# State of Iowa Substance Use Epidemiological Profile

State Epidemiological Workgroup

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## List of Abbreviations

- ABD - Alcohol Beverage Division
- AC4C - Alliance of Coalitions for Change
- ATOD - Alcohol, Tobacco, and Other Drugs
- BAC - Blood Alcohol Content
- BRFSS - Behavioral Risk Factor Surveillance System
- CDC - Centers for Disease Control and Prevention
- CI - Confidence Intervals
- CJJP - Criminal and Juvenile Justice Planning, Iowa Department of Human Rights
- DHS - Iowa Department of Human Services
- DOE - Iowa Department of Education
- DOT - Iowa Department of Transportation
- DPS - Iowa Department of Public Safety
- EUDL - Enforcing Underage Drinking Laws
- IDPH - Iowa Department of Public Health
- I-SMART - Iowa Service Management and Reporting Tool
- IYS - Iowa Youth Survey
- JDW - Justice Data Warehouse
- LEW - Local Epidemiological Workgroup
- NSDUH - National Survey on Drug Use and Health
- OWI - Operating While Intoxicated
- SAMHSA - Substance Abuse and Mental Health Services Administration
- SEW - State Epidemiological Workgroup

- SPF SIG - Strategic Prevention Framework State Incentive Grant
- TEDS - Treatment Episode Data Set
- UCR - Uniform Crime Report
- ICD 9 CM - International Classification of Diseases, 9th revision, Clinical Modification
- ICD 10 CM - International Classification of Diseases, 10th revision, Clinical Modification
- LSI-R - Level of Service Inventory – Revised- prison inmates interview at admission

## 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.
- Alcohol-Related Traffic Injuries: Number of drivers that were injured in crash with BAC>0.01.
- 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.
- Confidence Intervals: A range of values for a variable of interest, (e.g. percent), constructed in such a way that the range has a specified probability to include the true value. The specified probability (e.g. 95%) is called the confidence level, and the end points are called the confidence limits. CI allow for comparison of values between two or more groups (When the CI are mutually exclusive or do not include zero then the findings are considered significant).
- Drivers involved in fatal crashes that have had a drink (%): Proportion of drivers in Fatal crashes (limited to drivers only) that have BAC>0.01.
- Fatal Car Crash Rates (per 100,000): Number of crashes resulting in fatalities divided by population times 100,000 (or total number of Vehicle Miles Traveled).
- Heavy Drinking: 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 While Intoxicated: Violation of Iowa Code chapter 321J (BAC>.08).
- 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).
- Probability: A measure ranging from 0 to 1 of the belief in a statement or hypothesis. Also measure of the likelihood an event will occur.
- P. Value: Probability of the observed results is due to chance.
- Public Intoxication: Violation of Iowa Code chapter 123.46.
- Rate: (Number of cases or events / total population)* 100,000.

- Underage Possession: Violation of Code 123.47A which prohibit minors from purchasing or attempting to purchase, or possessing or having control of alcoholic beverages.

## Table of Contents



## List of Tables

## List of Figures

# 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 Administration's Center for Substance Abuse Prevention, for a State Epidemiological Outcome Workgroup (Workgroup) to develop a state epidemiological profile. The Workgroup included representatives from agencies directly involved with preventing substance abuse in the state of Iowa. A separate Data Task Group was formed to develop criteria for selecting adequate indicators for the profile and to utilize 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 2007, 2008 and 2009 Profiles as well:

- Data available at the state (Iowa) level;
- 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 adequate sample size.

Approximately forty-five 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 counties. The magnitude of the indicators dictated the priorities chosen in the Strategic Prevention Framework State Incentive Grant application. After receiving the SPFSIG cooperative agreement, the 2010 epidemiological profile will serve as a continuation of the state epidemiologic outcome workgroup in the surveillance of substance use and its consequences. Key findings include:

## Alcohol

- Alcohol is the substance most frequently used by adults and youth in Iowa and the United States. Among clients included in the Treatment Episode Data Sets (TEDS, 2009), 8,663 (31.1%) reported alcohol as the only substance and 6,382 (22.9%) had alcohol associated with other secondary drugs followed by Marijuana and Methamphetamine. Iowa is among the 10 states with the highest reported binge drinking proportion, dropping from fifth rank in 2005-2006. Current alcohol use and binge drinking were differently associated with socioeconomic status. The proportion of current and binge drinkers was not different than the national proportion among those with low education and income. However, Iowans with education level greater than HS and higher income (over $35,000) were more likely to binge compared to their US counterparts.

- The proportion of Iowans over the age of 12 who viewed the consumption of five or more drinks of alcohol once or twice a week as a great risk (as defined by NSDUH), compared to the nation, is significantly lower. This difference is consistent over previous NSDUH years. The proportion of current alcohol use and binge drinking was higher in some

counties on the periphery of the state. Alcohol sales were associated with population density. Although more populous counties had higher per capita alcohol sales than less populous areas, there was no correlation with the level of consumption. College towns and resort areas also tended to have higher per capita alcohol sales.

- Among youth, there has been an across the board reduction of alcohol consumption since 1999. The proportion of youth reporting current alcohol use and binge drinking in the Youth Risk Behavior Survey (YRBS) was similar to the national rate in the context of a reduction of alcohol consumption over the last few years. Teen drunk driving or drugged-driving has also decreased according to the IYS from 1999 to 2010. These positive results may be associated with the increase in perception of great to moderate risk associated with consuming three or more alcoholic drinks nearly every day among the majority of students surveyed in Iowa.

- The health and social consequences of alcohol are numerous. The overall rate per 100,000 of school suspensions and expulsions because of alcohol decreased in 2008-2009. Adult Iowans (over 18 years old) made up the majority of liquor law arrests; however the age-specific rate indicated a greater risk in youth between 10 and 17 years of age. From 2005 to 2009, operating While Intoxicated (OWI) arrest rate per 100,000 Iowans displayed a small decrease (8%), while alcohol related conviction rates increased 17%. As a known contributor to domestic violence, the proportion of domestic violence involving alcohol fluctuated between 15-18% from 2003 to 2009, which amounted to 1,100-1,200 cases. While 80% of the cases occurred in females and Whites (including Hispanics), Blacks and Native-Americans presented the highest race-specific rates, which were respectively six and four times greater than among Whites. Among the 95% of Iowa inmates who were assessed using the Level of Service Inventory – Revised (LSI-R), 38% of inmates had a current alcohol problem, labeled as "interference" and over 70% had a lifetime alcohol problem. The level of interference was greater among underage, males and Native-American inmates.

- Alcohol abuse is implicated in mortality and morbidity. Alcohol associated deaths, identified using ICD 10 codes that are 100% attributed to alcohol, occur predominantly among males and Iowans older than 45. In 2009, there were 154 alcoholic cirrhosis deaths (ICD-10 code K70), corresponding to a 5.1 per 100,000 rate and a five-year (from 2005) increase of 48%. Alcohol cirrhosis deaths were associated with age, gender and racial/ethnic group. When adjusting for the effects of age, gender and even year, non-Hispanic Whites presented 2.3 times lesser risk of dying from alcohol cirrhosis compared to minorities. From 2000 to 2009, approximately one-quarter to one-third of Iowa traffic fatalities involved a driver who used alcohol, defined as having a Blood Alcohol Content (BAC) greater than 0.01. Iowa traffic fatalities reached a 10-year low of 372 cases. According to Centers of Disease Control and Prevention (CDC) alcohol and drug use are major risk factors of suicide (CDC- 2010). The number of suicides in Iowa has remained relatively stable in recent years, averaging approximately 325 suicides from 2000 to 2009. From 2005 to 2009, the total number of hospitalization events, identified using ICD9 codes 100% attributed to alcohol, increased 36% from 7,800 to 10,600 cases. The rates increased with age and were higher among males and Blacks. Suicide attempt

hospitalization rates were higher among the 18-24 and 45-64 age groups, females and Blacks. The number alcohol deaths and hospitalizations clustered in high population areas such as big cities.

## Tobacco

- Based upon NSDUH estimates, adult tobacco use in Iowa remained stable with approximately 714,000 (28.8%) reported users from 2003 to 2008. The proportion of current tobacco users was similar to national proportion. With the BRFSS, there was no difference in the proportion of adult (over 18 years of age) smokers in the state or the nation; even after stratifying by age, gender, and SES proxies (income and education level). The proportion of Iowans reporting smoking decreased from 2006 to 2009 with an average annual percent of around 7%. According to the NSDUH results, the overall perception of risk related to tobacco smoking one or more packs per day among Iowans over the age of 12 was significantly lower than the national perception.

- The IYS demonstrated a decline in tobacco use among Iowa youth, as manifested by a decrease in the number of youths reporting first use of cigarettes before age 13, in the proportion of students reporting past 30-days use, and in the increase of the proportion of students reporting high to moderate perception of risk associated with cigarette use.

- Tobacco compliance check data compiled by the Iowa Alcoholic Beverages Division (ABD) in the last seven fiscal years estimated the compliance rate between 88 to 93%. However, fewer checks were implemented in 2009. Tobacco consumption was more prevalent in some of the peripheral counties.

- Tobacco deaths, which were identified using ICD 10 codes (attributed to tobacco more than 85%), averaged 2,300 deaths per year, of which 71% occurred among the 65 and older. Males and Whites had a higher tobacco associated death rate compared to females and minorities. For every death attributed to tobacco, there were 10 hospitalizations. Lung cancer death significantly decreased in 2005 as well as hospitalization rates. Peripheral and mostly rural counties seem to have higher tobacco associated death rates.

## Illicit Drugs

- In the NSDUH, the prevalence of illicit drug use in Iowa has been holding steady at 4.0% (approximately 102,000) and was lower than the national percentage. The most used drug by Iowans was marijuana, followed by methamphetamine. Those who are 18 to 25 years old reported marijuana use in the past month more often than the other age groups. The perception of risk for using marijuana remained unchanged since its initial decrease in 2006 and was similar to the national estimate.

- The proportion of Iowans age 12 and older reporting non-medical use of pain relievers in the past year, as estimated by NSDUH, decreased contrary to the nation for which it remained stable.

- The 2007-2008 NSDUH estimated 24,000 Iowans 12-17 years old used illicit drugs during the past 30 days. Marijuana use by 6th, 8th, and 11th-graders in the IYS decreased significantly from 1999 to 2010. However, evidence of prescription drug abuse (non-medical use of pain relievers) shows an increased trend from 2005 to 2010. The abuse was greater among the 11th graders, increasing from a percentage of 4% in 2005 to 7% in 2008, while staying the same in 2010.

- Past-year illicit drug dependence or abuse in Iowa remained stable from the 2002-2003 NSDUH to 2007-2008. Around 11,000 arrests for drug violations per year were made in Iowa, which was a significant decrease from 2005. More than 86% of inmates with LSI-R had a lifetime drug problem and 46% had a current drug problem labeled as "interference." Drug interference occurred more frequently among prisoners under the age of 21 and Blacks but was not different by gender. The percent of confirmed or founded child abuse cases with the presence of illegal drugs (in a child's body) in Iowa has been decreasing since 2004 and was 3.7% in 2009. After the enactment of the pseudo-ephedrine law in 2005, the number of labs seized decreased on average 50% per year until 2008 when it started to increase. On average from 2005 to 2009, 840 Iowans will die because of a condition associated with illicit drug use. The number and rate were higher among the elderly (65 years and over) and the adult Iowans aged 45-64, males and among Whites and Blacks. Drug associated hospitalization averaged over 6,000 cases. The age-specific rates were higher among the 25-44, followed by the 18-24. As drug use was linked to the spread of HIV/AIDS infection, the AIDS surveillance system at IDPH estimated 11% out of the 120 new cases in 2010 to be injecting drug users (IDU).

## Conclusion

The SPF SIG Advisory Council identified underage drinking and adult binge drinking as its priorities for intervention. The 2010 EPI Profile included several other indicators associated to alcohol, tobacco and drug consumption and consequences, such as mortality and morbidity using ICD9 and ICD10 codes. Though tobacco use presented the greatest negative health impacts in terms of attributed deaths and hospitalizations, alcohol use was more pervasive and more encompassing in its consequences, including social, legal as well as mortality and morbidity. Therefore, the choice of the SPF SIG priorities is well founded.

## Introduction

Iowa, named after the Ioway Indian tribe, became the 29th state in 1846. It is known as the Hawkeye State and Des Moines is the capital city. 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, making it part of the Lewis and Clark Expedition.

Iowa faces many challenges in effectively addressing substance abuse and mental health problems. In 2005 (most current estimate available), the state has spent an estimated $899 million in 2005 (net reduction from the $3,678,682,400 in 1998) on burden imposed by substance abuse- including substance abuse costs incurred in such programs as health and mental health, corrections, child and family welfare. According to the 2009 Shoveling Up Report from the National Center on Addiction and Substance Abuse at Columbia University (CASA), while the state spends 94% of its total substance-related spending on remediating the effects of substance abuse, it is estimated that only 2.4% of the spending is geared towards prevention. The amount spent on research, prevention, and treatment of substance abuse ranks Iowa among the 10$^{th}$ states that spend the least in substance abuse prevention.

Through the department of public health, Iowa undertook a systematic process to identify and analyze the epidemiology of substance use and abuse in the state. The resulting epidemiological profiles of substance abuse helped assess substance abuse issues and prioritize prevention services. The profiles are divided into sections that summarize data by consumption patterns and consequences of use for the various substances.

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 Administration's Center for Substance Abuse Prevention, for a State Epidemiological Outcome Workgroup (SEOW). IDPH's Division of Behavioral Health, the Single State Agency for substance abuse prevention and treatment, administers the funding and activities of the SEOW. In 2009, the Iowa Department of Public Health was successfully awarded a Strategic Prevention Framework State Incentive Grant (SPF SIG), which is a cooperative agreement from SAMHSA to address underage drinking and adult binge drinking and related consequences in the state of Iowa.

## Process

Former IDPH Deputy Director Janet Zwick formed the Epidemiological Workgroup (Workgroup) in mid-2006 by inviting representatives from agencies directly involved with preventing substance abuse in the state. The members of the Workgroup include representatives from:

Division of Criminal and Juvenile Justice Planning
Iowa Consortium for Substance Abuse Research and Evaluation at the University of Iowa (Iowa Consortium)
Iowa Department of Education

Iowa Department of Corrections Iowa Department of Public Health
The Governor's Office of Drug Control Policy

During the summer and fall of 2006, a separate Data Task Group was formed to identify, analyze and select indicators for inclusion in Iowa's epidemiological profile. This smaller Data Task Group was, in practice, a sub-group of the Workgroup, with added members of an existing data committee from the Iowa Collaboration for Youth Development. The Data Task Group forwarded their findings and recommendations to the Workgroup, which made final decisions about which data should be included in the epidemiological profile. The Data Task Group consisted of individuals with extensive experience in using specific state and federal level data collection processes and data sets and included representatives from:

Division of Criminal and Juvenile Justice Planning
Governor's Traffic Safety Bureau
Iowa Consortium
Iowa Department of Education
Iowa Department of Public Health
Iowa Department of Public Safety

For the approximately 300 possible indicators, which are available in an appendix stored in the State Epidemiological Website, the Data Task Group identified potential data sources for each and determined the quality and characteristics of the datasets. Criteria for choosing the best indicators for the profile were later developed. The Workgroup emphasize including the applicable National Outcome Measures (NOMs) in the list of indicators. The following criteria were used in the selection process:

- Data available at State (Iowa) level;
- Sample covers all geographic areas;
- Sample covers age range;
- Data collected at least every two years;
- Measures directly related or strongly associated with 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 (some redundancy is acceptable); and Closeness to consequence (where applicable).

After the master indicators list was complete and the selection criteria developed, the Data Task Group began to select indicators for the profile (See standalone appendix). The indicator selection process lasted two months, culminating in the Data Task Group's assistance in securing state-level data. Most of the indicators were discarded for at least one of the following reasons:

- No useful data source was available;
- Significant problems existed with the data source, such as inadequate sample size, unavailability of raw data, and inconsistent reporting; and
- There was a lack of strong relationship or association between ATOD use and a given consequence.

The Data Task Group arranged the indicators according to consumption or consequences for alcohol, tobacco, and illicit drugs and rejected some national datasets that were not representative of Iowa because of small or replacement population samples. The Data Task Group decided to focus on state-level datasets because they were more representative. These datasets included the Behavioral Risk Factor Surveillance System (BRFSS), vital records, birth and death certificates, and the Iowa Youth Survey (IYS).

The statistical analysis system (SAS) was used to perform manipulation and analysis on data collected in the department (IDPH). The SAS-callable Software for Statistical Data Analysis (SUDAAN), specifically designed for analysis of correlated and multilevel survey data was used for the analysis of the BRFSS. The BRFSS analysis used several years of data and when appropriate (county estimation for example) the variable year was used as a nesting variable in addition to the survey sampling strata to apply the appropriate weight and generate stable estimates.

## What is New in the 2010 EPI Profile?

First, the prevalence indicators were assessed across socio-economical characteristics such as education and income using the BRFSS 2007 and 2009.

Second, yearly estimates (2005-2009) of the indicators of substance abuse consequences, alcohol, tobacco and illicit drugs related deaths and hospitalizations. For alcohol and tobacco deaths, this profile used two CDC web-based query systems, the Alcohol Related Disease Impact (ARDI) and Smoking-Attributable Mortality, Morbidity, and Economic Costs and (SAMMEC), respectively. From those two systems, which use attributable-fractions (AF) from the available research, five-year (2001-2005) average numbers of deaths attributed to the use of substance are provided. In addition, included were the standard annual legislative updates that used different methodologies for identifying alcohol, tobacco and illicit drugs from the ICD10 codes developed by Pacific Institute Research Enterprise (PIRE) - (Appendix). The legislative updates methodology selected in all available diagnostic fields (21) from death certificates, ICD10 codes associated with 100% AF for alcohol and drugs, and 85% or more AF for tobacco. The goal for including those indicators in this profile was to standardize reporting in the future and also estimate the burden of substance abuse in terms of mortality and morbidity.

Third, county distribution maps using ARC VIEW software are provided. With regards to the BRFSS data, county prevalence was estimated using 2007 to 2009 following the 2006-2008. The county estimates were compared to the state rate, considered as the mid-cut off value. Following the natural break of one standard deviation, four county groups were created with two lower than or equal to the state rate and two greater than the state rate. In this project, considering the standard deviation, counties with significantly different values than the state tended to belong to

the last group in the interval scale. Hence, only counties in red (or dark) were considered having a problem associated to that indicator higher than the state.

# RESULTS

# ALCOHOL

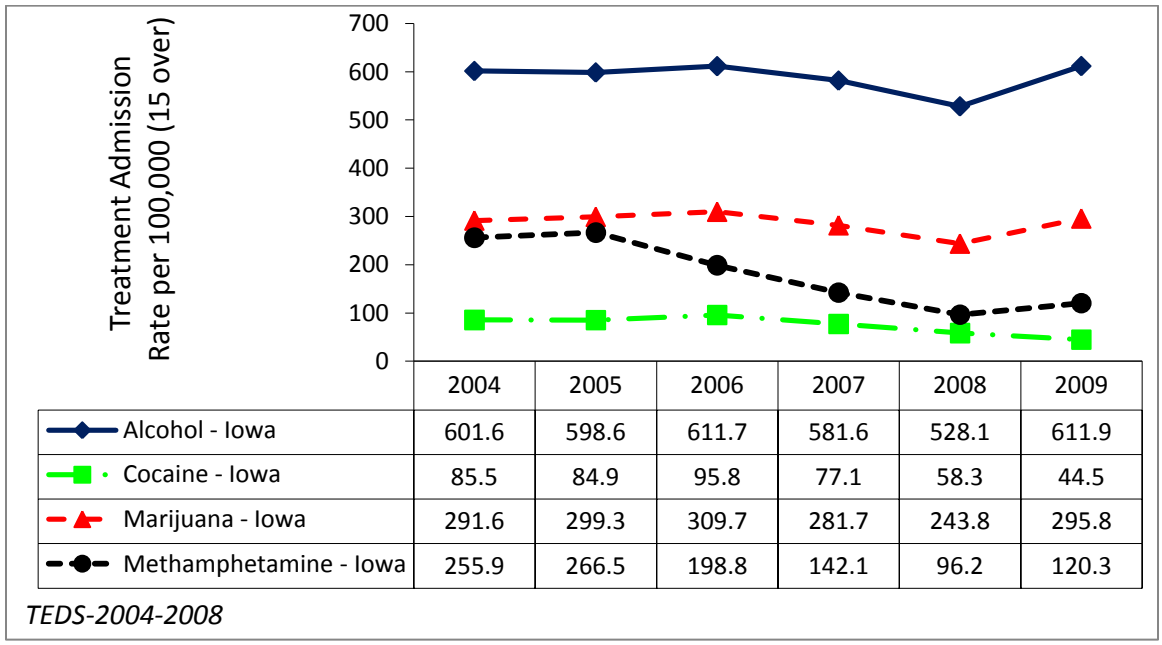
## Consumption

Alcohol is the substance most frequently used by adults and youth in Iowa and across the United States. According to the Organization for Economic Cooperation and Development (OECD), the United States ranks 20th behind Luxembourg, France and Ireland in alcohol consumption as estimated by the per capita pure alcohol consumption in liters among population over the age of 15 years.[1]

Substance Abuse Treatment Services

Treatment Episode Data Sets (TEDS):
The analysis of Iowa substance abuse treatment services data has revealed alcohol as the most reported substance of use by individuals on admission. Among clients who were included in the Treatment Episode Data Sets (TEDS, 2009)[2], 8,663 (31.1%) reported alcohol as the only substance and 6,382 (22.9%) had alcohol associated with other secondary drug. Marijuana, methamphetamine, and cocaine are the next most cited substances with a respective proportion of 26.1%, 10.6% and 4%.

**Figure 1: Per-Capita Primary Substance of Use as Reported upon Entry into Treatment - 15 and older, TEDS**




| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|
| Alcohol - Iowa | 601.6 | 598.6 | 611.7 | 581.6 | 528.1 | 611.9 |
| Cocaine - Iowa | 85.5 | 84.9 | 95.8 | 77.1 | 58.3 | 44.5 |
| Marijuana - Iowa | 291.6 | 299.3 | 309.7 | 281.7 | 243.8 | 295.8 |
| Methamphetamine - Iowa | 255.9 | 266.5 | 198.8 | 142.1 | 96.2 | 120.3 |

*TEDS-2004-2008*

Over two-thirds of the clients were males (68.9%), aged 18-45 (74%) and Whites (87.7%). Males were more likely than females to report alcohol only or alcohol associated with a secondary drug, marijuana or heroin, as a primary substance for which treatment was sought. The proportion of females reporting amphetamine, smoked-cocaine and other opiates tended to be the same as among males. The proportion of minorities was much greater among clients reporting smoked-cocaine compared to other substances (Table 1). The rates of clients per

100,000 Iowans over the age of 15 reporting a primary substance increased from 2008 to 2009 except for cocaine, which was subjected to a 21% decrease from the 2008 rate of 58.3 to 44.5 per 100,000 in 2009. Compared the 2008, the rate of admissions increased 16% for alcohol and 21% for marijuana and methamphetamine. This increase may reflect the funding services to facilitate access to substance abuse treatment at the state level, provided by the Access to Recovery (ATR) grant, or simply better reporting capabilities to SAMHSA through I-SMART. However, when considering the overall five-year trend (2005 to 2009) only methamphetamine admission rate decreased effectively.

