older reported prescription medication misuse in the past year compared to 3 percent of adults 26 years or older nationwide.

Figure 101: Prescription Medication Misuse in the Past Year among Adults, by Age Group, NSDUH, 2016-2019



	2016-17	2018-19
Iowa - 18-25	8	6
Iowa - 26 or Older	4	4
US - 18-25	7	5
US - 26 or Older	4	3

Note: In 2015, changes were made to the NSDUH questionnaire and data collection procedures that do not allow comparisons between 2015 and prior years.

Opioid-Related Poisoning

Table 5 illustrates the 2019 counts and crude rates for Emergency Department (ED) visits, hospitalizations and mortality for opioid-related poisoning by age and sex. The ED visits and hospitalization data come from the Inpatient and Outpatient data, and mortality data come from the Iowa Vital Records. In 2019, the number of opioid-related poisoning ED visits was 327 (10.4 per 100,000 population) for all ages. Iowans under 25 had the lowest rates of opioid-related poisoning ED visits, hospitalizations, and mortality. Opioid-related poisoning hospitalization and mortality were highest among adults aged 25 to 44 years compared to all other age groups. By gender, opioid-related poisoning ED visits and hospitalizations were higher among females. However, the rate of opioid-related poisoning mortality was higher among males.

Table 5: Rate of Opioid-Related Emergency Department Visits, Hospitalizations and Mortality by Age and Sex, IDPH, 2019

Age (in years)	Emergency Department Visits		Hospitalizations		Mortality	
	Number	Rate per 100,000	Number	Rate per 100,000	Number	Rate per 100,000
<25	76	7.3	24	2.3	10	1.0
25-44	111	14.2	45	5.7	83	10.6
45-64	85	10.9	78	10.0	54	6.9
65+	55	9.9	31	5.6	10	1.8
All Age Groups	327	10.4	178	5.6	157	5.0
Sex						
Female	180	11.4	114	7.2	48	3.0
Male	147	9.4	64	4.1	109	6.9

Figure 102 displays the average annual rates for opioid-related treatment admission (primary mentions) by county. The county rates are based on the patient's county of residence and unique treatment admissions. The county rates varied greatly from 6 admissions per 100,000 population in Sioux County to 171 in Wapello County. The five counties with the lowest rates included: Sioux (6 admissions per 100,000 population), Plymouth (10), Buena Vista (11), Cedar (12), and Washington (13). The five counties with the highest rates of methamphetamine-related treatment admissions included: Wapello (171 per 100,000 population), Polk (164), Monroe (133), Marion (122), and Lucas (107).

Figure 102: Average Annual Rate of Opioid-related Treatment Admissions, IDPH, 2016-2020

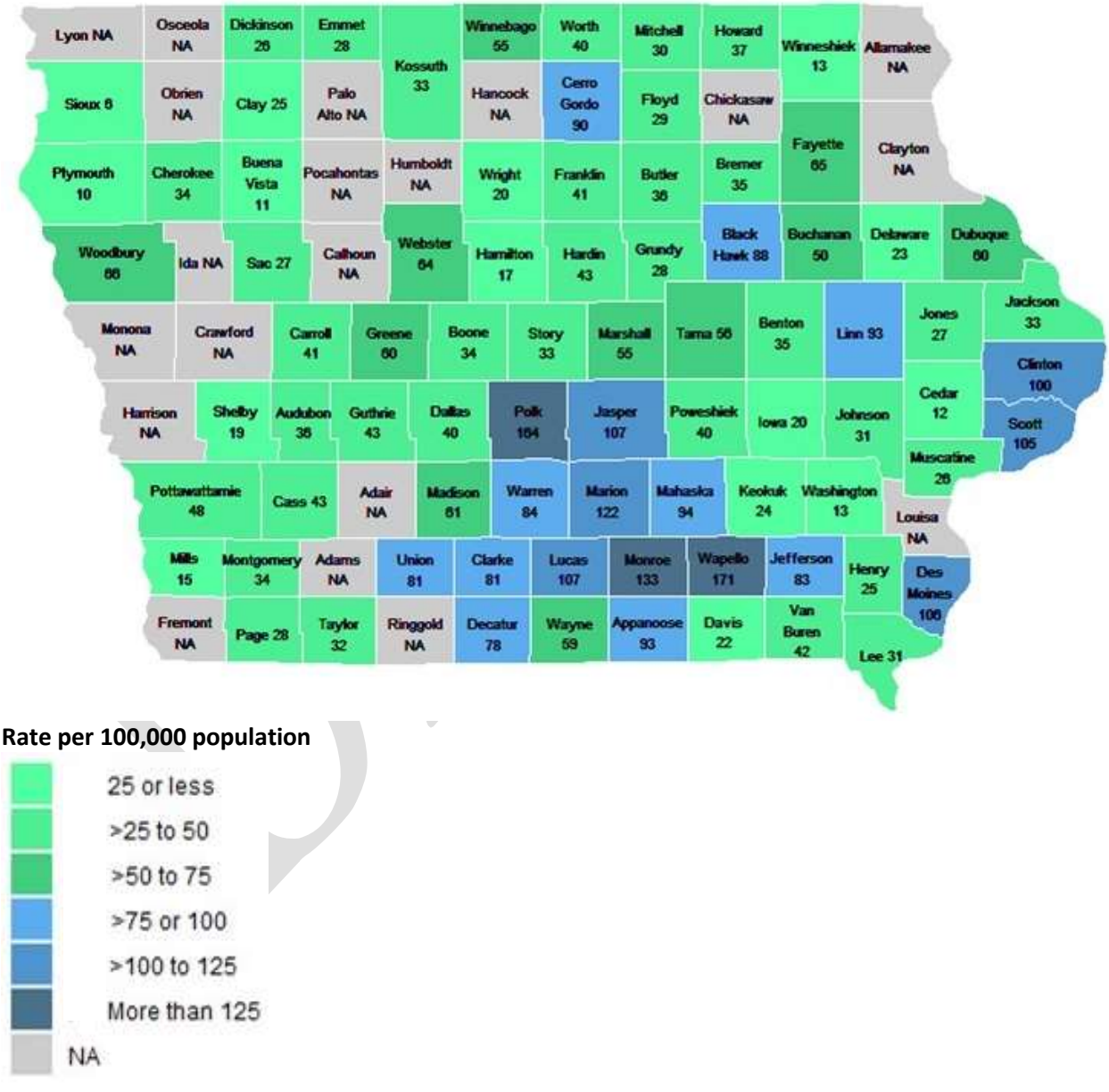
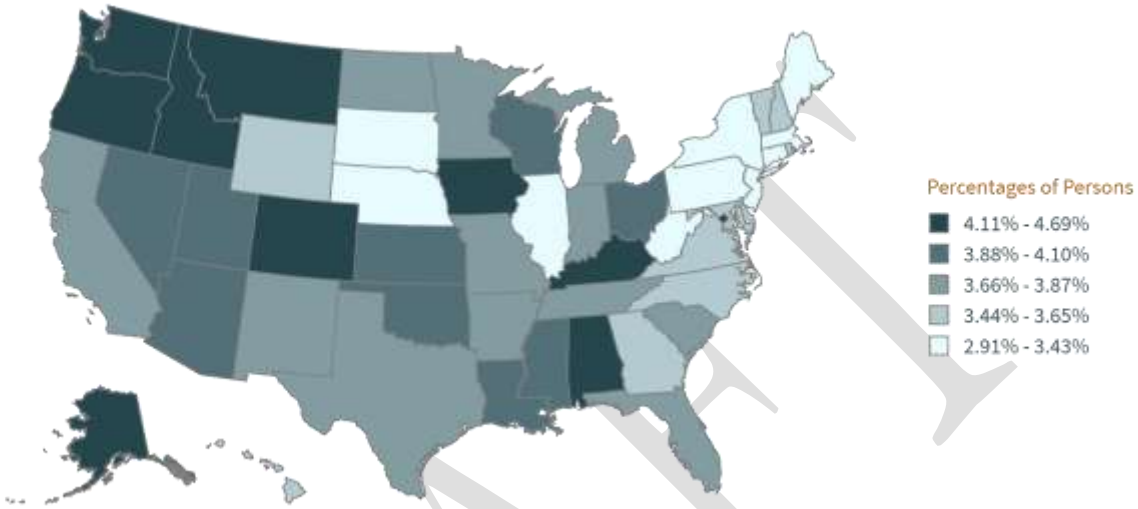


Figure 103 illustrates the percentage of adults aged 18 or older reporting pain reliever misuse in the past year. The color legend illustrates the distribution into five quintiles of the percentage of adults reporting pain reliever misuse across states. Iowa (4.20 percent) was among states in the highest group (4.11 to 4.69 percent).