**Table 1: Primary Substance Abuse Reported during Admissions to Treatment by Demographics, Iowa-TEDS 2009**

| STATE: IOWA | Primary Substance | Alcohol only | Alcohol with secondary drugs | Marijuana | Meth/ Amph. | Cocaine (smoked) | Cocaine (other route) | Heroin | Other opiate | Other Drugs |
|---|---|---|---|---|---|---|---|---|---|---|
| Total | 27,828 | 8,663 | 6,382 | 7,272 | 2,945 | 824 | 270 | 207 | 880 | 385 |
| % | 100 | 31.1 | 22.9 | 26.1 | 10.6 | 3.0 | 1.0 | 0.7 | 3.2 | 1.4 |
| AGE AT ADMISSION (%) | | | | | | | | | | |
| 12--17 | 9.6 | 3.6 | 7.9 | 23.5 | 1.8 | 0.7 | 2.2 | 0.5 | 2.0 | 18.6 |
| 18-25 | 29.1 | 22.0 | 31.1 | 41.9 | 20.6 | 11.6 | 23.0 | 35.3 | 24.9 | 29.6 |
| 26-45 | 45.0 | 46.2 | 46.1 | 30.1 | 65.9 | 64.3 | 61.1 | 43.4 | 59.4 | 36.7 |
| 46-65 | 15.7 | 26.6 | 14.7 | 4.6 | 11.6 | 23.3 | 12.9 | 20.3 | 13.5 | 14.7 |
| >= 66 | 0.6 | 1.7 | 0.2 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.4 |
| SEX (%) | | | | | | | | | | |
| Male | 68.6 | 71.9 | 71.8 | 73.1 | 55.6 | 47.8 | 64.8 | 63.3 | 49.5 | 46.2 |
| Female | 31.4 | 28.1 | 28.2 | 26.9 | 44.4 | 52.2 | 35.2 | 36.7 | 50.5 | 53.8 |
| RACE (%) | | | | | | | | | | |
| Whites | 87.7 | 91.3 | 88.2 | 82.3 | 96.1 | 60.0 | 74.8 | 80.7 | 95.0 | 88.5 |
| Minorities | 12.3 | 8.7 | 11.8 | 17.7 | 3.9 | 40.1 | 25.2 | 19.3 | 5.1 | 11.5 |
| ETHNICITY (%) | | | | | | | | | | |
| Hispanics | 5.0 | 5.4 | 4.7 | 5.9 | 3.6 | 3.8 | 8.9 | 3.4 | 1.7 | 4.1 |
| Non-Hispanics | 95.0 | 94.6 | 95.3 | 94.1 | 96.4 | 96.2 | 91.1 | 96.6 | 98.3 | 95.9 |

**Notes: Meth. = Methamphetamine; Amph. =Amphetamine; Minorities include Blacks, Native-Americans and Hawaiians, Asians and Pacific Islanders**

Adult Consumption Patterns

*At the State level*

Consumption Indicator (NSDUH):
The 2008 NSDUH estimated approximately 1,339,000 (54.0%) of Iowa residents 12 years of age or older had used alcohol during the past month, which was not different from the 2006-2007 findings. Past month alcohol use was assessed in the NSDUH by asking "…*During the past 30 days, on how many days did you drink one or more drinks of an alcoholic beverage*?" When a

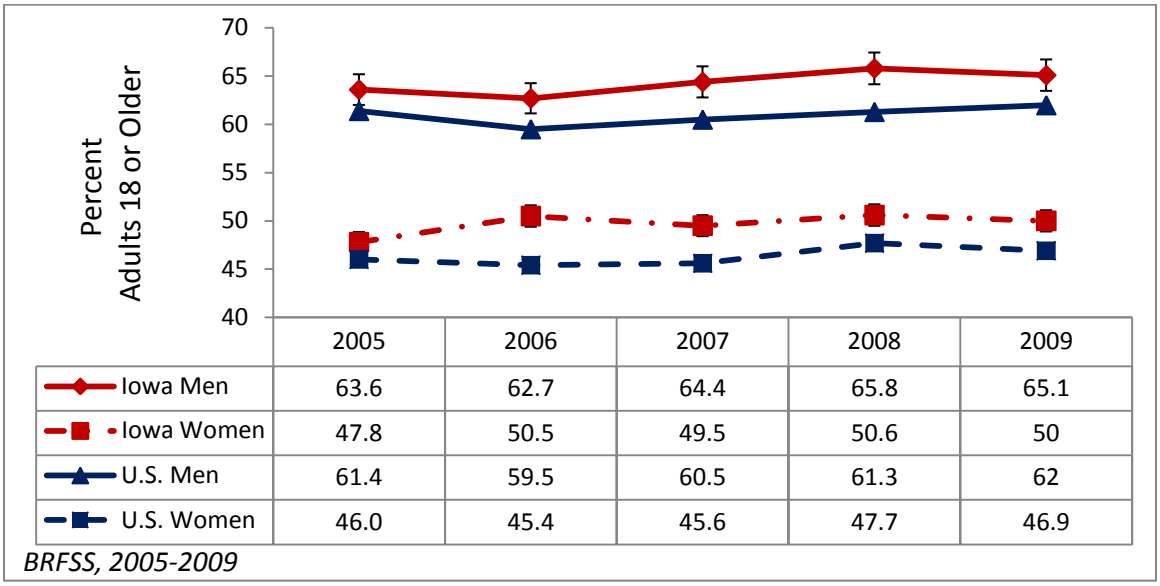
respondent reported at least one day within the last 30-day, he was considered as a current drinker.

Among the 12 years of age and older Iowans, 674,000 (27.2%) had binged on alcohol during the past month. The prevalence of binge drinking in Iowa is significantly higher than the nation, whose prevalence was 23.3%. Binge drinking was assessed by asking "*During the past 30 days …, on how many days did you have 5 or more drinks on the same occasion? By occasion, we mean at the same time or within a couple of hours of each other.*" In terms of the ranking of prevalence point estimates, Iowa is among the 10 states with the highest reported binge drinking. On a positive note, Iowa's rank has been dropping over the years since SEW started working on the epidemiological profile.

Compared to the nation, Iowans had a significant lower perception of great to moderate risk of binge drinking than the national average. The 2007-2008 NSDUH report estimated that only 37.0% of Iowans aged 12 years or older felt that five or more drinks of alcohol once or twice a week presented great to moderate risks. The Iowa rate was 13% lower than the national rate of 41.9%, approximately. The perception of risk was assessed by asking "*How much do people risk harming themselves physically or in any other ways when they have four or five drinks of an alcoholic beverage once or twice a week?*" These results showed that alcohol use is not deemed as high of a risk in Iowa as it is across the nation. Despite a regular increase in the proportion of Iowans reporting perception of "greater to moderate risk", the situation is still matter of concern.

Current Consumption (BRFSS):
In 2009, more than one-half (58.0%) of adult Iowans had consumed alcohol in the past month as reported in the BRFSS. The survey assesses current alcohol use by asking "*During the past 30 days, have you had at least one drink of any alcoholic beverage such as beer, wine, a malt beverage, or liquor*?" and by "*During the past 30 days, how many days per week or per month did you have at least one drink of any alcoholic beverage?*" Person who responded to "yes" on the first question or at least one day on the second was considered as a current alcohol user. More Iowa men than women reported current (past 30-day) alcohol use, reflecting the national tendency. However, based on estimates from the 2003-2009 BRFSS, alcohol use among men and women is significantly different in Iowa compared to the nation (Figure 2). The age groups that reported the highest percent of past 30-day alcohol use include 25-34 year-olds and 35-44 year-olds. Although Iowa seems to have higher 30-day alcohol use prevalence than the nation among the other age groups (except for the 65+), the age-specific rates were not significantly different (Table 2).

**Figure 2: Percent Reporting Alcohol Use in Past 30 Days by Gender- 18 and older, BRFSS**




| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Iowa Men | 63.6 | 62.7 | 64.4 | 65.8 | 65.1 |
| Iowa Women | 47.8 | 50.5 | 49.5 | 50.6 | 50 |
| U.S. Men | 61.4 | 59.5 | 60.5 | 61.3 | 62 |
| U.S. Women | 46.0 | 45.4 | 45.6 | 47.7 | 46.9 |

*BRFSS, 2005-2009*

**Note: Confidence intervals allow comparison of Iowa and U.S**

**Table 2: Percent Reporting Past-30-Day Alcohol Use by Age, BRFSS 2007-2009**

| Year | 2007 | | 2008 | | 2009 | |
|---|---|---|---|---|---|---|
| Age | Iowa | Nation | Iowa | Nation | Iowa | Nation |
| 18-24 | 52.7 | 52.6 | 54 | 49.9 | 52.6 | 49.9 |
| 25-34 | 69.2 | 58.0 | 70.0 | 60.5 | 68.3 | 60.2 |
| 35-44 | 66.7 | 58.2 | 67.2 | 60.5 | 67.2 | 60.3 |
| 45-54 | 61.5 | 55.8 | 61.5 | 58.5 | 64.3 | 57.6 |
| 55-64 | 55.3 | 50.8 | 54.9 | 53.5 | 56.5 | 54.1 |
| 65+ | 36.1 | 39.4 | 39.2 | 40.7 | 36.8 | 41.0 |

Current drinking proportion (30-day) was associated with socio-economical status (SES), which was assessed by its proxies, level of educational achievement and income. The proportion of Iowans reporting 30-day alcohol use was greater among those who had college degree (68.9%) compared to those who had less than HS education (29.3%) or HS diploma/GED (50.7%) or some post-HS education (60.7%). Compared to the nation, the proportion of current drinkers was higher across all levels of education except for those who had less than HS education. Stratified by income, there was no difference in the proportion of 30-day alcohol users between the state and the nation, except for those whose income ranged between $35,000 and $49,999. The proportion of current alcohol users was higher among Iowans with higher income. Over the $35,000 income mark, the proportion of current alcohol users ranged from 55% to 75%. Below the $35,000 income level, the proportion of current alcohol use was not significantly different (Table 3).

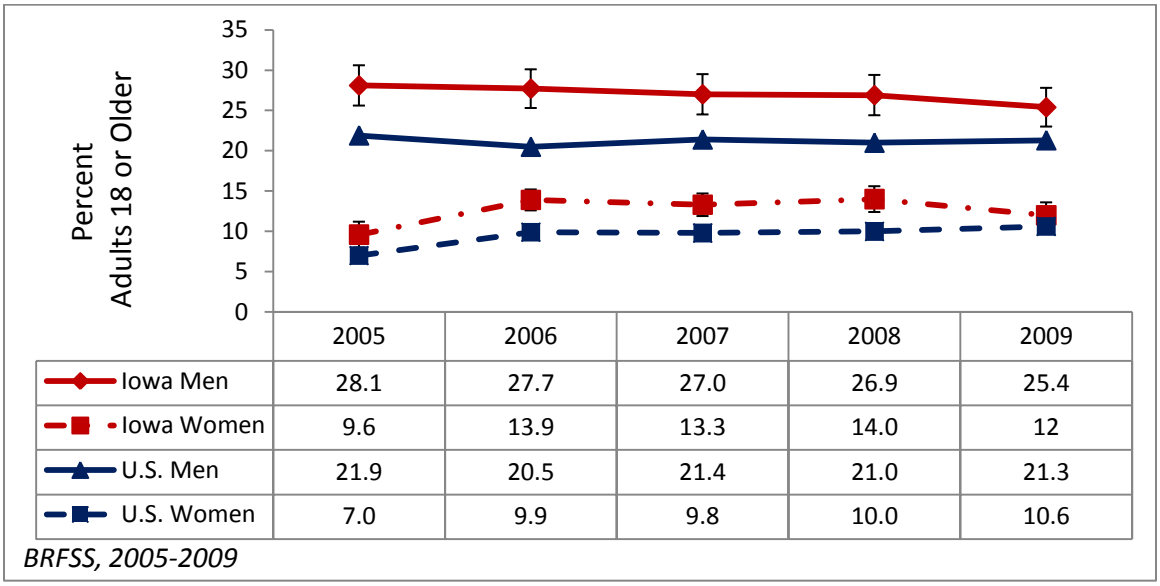
**Table 3: Percent Reporting Past-30-Day Alcohol Use by Education level achievement and Income, BRFSS 2007-2009**

| | 2007 | | 2008 | | 2009 | |
|---|---|---|---|---|---|---|
| **Proxy- SES** | **Nation** | **Iowa** | **Nation** | **Iowa** | **Nation** | **Iowa** |
| Education | | | | | | |
| Less than H.S. | 34.2 | 34.9 | 32.3 | 38.3 | 30.7 | 29.3 |
| H.S. or G.E.D. | 46.7 | 50.4 | 46.3 | **51.6** | 45.7 | **50.6** |
| Some post-H.S. | 56.5 | 57.8 | 55.3 | **59.5** | 56.3 | **60.7** |
| College graduate | 65.4 | **70.5** | 66.2 | 68.3 | 66.1 | **68.9** |
| Income | | | | | | |
| Less than $15,000 | 33.5 | 31.6 | 32.4 | 39.2 | 31.5 | **40.4** |
| $15,000- 24,999 | 38.4 | 37.1 | 39.2 | 39.8 | 39.4 | 43.4 |
| $25,000- 34,999 | 47.4 | 52.5 | 47.3 | 51.4 | 46.7 | 47.9 |
| $35,000- 49,999 | 53.7 | **62.4** | 53.3 | **58.4** | 53.4 | **59.2** |
| $50,000+ | 67.4 | **70.2** | 66.6 | **69.4** | 67.9 | 68.1 |

**Notes: H.S= 'High School'; G.E.D: General Education Development; bolded values= Iowa results are significantly higher than national;**

According to the 2009 BRFSS, binge drinking, defined as "*having five or more alcohol drinks on one occasion for males (four drinks in females)*," is significantly higher in Iowa (18.5%) than in the United States (15.8%). Iowa binge drinking rates for women and men were higher in previous years. In 2009, the difference was still higher among Iowa males then the US (25.4% vs. 21.3%) but not so for Iowa females (12.0% vs. 10.6%), (Figure 3). The age-stratified estimates of the proportion of binge drinking among Iowans were not significantly different in younger age groups compared to the oldest. However when compared to the nation, Iowa binge drinking rates were different across several age groups. In 2007 and 2008, Iowans between the ages of 25 to 54 years of age were more likely to binge drink. The difference ceased to be significant among the 55-64 age groups in 2009 (Table 4). A binge drinking construct, ratio of 30-day use and binge drinking, estimated that nearly three in five 18-24 year-old Iowans reporting drinking engaged in binge drinking. This proportion of current drinkers who also binge drink decreased as people aged (Table 5).

**Figure 3: Percent Reporting Binge Drinking in Past Month- 18 and older, BRFSS 2005-2009**




| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Iowa Men | 28.1 | 27.7 | 27.0 | 26.9 | 25.4 |
| Iowa Women | 9.6 | 13.9 | 13.3 | 14.0 | 12 |
| U.S. Men | 21.9 | 20.5 | 21.4 | 21.0 | 21.3 |
| U.S. Women | 7.0 | 9.9 | 9.8 | 10.0 | 10.6 |

*BRFSS, 2005-2009*

**Note: The binge drinking question was changed in 2006; the number of drinks per occasion for women to be considered binge drinking was lowered from five to four**

**Table 4: Percent Reporting Binge Drinking in the Past Month by Age, BRFSS 2007-2009**

| Year | 2007 | | 2008 | | 2009 | |
|---|---|---|---|---|---|---|
| Age | Iowa | Nation | Iowa | Nation | Iowa | Nation |
| 18-24 | 30.8 | 26.5 | 31.7 | 24.7 | 27.6 | 25.2 |
| 25-34 | 31.3 | 22.7 | 32.9 | 23.8 | 29.3 | 23.9 |
| 35-44 | 26.5 | 18.0 | 24.8 | 18.1 | 25.2 | 18.4 |
| 45-54 | 20.6 | 14.3 | 21.1 | 14.2 | 19.4 | 14.4 |
| 55-64 | 10.9 | 9.0 | 11.5 | 8.6 | 10.9 | 9.4 |
| 65+ | 2.7 | 3.8 | 2.8 | 3.2 | 2.8 | 3.5 |

**Note: The binge drinking question was changed in 2006; the number of drinks per occasion for women to be considered binge drinking was lowered from five to four**

**Table 5: Estimated Percent of Binge Drinking among Those Who Reported Past 30-Day use, BRFSS 2009**

| | Age | | | | | |
|---|---|---|---|---|---|---|
| Percent | 18-24 | 25-34 | 35-44 | 45-54 | 55-64 | 65+ |
| 30-Day Alcohol Use | 54.0 | 70.0 | 67.2 | 61.5 | 54.9 | 39.2 |
| 30-Day Binge Drink | 31.7 | 32.9 | 24.8 | 21.1 | 11.5 | 2.8 |
| Drinkers who Binge Drink | 58.7 | 47.0 | 36.9 | 34.3 | 20.9 | 7.1 |

**Note: Drinkers who Binge Drink is a construct obtained by dividing the 30-day Binge Drink by the 30-day Alcohol Use percentage.**

Among Iowans, except for the group that had less than high school education with the lowest binge drinking percentage, the proportion of adult reporting binge drinking the past month was not different by education and income levels. However, when compared to the nation, the result was different. Iowans with education level greater than HS were more likely to binge compared to their US counterparts. In addition, increased level of income was associated with differences in the proportion of binge drinkers. Above the income level of $35,000, binge drinking in Iowa was more prevalent than in the US (Table 6).

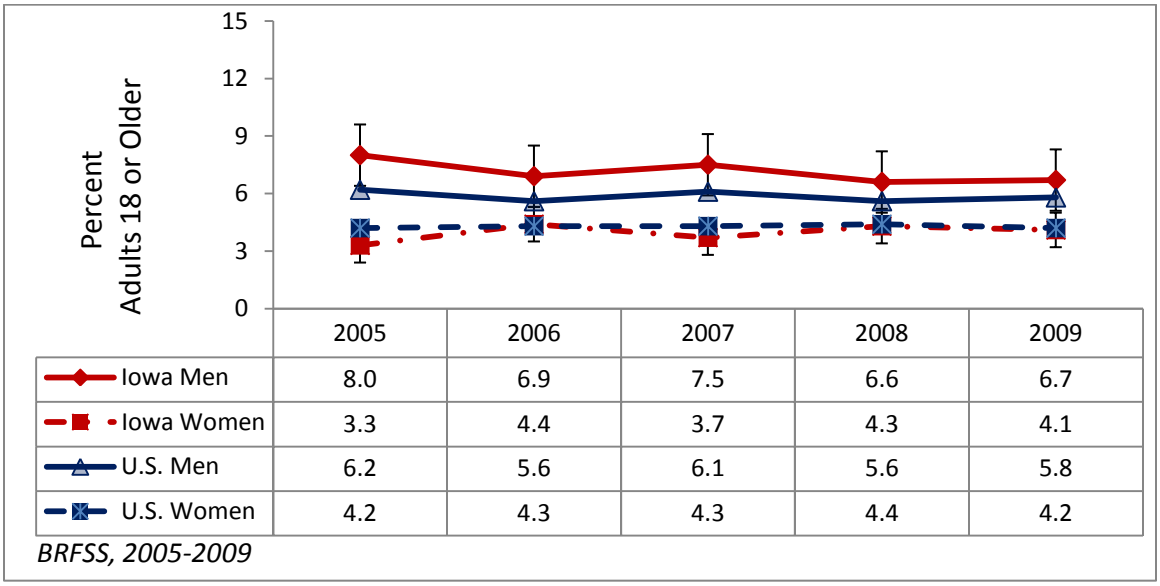
**Table 6: Percent Reporting Binge Drinking by SES proxies, Education and Income level, BRFSS 2007-2009**

| | 2007 | | 2008 | | 2009 | |
|---|---|---|---|---|---|---|
| **Characteristics** | **Nation** | **Iowa** | **Nation** | **Iowa** | **Nation** | **Iowa** |
| Education | | | | | | |
| Less than H.S. | 13.3 | 13.6 | 12.2 | 12.1 | 11.6 | 9.9 |
| H.S. or G.E.D. | 16.0 | 18.4 | 15.7 | **20.5** | 15.5 | **18.9** |
| Some post-H.S. | 16.5 | **22.3** | 15.7 | **23.1** | 16.3 | **21.0** |
| College graduate | 14.1 | **21.3** | 14.8 | **19.0** | 14.8 | **17.8** |
| Income | | | | | | |
| Less than $15,000 | 11.0 | 11.0 | 10.9 | 20.0 | 11.1 | 19.7 |
| $15,000- 24,999 | 12.7 | 14.3 | 12.9 | 12.5 | 12.6 | 15.8 |
| $25,000- 34,999 | 14.7 | 18.3 | 12.9 | 15.5 | 14.3 | 13.9 |
| $35,000- 49,999 | 16.4 | **22.0** | 16.1 | **20.8** | 15.1 | **19.3** |
| $50,000+ | 17.9 | **25.4** | 17.8 | **25.5** | 18.4 | **21.3** |

**Notes: H.S= High School, G.E.D= General Education Diploma, bolded values are statistically significant from the nation;**

Heavy drinking is defined in the BRFSS as the "*consumption of more than two drinks per day by adult men and more than one drink per day by adult women*." In 2009, there was no difference between the heavy drinking rate in Iowa women and women nationally, or in Iowa men and men nationally (Figure 4). When stratified by age or SES proxies the rates were not different (data not shown).

**Figure 4: Percent Reporting Heavy Drinking in Past Month- 18 and older, BRFSS**




| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Iowa Men | 8.0 | 6.9 | 7.5 | 6.6 | 6.7 |
| Iowa Women | 3.3 | 4.4 | 3.7 | 4.3 | 4.1 |
| U.S. Men | 6.2 | 5.6 | 6.1 | 5.6 | 5.8 |
| U.S. Women | 4.2 | 4.3 | 4.3 | 4.4 | 4.2 |

*BRFSS, 2005-2009*

Other Consumption Indicators:
The proportion of Iowans over the age of 12 who viewed the "consumption of five or more drinks of alcohol once or twice a week as a great risk to moderate risk" (as defined by NSDUH), compared to the nation, is significantly lower. This difference is consistent over the previous NSDUH years (Figure 5). The lower perception of risk in Iowa compared to the nation echoes the difference in binge drinking rates.

Alcohol sales are still on the slow and steady rise, between 3 to 5% increase per year (Figure 6). On average in Iowa, alcohol sales amount to two gallons per person for a total over 4,000,000 gallons. Gender strongly relates to alcohol consumption patterns.

Men are more likely than women to be current alcohol users, to engage in binge or heavy drinking. This gender effect occurs at both state and national levels. Data on Alcohol use by pregnant women are no longer collected as of January 1, 2007 due to questions regarding accuracy. Due to the small number of Iowa minority participants in the NSDUH and BRFSS, no meaningful comparisons among racial groups can be drawn.

**Figure 5: Percent Reporting Perceived Risk of Alcohol Use- 12 and Older, NSDUH**

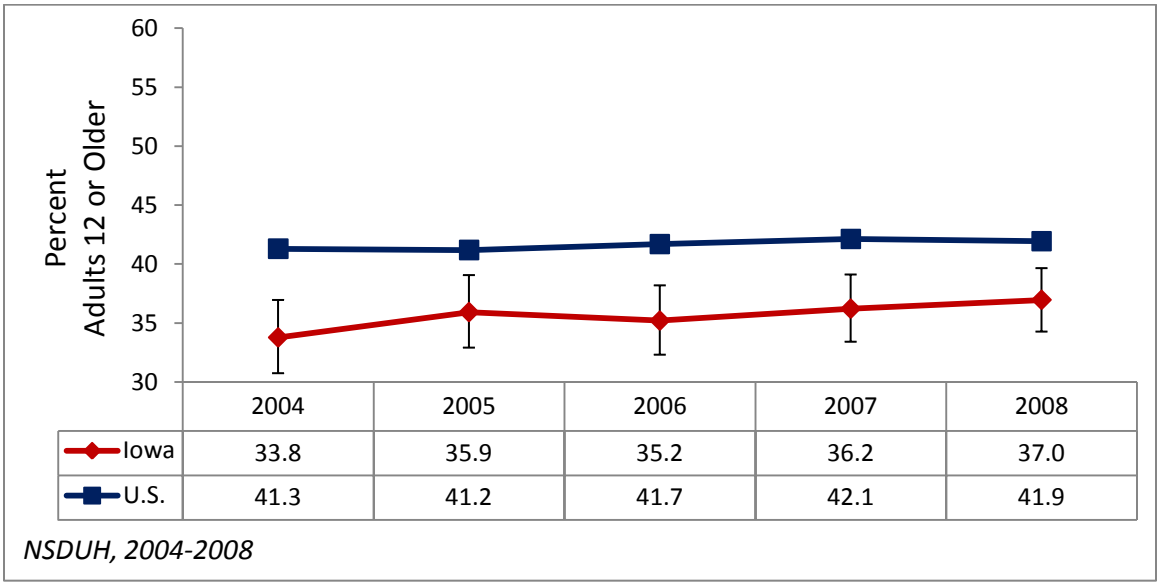
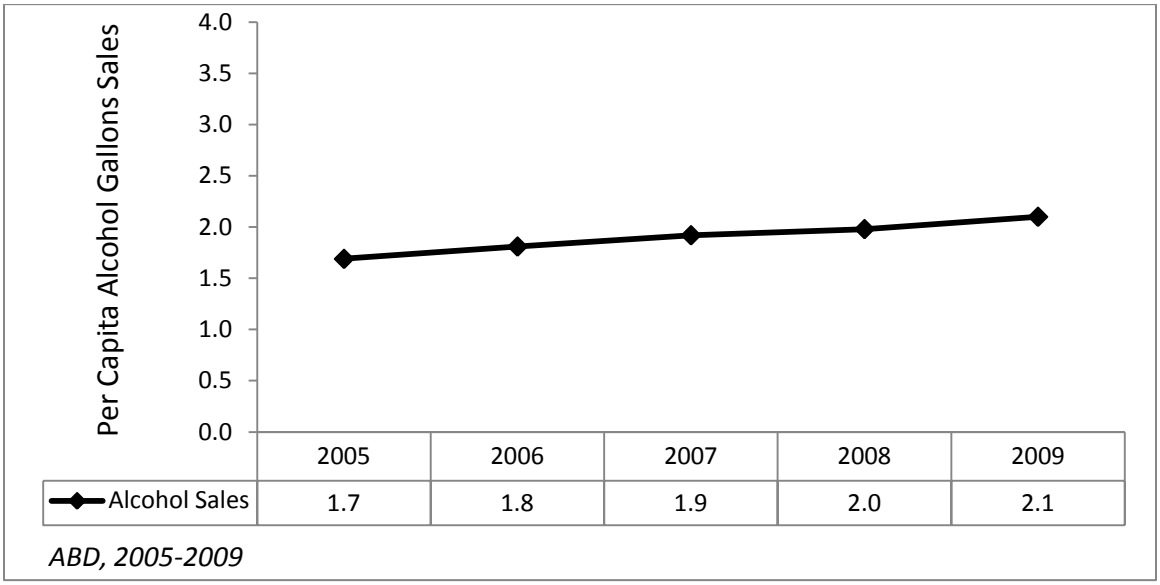



**Figure 6: Per Capita Alcohol Gallon Sales, Iowa Alcoholic Beverages Division - ABD**




**Note: ABD uses 2000 Iowa census of people 21 and older to calculate per capita sales;**

*At the County Level*

To be consistent with 2009 profile, which used eight-year and three-year combined estimates respectively for current alcohol and binge drinking prevalence, maps of alcohol use and binge drinking were produced with the combined BRFSS 2003-2009 and BRFSS 2007-2009. Keeping in mind the BRFSS variability, there was no significant change in the number of counties that had significantly higher proportion of adults reporting 30 day alcohol use (Figure 7). The four extra counties had, previously, marginally higher proportion of adult drinkers.

The distribution of binge drinking was still higher in counties on the periphery of the state but with an increasing number of counties with higher rate than in 2009 profile. Over half of the counties with binge drinking prevalence greater than the state average, clustered on the central northeast region of the state, bordering Illinois (Figure 8).

Alcohol sales (measured as per capita gallon sales) have grown from 1.5 gallons in fiscal year 2003 to 2.1 gallons in fiscal year 2009. An Iowa map showing alcohol sales by county reveals that areas of higher population density generally have higher alcohol sales than less populous areas. College towns and resort areas also tended to have higher alcohol sales (Figure 9).