Figure 103: Past Year Pain Reliever Misuse, Aged 18 or Older, NSDUH, 2018-2019



All Drug-Related Poisoning

Table 6 illustrates the 2019 numbers and crude rates for Emergency Department (ED) visits, hospitalizations and mortality for all drug-related poisoning by age and sex. The highest number and rate of all drug-related poisoning ED visits was among Iowans aged 25-44 years old (7,779; 993 visits per 100,000 population); the second highest group was Iowans 45-64 years of age (5,642; 725 visits per 100,000). All drug-related poisoning emergency department visits, hospitalizations, and deaths were higher among males compared to females

Table 6: All Drug-Related Emergency Department Visits, Hospitalizations and Mortality by Age and Sex, 2019

Age (in years)	Emergency Department Visits[1]		Hospitalizations[1]		Mortality[2]	
	Number	Rate per 100,000	Number	Rate per 100,000	Number	Rate per 100,000
<25	3,683	353.9	909	87.4	20	1.9
25-44	7,779	993.0	2,753	351.4	155	19.8
45-64	5,642	725.0	2,640	339.2	149	19.1
65+	887	160.4	546	98.7	26	4.7
All Age Groups	17,991	570.2	6,848	217.0	350	11.1
Sex						
Female	6,999	441.9	2,726	172.1	117	7.4
Male	10,991	699.6	4,122	262.4	233	14.8

1. All drug-related emergency department visits and hospitalizations reflect combined rates for alcohol, heroin, opioid, and prescription medication.
2. All drug-related mortality reflects combined mortality rate for opioids, methamphetamine, and cocaine.

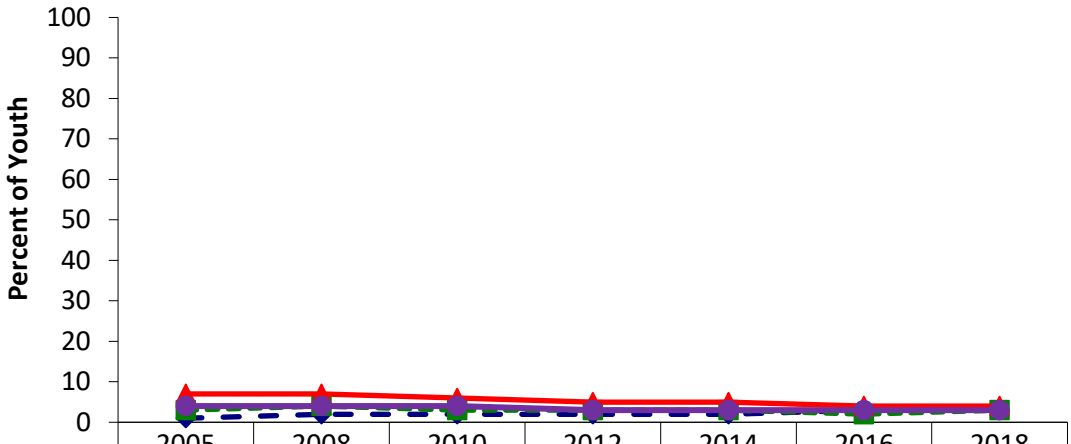
Youth Over-the-Counter Medications Consumption Patterns

Youth Over-the-Counter Medications Misuse

Figure 104 illustrates the percentage of youth reporting over-the-counter medication misuse in the past 30 days by grade level. Youth were asked: *"In the past 30 days, on how many days have you used over the counter medications different from the directions?"*

Across all grades, over-the- counter medication misuse among Iowa youth remains low with less than 5 percent of youth reporting misuse in the past 30 days. In 2018, over-the- counter medication misuse in the past 30 days was 4 percent among youth in grade 11, 3 percent among youth in grade 8, and 3 percent among youth in grade 6.

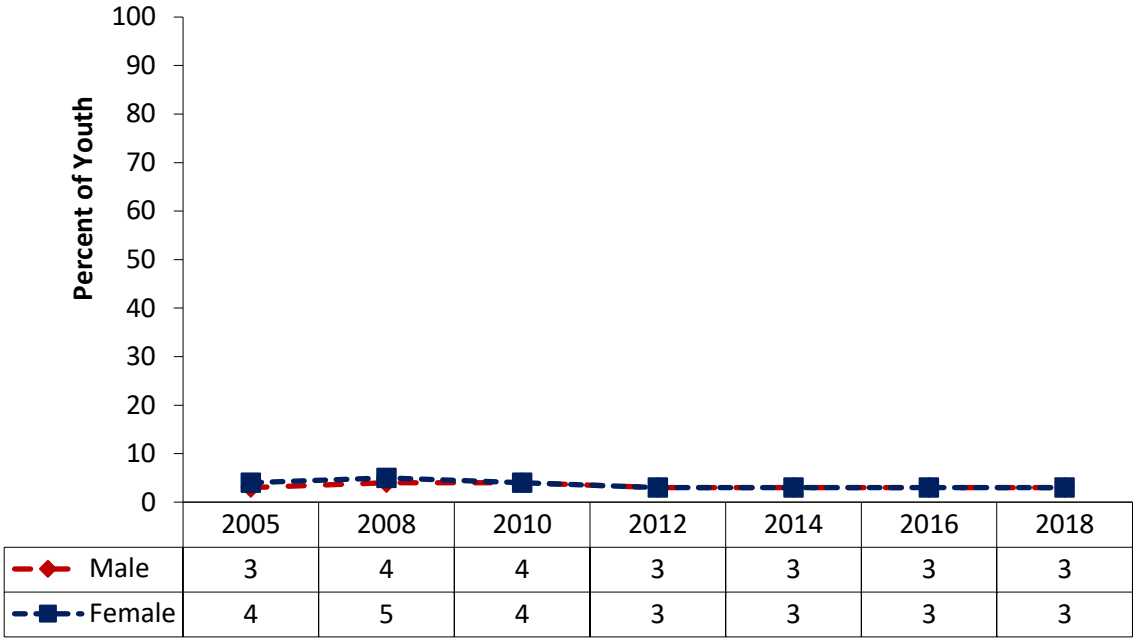
Figure 104: Past 30 Day Over-the-Counter Medication Misuse among Youth by Grade, IYS, 2005-2018



	2005	2008	2010	2012	2014	2016	2018
Grade 6	1	2	2	2	2	3	3
Grade 8	3	4	3	3	3	2	3
Grade 11	7	7	6	5	5	4	4
All Grades	4	4	4	3	3	3	3

Figure 105 illustrates the percentage of youth reporting over-the-counter medication misuse in the past 30 days by sex. Overall, males and females had similar rates of over-the-counter medication misuse in the past 30 days, with rates stable since 2012. In 2018, 3 percent of males and females, respectively, reported over-the-counter medication misuse in the past 30 days.

Figure 105: Past 30 Day Over-the-Counter Medication Misuse among Youth by Sex, IYS, 2005-2018



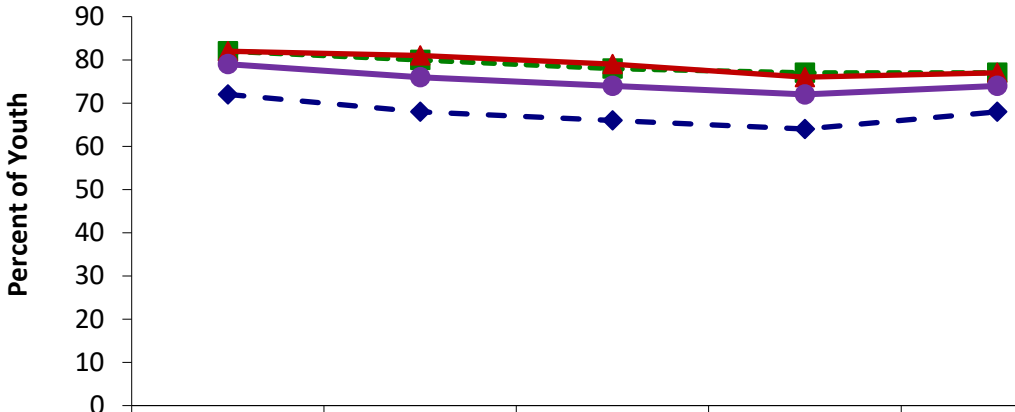
	2005	2008	2010	2012	2014	2016	2018
Male	3	4	4	3	3	3	3
Female	4	5	4	3	3	3	3

Youth Over-the-Counter Medications Risk Perception

Figure 106 illustrates the percentage of youth reporting perceived risk of self-harm of misuse of over-the-counter medication by grade level. The IYS asked: *"How much do you think you risk harming yourself (physically or otherwise) if you use over the counter medications different from the directions?"* Response options were "Great risk", "Moderate risk", "Slight risk", "No risk", or "Don't know." Percentages presented in Figure 106 and Figure 107 reflect responses of "Great risk" and "Moderate risk" combined.