**Figure 7: Percent Distribution of Adults Reporting 30-Day Alcohol Use by County - 2003-2009, BRFSS**

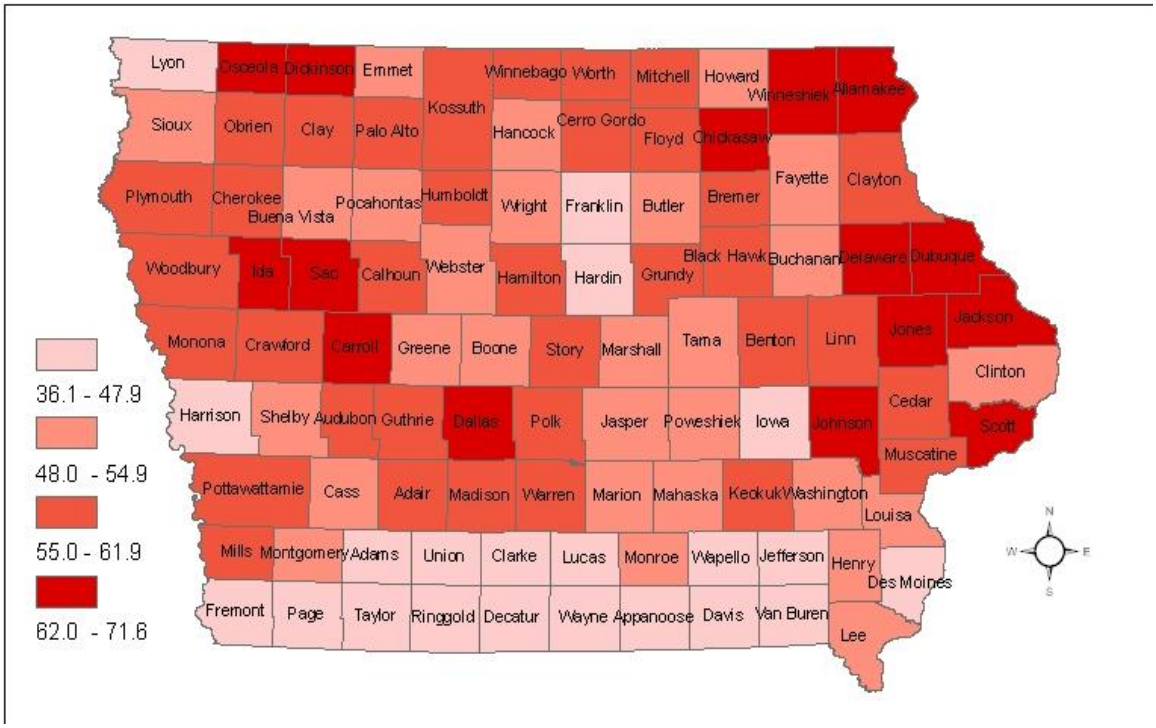
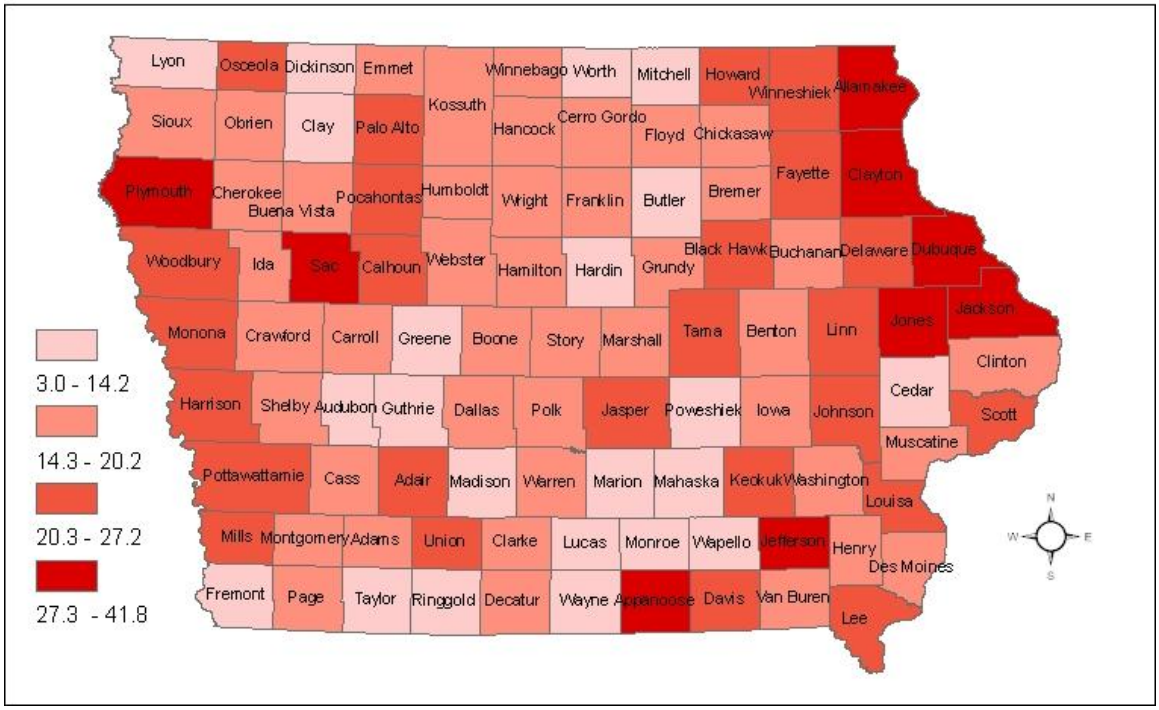
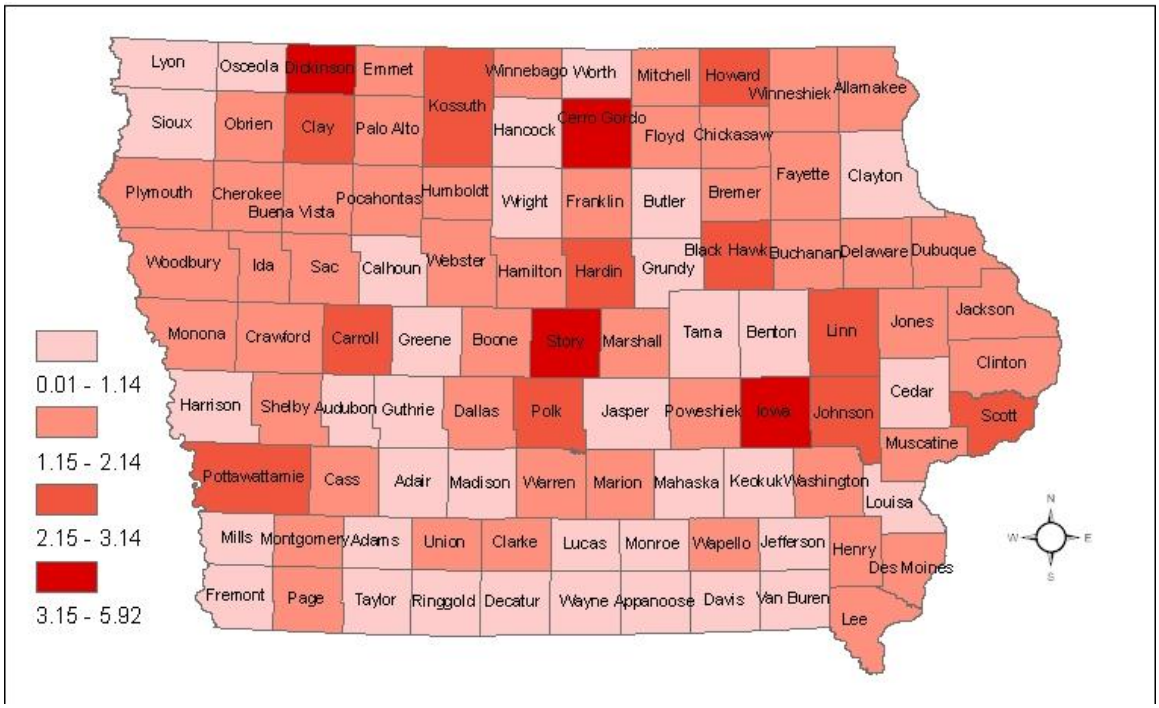


**Figure 8: Percent Distribution of Adults Reporting Binge Drinking by County - 2007 to 2009, BRFSS**




**Note: BRFSS Binge Drinking was changed in 2006 with females asked 4 or more drinks**

**Figure 9: Distribution of Per Capita Gallon Sales by County - Iowa Alcohol Bureau Division, 2010**



Youth Consumption Patterns

*At the State Level*

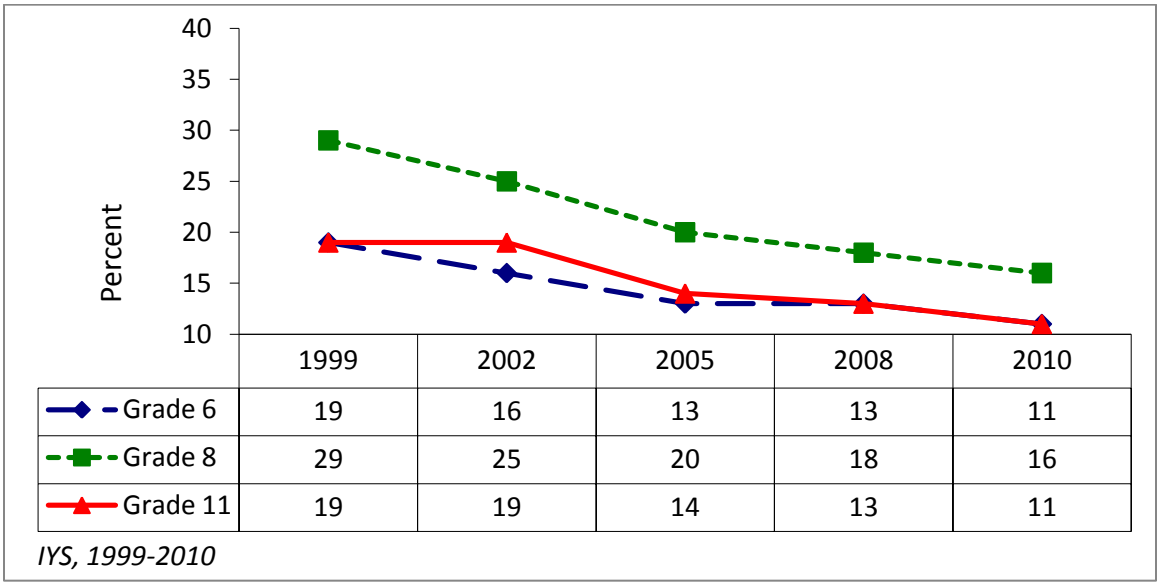
The Iowa Youth Survey (IYS) is a biennial census assessment of Iowa's 6th, 8th, and 11th-grade students' attitudes toward substance use and actual usage. The 2010 IYS was completed by a total of 78,382 students compared to 97,741 in 2008, a 19% decrease in participation rate. The students came from 338 schools (307 public and 31 private) equivalent to 14% decrease in the number of schools. Several programmatic issues that call for caution when reporting the trends need to be addressed. The survey was first implemented online in 2008 with the participation of 395 schools. However in 2009, funding limitations reduced the school's incentive to participate. Faced with response delays, the department offered an extension of the survey period to accommodate additional districts. According to the 2010 report, the results from the districts that participated late were different to those that did earlier by only a few percentage points (IYS report, 2010).

The IYS is used to report youth consumption patterns in this profile because it is much more reflective of Iowa than the national surveys. The limitations in national surveys are the use of small sample sizes, combined data from multiple years or data from "similar" states to generate Iowa reports. National survey methods may not adequately reflect Iowa youth ATOD use and beliefs.

The reported proportion of students using alcohol before the age of 13 has fallen from 1999 to 2010 (Figure 10). Alcohol use before the age of 13 is assessed by asking: "*How old were you (if ever) when you first: Drank (more than a few sips) of alcohol (beer, wine, liquor).* " In 2010, 13% of all students surveyed responded younger than 13. The proportion was greater among 8th graders reaching 16% compared to 11% among 6th and 11th.

Past month or 30-day alcohol use is assessed by asking the students "*In the past 30 days, on how many days have you: Had at least one drink of alcohol (glass, bottle or can of beer; glass of wine, liquor or mixed drinks)?*" The proportion of student who responded one or more days has been steadily falling for each grade reported in the IYS since 1999 (Figure 11). However, for 6th and 8th graders, the proportion reporting 30-day alcohol use was constant since 2005, ranging between 4-5% and 13-15%, respectively. For 11th graders, the downward trend is positive, but one out of three students had at least one drink of alcohol in the past month. Even though the IYS shows a downward trend in current alcohol use, Iowa teens continue to use alcohol at a similar rate as teens nationally. According to the 2007-2008 NSDUH, there is no significant difference in the rate of current alcohol use by 12 to 17 year-olds in Iowa (17.1%) and nationwide (16.3%).

**Figure 10: Percent of 6th, 8th, and 11th Graders Reporting Drinking Before the Age of 13, IYS**

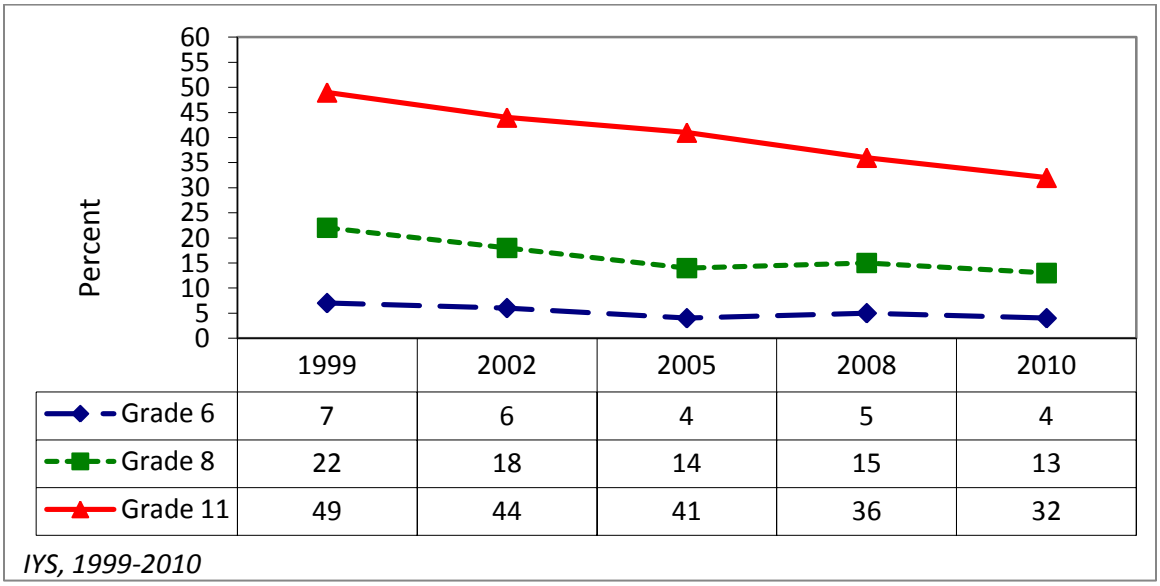



| | 1999 | 2002 | 2005 | 2008 | 2010 |
|---|---|---|---|---|---|
| Grade 6 | 19 | 16 | 13 | 13 | 11 |
| Grade 8 | 29 | 25 | 20 | 18 | 16 |
| Grade 11 | 19 | 19 | 14 | 13 | 11 |

*IYS, 1999-2010*

**Note: Error bars are too small to represent and are less than +/- 1%.**

**Figure 11: Percent of 6th, 8th, and 11th-Graders Reporting Past 30-Day Use of Alcohol, IYS**



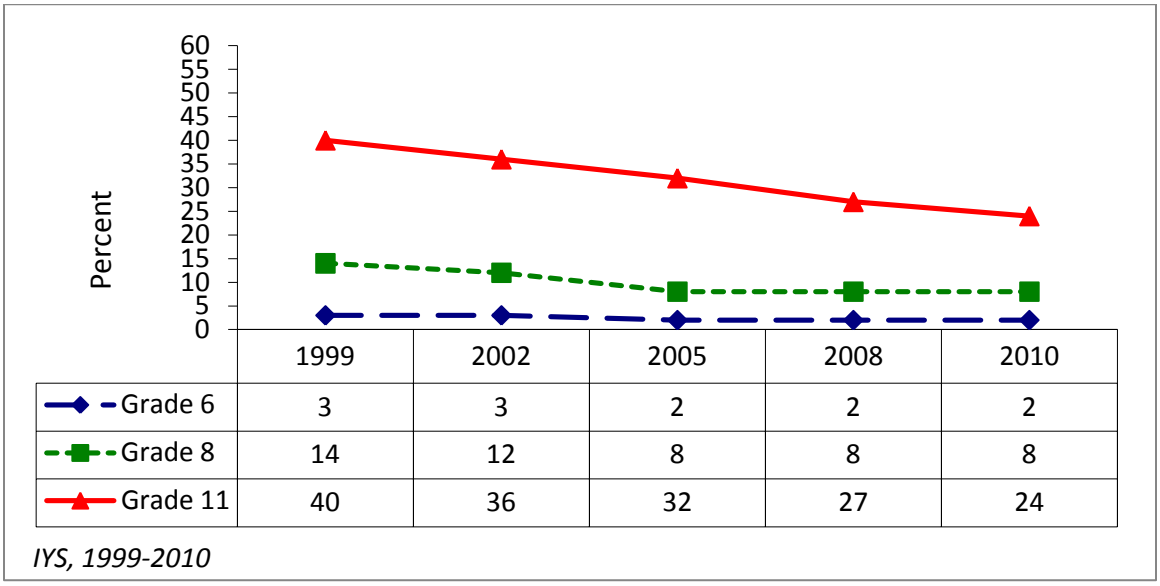

| | 1999 | 2002 | 2005 | 2008 | 2010 |
|---|---|---|---|---|---|
| Grade 6 | 7 | 6 | 4 | 5 | 4 |
| Grade 8 | 22 | 18 | 14 | 15 | 13 |
| Grade 11 | 49 | 44 | 41 | 36 | 32 |

*IYS, 1999-2010*

Besides small differences in the labeling of the question, NSUDH and IYS assesses binge drinking by asking: "*During the past 30 days (…), on how many days did you have 5 or more drinks on the same occasion?*" The NSDUH did not generate any significant difference in binge drinking estimates among youth in Iowa (10.6%) compared to the nation (10.0%). Furthermore, the IYS binge drinking by 6$^{th}$, 8$^{th}$, and 11$^{th}$-graders over the past 30 days as reported on the IYS has been decreasing since 1999 with an overall prevalence in 2010 of 12% (Figure 12).

The IYS asks youth if they drove a motor vehicle after using any amount of alcohol or drugs in the past 30 days. The participants that responded to the question included youth, regardless if they had a legal driver's license or not. As with other measures of alcohol use, the reported proportion of 11th graders driving after using any amount of alcohol or other drugs has decreased 55% from 1999 to 2010 (Figure 13). However encouraging those results are, still many Iowa youth (8%) place their lives at risk by driving after using alcohol or other drugs.

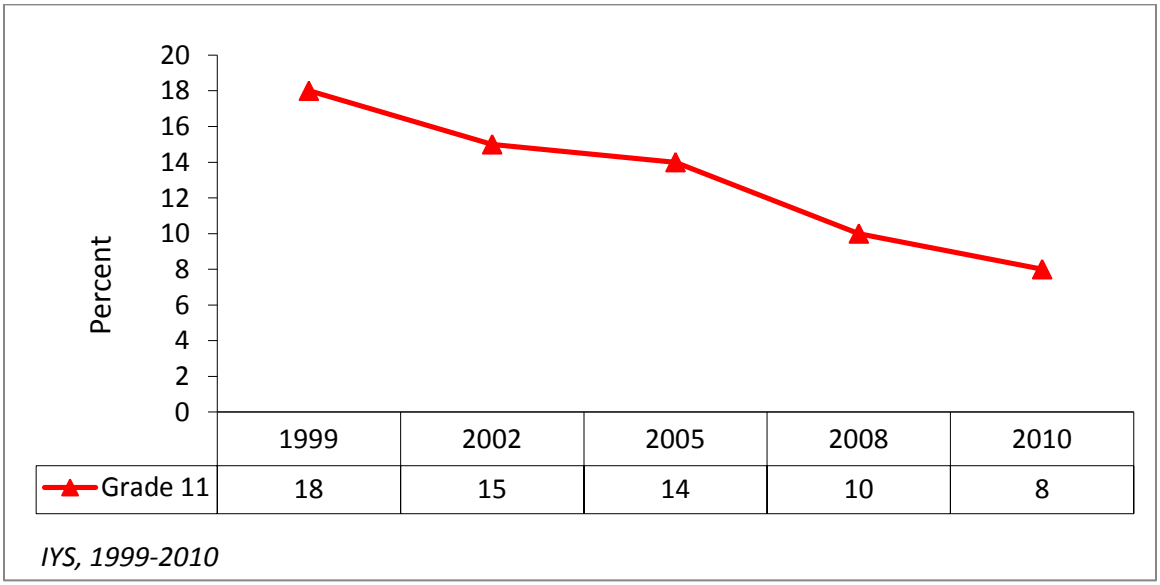
**Figure 12: Percent of 6th, 8th, and 11th-Graders Reporting Binge Drinking – Past 30 Days, IYS**




| | 1999 | 2002 | 2005 | 2008 | 2010 |
|---|---|---|---|---|---|
| Grade 6 | 3 | 3 | 2 | 2 | 2 |
| Grade 8 | 14 | 12 | 8 | 8 | 8 |
| Grade 11 | 40 | 36 | 32 | 27 | 24 |

*IYS, 1999-2010*

**Figure 13: Percent of 11th-Graders Reporting Driving After Using Any Amount of Alcohol or Other Drugs, IYS**

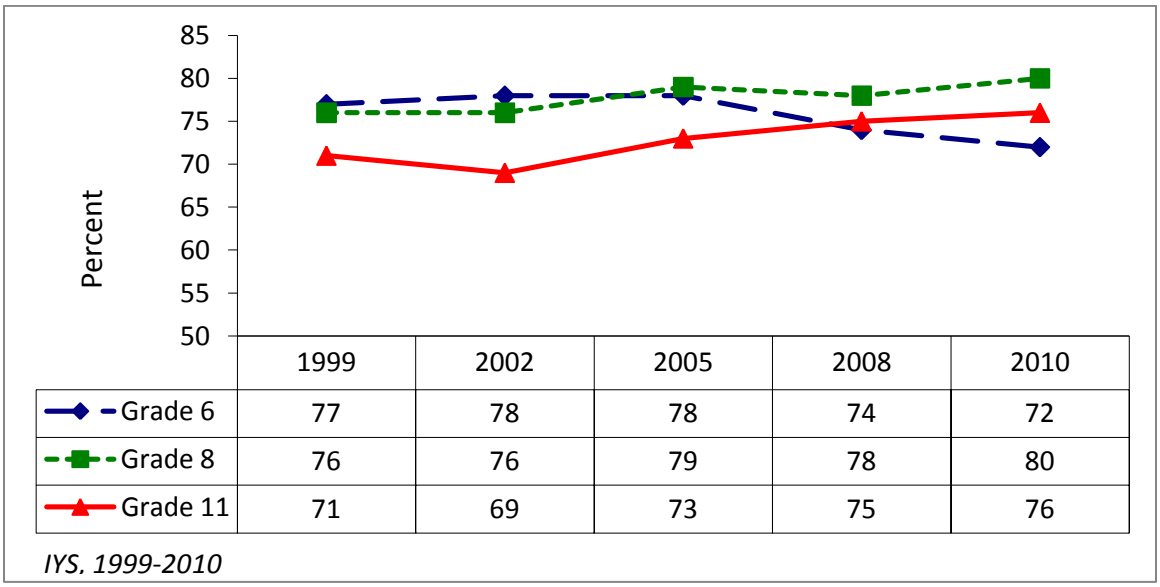



| | 1999 | 2002 | 2005 | 2008 | 2010 |
|---|---|---|---|---|---|
| Grade 11 | 18 | 15 | 14 | 10 | 8 |

*IYS, 1999-2010*

The IYS perceived risk of alcohol use question reads as follows: "*How much do you think you risk harming yourself (physically or otherwise) if you: Drink 3 or more drinks (glasses, cans or bottles of beer; glasses of wine, liquor or mixed drinks) of alcohol nearly every day?*" The majority of 6th, 8th, and 11th-graders in Iowa felt there was great or moderate risk associated with drinking such amount of alcohol on a regular basis (Figure 14). The expected response to this heavily weighted question would be near 100%, especially for teenagers. Perception of risk among Iowa secondary school students about heavy alcohol use is lower than expected. While it increased among 8th and 11th graders, the risk perception among 6th graders has been dropping since 2005. Female respondents were more likely to perceived greater to moderate risk of alcohol use than males (Table 7). The gender difference remained relatively stable from 1999 to 2010.

**Figure 14: Percent of 6th, 8th, and 11th-Graders Reporting Perceiving Alcohol Use as a Moderate or Great Risk, IYS**




| | 1999 | 2002 | 2005 | 2008 | 2010 |
|---|---|---|---|---|---|
| Grade 6 | 77 | 78 | 78 | 74 | 72 |
| Grade 8 | 76 | 76 | 79 | 78 | 80 |
| Grade 11 | 71 | 69 | 73 | 75 | 76 |

*IYS, 1999-2010*

**Table 7: Percent Reporting Perceived Moderate or Great Risk of Alcohol Use by Gender, IYS**

| | Year | | | | |
|---|---|---|---|---|---|
| **Gender** | **1999** | **2002** | **2005** | **2008** | **2010** |
| Males | 70 | 71 | 73 | 72 | 73 |
| Females | 79 | 78 | 80 | 78 | 79 |

*At the County Level*

The distribution of 30-day alcohol use (current alcohol use construct) demonstrated a clustering of higher use (> 17%) in counties along the eastern, western, and southern borders. The highest level of prevalence, ranging from 21% to 28% among student of all grades, occurred in 13 counties (Figure 15). The 11th grade binge distribution also showed a pattern of clustering close

the 30-day alcohol use. Most of the counties (over 50), had rates greater than the state average of 27%. There were 14 counties with the highest proportion of 11th graders reporting binge drinking (Figure 16).