Overall, there was a decrease in perceived risk of self-harm from over-the-counter medication misuse for all grade levels from 79 percent in 2010 to 74 percent in 2018. In 2018, 77 percent of youth in grade 11, 77 percent of youth in grade 8, and 68 percent of youth in grade 6 perceived *Great-Moderate Risk* of self-harm from misuse of over-the-counter medication (Figure 106)

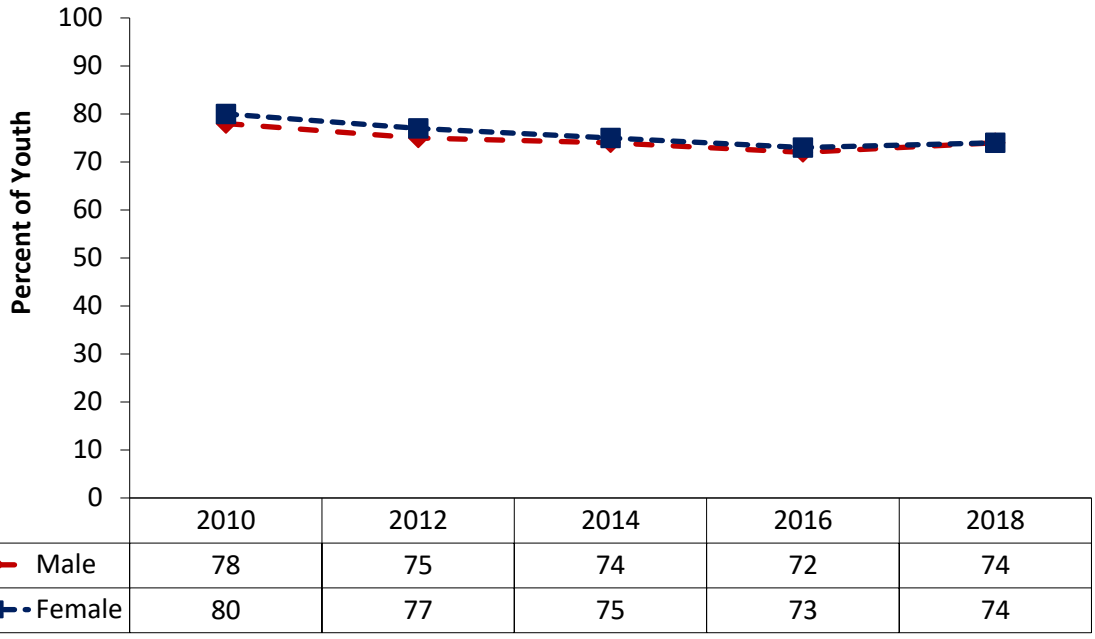
Figure 106: Perceived Risk of Over-the-Counter Medications Misuse Self-Harm among by Grade, IYS, 2010-2018



	2010	2012	2014	2016	2018
Grade 6	72	68	66	64	68
Grade 8	82	80	78	77	77
Grade 11	82	81	79	76	77
All Grades	79	76	74	72	74

Figure 107 illustrates the perceived risk of self-harm of misuse of over-the-counter medication by sex. In 2018, 74 percent of both males and females, respectively, perceived misuse of over-the-counter medication as *Great-Moderate risk*.

Figure 107: Perceived Risk of Self-harm from Over-the-Counter Medications Misuse among Youth by Sex, IYS, 2010-2018



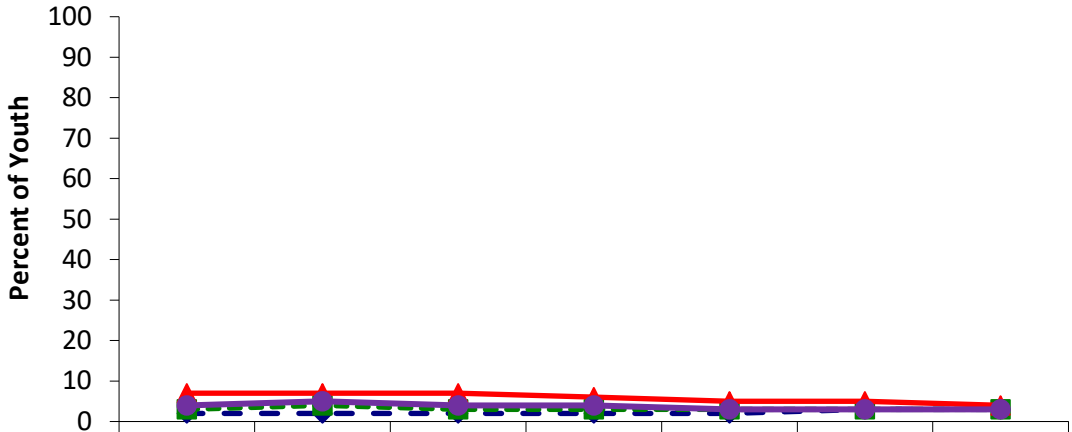
	2010	2012	2014	2016	2018
Male	78	75	74	72	74
Female	80	77	75	73	74

Youth Prescription Medication Misuse

Figure 108 illustrates the percentage of youth reporting prescription medication misuse in the past 30 days by grade level. Youth were asked: "*In the past 30 days, on how many days have you: Used prescription medications that were not prescribed for you by your doctor?*"

Across all grades, prescription medication misuse among Iowa youth remains low with less than 5 percent of youth reporting misuse in the past 30 days. In 2018, prescription medication misuse in the past 30 days was 4 percent among youth in grade 11, 3 percent among youth in grade 8, and 3 percent among youth in grade 6, respectively.

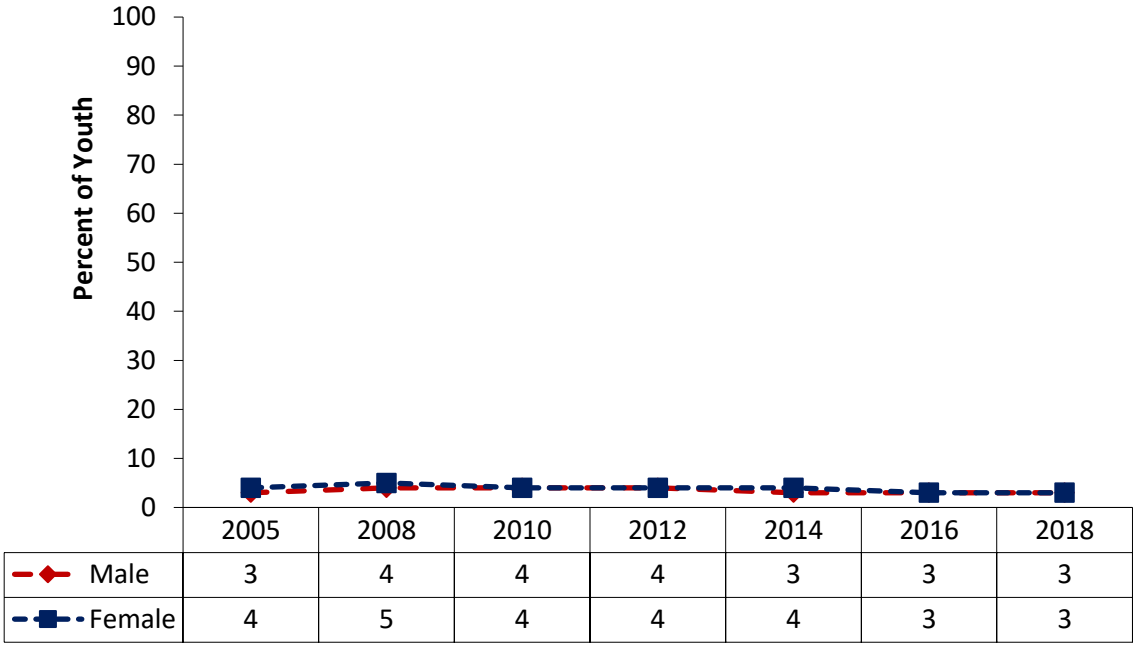
Figure 108: Prescription Medications Misuse in the past 30 days by Grade, IYS, 2005-2018



	2005	2008	2010	2012	2014	2016	2018
Grade 6	2	2	2	2	2	3	3
Grade 8	3	4	3	3	3	3	3
Grade 11	7	7	7	6	5	5	4
All Grades	4	5	4	4	3	3	3

Figure 109 illustrates the percentage of youth reporting prescription medications misuse in the past 30 days by sex. Overall, males and females had similar rates of prescription medication misuse in the past 30 days. In 2018, 3 percent of males and females, respectively, reported over-the-counter medication misuse in the past 30 days.

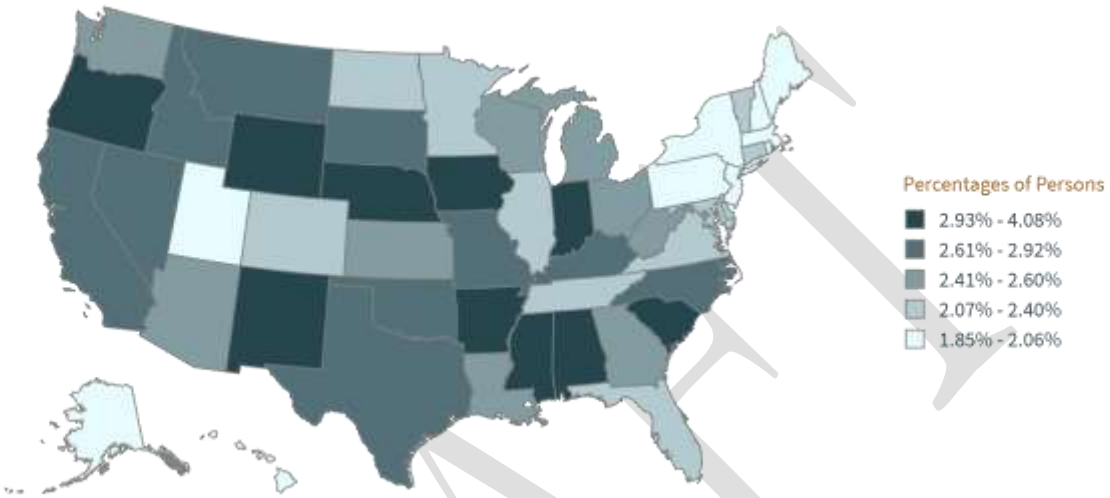
Figure 109: Prescription Medications Misuse in the past 30 days by Sex, IYS, 2005-2018



	2005	2008	2010	2012	2014	2016	2018
Male	3	4	4	4	3	3	3
Female	4	5	4	4	4	3	3

Figure 110 illustrates the percentage of youth aged 12 to 17 reporting pain reliever misuse in the past year. The color legend illustrates the distribution into five quintiles of the percentage of youth reporting pain reliever misuse in the past year across states. Iowa (3.56 percent) was among the states in the highest group (2.93 to 4.08 percent).

Figure 110: Pain Reliever Misuse in the Past Year among Youth Aged 12 to 17, by State, NSDUH, 2018-2019

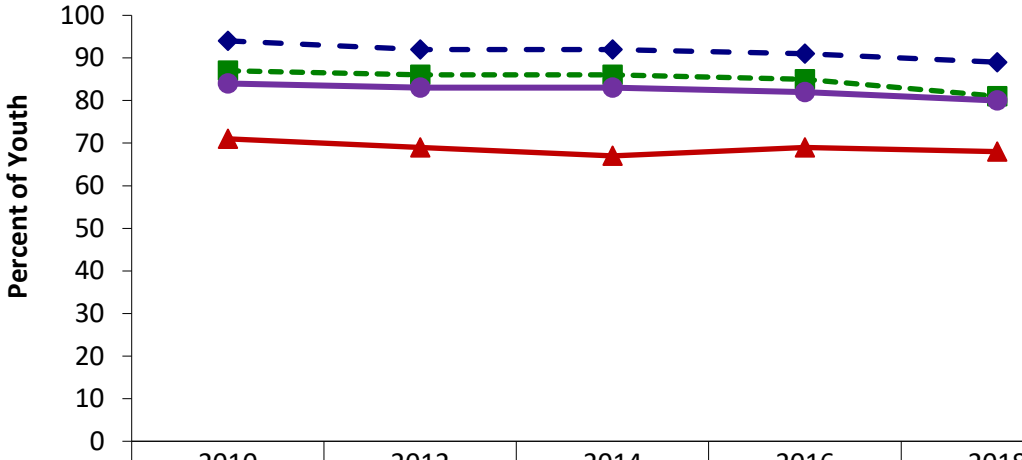


Perceived Norms of Youth Prescription Medications Misuse

Figure 111 illustrates the perceived norms of prescription medications misuse as wrong by grade. The IYS asked: *"How wrong would most of the students in your school (not just your best friends) feel it would be for you to use prescription drugs that were not prescribed for you?"* Response options were "Very wrong," "Wrong," "A little wrong," "Not wrong at all," and "Don't know." Proportions in Figure 111 and Figure 112 reflect "Very wrong" and "Wrong" responses combined.

In 2018, 68 percent of youth in grade 11, 81 percent of youth in grade 8, and 89 percent of youth in grade 6 indicated peers would regard prescription medication misuse as Very wrong-Wrong (Figure 111). Compared to other grades, a lower proportion of youth in grade 11 reported a perceived norm of prescription medication misuse as Very wrong-Wrong across all years.

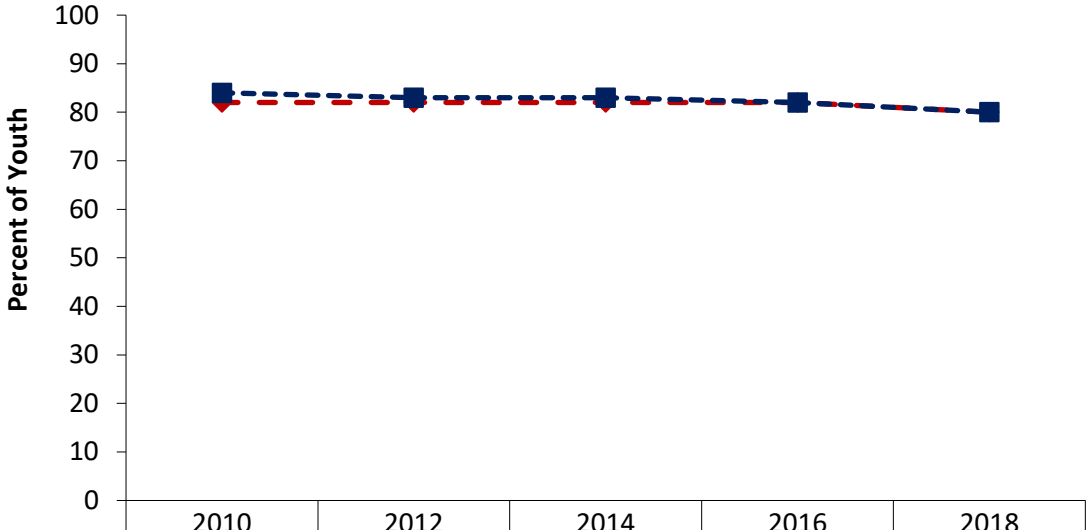
Figure 111: Perceived Norms of Prescription Medications Misuse by Grade, IYS, 2010-2018



	2010	2012	2014	2016	2018
Grade 6	94	92	92	91	89
Grade 8	87	86	86	85	81
Grade 11	71	69	67	69	68
All Grades	84	83	83	82	80

Figure 112 illustrates the perceived norms of prescription medications misuse as wrong by sex. In 2018, 80 percent of males and females, respectively, said peers would view prescription medication miseuse as *Very Wrong-Wrong*.

Figure 112: Perceived Norms of Prescription Medications Misuse by Sex, IYS, 2010-2018



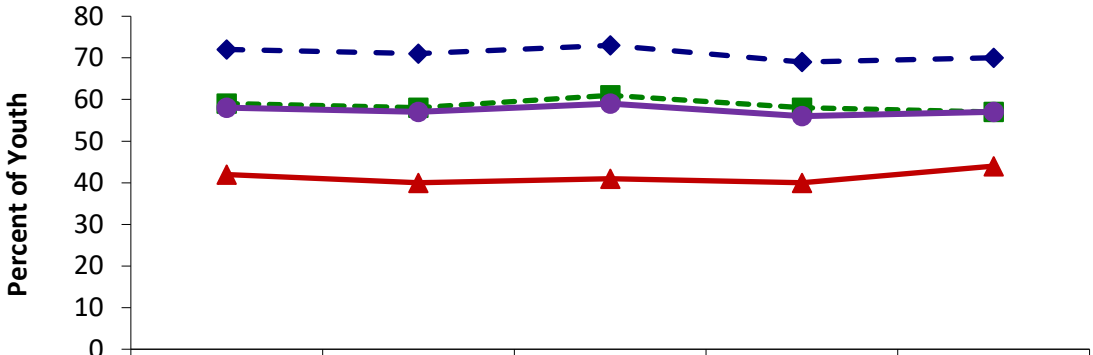
	2010	2012	2014	2016	2018
Male	82	82	82	82	80
Female	84	83	83	82	80

Youth Perceptions of Access to Prescription Medication Not Prescribed

Figure 113 illustrates perceptions of access to prescription medication not prescribed in their neighborhood or community by grade level. The IYS question asked: "*In your neighborhood or community, how difficult do you think it would be for a kid your age to get prescription medication that is not prescribed for you by a doctor or nurse?*" Response options were "Very hard", "Hard", "Easy", "Very easy", or "Don't know." Proportions in Figure 113 and Figure 114 reflect the percentage of students responding "Very hard" or "Hard" combined.