**Figure 15: Distribution of Percent of Youth (6, 8,11th) Reporting 30-Aay alcohol Use by County, IYS 2010**

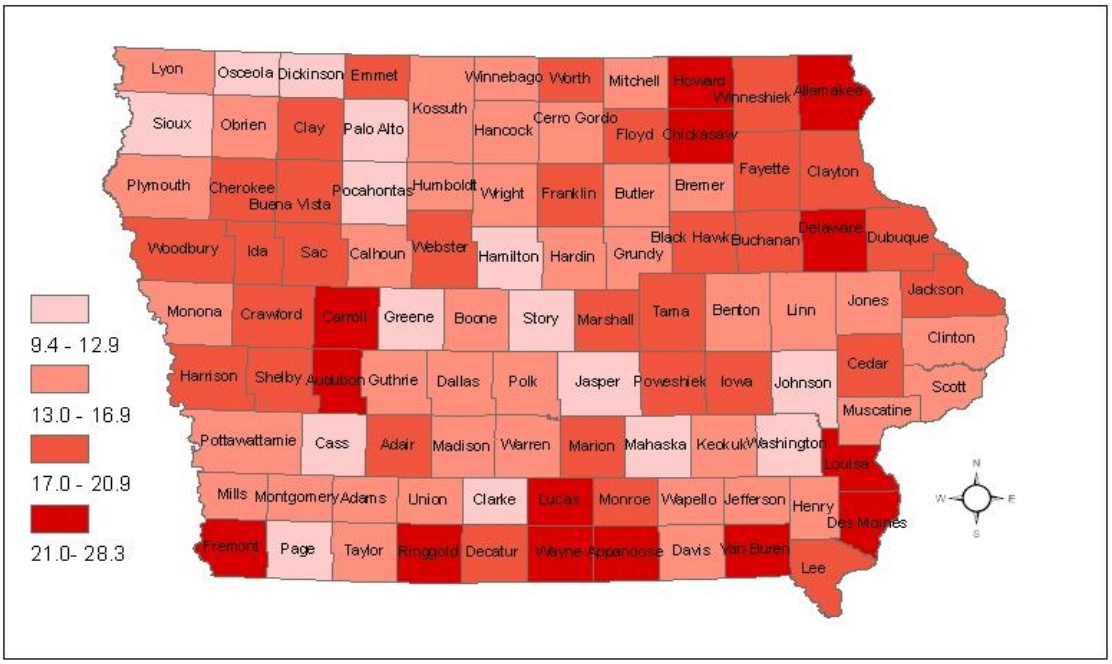
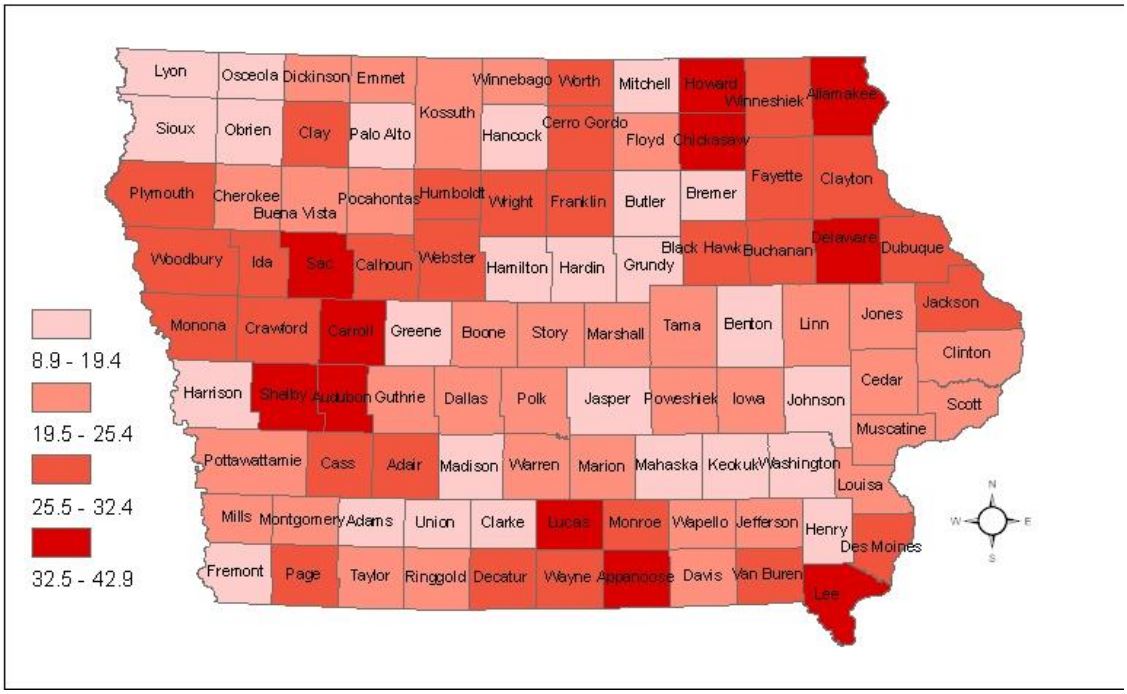



**Figure 16: Distribution of Percent of 11th Graders Reporting Binge Drinking by County, IYS 2010**



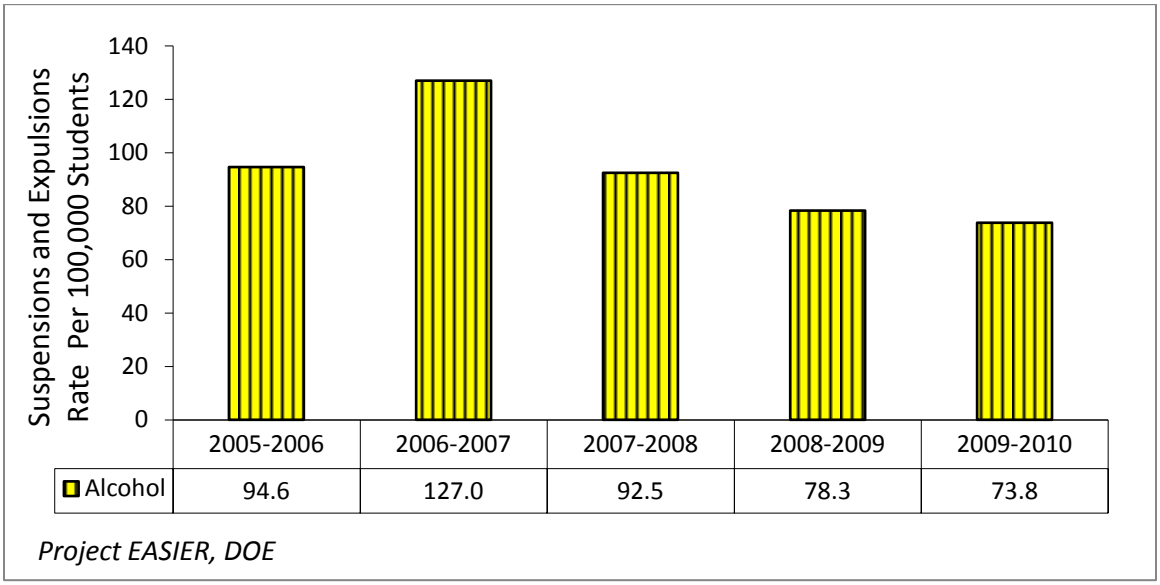
## Consequences

The health and social consequences of alcohol are numerous. Alcohol abuse is associated with financial, social, interpersonal and legal difficulties. It also causes several health problems by negatively interfering with every system of the body. Although moderate beneficial health effects of drinking alcohol such as low risk of coronary heart disease have been found in the literature, the Dietary Guidelines for Americans recommends avoiding its use in youth, women of childbearing age, people with specific medical conditions or under medications. [3]The risk of drinking alcohol outweighs its benefits.

*At the State Level*

Education Consequences:
Approximately 490,417 youth were enrolled in Iowa public schools for 2009-2010 school years (Project EASIER). The suspensions and expulsions for alcohol and drugs were not reported consistently before 2006-2007. Earlier reports differentiated suspensions or expulsions because of alcohol only from those with alcohol combined to drugs. The reports from 2008-2009 did not; cases where alcohol was associated with drugs were counted as alcohol. Nonetheless, the overall rate of suspensions and expulsions for alcohol has been decreasing. From 2008-2009 to 2009-2010, the total suspension and expulsion rate per 100,000 students for alcohol decreased 5%, which corresponded to a reduction of 20 cases per year (Figure 17).

**Figure 17: School Suspensions and Expulsions per 100,000 Students Due to Alcohol, Project EASIER**




Legal Consequences:
Drunkenness is defined as, "*To drink alcoholic beverages to the extent that one's mental faculties and physical coordination are substantially impaired.*" Drunkenness does not include operating while intoxicated (OWI) offenses. A liquor law violation is defined as, "*The violation of laws or ordinances prohibiting the manufacture, sale, purchase, transportation, possession, or*

*use of alcoholic beverages*." Liquor law violations do not include either OWI or drunkenness offenses.

Nearly 20,000 drunkenness and liquor law arrests were recorded in 2009, which corresponded to a 7% decrease from 2008. Since 2004, the increases in drunkenness arrests were offset by a corresponding decrease in liquor law violation arrests (Table 8). Likewise, the rates of liquor violations and drunkenness were moving in opposite directions (Figure 18). Although in terms of magnitude, adult Iowans (over 18 years old) made up the majority of liquor law arrests as shown in table 8, the specific rates by age demonstrate a greater risk in youth between 10 and 17 years of age. The rate of was liquor law and drunkenness arrests were more pronounced among the underage populations (Figure 19).

The number of Operating While Intoxicated (OWI) arrests per 100,000 Iowans has been slowly decreasing after a significant 10% spike in 2003. The 2009 rate is closer to the 2004 rates of 445.8 (Figure 21). Though the terms OWI and DUI (Driving under the Influence) are often used interchangeably, Iowa code referenced OWI. Hence, the profile will use OWI. Jurisdictions across the country use one term or the other. The definition of OWI found in the FBI Uniform Crime Reports is, "Driving or operating a motor vehicle or common carrier while mentally or physically impaired as the result of consuming an alcoholic beverage or using a drug or narcotic." In Iowa, the method used to assess impairment is to test the blood alcohol content (BAC). As of July 1, 2003, the "legal limit" in Iowa was lowered from 0.10 to 0.08 BAC. The change in the legal BAC limit may be responsible for the notable increase in the OWI arrest rate per 100,000 Iowans from 2003 to 2004. Other possible reasons for the increase could be improved law enforcement or zero tolerance policies toward motor vehicle-alcohol offenses, which however may wane after the intervention. The subsequent decrease in OWI arrests may reflect law enforcement activities.

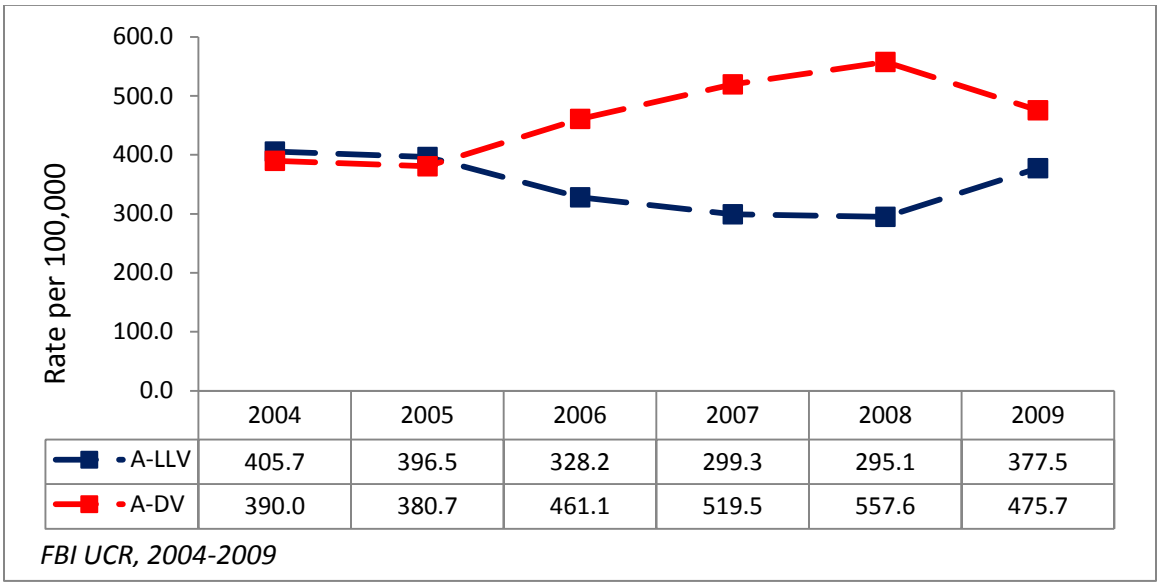
Despite a smaller tick downward in 2009, alcohol related conviction numbers are on the rise with a 17% percent increase compared to 2005 data. Convictions for sales to minors ranged from 875 in 2004 up to 1,214 in 2009 (Figure 21).

Although there are no single factors explaining domestic violence, substance abuse is a known contributor or risk factor. The number of Iowa domestic violence arrest cases where alcohol was present has remained stable ranging from 1,100 up to 1200 between 2003 and 2009. The proportion of domestic violence due to alcohol fluctuated between 16-18% (Table 9). Females represented four out of five victims of domestic violence. From 2000 to 2009, the rates of domestic violence in females were four times greater than among males. The majority of cases (80%) of domestic violence occurred in White population (including Hispanics). However, when the race specific rates were computed, Blacks and Native-Americans presented the highest rates. Compared to Whites, the rates were six to four times greater in Blacks or Native-Americans, respectively. The rate of domestic violence arrests were similar in Asians and Whites and were stable in from 2000-2009 (Figure 22).

**Table 8: Total Number of Drunkenness and Liquor Law Arrests by Age, FBI UCR**

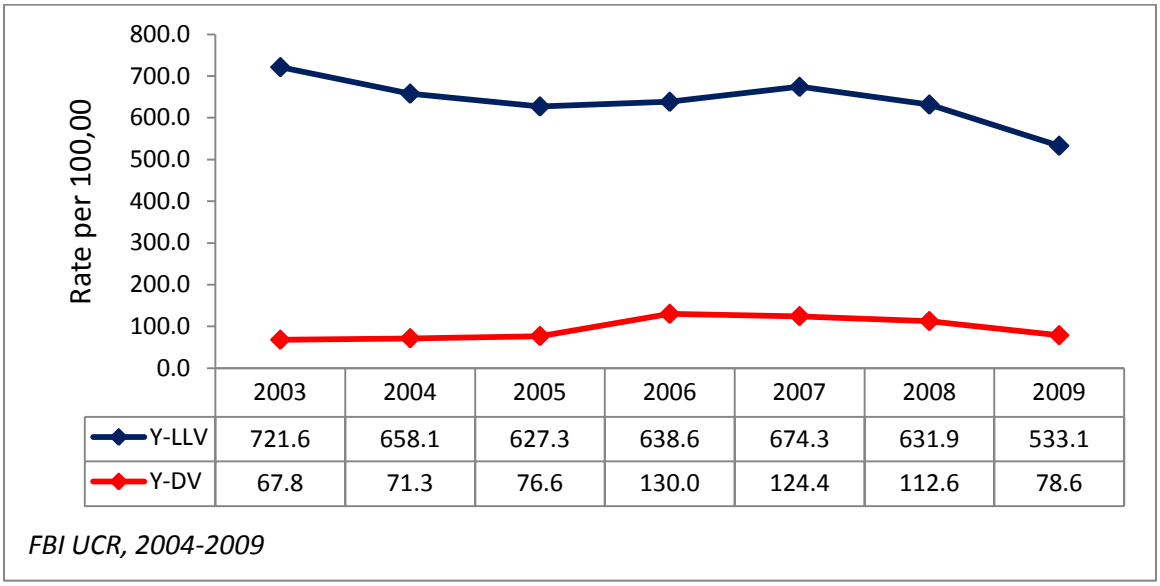
| Year | Liquor Law | | | Drunkenness | | |
|---|---|---|---|---|---|---|
| | <18 | 18+ | Total | <18 | 18+ | Total |
| 2004 | 2,187 | 9,053 | 11,240 | 237 | 8,702 | 8,939 |
| 2005 | 2,071 | 8,890 | 10,961 | 253 | 8,535 | 8,788 |
| 2006 | 2,093 | 7,405 | 9,498 | 426 | 10,403 | 10,829 |
| 2007 | 2,185 | 6,800 | 8,985 | 403 | 11,802 | 12,205 |
| 2008 | 2,020 | 6,758 | 8,778 | 360 | 12,769 | 12,129 |
| 2009 | 1,683 | 8,663 | 10,346 | 248 | 10,917 | 11,165 |

**Figure 18: Arrest Rates per 100,000 by Violation Type among Iowa Adults, FBI UCR**




**Notes: A-LLV: adult liquor law arrests; A-DV: adult drunkenness arrests; Year-specific population denominator used for rate calculation (adults: >=18).**

**Figure 19: Arrest Rates per 100,000 by Alcohol Violation among Youth (10-17), FBI-UCR**

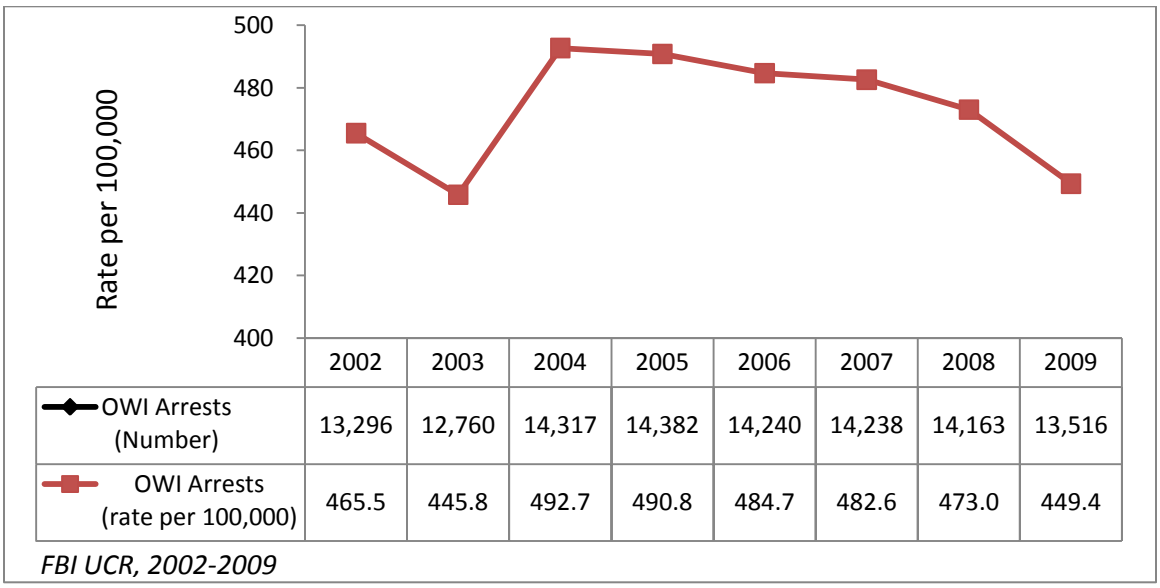



| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|
| Y-LLV | 721.6 | 658.1 | 627.3 | 638.6 | 674.3 | 631.9 | 533.1 |
| Y-DV | 67.8 | 71.3 | 76.6 | 130.0 | 124.4 | 112.6 | 78.6 |

*FBI UCR, 2004-2009*

**Notes: Y-LLV=Youth liquor law arrest rates; Y-DV: Youth drunkenness arrests rates; Year-specific population denominator used for rate calculation (Youth: 10 to 17).**

**Figure 20: Rate of Operating While Intoxicated Arrests per 100,000 Iowans, FBI UCR**

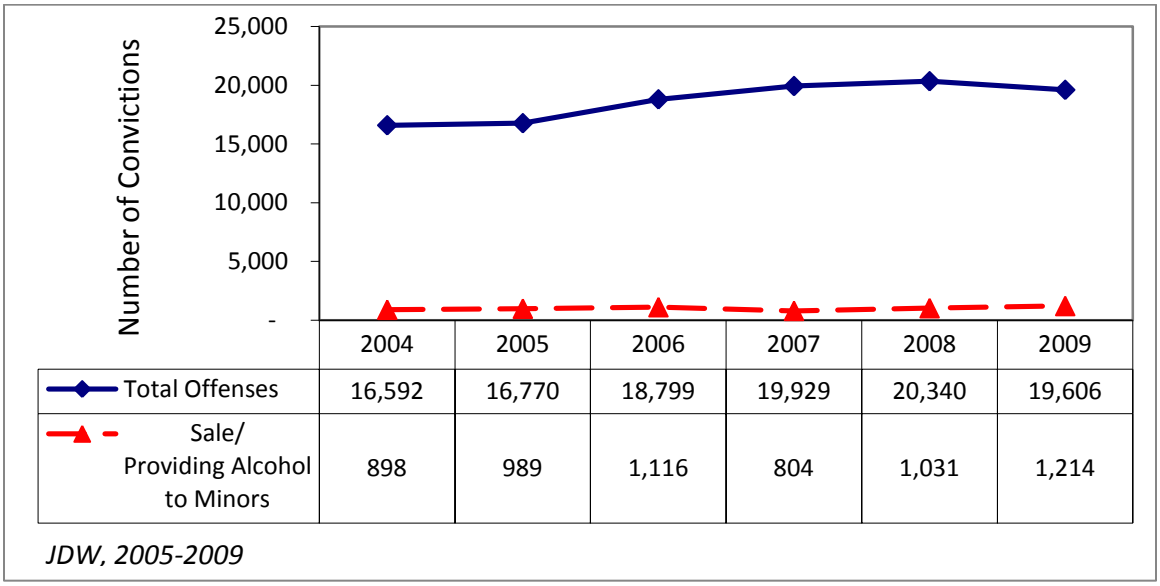



| | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|
| OWI Arrests (Number) | 13,296 | 12,760 | 14,317 | 14,382 | 14,240 | 14,238 | 14,163 | 13,516 |
| OWI Arrests (rate per 100,000) | 465.5 | 445.8 | 492.7 | 490.8 | 484.7 | 482.6 | 473.0 | 449.4 |

*FBI UCR, 2002-2009*

**Note: As of July 1, 2003, the "legal limit" in Iowa is .08 BAC, lowered from .10 BAC.**

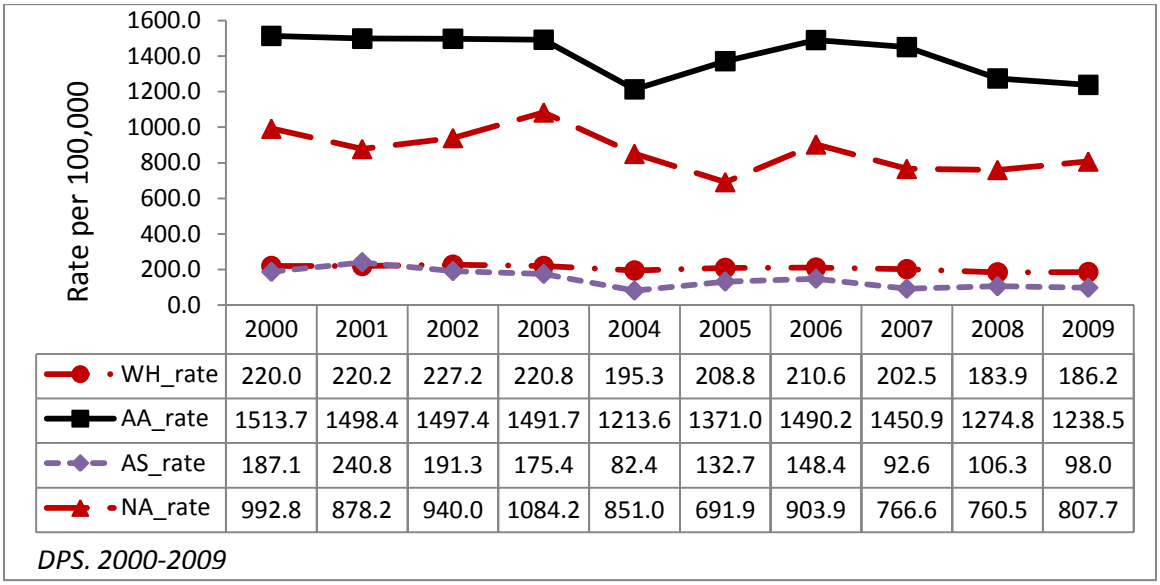
**Figure 21: Total Number of Convictions for Alcohol-Related Offenses Including Sales to Minors, JDW**




| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|
| Total Offenses | 16,592 | 16,770 | 18,799 | 19,929 | 20,340 | 19,606 |
| Sale/ Providing Alcohol to Minors | 898 | 989 | 1,116 | 804 | 1,031 | 1,214 |

*JDW, 2005-2009*

**Figure 22: Domestic Violence Arrest Rates per 100,000 by Race, DPS**




| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|
| WH_rate | 220.0 | 220.2 | 227.2 | 220.8 | 195.3 | 208.8 | 210.6 | 202.5 | 183.9 | 186.2 |
| AA_rate | 1513.7 | 1498.4 | 1497.4 | 1491.7 | 1213.6 | 1371.0 | 1490.2 | 1450.9 | 1274.8 | 1238.5 |
| AS_rate | 187.1 | 240.8 | 191.3 | 175.4 | 82.4 | 132.7 | 148.4 | 92.6 | 106.3 | 98.0 |
| NA_rate | 992.8 | 878.2 | 940.0 | 1084.2 | 851.0 | 691.9 | 903.9 | 766.6 | 760.5 | 807.7 |

*DPS. 2000-2009*

**Note: Race rates were calculated using one race only population distribution from Census; WH= Whites; AA = Blacks; AS = Asians (including Hawaiians, Pacific Islanders); NA = Native Americans (including Alaskans**

Data on problem use of substances, along with a variety of other information, are collected from inmates using the LSI-R (Level of Service Inventory – Revised). The LSI-R is a face-to-face interview conducted by trained correctional counselors within 60 days of admission to prison. It collects self-report data on alcohol and drug usage from the inmates. About 95% of prison Inmates participated in the interviews from 2006 onward. For offenders with multiple assessments/reassessments, the assessment that was completed closest to the date of prison admission was chosen. Consistently over the years, 38% of inmates with a completed LSI-R

assessment had a current alcohol problem, labeled as "interference" and over 70% had a lifetime alcohol problem (Table 9).