The percent of students reporting *Very hard-Hard* access to prescription medication not prescribed has remained relatively consistent since 2010, with more youth in grade 6 or grade 8 reporting that it was hard to access prescription medication not prescribed compared to youth in grade 11. In 2018, less than half (44 percent) of students in grade 11 reported prescription medication not prescribed was *Very Hard-Hard* to find compared to 57 percent of youth in grade 8 and 70 percent of youth in grade 6 (Figure 113).

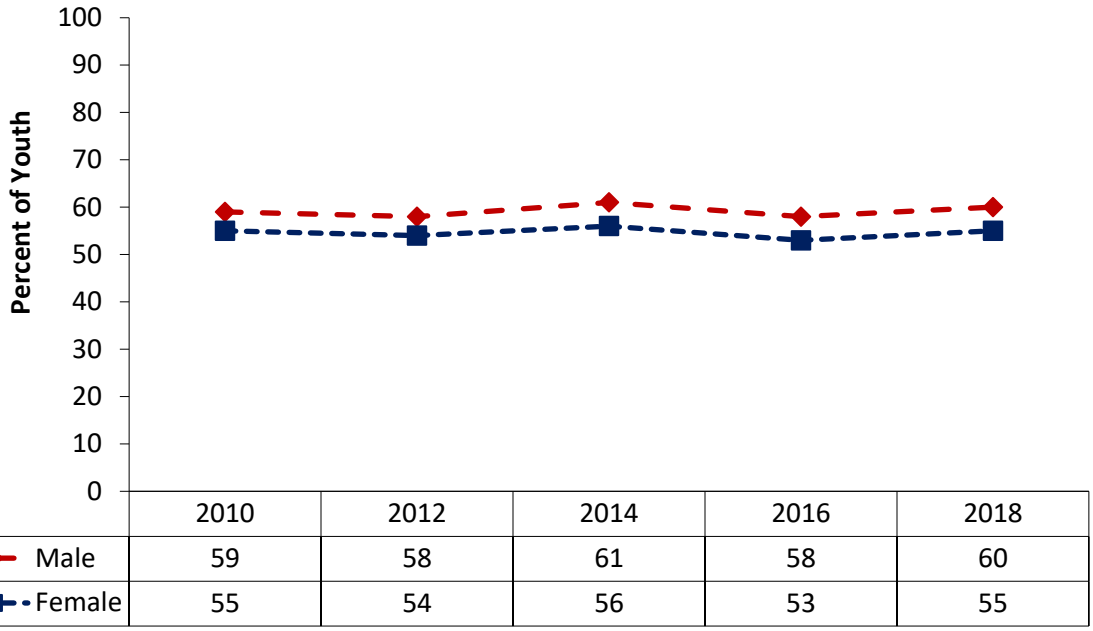
Figure 113: Percent of Youth Reporting *Very Hard-Hard* Access to Prescription Medication Not Prescribed by Grade, IYS, 2010-2018



	2010	2012	2014	2016	2018
Grade 6	72	71	73	69	70
Grade 8	59	58	61	58	57
Grade 11	42	40	41	40	44
All Grades	58	57	59	56	57

Figure 114 illustrates perceptions of access to prescription medication not prescribed in their neighborhood or community by sex. In 2018, 60 percent of males and 55 percent of females reported access to prescription medication not prescribed was *Very Hard-Hard*.

Figure 114: Percent of Youth Reporting *Very Hard-Hard* Access to Prescription Medication Not Prescribed by Sex, IYS, 2010-2018



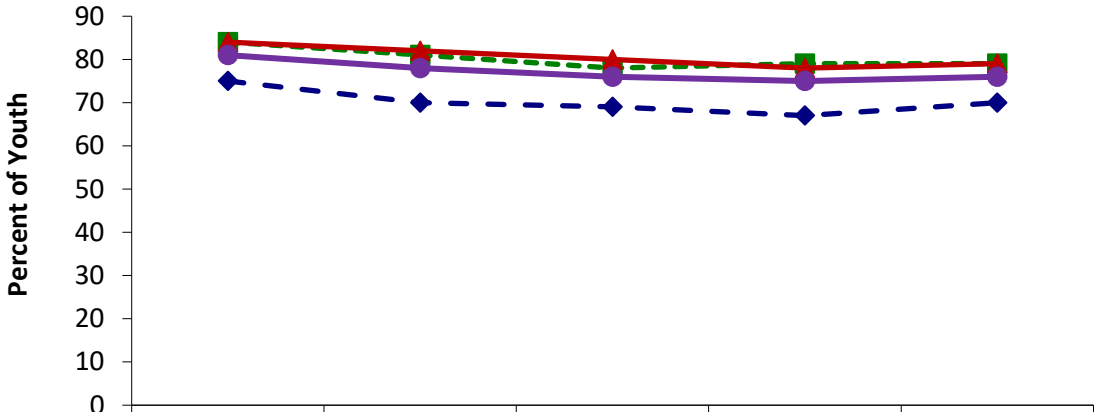
	2010	2012	2014	2016	2018
Male	59	58	61	58	60
Female	55	54	56	53	55

Youth Risk Perception of Use of Prescription Medication Not Prescribed

Figure 115 illustrates youth risk perception of using medication prescribed for someone else by grade. The IYS question asked was: "*How much do you think you risk harming yourself (physically or otherwise) if you: Use medication prescribed for someone else?"* Response options were "Great risk", "Moderate risk", "Slight risk", "No risk", or "Don't know." Percentages presented in Figure 115 and Figure 116 reflect responses of "Great risk" and "Moderate risk" combined.

In 2018, 79 percent of youth in grade 11 and grade 8, and 70 percent of youth in grade 6 reported *Great-Moderate Risk* of self-harm from using medication prescribed for someone else (Figure 115).

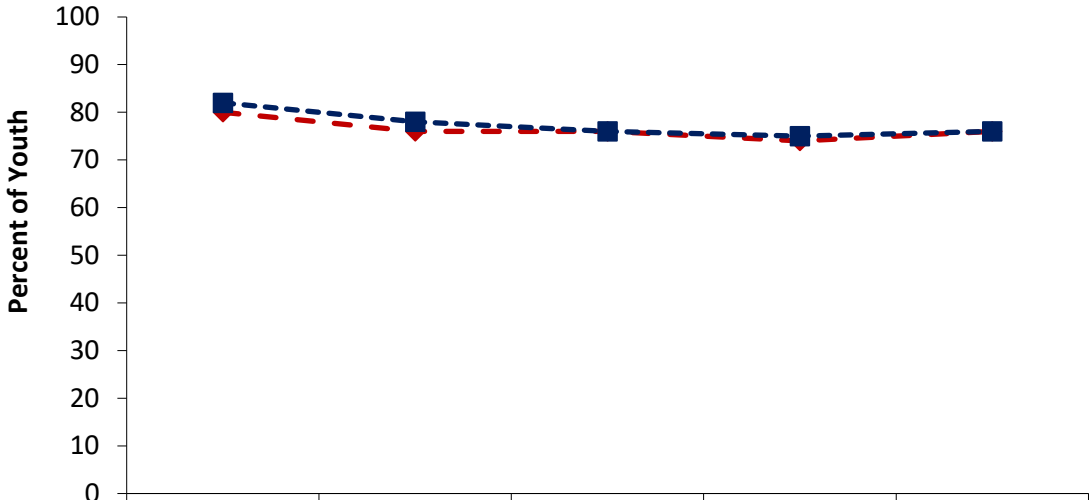
Figure 115: Risk Perception of Using Medication Prescribed for Someone Else by Grade, IYS, 2010-2016



	2010	2012	2014	2016	2018
Grade 6	75	70	69	67	70
Grade 8	84	81	78	79	79
Grade 11	84	82	80	78	79
All Grades	81	78	76	75	76

Figure 116 illustrates youth risk perception of using medication prescribed for someone else by sex. In 2018, 76 percent of males and females, respectively, reported *Great-Moderate Risk* of self-harm from using medication prescribed for someone else.