The 2009 LSI-R evidenced a greater proportion of current alcohol interference among underage (<21), males and Native-Americans prisons inmates (Table 11). Asians had the lowest proportion of alcohol interference, while there was no difference between Whites and Blacks.

**Table 9: Alcohol Involvement in Domestic Abuse Arrests, DPS**

| Domestic Abuse | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Total | 7,047 | 6,988 | 6,718 | 6,439 | 6,549 |
| Number of Cases | 1,128 | 1,321 | 1,301 | 1,277 | 1,238 |
| Percent of Total Cases | 16.0 | 16.0 | 18.0 | 18.7 | 17.8 |

**Table 10: Prison Inmates, Alcohol Use and Problem, LSI-R 2009**

| Alcohol Problem, Currently | Percent | Alcohol Problem, Ever | Percent |
|---|---|---|---|
| Unknown | 0.5% | Unknown | 0.3% |
| No diagnosis/Successful Treatment | 32.5% | No | 28.0% |
| Uses - Little to No Interference | 28.6% | Yes | 71.7% |
| Interference | 38.3% | | |
| Inmates screened : 8,438 | 95.6% | | |

**Table 11: Total Number of Current Alcohol Interference among Inmates by Demographics, LSI-R- DOC**

| Demographics | Alcohol Problem, Currently | Interference | Rare/Infrequent | None or No use |
|---|---|---|---|---|
| Age | Adults (>=21) –N (%) | 2,987 (37.5%) | 2,294(28.8%) | 2,643 (33.2%) |
| | Underage (< 21- N (%) | 246 (52.3%) | 123 (26.2%) | 100 (21.3%) |
| Gender | Female – N (%) | 221 (31.8%) | 207 (29.7%) | 258 (37.1%) |
| | Male – N (%) | 3,012 (39.1%) | 2,210 (28.7%) | 2,485 (32.2%) |
| Race | Whites – N (%) | 2,317 (38.6%) | 1,700 (28.3%) | 1,955 (32.6%) |
| | African American – N (%) | 803 (36.5%) | 657 (29.9%) | 728 (33.1%) |
| | Native-Americans – N (%) | 89 (58.9%) | 33 (21.9%) | 29 (19.2%) |
| | Asians /API – N (%) | 24 (28.9%) | 27 (32.5%) | 31 (37.3%) |

## Alcohol Mortality

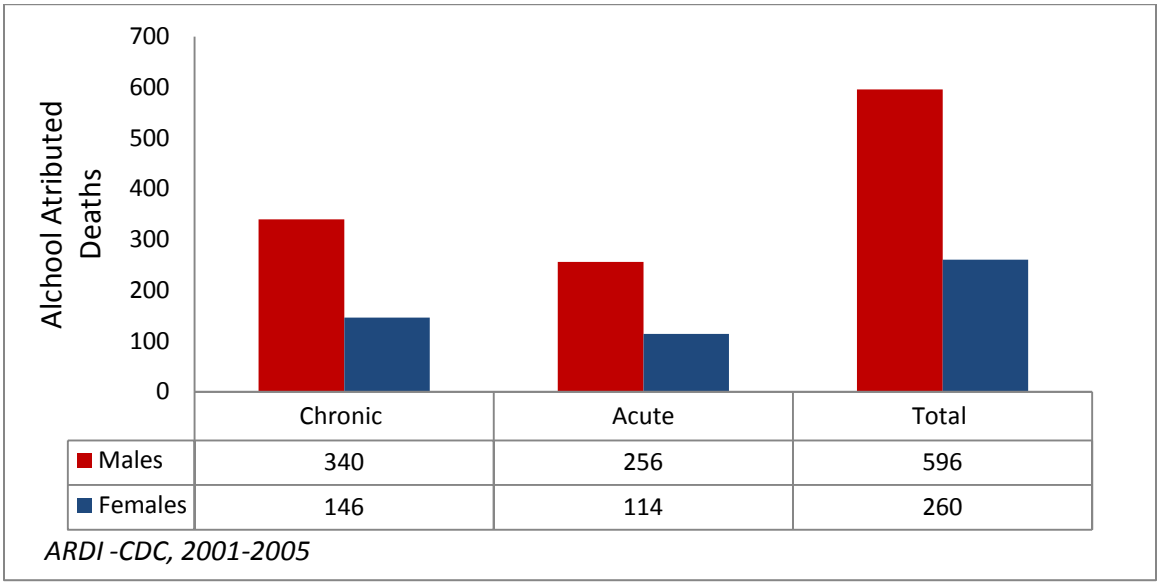
Alcohol Attributed Deaths:
The CDC has developed an online application (Alcohol-Related Disease Impact- ARDI) to compute Alcohol Attributable deaths. [4] The software uses a two-tiered approach to estimate the total number of alcohol-attributed deaths. First, ICD10 codes are queried from the underlying cause of death vital record field to select 54 acute and chronic conditions associated with alcohol and then the attributable fractions (AAF - ranging from 0.1 to 100%) from research are applied. [5] Though the software allows import of custom data for local manipulation, the number of alcohol-attributed deaths available in this report will be limited to the 2001- 2005 average. Further for this profile, the ICD 10 and 9 CM codes associated with alcohol at 100% AAF were identified

and analyzed from death certificates and hospital inpatient discharge data matching the annual department legislative updates (See appendix). Alcohol indicators included in this profile consisted of mental health, dependent and non-dependent abuse, neurological and muscular degeneration, and poly-organs disorders (heart, stomach, liver, pancreas and other). Excluded from the selection were fetal alcohol syndrome and associated disorders.

According to ARDI, there were on average 856 alcohol-attributed deaths per year due to 54 acute and chronic conditions associated/attributed to any alcohol use from 2001-2005 in Iowa. Males presented more than twice as much risk of dying from alcohol-attributed ailments as females (Figure 24).

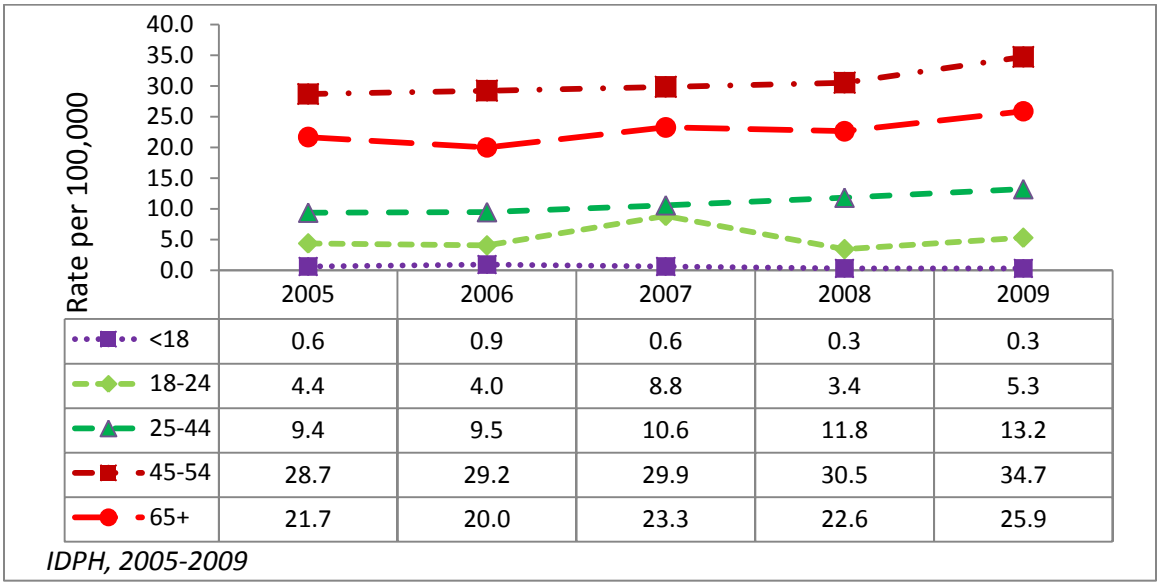
When the analysis of the Iowa death certificate data was limited to the ICD10 codes (100% Alcohol Attributable) using the legislative updates methodology, the total number of alcohol associated deaths from 2005 to 2009 averaged 625. Across levels of age (Figure 25) and gender (Figure 26), the rates were greater among Iowans over the age of 45 and among males. There was no difference of alcohol associated death rates between Whites and Blacks (Figure 27).

**Figure 23: Average Number of Alcohol-Attributed Deaths per Year by Gender, ARDI 2001-2005**




**Notes: ARDI=Alcohol Related Disease Impact (CDC);**

**Figure 24: Alcohol Associated Death Rates (100% Attributable) by Age, IDPH Vital Records**

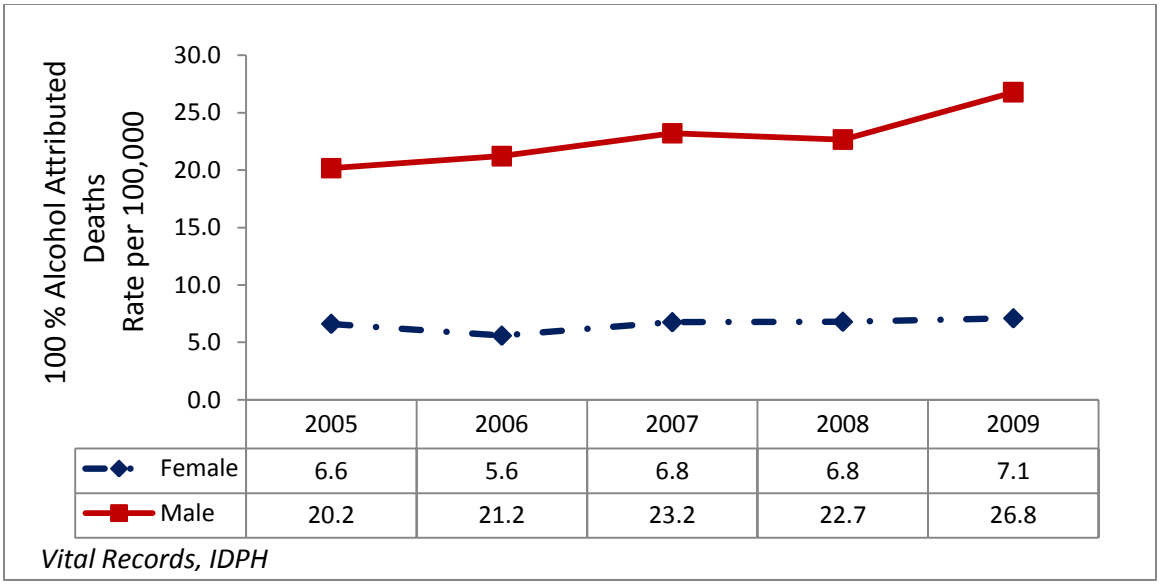



| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| <18 | 0.6 | 0.9 | 0.6 | 0.3 | 0.3 |
| 18-24 | 4.4 | 4.0 | 8.8 | 3.4 | 5.3 |
| 25-44 | 9.4 | 9.5 | 10.6 | 11.8 | 13.2 |
| 45-54 | 28.7 | 29.2 | 29.9 | 30.5 | 34.7 |
| 65+ | 21.7 | 20.0 | 23.3 | 22.6 | 25.9 |

*IDPH, 2005-2009*

**Notes: Year-age specific rates were calculated using census data; <18 corresponded to 10-17 age groups; 21 DX fields queried to match Legislative Updates; ICD10 codes: 'F10', 'I42.6', 'G31.2', 'G62.1', 'K29.2', 'K70', 'K86.0', 'T51','X45', 'X65', 'Y15', 'Y90', 'Y91';**

**Figure 25: Alcohol Associated Death Rates (100% Attributable) by Gender, IDPH Vital Records**

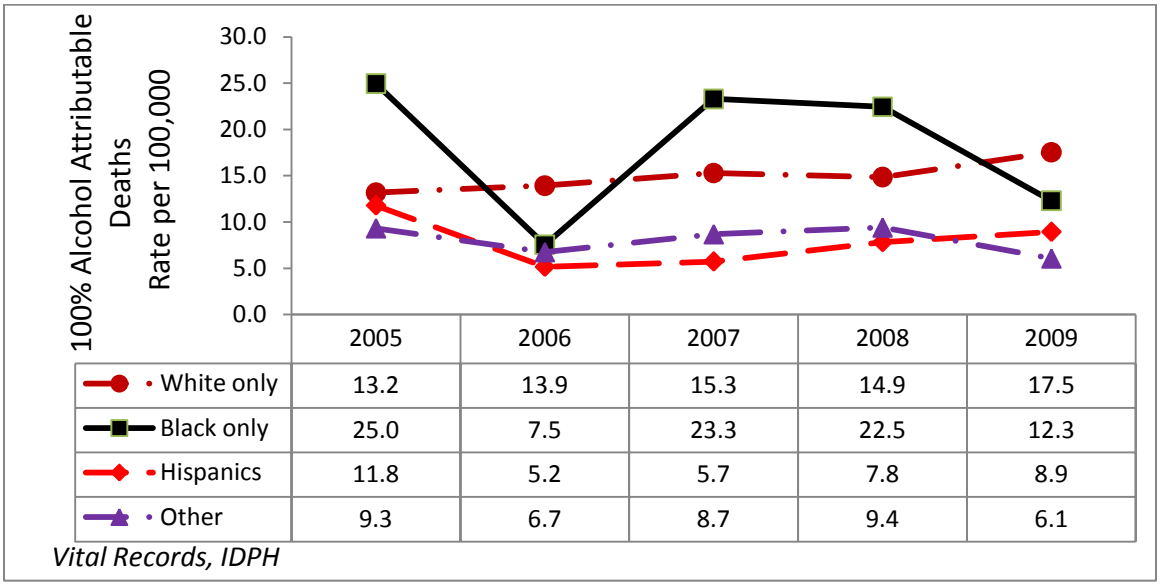



| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Female | 6.6 | 5.6 | 6.8 | 6.8 | 7.1 |
| Male | 20.2 | 21.2 | 23.2 | 22.7 | 26.8 |

*Vital Records, IDPH*

**Notes: 21 DX fields queried to match Legislative updates; ICD10 codes: 'F10', 'I42.6', 'G31.2', 'G62.1', 'K29.2', 'K70', 'K86.0', 'T51','X45', 'X65', 'Y15', 'Y90', 'Y91';**

**Figure 26: Alcohol Associated Death Rates by Race (100% Attributable), IDPH Vital Records**




| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| White only | 13.2 | 13.9 | 15.3 | 14.9 | 17.5 |
| Black only | 25.0 | 7.5 | 23.3 | 22.5 | 12.3 |
| Hispanics | 11.8 | 5.2 | 5.7 | 7.8 | 8.9 |
| Other | 9.3 | 6.7 | 8.7 | 9.4 | 6.1 |

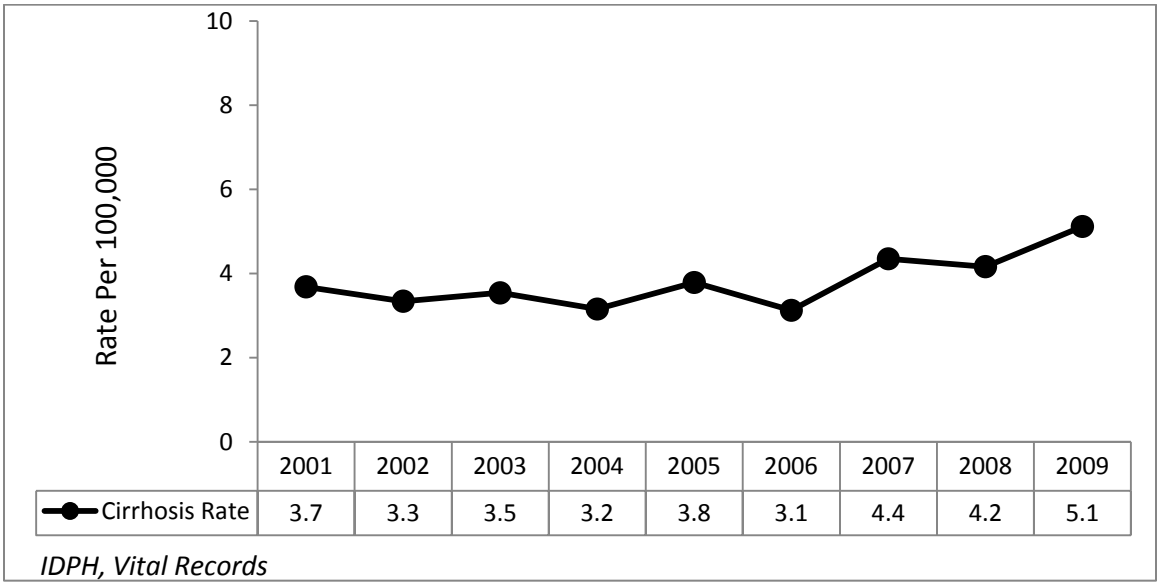
*Vital Records, IDPH*

**Notes: Other: Asians, Pacific Islanders, Native-Americans, Hawaiians; Unknown race was set as missing; 21 DX fields queried to match Legislative Updates; ICD10 codes: 'F10', 'I42.6', 'G31.2', 'G62.1', 'K29.2', 'K70', 'K86.0', 'T51','X45', 'X65', 'Y15', 'Y90', 'Y91';**

Alcohol Cirrhosis Deaths:

In 2009, 154 deaths primarily due to alcohol cirrhosis (ICD-10 code K70, underlying cause field only) occurred, resulting in a death rate of 5.1 per 100,000. Compared to 2005 and 2008, the number of alcohol cirrhosis deaths increased 48% and 23%, respectively. Though the rates presented some level of variability over the years, there is evidence of an overall increase at 16% slope (Figure 28). Further analyses suggested age, gender and race were the most significant predictors of cirrhosis deaths (Table 12). The crude alcohol cirrhosis death rates showed males having three times the risk of dying from alcoholic cirrhosis than females. When the risk of dying from cirrhosis compared to all other causes of deaths was modeled using logistic regression, controlling for age, race and year, males had only 50% higher risk of dying from alcohol cirrhosis than females. Likewise, the crude rate of cirrhosis death seemed to differ among race or ethnic groups but when adjusted for age, gender and year, Non-Hispanic Whites presented 2.3 times lower risk of dying from alcohol cirrhosis than minorities (OR= 0.4), (Table 13).

**Figure 27: Trend of Alcohol Cirrhosis Death Rate in Iowa, Vital Records- IDPH**




**Notes: Only Underlying cause of death field queried; ICD10 code: K70 (.0-.9)**

**Table 12: Alcoholic Cirrhosis Death Rate by Demographics, Vital Records-IDPH**

| Year | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Age | | | | | |
| <20 | 0.3 | 0.4 | 0.6 | 0.0 | 0.0 |
| 20-54 | 4.5 | 3.2 | 4.7 | 3.9 | 4.4 |
| 55-64 | 7.4 | 6.6 | 9.6 | 13.6 | 17.5 |
| >65 | 5.3 | 5.3 | 6.2 | 5.2 | 6.8 |
| Gender | | | | | |
| Female | 2.5 | 1.7 | 2.2 | 2.4 | 2.6 |
| Male | 6.6 | 4.6 | 6.6 | 5.9 | 7.7 |
| Race | | | | | |
| NH Whites | 4.5 | 3.1 | 4.3 | 4.3 | 5.3 |
| NH Blacks | 3 | 1.3 | 6.5 | 1.2 | 2.7 |
| Hispanics | 4.8 | 0.9 | 1.7 | 1.6 | 1.5 |
| Others | 11.3 | 4.5 | 2.2 | 5.3 | 5.0 |

**Notes: NH= Non-Hispanic; Others= all other races (Asian Pacific Islanders, Native-Americans American Alaskans); only underlying causes of death queried, ICD10 codes K70 (.01-.9);**

**Table 13: Logistic Regression Estimates of the Risk Alcohol Cirrhosis Death, Vital Records - IDPH**

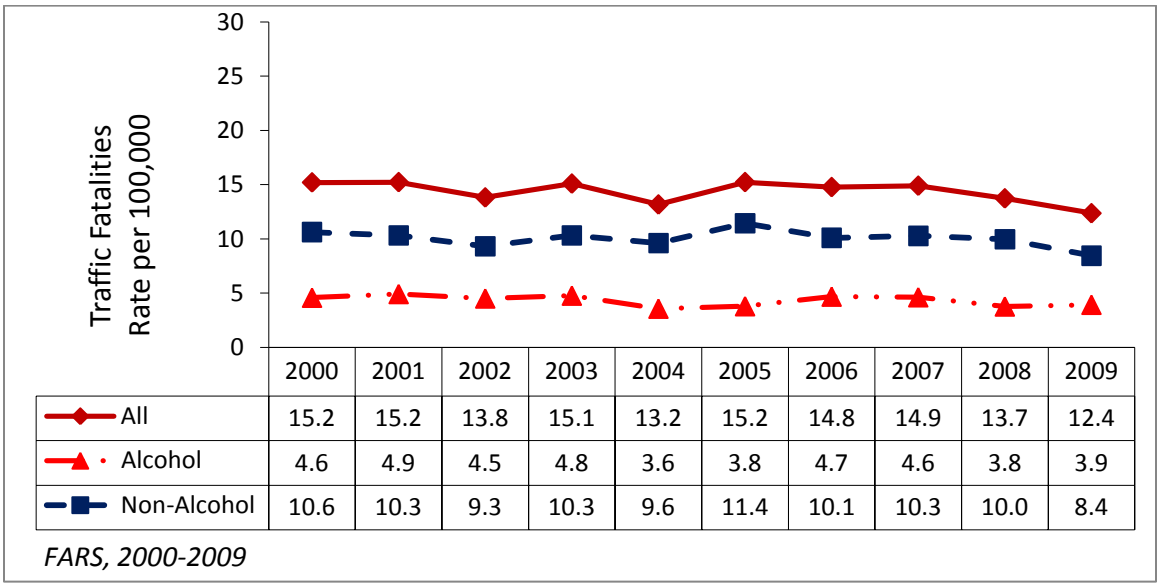
| Cirrhosis Odds Ratio Estimates | | |
|---|---|---|
| **Effect** | **Point Estimate** | **95% Wald CI** |
| NH Whites vs. Minorities | 0.4 | (0.3 ; 0.6) |
| Males vs. Females | 1.5 | (1.3 ; 1.7) |

**Notes: Modeling the risk of dying from alcohol cirrhosis outcome variable (1= death from alcohol cirrhosis, 0= other deaths); adjusted by year and age; CI= Confidence Interval;**

Traffic Fatalities:

Between 2000 and 2009, approximately one-quarter to one-third of Iowa traffic fatalities involved a driver who used alcohol, defined as having a Blood Alcohol Content (BAC) greater than 0.01 (Figure 29). Overall the number of alcohol related fatalities decreased reaching a 10-year low of 372 cases. However, the proportion due to alcohol is remaining relatively constant since 2000, fluctuating around 25 to 30% (Figure 30). In the 10-year period, the percent change (decrease) was much greater for non-alcohol related fatalities (18%) than for alcohol (11%).

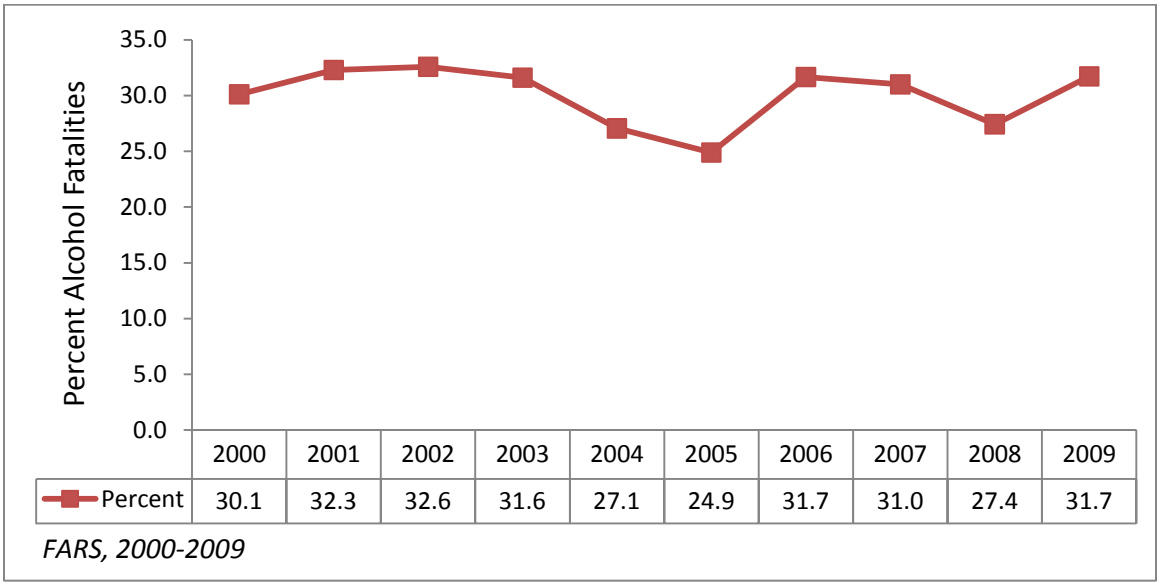
**Figure 28: Traffic Fatalities Rates per 100,000 Iowans, FARS**




| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|
| All | 15.2 | 15.2 | 13.8 | 15.1 | 13.2 | 15.2 | 14.8 | 14.9 | 13.7 | 12.4 |
| Alcohol | 4.6 | 4.9 | 4.5 | 4.8 | 3.6 | 3.8 | 4.7 | 4.6 | 3.8 | 3.9 |
| Non-Alcohol | 10.6 | 10.3 | 9.3 | 10.3 | 9.6 | 11.4 | 10.1 | 10.3 | 10.0 | 8.4 |

*FARS, 2000-2009*

**Figure 29: Annual Percent of Fatalities Due to Alcohol, FARS 2000-2009**




| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|
| Percent | 30.1 | 32.3 | 32.6 | 31.6 | 27.1 | 24.9 | 31.7 | 31.0 | 27.4 | 31.7 |

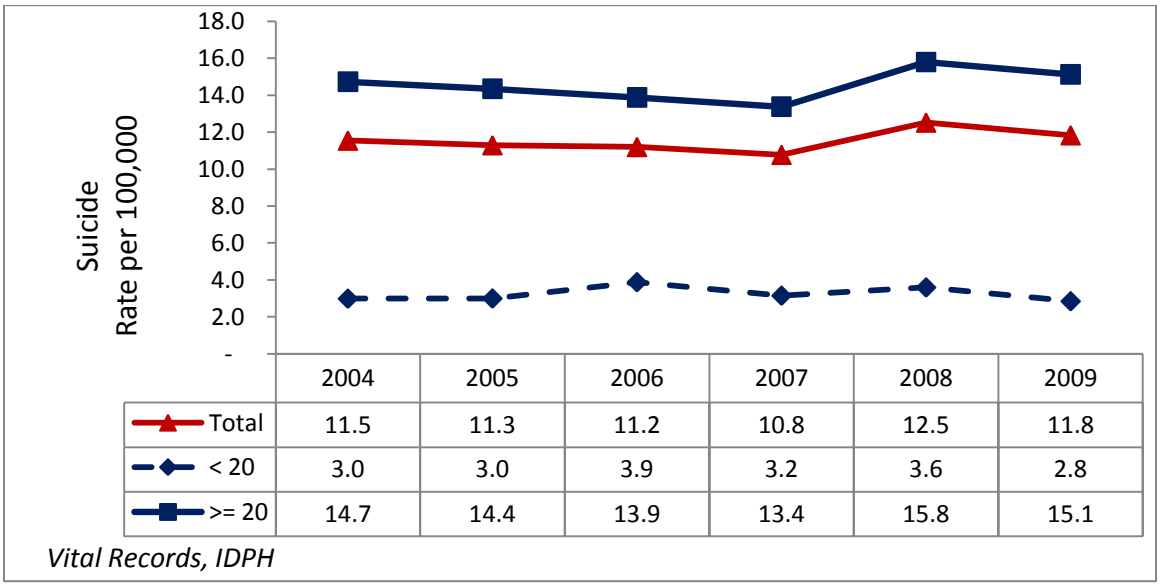
*FARS, 2000-2009*

**Notes: BAC level was lowered to .08 in 2006;**

Suicides:

Alcohol and drug use are major risk factors of suicide (Centers, CDC- 2010). The number of suicides in Iowa has remained relatively stable in recent years, averaging approximately 325 suicides from 2000 to 2009. Adjusted for population, the overall suicide rate, as well as the age-specific suicide rate comparing Iowans younger than 20, remained relatively stable. The 2009 suicide rate was 11.8 per 100,000 for a total number of cases of 356 compared to 12.5 in 2008 for a total of 376 cases (Figure 30).

**Figure 30: Age-Specific Suicide Rates, IDPH Vital Records**




| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|
| Total | 11.5 | 11.3 | 11.2 | 10.8 | 12.5 | 11.8 |
| < 20 | 3.0 | 3.0 | 3.9 | 3.2 | 3.6 | 2.8 |
| >= 20 | 14.7 | 14.4 | 13.9 | 13.4 | 15.8 | 15.1 |

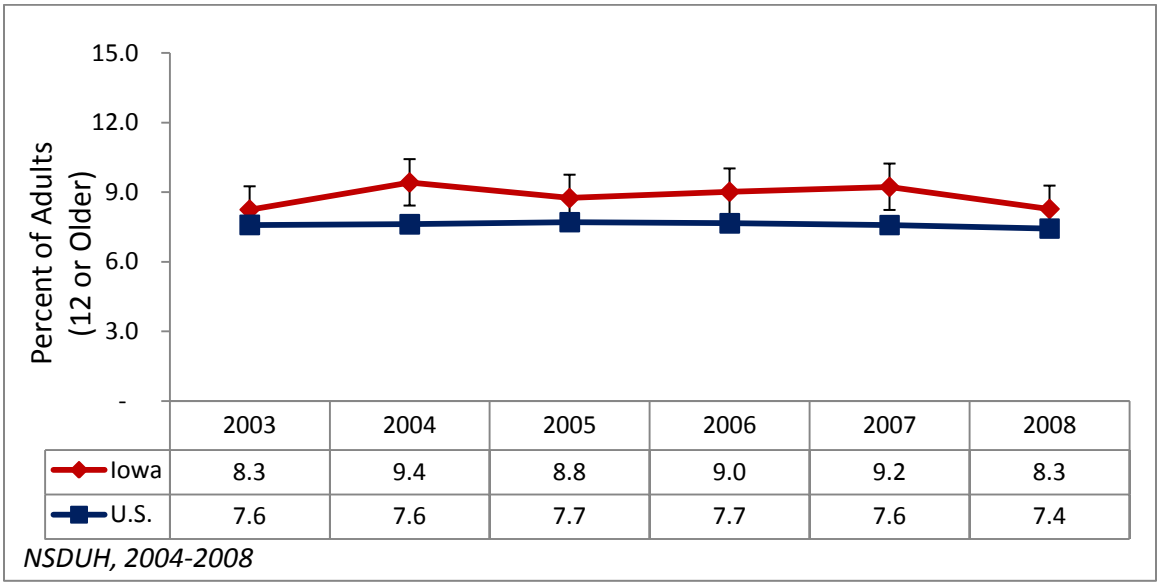
*Vital Records, IDPH*

## Alcohol Morbidity

Alcohol Dependence:
The NSDUH uses the DSM-IV definitions of dependence and abuse, which is defined as "*maladaptive pattern of alcohol use, leading to clinically significant impairment or distress, as manifested by three or more diagnostic criteria occurring any time in the same 12 month*." The diagnostic criteria are tolerance; withdrawal syndromes; increased amount consumed or over a long period of time; persistent desire and unsuccessful attempts to cut down; considerable amount of time spent to acquire, use or recover from effects; impeding effects on social, occupational or recreational activities; and consumption continued despite of know psychosocial or physical ailments likely caused by its use. NSDUH use 23 questions to determine the state of alcohol dependence or abuse.

The NSDUH 2007-2008 past-year alcohol dependence or abuse rate remained statistically unchanged from the previous two years. The percent of Iowans aged 12 or older reporting alcohol dependence or abuse was not significantly higher than the national percent in 2008. The proportion of Iowans who were classified as alcohol dependent or abusers fluctuated from 2003 to 2008 between 8-9% (Figure 31).

**Figure 31: Percent of Iowans Reporting Past Year Alcohol Dependence or Abuse - 12 and Older, NSDUH**




| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|
| Iowa | 8.3 | 9.4 | 8.8 | 9.0 | 9.2 | 8.3 |
| U.S. | 7.6 | 7.6 | 7.7 | 7.7 | 7.6 | 7.4 |

*NSDUH, 2004-2008*

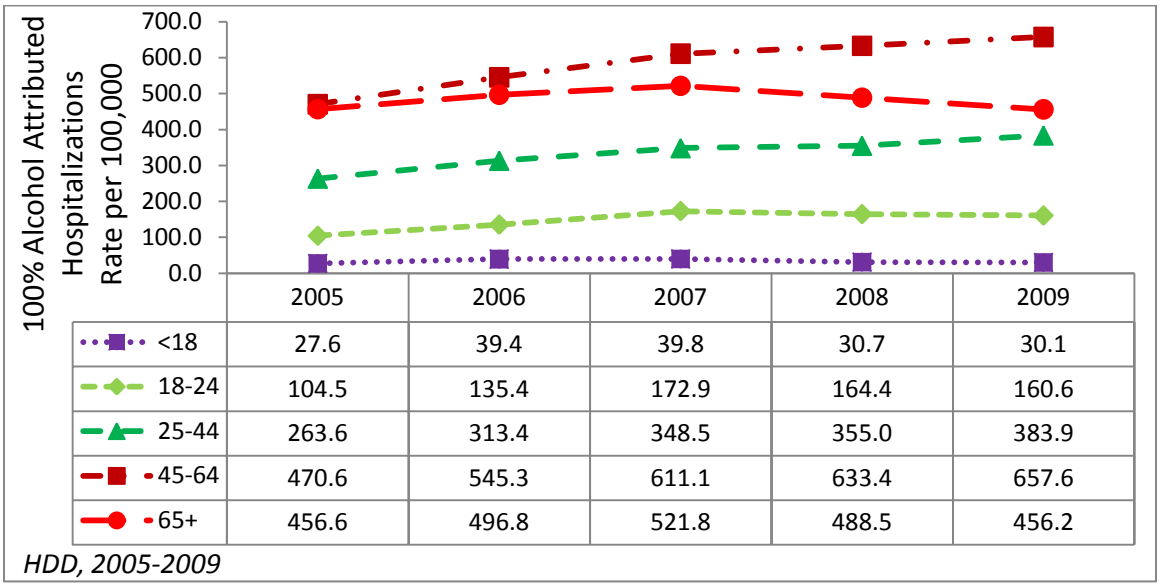
**Notes: Confidence intervals allow comparison of Iowa and U.S. results. The data source provided the confidence intervals for Iowa, but not for the U.S.**

Alcohol Attributed Hospitalizations:
Alcohol hospitalization events were queried using the equivalent ICD 9 codes (100% attributed to alcohol). Adapting the annual Behavioral Division's legislatives updates to the inpatient hospital discharges data, all available diagnostic fields were queried (10).

From 2005 to 2009, the total number of hospitalization events 100% attributed to alcohol increased 36% from 7,800 cases to 10,600. The hospitalization rates per 100,000 increased with

age. It was highest among the 45-64 and the 65 and older age groups with respective rates of 585.3 and 483.0 hospitalization events per 100,000 (Figure 32). Stratified by gender or race, alcohol hospitalization rates were greater in Males and Blacks. Males were twice as likely to be hospitalized because of alcohol as females (Figure 33). Compared to Whites, Blacks had a risk twice higher (Figure 34).

**Figure 32: Alcohol Associated Hospitalization Rates (100% Attributable) by Age, HDD**

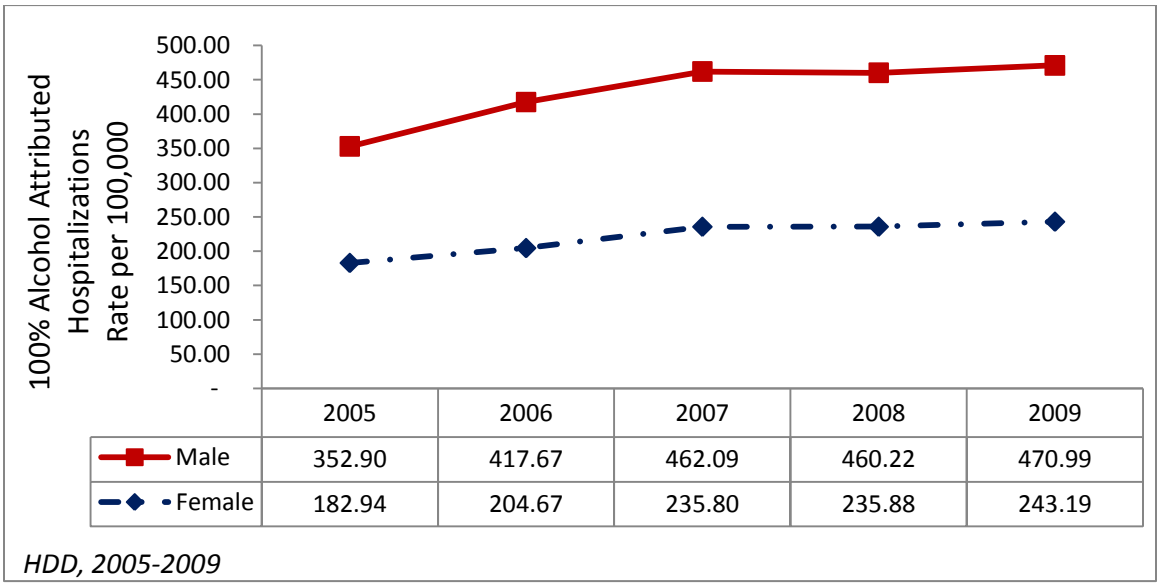



| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| <18 | 27.6 | 39.4 | 39.8 | 30.7 | 30.1 |
| 18-24 | 104.5 | 135.4 | 172.9 | 164.4 | 160.6 |
| 25-44 | 263.6 | 313.4 | 348.5 | 355.0 | 383.9 |
| 45-64 | 470.6 | 545.3 | 611.1 | 633.4 | 657.6 |
| 65+ | 456.6 | 496.8 | 521.8 | 488.5 | 456.2 |

*HDD, 2005-2009*

**Notes: HDD= hospital discharge data (Iowa Hospital Association), ICD 9 CM - 265.2, 291, 303, 305.0, 357.5, 425.5, 535.3, 571, 572.3, 655.4, 760.71, 790.3, 980.0, V79.1; 10 DX fields queried;**

**Figure 33: Alcohol Associated Hospitalization Rates (100% Attributable) by Gender, HDD**

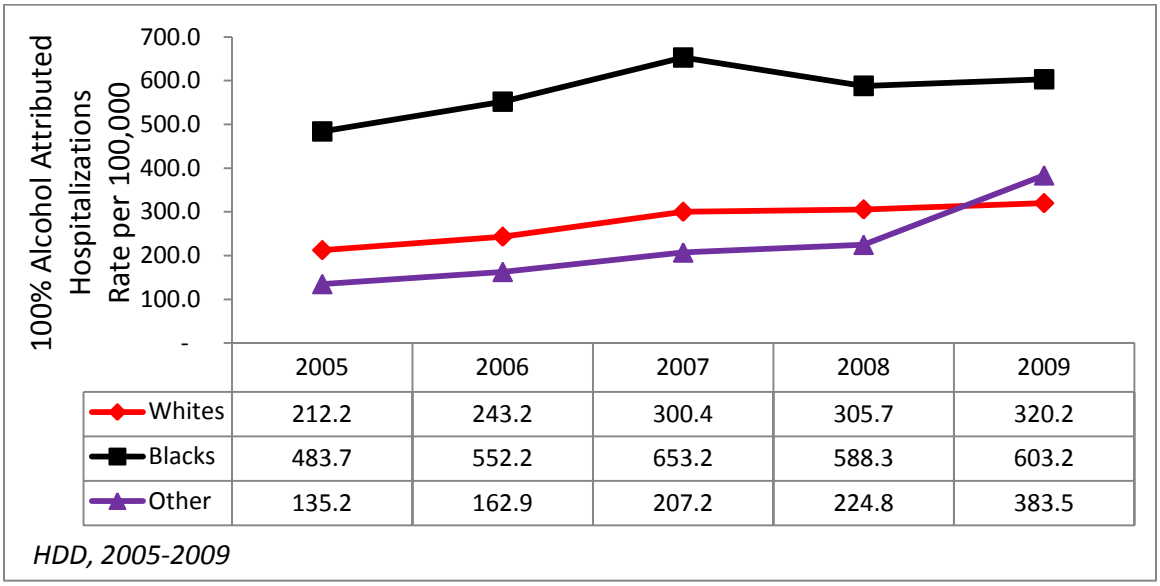



| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Male | 352.90 | 417.67 | 462.09 | 460.22 | 470.99 |
| Female | 182.94 | 204.67 | 235.80 | 235.88 | 243.19 |

*HDD, 2005-2009*

**Notes: HDD= hospital discharge data (Iowa Hospital Association), ICD 9 CM - 265.2, 291, 303, 305.0, 357.5, 425.5, 535.3, 571, 572.3, 655.4, 760.71, 790.3, 980.0, V79.1; 10 DX fields queried**

**Figure 34: Alcohol Associated Hospitalization Rates (100% Attributable) by Race, HDD**




| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Whites | 212.2 | 243.2 | 300.4 | 305.7 | 320.2 |
| Blacks | 483.7 | 552.2 | 653.2 | 588.3 | 603.2 |
| Other | 135.2 | 162.9 | 207.2 | 224.8 | 383.5 |

*HDD, 2005-2009*

**Notes: HDD= hospital discharge data (Iowa Hospital Association), ICD 9 CM - 265.2, 291, 303, 305.0, 357.5, 425.5, 535.3, 571, 572.3, 655.4, 760.71, 790.3, 980.0, V79.1; Other (Asians, Pacific Islanders, Native-Americans); Caution should be exercised in the interpretation of trend since there was a change in race categorization (collection of detailed race groups including Hispanics started in 2009)**

Alcohol Cirrhosis Associated Hospitalizations:
Likewise with deaths, the alcohol cirrhosis hospitalization rates were associated with age, gender and race. Among Iowans, the rate of alcohol cirrhosis hospitalizations was greater in the 45-64 age groups. Compared to the 65+, the rate ratio was about five times higher. Males were more likely to be hospitalized for alcohol cirrhosis than females (Table 14).

The race-specific rates showed a higher risk of cirrhosis in Blacks and other racial groups. As Blacks suffer from higher rates of several chronic diseases such as diabetes and hepatitis, alcohol may add to the injury leading to cirrhosis.

Caution is advised when interpreting and comparing alcohol cirrhosis hospitalization by racial groups or to alcohol cirrhosis deaths. It is only in 2009 that hospitals started to collect detailed information on race. As such, Hispanic ethnicity specification started only in 2009. This may have increased the rates of the other racial group. However, the fact that the number of alcohol cirrhosis still increased in the Whites and Blacks advocates for a small or no effect of the change in classification. Alcohol cirrhosis deaths were only queried using the underlying cause of deaths while with the hospitalizations it was searched on all diagnostic fields. In addition, hospital data are reported using ICD 9 codes.

**Table 14: Total Number of Alcohol Cirrhosis Hospitalizations and Rates by Demographics, HDD- 2005-2009**

| Demographics | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Age | | | | | |
| <18 | 0 | 0 | 0 | 0 | 0 |
| 18-24 | 0 | 6 (1.9) | 4 (1.3) | 4 (1.2) | 7 (2.2) |
| 25-44 | 254 (34.0) | 258 (34.9) | 332 (43.9) | 377 (51.2) | 353 (48.1)) |
| 45-64 | 725 (98.2) | 660 (87.3) | 786 (101.2) | 905 (115.6) | 960 (120.8) |
| 65+ | 261 (60.2) | 277 (63.7) | 214 (48.8) | 206 (46.6) | 215 (48.4) |
| Gender | | | | | |
| Male | 857 (59.0) | 819 (56.1) | 912 (62.1) | 1032 (69.8) | 1088 (73.2) |
| Female | 383 (25.6) | 382 (25.4) | 424 (28.1) | 460 (30.3) | 447 (29.4) |
| Race | | | | | |
| Whites | 948 (34.0) | 939 (33.5) | 1099 (39.1) | 1201 (42.6) | 1268 (44.9) |
| Blacks | 39 (53.9) | 33 (43.9) | 57 (72.9) | 53 (65.1) | 76 (90.4) |
| Other * | 46 (53.6) | 30 (33.7) | 47 (51.0) | 72 (75.3) | 87 (87.8) |

**Notes: *Other = Asians, Native-Americans, Hispanics; * Caution should be exercised in the interpretation of trend since there was a change in race categorization (collection of detailed race groups including Hispanics started in 2009)**

Suicide Attempts:

Suicide attempt hospitalization rates were higher among females, Blacks and the 18-24 and 45-64 age groups. The rate of suicide attempts leading to hospitalizations was on average 13 times higher in 18-24 and 45-64 compared to 65+ age groups; 60% higher in females; and 2 times higher in Blacks (Table 15).

**Table 15: Total Number of Suicide Attempt Hospitalizations and Rates by Demographics, HDD 2005-2009**

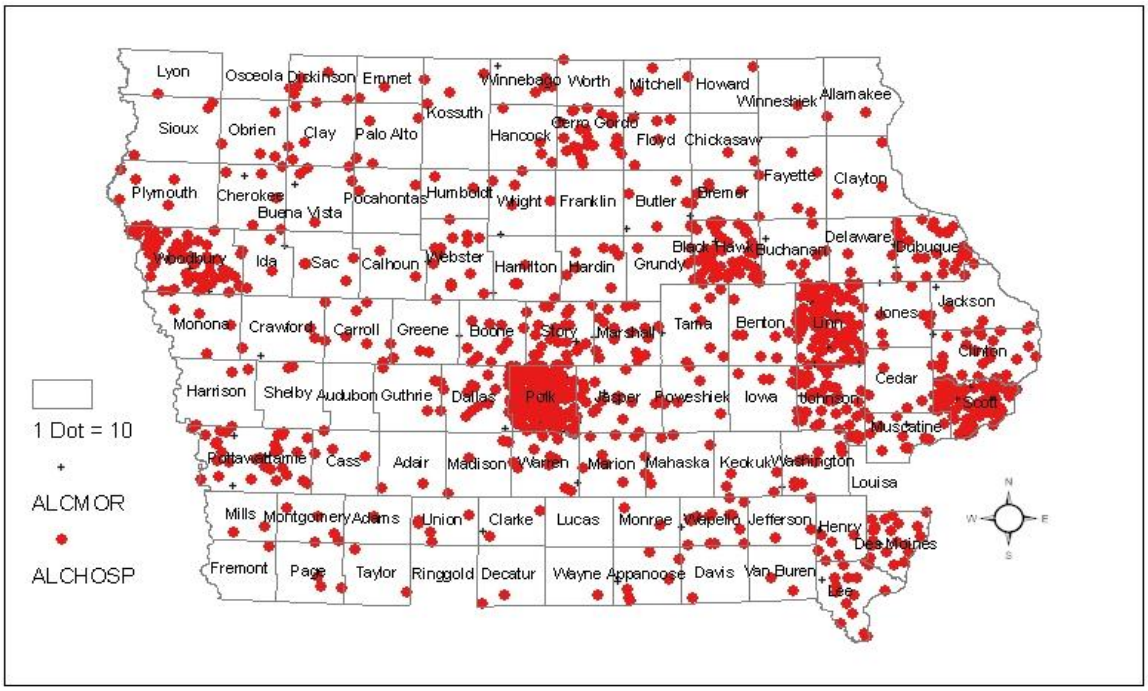
| Demographics | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Age | | | | | |
| <18 | 125 (37.9) | 156 (47.7) | 176 (54.2) | 195 (61.1) | 194 (61.5) |
| 18-24 | 287 (89.5) | 292 (90.7) | 371 (121.5) | 461 (143.8) | 526 (163.7) |
| 25-44 | 698 (59.2) | 722 (61.3) | 826 (68.9) | 1,002 (85.1) | 1,107 (94.3) |
| 45-64 | 321 (104.8) | 359 (112.7) | 394 (118.0) | 496 (145.0) | 587 (165.5) |
| 65+ | 29 (6.7) | 38 (8.7) | 46 (10.5) | 51 (11.5) | 48 (10.8) |
| Gender | | | | | |
| Male | 556 (38.3) | 604 (41.3) | 690 (47.0) | 859 (58.1) | 999 (67.2) |
| Female | 904 (60.4) | 963 (64.1) | 1,123 (74.4) | 1,347 (88.9) | 1,463 (96.1) |
| Race | | | | | |
| Whites | 1,037(37.2) | 1,280 (45.7) | 1,490 (53.1) | 1,861 (66.1) | 2,126 (75.3) |
| Blacks | 57 (78.8) | 47 (62.5) | 81 (103.5) | 87 (106.8) | 95 (113.0) |
| Other * | 11 (12.8) | 19 (21.3) | 27 (29.3) | 33 (34.5) | 70 (70.7) |

**Notes: Only primary cause of hospitalization queried; *Other = Asians, Native-Americans, Hispanics; * Caution should be exercised in the interpretation of trend since there was a change in race categorization (collection of detailed race groups including Hispanics started in 2009)**

*At the County Level*

For this profile, the number of 100% alcohol-attributed deaths was plotted against alcohol hospitalizations. Because of the low number of cases, the county cirrhosis distribution map was dropped from this profile. Alcohol deaths (symbolized by + for 10 cases) and hospitalizations (symbolized with red dots) clustered in high population areas such as big cities (Figure 35). However, when the rates were plotted, counties (9) with significantly higher rate than the state as a whole tended to be next to borders slightly mimicking the binge drinking map (Figure 36). Among youth, total suspensions and expulsions per 1,000 students for alcohol shows lower rate in counties located on the western side of Iowa compared to eastern Iowa. However, random variability may be responsible for the changes compared to 2010 profile. In addition, law enforcement discretion, communication between law enforcement, courts, and the schools, and school policies all may factor into county suspension and expulsion differences (Figure 37).