Figure 116: Risk Perception of Using Medication Prescribed for Someone Else by Sex, IYS, 2010-2018



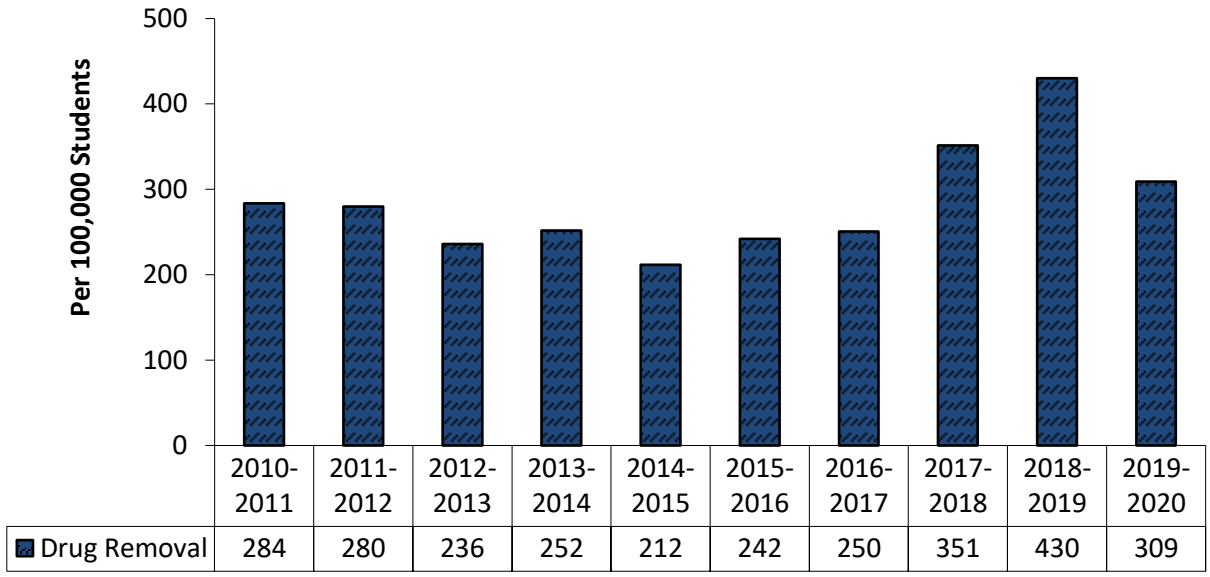
	2010	2012	2014	2016	2018
Male	80	76	76	74	76
Female	82	78	76	75	76

CONSEQUENCES OF ILLICIT AND PRESCRIPTION DRUG USE

Educational Consequences

Figure 117 illustrates the rate of student school removal (i.e., suspension, expulsion) due to drug use. The rate of student school removals due to drug use is based on all Iowa public schools. During the 2019-2020 academic year, the rate of school suspensions and expulsions was 309 per 100,000 population, compared to the ten-year low of 212 in 2014-2015 school year. School suspensions and removal rate has fluctuated since the 2010-2011 academic year with a high of 430 removals per 100,000 in 2018-2019

Figure 117: Student Removals Due to Drug Use in All Iowa Public Schools, IDE, 2011-2020

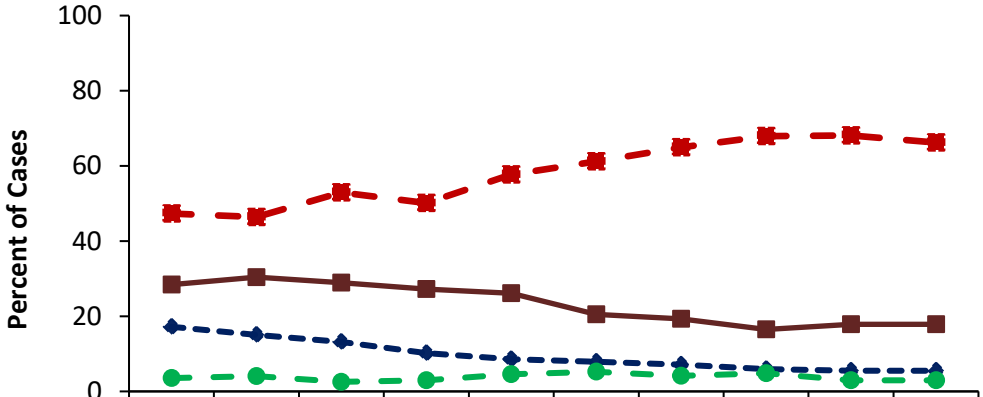


	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
Drug Removal	284	280	236	252	212	242	250	351	430	309

Legal Consequences

Figure 118 illustrates the percentage of prison incarceration by drug type. The data includes offenders who were newly admitted to prison with a most serious drug offense (Iowa Correctional Offender Network (ICON; 2020). These are drugs that are identified as having the most significant harm to the users including, in order from most to least harmful, crack, heroin, methamphetamine, and cocaine ICON, 2020). The 2011-2020 ICON data demonstrate that upon prison incarceration, Iowa offenders reported methamphetamine as primary drug of choice more frequently than opioids, marijuana, and cocaine/crack. Between 2011 and 2020, the rate of prison admissions in which methamphetamine was cited as the primary drug of choice increased 20 percent, from 47 percent (2011) to 66 percent (2020). The rate in which marijuana was cited as the primary drug of choice upon incarceration has fluctuated over the past decade; however, cocaine/crack noted as the primary drug of choice decreased by 71 percent, from 17 percent (2011) to 5 percent (2020).

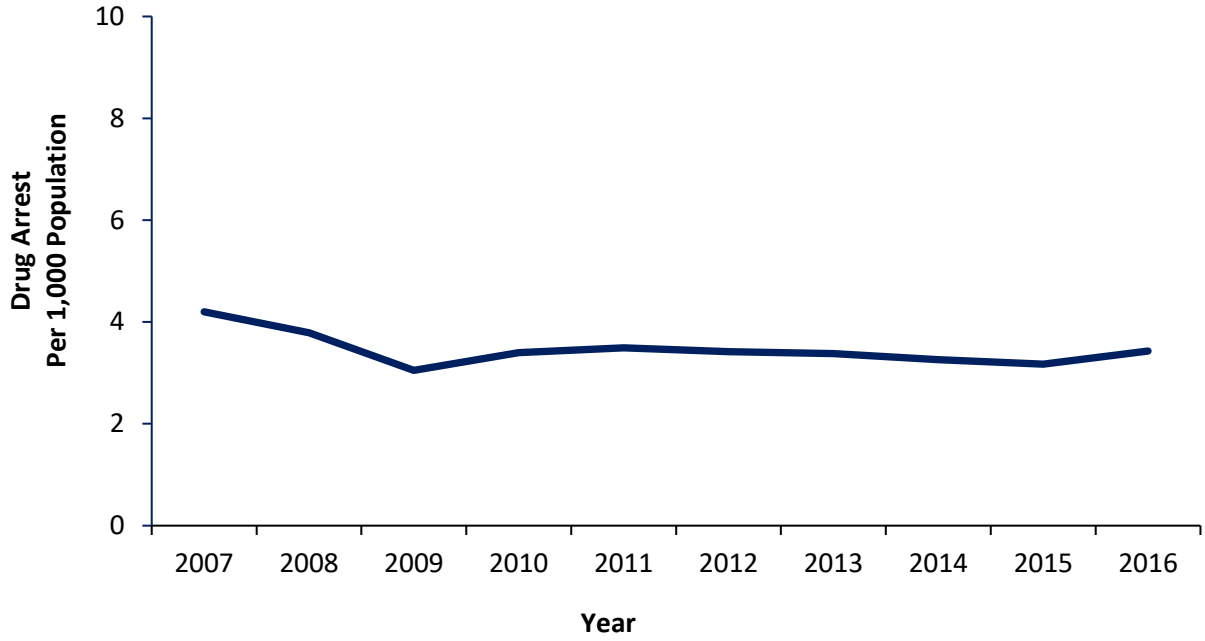
Figure 118: Prison Incarcerations by Primary Drug of Choice, ICON, 2011-2020



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Methamphetamine	47	46	53	50	58	61	65	68	68	66
Cocaine/Crack	17	15	13	10	9	8	7	6	6	5
Marijuana	28	30	29	27	26	21	19	16	18	18
Opioids	4	4	3	3	5	5	4	5	3	3

Figure 119 illustrates the rate of drug arrests in Iowa. Between 2007 and 2009, the 2007-2016 Federal Bureau of Investigation (FBI)- Uniform Crime Reporting (UCR) data showed a 25 percent decrease in drug arrests statewide. That rate remained at 3 drug arrests per 100,000 population between 2009 and 2016.