**Figure 35: Plot of the Number of Alcohol-Attributed Deaths and Hospitalizations by County, IDPH**




**Notes: ALCMOR= alcohol deaths; ALCHOSP= alcohol hospitalizations**

**Figure 36: Distribution of Alcohol Associated Hospitalization Rates (100% Attributable) by County, IDPH**

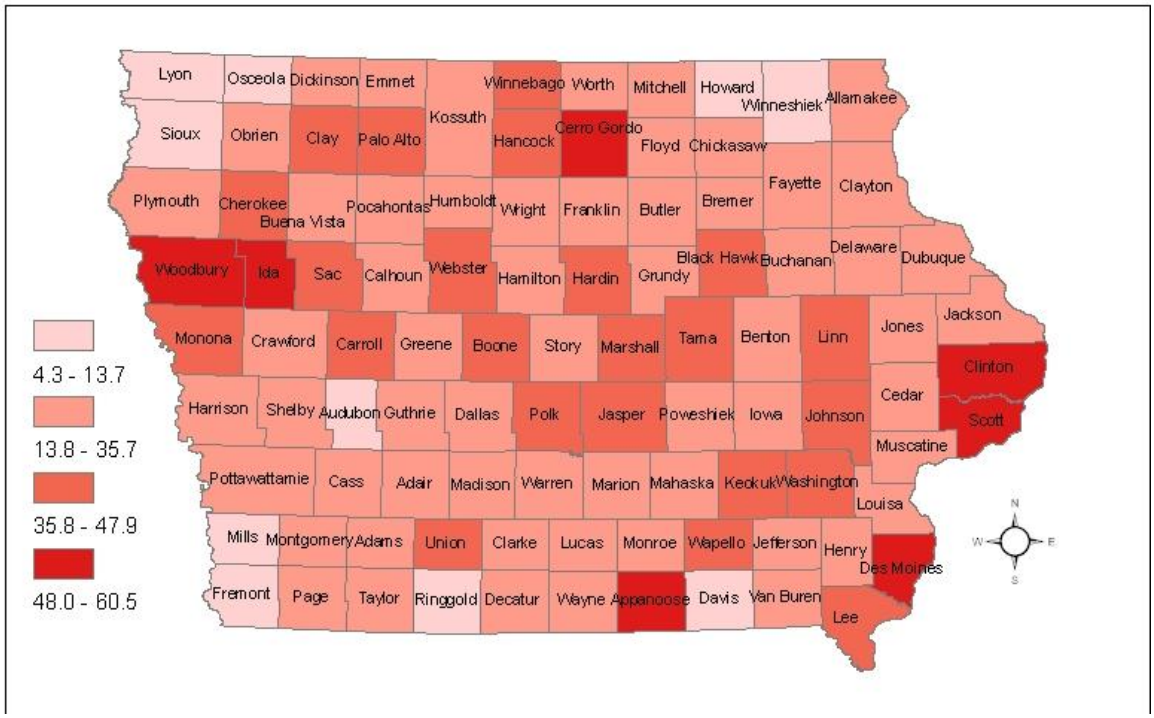
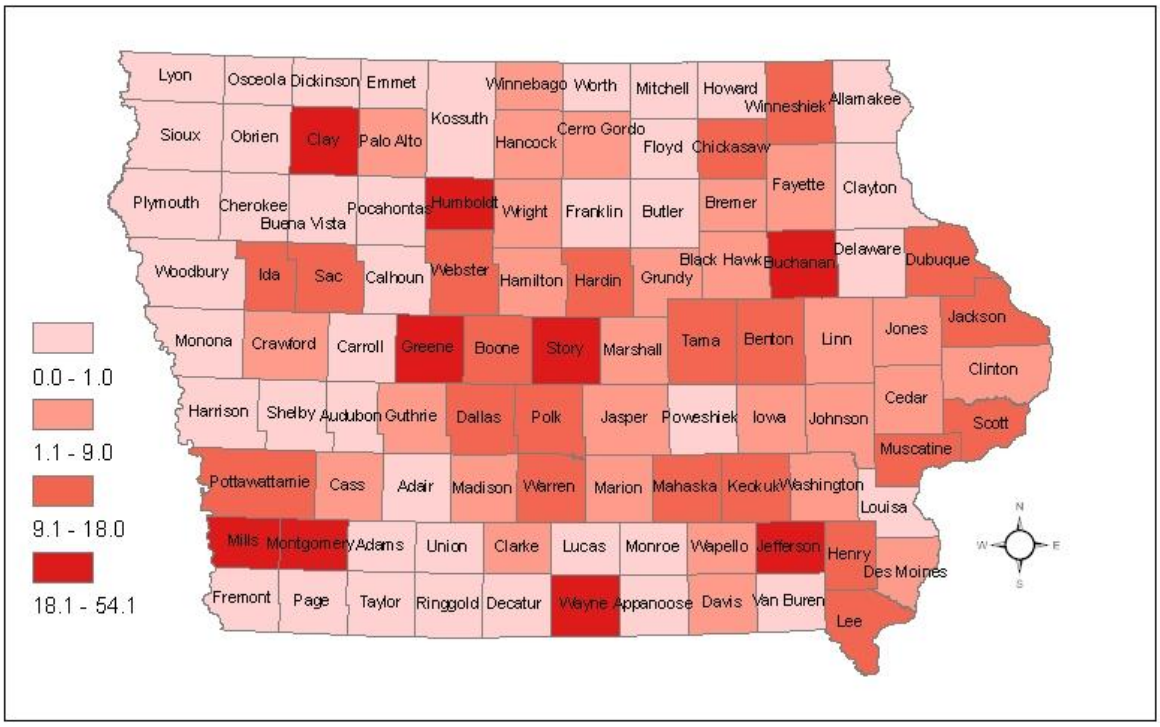



**Figure 37: Distribution of the Rate per 1,000 Students of Alcohol School Suspensions and Expulsions by County, Project EASIER 2008-2009**



# TOBACCO

## Consumption

The 2010 Healthy People objectives for the Nation set out to reach reduce smoking to a proportion of 13% among adults. Since 2000, the rate of decrease has not yet reached the set objective. As cigarette smoking and exposure to second hand smoke are suspected of causing 443,000 premature deaths, increasing medical cost (estimated at $96 billion) and high economic losses in the US, public health campaigns have focused on reduction of initiation and increase in cessation with unsatisfactory results.[6,7]

In Iowa, two major legislations pertaining to smoking occurred these last three years. The cigarette excised Tax was enacted in 2007, ranking Iowa 25th among states with the highest cigarette Tax.[8] The Smoke Free Air Act of 2009, which prohibits smoking in public places (except in casinos), went to effect July 1st 2008. These two legislations may have significant impact in reducing tobacco consumption and consequences.

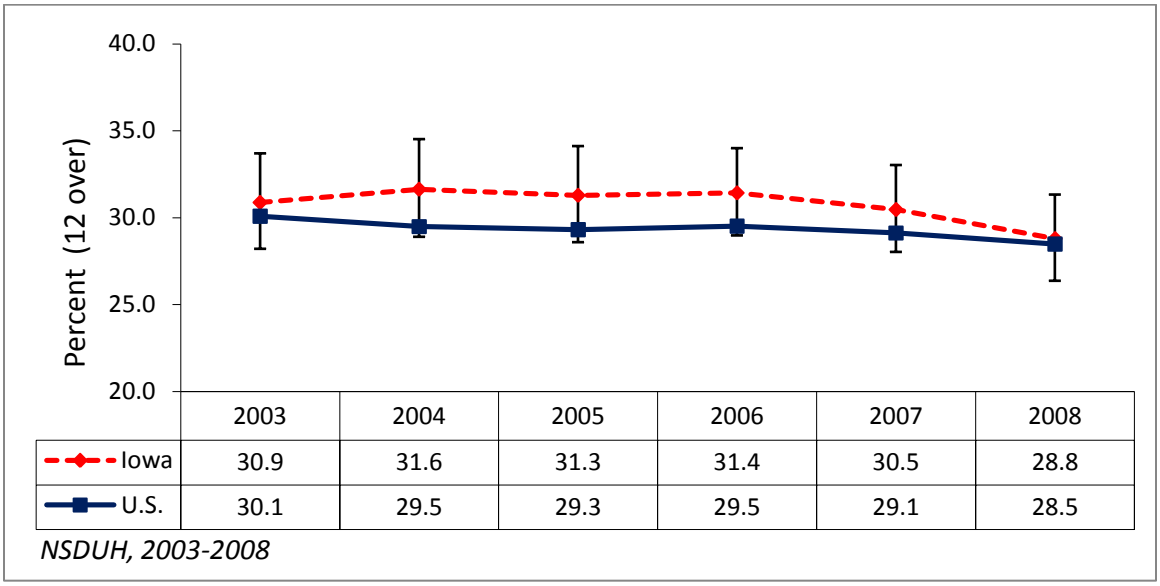
Adult Consumption Patterns

*At the State Level*

Tobacco Use:
Tobacco use, as defined by the NSDUH, includes cigarettes, smokeless tobacco (chewing tobacco or snuff), cigars, or pipe tobacco. To estimate tobacco use, NSUDH questionnaire starts by defining tobacco use and then asking detailed question about cigarette smoking, using snuff (dip), chewing, and smoking tobacco with a pipe.

Based upon NSDUH estimates, adult tobacco use in Iowa remained unchanged from 2003 to 2008, and was similar to national tobacco usage rates with prevalence around 28.8%. The national trend supports a reduction in the prevalence of tobacco product use and cigarette smoking. The 2007-2008 NSDUH estimated 714,000 Iowans over age 12 have used tobacco, an 8% decrease from 2006-2007 numbers. The overall national and state rates of 30-day tobacco use did not differ significantly, nor were there significant differences between the prior years and the 2008 Iowa rates (Figure 38). Due to the small sample size and the weighting approach used by the NSDUH, no additional analysis (breaking out race, gender, or age) can be conducted on Iowa tobacco use data. Cigarette use mirrors overall tobacco use rates for Iowa and the U.S. from 2003-2008, with no significant difference between years or between Iowa and national rates (Figure 39).

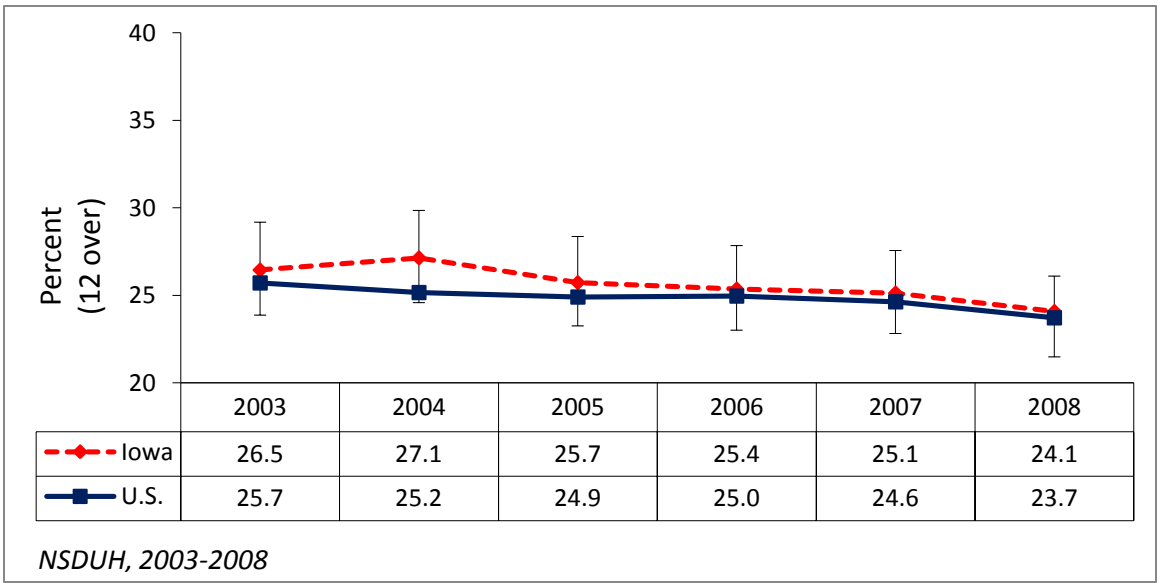
**Figure 38: Percent of People Reporting Past 30-Day Tobacco Use-12 or Older, Iowa vs. US, NSDUH**




| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|
| Iowa | 30.9 | 31.6 | 31.3 | 31.4 | 30.5 | 28.8 |
| U.S. | 30.1 | 29.5 | 29.3 | 29.5 | 29.1 | 28.5 |

*NSDUH, 2003-2008*

**Figure 39: Percent of People Reporting Past 30-Day Cigarette Smoking- 12 or Older, Iowa vs. US, NSDUH**




| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|
| Iowa | 26.5 | 27.1 | 25.7 | 25.4 | 25.1 | 24.1 |
| U.S. | 25.7 | 25.2 | 24.9 | 25.0 | 24.6 | 23.7 |

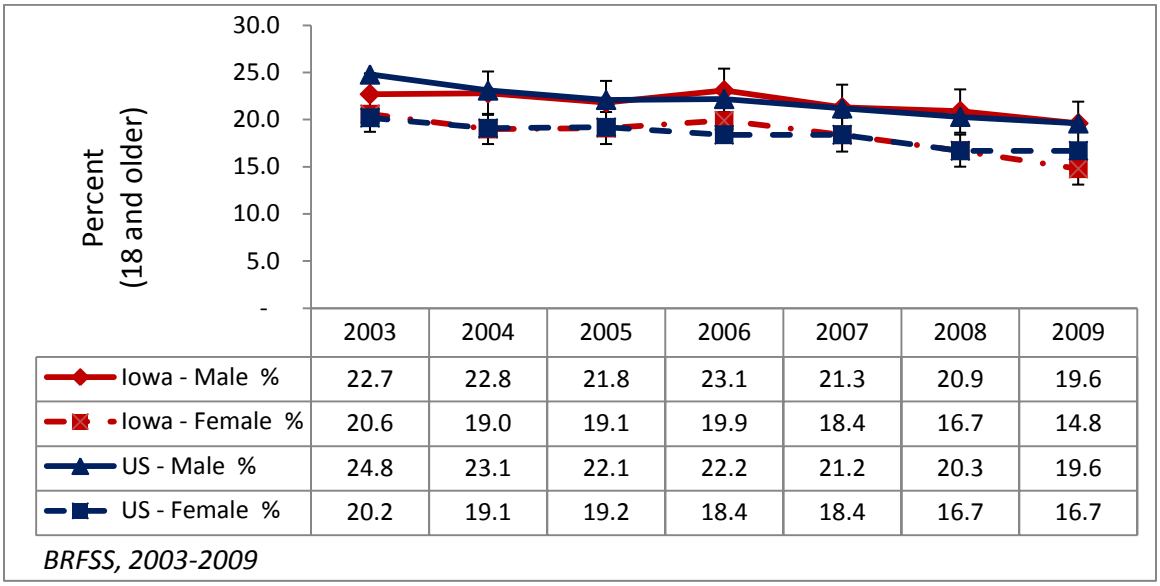
*NSDUH, 2003-2008*

Tobacco Use (BRFSS):

The BRFSS results were similar to the NSDUH. There were no differences in the proportion of adult (over 18 years of age) smokers in the state or the nation. The BRFSS identifies current smoker status by asking several questions. When the respondent answer positively "*Do you now smoke cigarettes every day, some days, or not at all*" and have at least smoked 100 cigarettes in lifetime. Even when further stratified by age categories, gender and SES (income and education level), no difference in smoking was identified (data not shown). From the BRFSS analysis, there were no significant differences in the proportion of Iowa male current smokers vs. females except after 2008. The proportion of female current smokers was significantly lower than that of

males (Figure 40). Compared to 2006 results, smoking prevalence in 2009 was 18% lower in males (23.1% vs. 19.6%) and 25% in females (19.9% vs. 14.8%). The average annual percent decrease from 2006 to 2009 was around 5% and 9% for males and females, respectively.

**Figure 40: Percent of Adults (18 over) Reporting Current Cigarette Smoking by Gender Iowa vs. US, BRFSS**



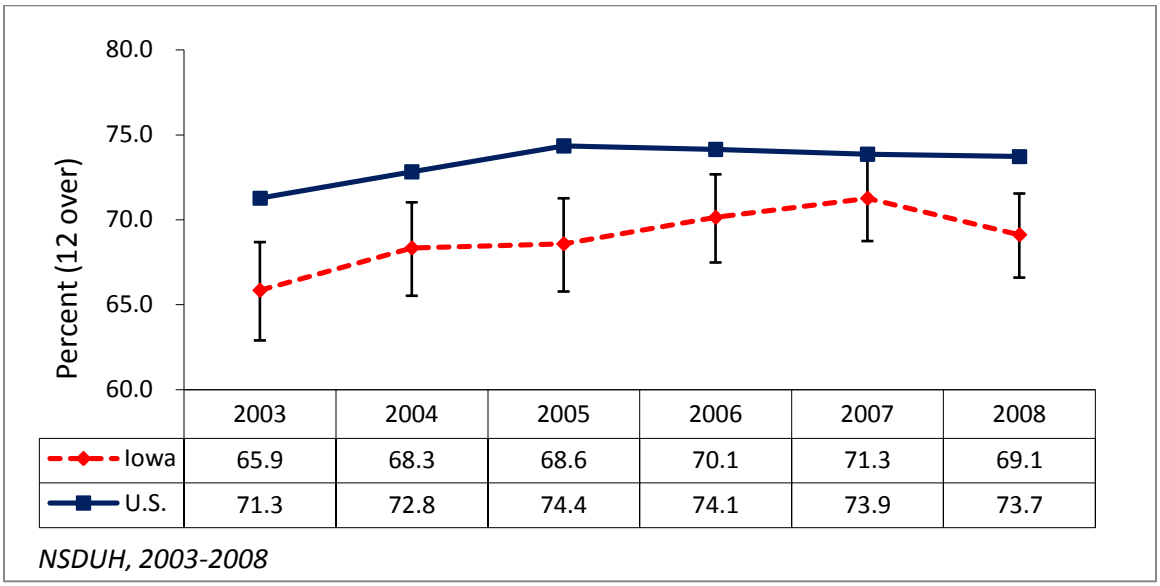

| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|
| Iowa - Male % | 22.7 | 22.8 | 21.8 | 23.1 | 21.3 | 20.9 | 19.6 |
| Iowa - Female % | 20.6 | 19.0 | 19.1 | 19.9 | 18.4 | 16.7 | 14.8 |
| US - Male % | 24.8 | 23.1 | 22.1 | 22.2 | 21.2 | 20.3 | 19.6 |
| US - Female % | 20.2 | 19.1 | 19.2 | 18.4 | 18.4 | 16.7 | 16.7 |

*BRFSS, 2003-2009*

Other Consumption Indicators:
The overall perception of risk related to tobacco smoking among Iowans over age 12 was significantly different from the nation. The 2007-2008 NSDUH, found that approximately 69.1% of Iowans over age 12 felt that smoking at least one pack of cigarettes per day was very risky compared to 73% from the nation. Across age groups, the perception of risk was lower among Iowans, except for the youth (12-17). Compared to previous years, the 2008 percentage was similar but is significantly lower than the national estimate (Figure 41).

The proportion of Iowa mothers reporting using tobacco during pregnancy has been stable since 2002 around 15-17%, except for an increasing trend in 2007 and 2008 with a respective proportion of 19% and 23% of all pregnancies (Figure 42). Young mothers, 18 years old or younger, were 33% to 55% of the time more likely to report tobacco use during pregnancy than mothers over the age of 18, respectively in2006 and 2009 (Figure 43). This information was collected and reported on birth certificates, and does not include women who did not have live births. In 2007, the questions used to collect this information changed from asking if the mother had smoked during pregnancy to using three questions to assess the number of cigarettes smoked during each pregnancy trimester. If a mother reported smoking during any trimester then she was included in the percent reporting smoking, which may explain the increase in the smoking percentage. Both reporting methods may under-report tobacco consumption, since mothers may hesitate to report using tobacco while pregnant due to potential legal or social ramifications.

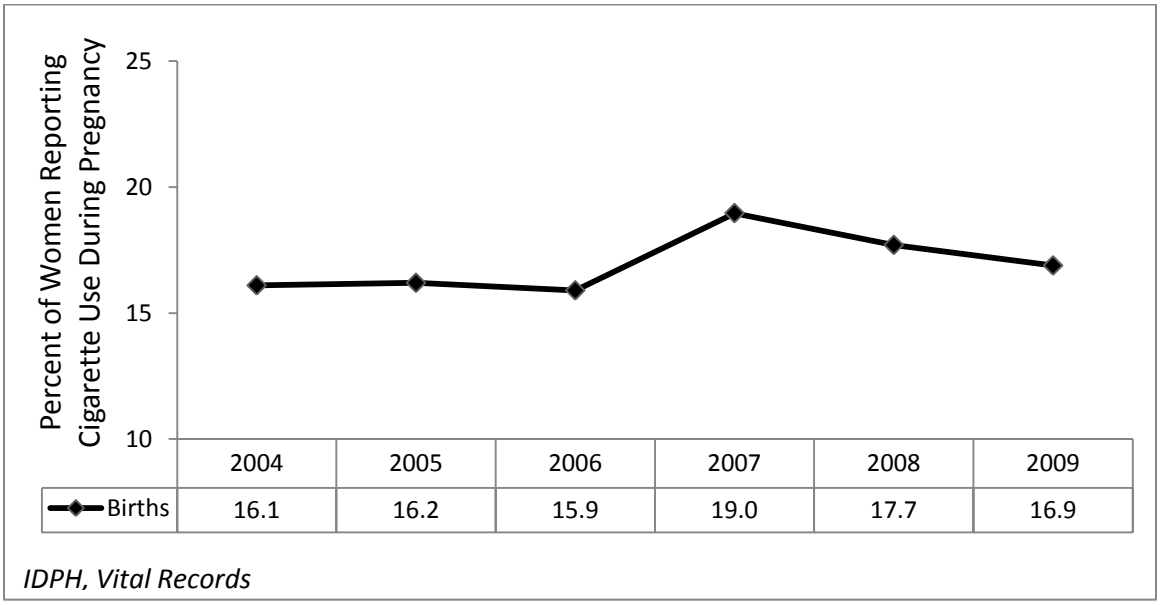
**Figure 41: Percent of People Reporting Perception of Great Risk of Smoking One or More Packs of Cigarettes per Day- 12 or Older, Iowa vs. US, NSDUH**




| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|
| Iowa | 65.9 | 68.3 | 68.6 | 70.1 | 71.3 | 69.1 |
| U.S. | 71.3 | 72.8 | 74.4 | 74.1 | 73.9 | 73.7 |

*NSDUH, 2003-2008*

**Figure 42: Percent of Iowa Women who had Live Births Reporting Tobacco Use during Pregnancy – All Ages, IDPH Vital Records**

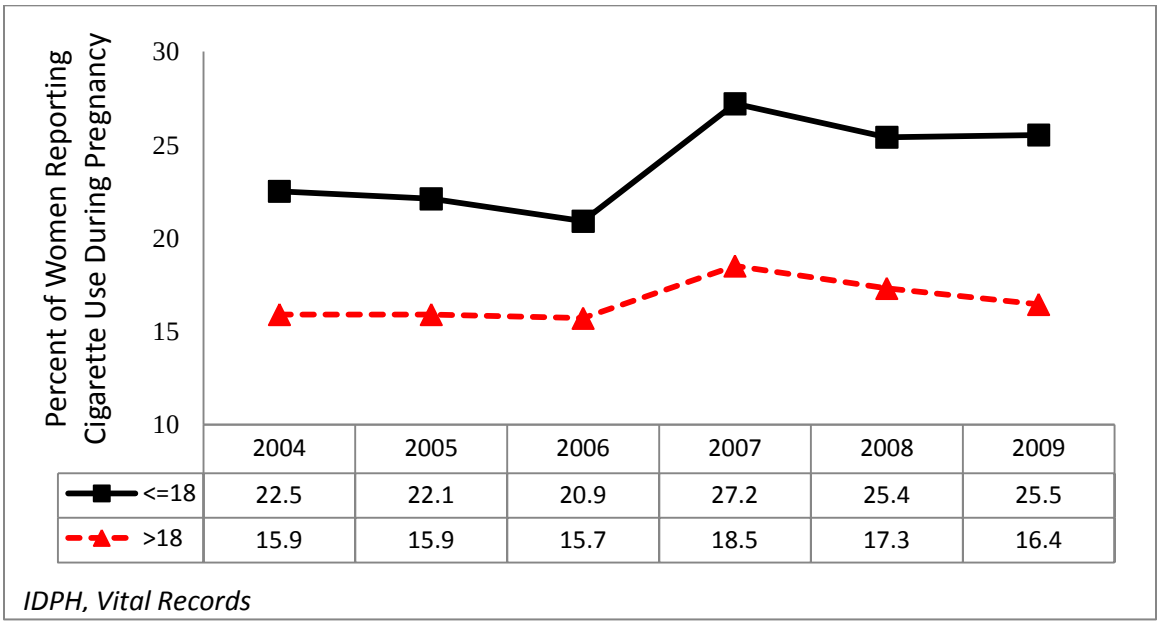



| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|
| Births | 16.1 | 16.2 | 15.9 | 19.0 | 17.7 | 16.9 |

*IDPH, Vital Records*

**Note: The question collecting this information was changed in 2007 birth certificates; therefore caution in the interpretation is advised**

**Figure 43: Percent of Iowa Women who had Live Births that Reported Tobacco Use During Pregnancy by Age Group, IDPH Vital Records**




| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|
| <=18 | 22.5 | 22.1 | 20.9 | 27.2 | 25.4 | 25.5 |
| >18 | 15.9 | 15.9 | 15.7 | 18.5 | 17.3 | 16.4 |

*IDPH, Vital Records*

**Note: The question collecting this information has been changed in 2007 birth certificate, which may explain the increase in 2007; therefore caution in the interpretation is advised**

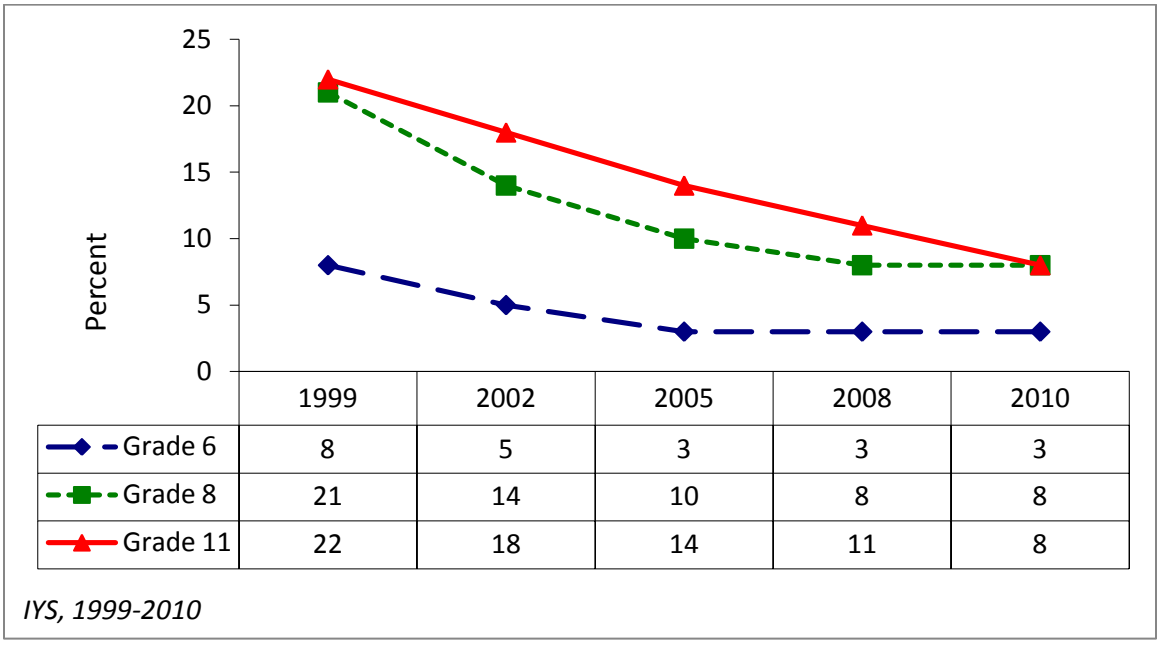
Youth Consumption Patterns

*At the State Level*

Youth tobacco use in Iowa is declining, as evidenced by the reduction in the number of youths reporting first use of cigarettes before age 13 and past 30-day use and the increased reporting of perceived risk of cigarette use.