Figure 119: Iowa Drug Arrests by Year, FBI-UCR, 2007-2016



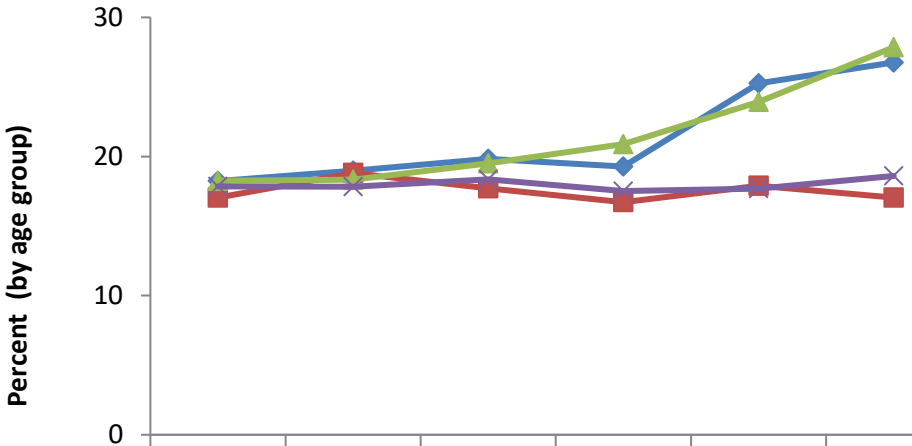
Note: Figure as previously reported in the 2018 Epidemiological Report.

MENTAL HEALTH

Adult Mental Health

Figure 120 illustrates the percentage of Iowans aged 18 or older who reported any mental illness in the past year by age group. In 2018-2019, 18 percent of Iowans aged 18 or older reported any mental health illness in the past year compared to 20 percent nationwide. By age group, the highest percentage of adults reporting any mental illness in the past year was among of adults aged 18-25 both in Iowa (27 percent) and nationwide (28 percent), respectively.

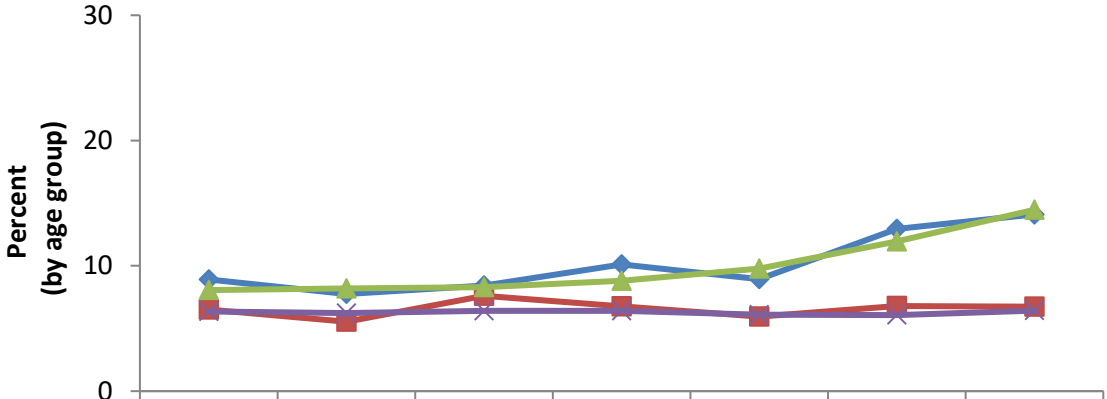
Figure 120: Any Mental Illness in the Past Year among Adults by Age Group, NSDUH, 2008-2019



	2008-09	2010-11	2012-13	2014-15	2016-17	2018-19
Iowa - 18-25	18	19	20	19	25	27
Iowa - 26+	17	19	18	17	18	17
US - 18-25	18	18	19	21	24	28
US - 26+	18	18	18	18	18	19

Figure 121 illustrates the percentage of Iowans aged 18 or older by age group who reported having had a major depressive episode in the past year. In 2018-2019, 8 percent of Iowans aged 18 or older reported having had a major depressive episode in the past year which is the same nationally. By age group, the highest percentage was among of adults aged 18-25 both in Iowa (14 percent) and nationwide (14 percent).

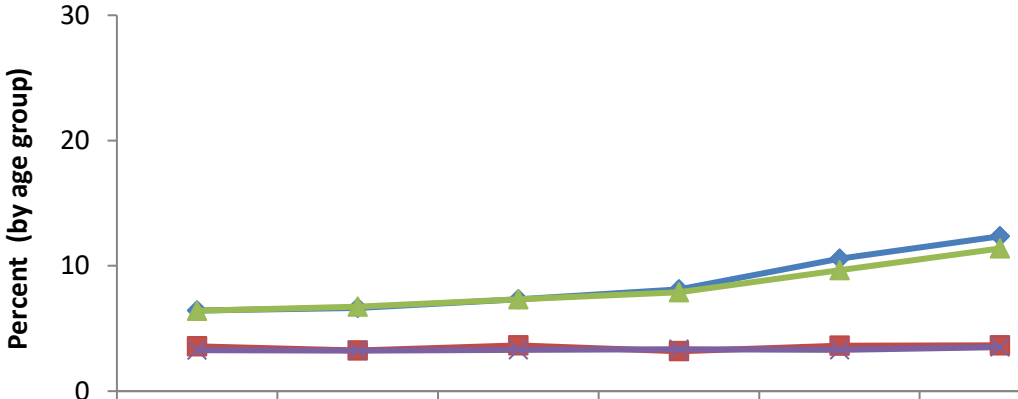
Figure 121: Major Depressive Episode in the Past Year among Adults by Age Group, NSDUH, 2006-2019



	2006-07	2008-09	2010-11	2012-13	2014-15	2016-17	2018-19
Iowa - 18-25	9	8	8	10	9	13	14
Iowa - 26+	7	6	8	7	6	7	7
US - 18-25	8	8	8	9	10	12	14
US - 26+	6	6	6	6	6	6	6

Figure 122 illustrates the percentage of Iowans aged 18 or older by age group who reported having had serious thoughts of suicide in the past year. In 2018-2019, 5 percent of Iowans aged 18 or older reported having had serious thoughts of suicide in the past year which is the same nationally. By age group, the highest percentage was among of adults aged 18-25 in Iowa (12 percent) and nationwide (11 percent)

Figure 122: Serious Thoughts of Suicide in the Past Year among Adults by Age Group, NSDUH, 2008-2019



	2008-09	2010-11	2012-13	2014-15	2016-17	2018-19
Iowa - 18-25	6	7	7	8	11	12
Iowa - 26+	4	3	4	3	4	4
US - 18-25	6	7	7	8	10	11
US - 26+	3	3	3	3	3	4

DISCUSSION

Iowa is a rural state with many of the same social and substance use disorders as other rural states: erosion of rural life resulting from the disappearance of the family farm, subsequent decaying of the infrastructure of small towns, isolated communities, growing dependence on the gaming industry, and a state budget that is not adequate to address substance use disorder issues. Iowa is among the small number of states not dominated by a major metropolitan area. It is comprised of rural areas, small towns, and small cities — the population in Iowa is markedly older than most states, moderately educated, and less likely to include minority group members.

Consideration of Iowa's unique population is important in comparing state or local data with national data. Iowa has a large higher education system. It has only three state-supported universities, but all three have more than 20,000 students at the undergraduate and graduate levels.

The Iowa legislature has been forthcoming on policy to prevent substance use disorder. Several policy proposals at the state and local level have been enacted to curb alcohol (Keg registration, 21 only proposition), tobacco ($1 tax raise in 2006, Iowa Smoke-Free Air Act), illicit drugs (e.g., methamphetamine with Pseudo-Ephedrine Act), and most recently, naloxone (i.e., made available for Iowans in a position to assist with reversing drug overdose deaths). However, it is important to understand that the burden of substance use disorder requires continuous efforts to reduce the consequences of substance use among Iowans of all ages.

Iowa is one of the states with the highest prevalence of binge drinking and alcohol use (i.e., past 30 days). This data is illustrated in the Epidemiological Profile by BRFSS and NSDUH data. Iowans surveyed have significantly higher levels of alcohol use acceptance, binge drinking, and lower perception of risk. However, among Iowa youth alcohol normative beliefs have declined. Moreover, the rate of school suspensions and expulsions has fluctuated among Iowa youth since 2011.

The *2020 Epidemiological Profile* provides a comprehensive overview of the prevalence of substance use, mortality, and morbidity in Iowa. Most recently, the Integrated Provider Network (IPN) grant focused on addressing underage drinking and alcohol use. In addition to these efforts, the state implemented the Strategic Prevention Framework for Prescription Drugs (SPF Rx) grant to address substance use disorder prevention priority of prescription drug misuse among Iowans in two specific age groups (i.e., 12 to 17, 18 or older). Many Iowans today face prescription drug misuse and consequences which requires continuous surveillance and prevention to reduce the consequences.

RECOMMENDATIONS

The Epidemiological Profile serves as a tool to assess, collect, and evaluate substance use disorder and consequences affecting Iowans. The SEWPPAC process provides an avenue to consolidate surveillance data to examine the various health, social, and economic factors in Iowa. Based on this Epidemiological Profile, the following recommendations are made to ensure continuous efforts to reduce substance use problems in Iowa:

- Identify, collect and analyze new data related to substance consumption and consequence;
- Analyze and evaluate relevant data systems for long-term use;
- Identify indicators needing improvement or expansion of the surveillance;
- Continue to identify and assess data gaps;
- Continue working to raise public awareness of substance use disorder and related consequences, and
- Increase efforts to identify and collect data specifically among college students in Iowa.

DATA USAGE

The Epidemiological Profile can be used to:

- Guide actions for substance abuse problems in Iowa;
- Measure the burden of substance abuse problems;
- Monitor trends in the burden of substance abuse, including the detection of substance abuse epidemic in Iowa;
- Prioritize the allocation of substance abuse resources, and
- Provide a basis for substance abuse epidemiology.
- The most appropriate recommendation is to educate the readers of the Epi Profile on how to comprehend and use trend data correctly. Trend data can show both positive and negative trends, and needs to be fully understood and utilized correctly when sharing with stakeholders and media. Readers of the Epi Profile should use the data to guide effective and efficient use of substance abuse prevention resources.

APPENDIX: DATA SOURCES AND REFERENCES

Data Source	Year	Web Link
Behavioral Risk Factor Surveillance System (BRFSS)	2011-2019	https://www.cdc.gov/brfss/brfssprevalence/index.html
Center for Disease Control Wonder (CDC Wonder)	2010-2019	https://wonder.cdc.gov/ucd-icd10.html
Federal Bureau of Investigation - Uniform Crime Reporting (FBI-UCR	2010-2019	https://ucr.fbi.gov/ucr-publications https://crime-data-explorer.app.cloud.gov/#
Iowa Corrections Offender Network (ICON)	2011-2020	
Iowa Department of Public Health (Hospital Discharge Data)	2013-2020	
Iowa Department of Public Health (Death Data)	2019	
Iowa Department of Education (IDE)	2011-2020	https://www.educateiowa.gov/education-statistics
Iowa Youth Survey (IYS)	1999-2018	http://www.iowayouthsurvey.iowa.gov/state_of_iowa/index.html
National Survey on Drug Use and Health (NSDUH)	2004-2019	http://pdas.samhsa.gov/#/
Iowa Department of Human Services (DHS). Child Welfare. JARVIS Data System.	2016-2020	

References

National Institute on Alcohol Abuse and Alcoholism. (2004). NIAAA council approves definition of binge drinking. Retrieved from https://pubs.niaaa.nih.gov/publications/Newsletter/winter2004/Newsletter_Number3.pdf

National Survey on Drug Use and Health. (2018). 2016 National Survey on Drug Use and Health: Public use file codebook. Retrieved from http://samhda.s3-us-gov-west-1.amazonaws.com/s3fs-public/field-uploads-protected/studies/NSDUH-2016/NSDUH-2016-datasets/NSDUH-2016-DS0001/NSDUH-2016-DS0001-info/NSDUH-2016-DS0001-info-codebook.pdf

Appendix B: Definitions

Alcohol-Related Convictions: Number of charges with a guilty finding in court for violations of Iowa Code chapter 123.

Alcohol Related Offense Arrests: Number of Arrests made by local, county or state peace officers following a violation of Iowa Code chapter 123.

Binge Drinking Prevalence:

- **BRFSS**: Proportion of adults reporting having had (males five or more, females four or more) drinks on one occasion.
- **NSDUH**: Proportion of adults or youth reporting having had five or more drinks on one occasion.
- **IYS**: Proportion of students reporting having had five or more drinks

Current Alcohol Use Prevalence (past 30 days): Proportion of adults or youth who have had at least one drink of alcohol within the past 30 days.

Heavy Drinking (BRFSS): Proportion of adult reporting having had (men more than two drinks, women more than one) drink per day.

Liquor Law Violations: Offenses dealing with sales or provision of alcohol.

Operating a Vehicle While Intoxicated (OWI): Offense of operating a vehicle while intoxicated.

Prescription drug abuse: The use of a medication without a prescription, in a way other than as prescribed, or for the experience or feelings elicited.

Prescription medications: Medications used to treat pain, attention deficit disorders, sleep disorders and anxiety that are not over the counter drugs.

Prevalence: Number or proportion (percent) of cases or events in a given population. Often further distinguished as point prevalence (single point in time) or period prevalence (over a period of time).

Rate per 100,000: (Number of cases or events / total population)* 100,000.

- Age-adjusted rate: A rate statistically modified to eliminate the effect of different age distributions in the different populations
- Age-specific rate: A rate limited to a particular age group. The numerator is the number of cases in that age group; the denominator is the number of persons in that age group in the population.
- Sex-specific rate: A rate limited to a particular sex. The numerator is the number of cases in that sex; the denominator is the number of persons of that sex in the population.
- Race-specific rate: A rate limited to a particular racial category. The numerator is the number of cases in that racial category; the denominator is the number of persons from that racial category in the population.

Appendix C: ICD-9/ICD-10 Codes

ICD-9 Codes	
Description	
Drug-related Emergency Department Visits	960-979, E850-E858, E950.0-E950.5, E962.0, E980.0-E980.5
Drug-related Hospitalization	960-979, E850-E858, E950.0-E950.5, E962.0, E980.0-E980.5
Opioid-related Emergency Department Visits	965.00, 965.02, 965.09, E850.1, E850.2
Opioid-related Emergency Department	965.00, 965.02, 965.09, E850.1, E850.2
ICD-10-CM Codes	
Drug-related Emergency Department Visits	[T36.x-T50.x] (1A, 1D), [T36.x-T50.x] (2A, 2D), [T36.x-T50.x] (3A, 3D), [T36.x-T50.x] (4A, 4D)
Drug-related Hospitalization	[T36.x-T50.x] (1A, 1D), [T36.x-T50.x] (2A, 2D), [T36.x-T50.x] (3A, 3D), [T36.x-T50.x] (4A, 4D)
Opioid-related Emergency Department Visits	[T40.0x] (1A, 1D), [T40.0x] (2A, 2D), [T40.0x] (3A, 3D), [T40.0x] (4A, 4D), [T40.2x] (1A, 1D), [T40.2x] (2A, 2D), [T40.2x] (3A, 3D), [T40.2x] (4A, 4D), [T40.3x] (1A, 1D), [T40.3x] (2A, 2D), [T40.3x] (3A, 3D), [T40.3x] (4A, 4D), [T40.4x] (1A, 1D), [T40.4x] (2A, 2D), [T40.4x] (3A, 3D), [T40.4x] (4A, 4D)
Opioid-related Emergency Department	[T40.0x] (1A, 1D), [T40.0x] (2A, 2D), [T40.0x] (3A, 3D), [T40.0x] (4A, 4D), [T40.2x] (1A, 1D), [T40.2x] (2A, 2D), [T40.2x] (3A, 3D), [T40.2x] (4A, 4D), [T40.3x] (1A, 1D), [T40.3x] (2A, 2D), [T40.3x] (3A, 3D), [T40.3x] (4A, 4D), [T40.4x] (1A, 1D), [T40.4x] (2A, 2D), [T40.4x] (3A, 3D), [T40.4x] (4A, 4D)
ICD-10 Codes	
Description	
Alcohol-related Mortality	F10, I42.6, G31.2, G62.1, K29.2, K70, K73, K74, K86.0, T51, X45, X65, Y15, Y90, Y91
Alcohol-related Cirrhosis Mortality	K70 (.0 - .9)
Drug-related Mortality	X40-X44, X60-X64, X85, Y10-Y14
Opioid-related Mortality	X40-X44, X60-X64, X85, Y10-Y14, T40.0, T40.1, T40.2, T40.3, T40.4, T40.6
Lung Cancer	C33-C34
Suicide	X60 – X84, Y87.0
Tobacco-related Mortality	C00-C15, C33, C34, J40 -J44