Tobacco Use:
The IYS The percent of 6th, 8th, and 11th-graders that first used cigarettes before age 13, has decreased each time the IYS has been administered since 1999 (Figure 44). Reported past 30-day cigarette use has also decreased on each IYS (Figure 45). Iowa and national youth heavy smoking rates do not differ as reported by the Youth Risk Behavioral Survey (YRBS). The Iowa rate of heavy smoking decreased between 1997 and 2007 (Figure 46).

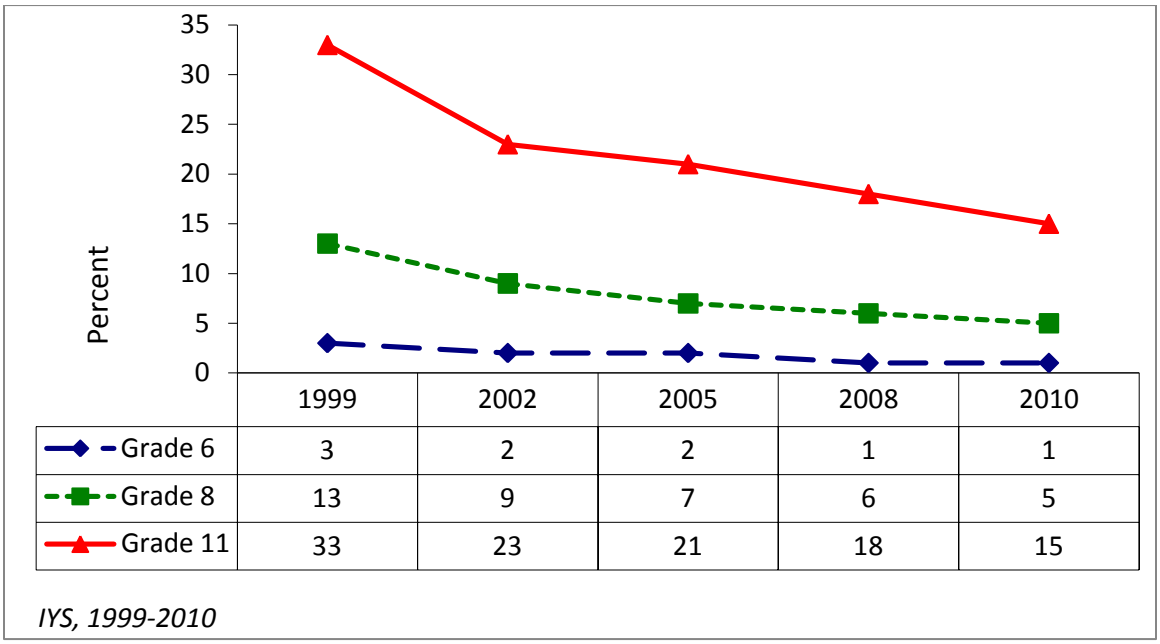
**Figure 44: Percent of 6th, 8th, and 11th-Graders Reporting First Use of Cigarettes before Age 13, IYS**




| | 1999 | 2002 | 2005 | 2008 | 2010 |
|---|---|---|---|---|---|
| Grade 6 | 8 | 5 | 3 | 3 | 3 |
| Grade 8 | 21 | 14 | 10 | 8 | 8 |
| Grade 11 | 22 | 18 | 14 | 11 | 8 |

*IYS, 1999-2010*

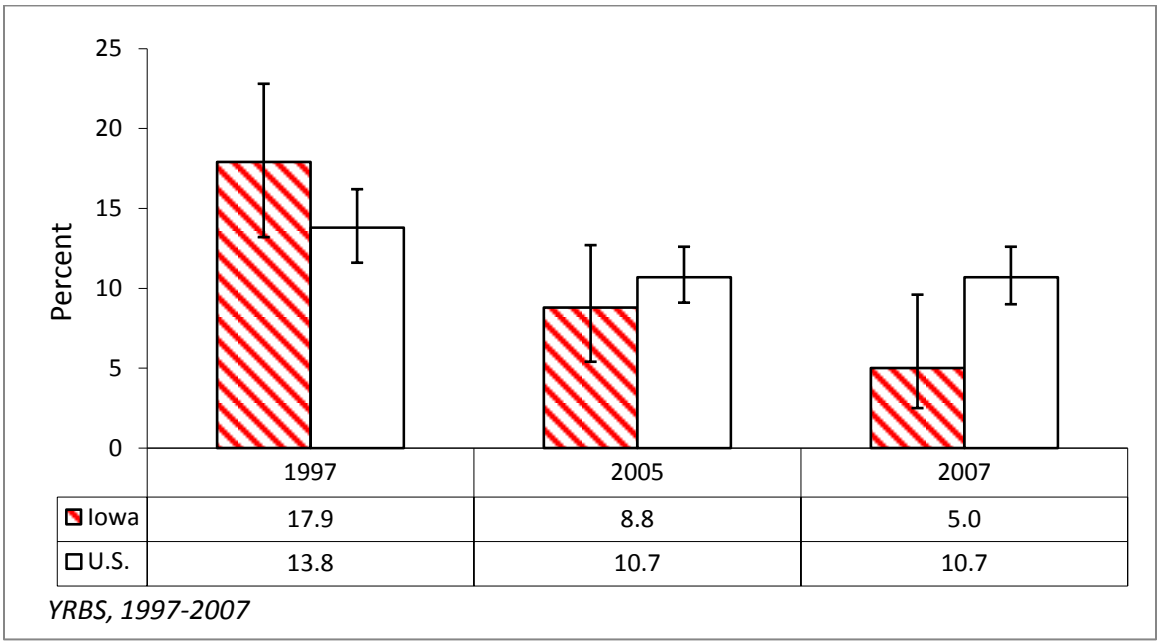
**Figure 45: Percent of 6th, 8th, and 11th-Graders Reporting Past 30-Day Cigarette Use, IYS**




| | 1999 | 2002 | 2005 | 2008 | 2010 |
|---|---|---|---|---|---|
| Grade 6 | 3 | 2 | 2 | 1 | 1 |
| Grade 8 | 13 | 9 | 7 | 6 | 5 |
| Grade 11 | 33 | 23 | 21 | 18 | 15 |

*IYS, 1999-2010*

**Figure 46: Percent of Students Reporting Heavy Smoking among Youth Iowa vs. US, YRBS**

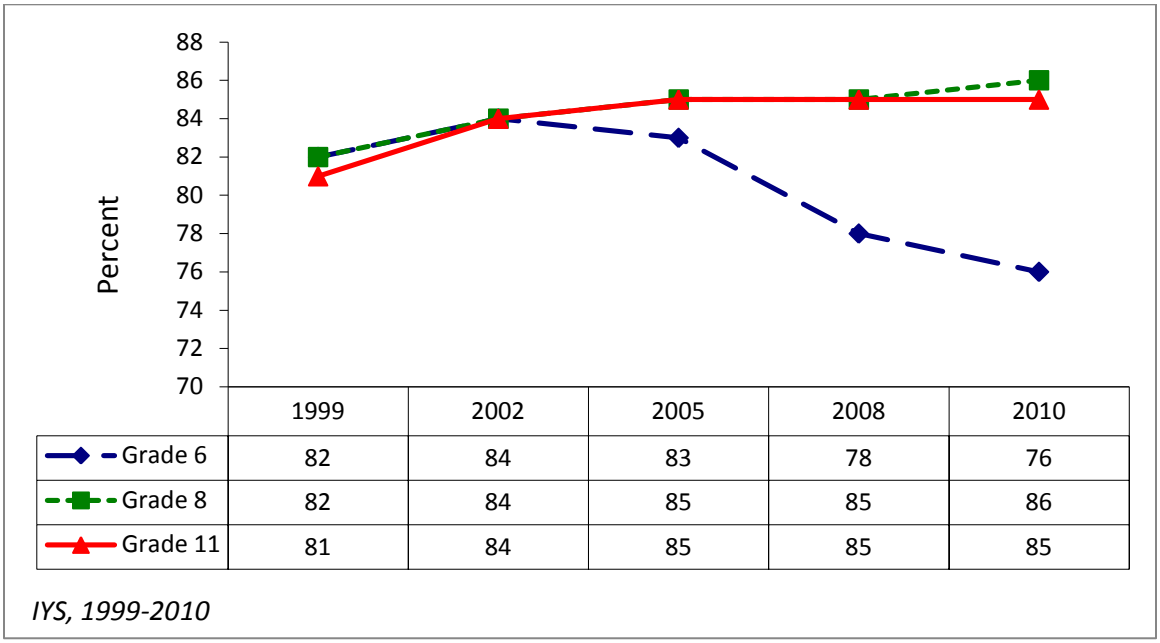



Other Indicators:
Sixth, Eighth, and Eleventh-grade students responded similarly when asked in the IYS, "*How much do you think you risk harming yourself if you smoke cigarettes every day?*" "Great Risk" and "Moderate Risk" response options were combined for Table 16 and Figure 46. Perceived risk of cigarette use does not appear to differ by gender among middle- and high-school youth (Table 16). The percent of students reporting moderate to great risk were stable around 85% among 8$^{th}$ and 11$^{th}$ graders. The proportion has been regularly decreasing among 6$^{th}$ graders (Figure 47). Tobacco compliance check data are compiled by the Iowa Alcoholic Beverages Division. In the last seven fiscal years, the compliance rate was between 88-93% (Figure 48). Although, the compliance rate has been increasing, during fiscal year 2010, 6,655 tobacco compliance checks were completed in Iowa compared to 7,710 in 2009. The lowest number of compliance checks occurred between 2003 and 2008 with an average of 5,300 checks per year. The highest number of compliance checks occurred on 2002 with a total of 9,399.

**Table 16: Percent of 6th, 8th, and 11th-Graders who Reported Perceiving Cigarette Use as a Moderate or Great Risk by Gender, IYS**

| | Year | | | | |
|---|---|---|---|---|---|
| **Gender** | **1999** | **2002** | **2005** | **2008** | **2010** |
| Males | 80 | 82 | 83 | 83 | 82 |
| Females | 83 | 85 | 85 | 87 | 83 |

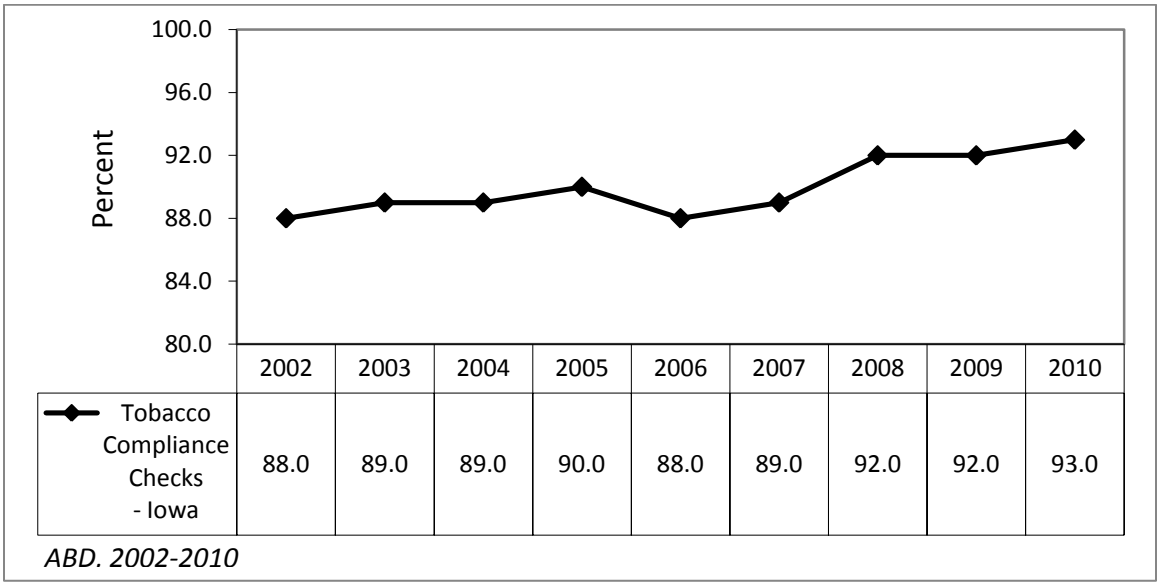
**Figure 47: Percent of 6th, 8th, and 11th-Graders Who Reported Perceiving Cigarette Use as a Moderate or Great Risk, IYS**




| | 1999 | 2002 | 2005 | 2008 | 2010 |
|---|---|---|---|---|---|
| Grade 6 | 82 | 84 | 83 | 78 | 76 |
| Grade 8 | 82 | 84 | 85 | 85 | 86 |
| Grade 11 | 81 | 84 | 85 | 85 | 85 |

*IYS, 1999-2010*

**Figure 48: Tobacco Compliance Check – Percent Compliant, Iowa ABD**



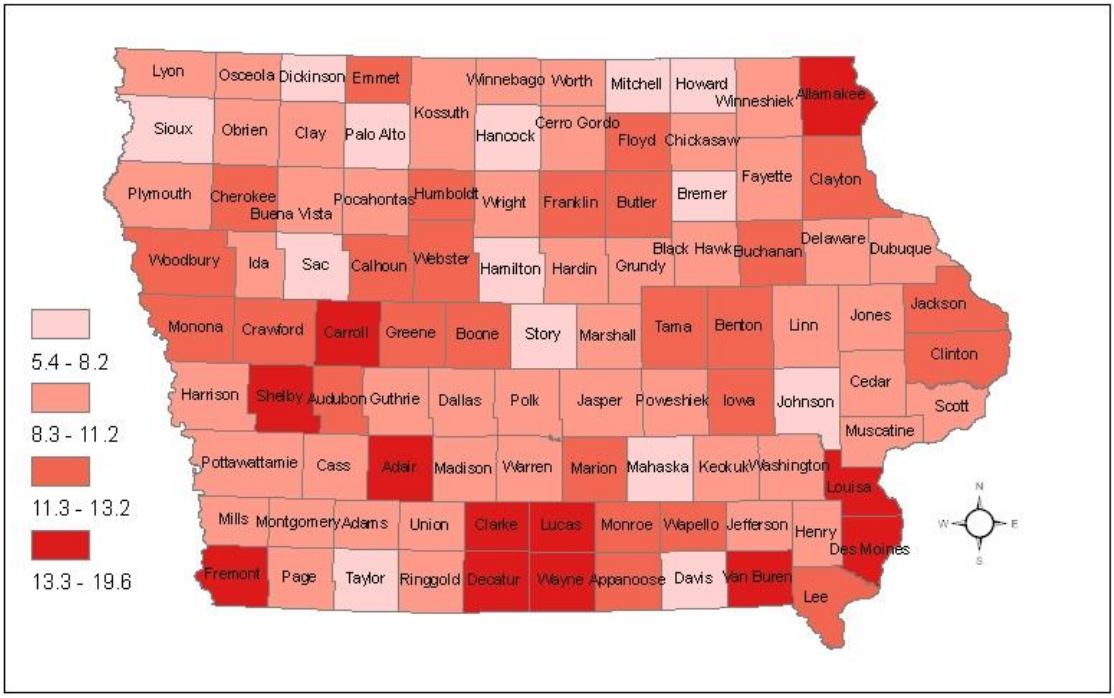

| | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|
| Tobacco Compliance Checks - Iowa | 88.0 | 89.0 | 89.0 | 90.0 | 88.0 | 89.0 | 92.0 | 92.0 | 93.0 |

*ABD. 2002-2010*

*At the County Level*

The distribution of current smoker prevalence (current smoke construct) by county shows that counties, with the highest proportion of students who smoked cigarettes within the last 30 days, tended to be on the state periphery and specifically in southern Iowa. Out of 12 counties with a 30-day smoking prevalence greater than 11%, half were situated on the Missouri border (Figure 49).

**Figure 49: Distribution of the Percent of Students (6th, 8th, 11th) Reporting Current Cigarette Smoking by County, IYS 2010**




## Consequences

The general consensus following the General Surgeon Report on smoking encompasses a variety of negative health effects and societal costs.[9] As tobacco use remains the leading cause of preventable deaths, it is believed to harm nearly every organ. Any level of smoking has been associated with increasing the risk of death and morbidity from numerous diseases such as lung and cardiovascular diseases, reproductive disorders, immunological deficiencies, and cancers. Though the criteria earlier developed by the Data Task Group severely limited the choices on tobacco consequences to Lung Cancer Deaths, this report included mortality and morbidity. Conditions identified using ICD 9 and ICD 10 codes attributed over 85% to tobacco were identified using the Population Attributable Functions from SAMMECS. Hence, deaths certificates and hospital discharge data were analyzed and included in this epidemiological profile using the primary and secondary causes of deaths (21 diagnostic fields) and hospitalizations (10 diagnostic fields) associated with tracheal and lung cancers (ICD 10 - C33-

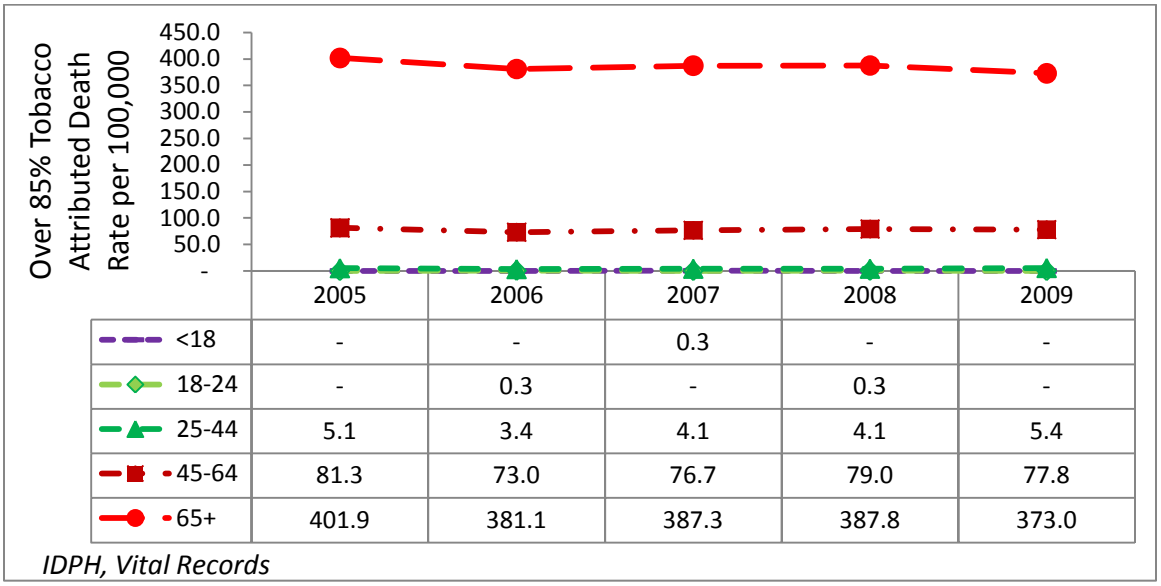
C34; ICD 9 - 162.0-9); chronic obstructive pulmonary disease (COPD) and emphysema (ICD10 - J40-J42; ICD9 - 490-492); and mental health addiction to tobacco (ICD10 - F17; ICD9 - 305.1).

*At the State level*

Tobacco Associated Mortality:
The overall tobacco associated death rates have been steady over the years ranging from 80.6 in 2005 to 77.9 per 100,000 in 2009, which corresponded to an average of 2,300 deaths per year. This number is equivalent to 6 Iowans dying every day from a condition associated with tobacco. The rates were greater among the 65+ age groups with a specific rate of 372.7 per 100,000 in 2009, which corresponded to a total number of deaths of 1,656 (71%), (Figure 50). Compared to the younger adults age groups (25-44 as reference), tobacco risk of death significantly increased with age. However, the number of tobacco associated deaths among the25-44 group is still alarming with 33 deaths every year in Iowa. Males presented 28 to 45% higher rates than females. However, the rate in females was slowly increasing (Figure 51). Whites had much higher rates of tobacco associated deaths than Blacks and other racial groups (Figure 52). The majority of tobacco attributed deaths were caused by Lung cancer (over 70%). The proportion of tobacco attributed deaths associated with COPD cases were less than 2%. Interestingly, the ICD 10 - F17 (mental and behavioral health disorders due to tobacco) was associated with on average 500 deaths per year, around 20% of the cases (Figure 53).

The lung cancer death rate, as reported on death certificates using the underlying cause of death (ICD10 code C34 - Malignant neoplasm of bronchus and lung) rose slightly from 2001 to 2005, and showed a significant drop in 2005. After a slight increase to the 2001 level, the rate went down a little in 2008 (Figure 54). There was on average 1,770 lung cancer deaths per year from 2005 to 2009. The lung cancer death rate was associated with age, gender and race (Table 17). The rates were greater among the 65+ years of age. Lung cancer death rate averages per 100,000 were higher in Whites (68.4), followed by Blacks (45.3) and lower among other racial groups including Hispanics (5.5).

**Figure 50: Tobacco Associated Death Rates (85% Tobacco Attributable) by Age, IDPH - Vital Records**

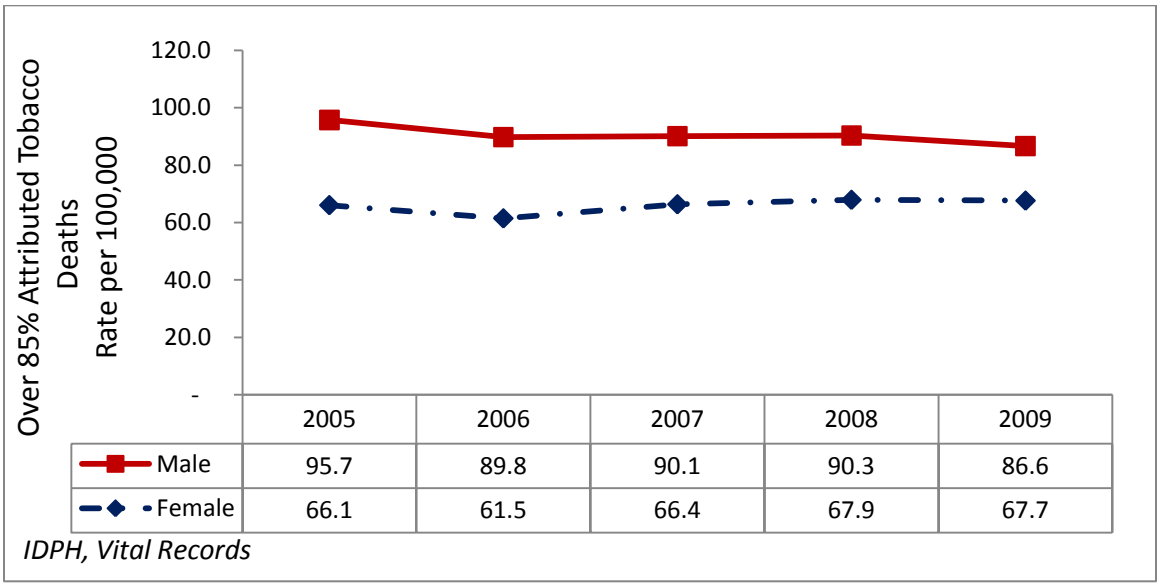



| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| <18 | - | - | 0.3 | - | - |
| 18-24 | - | 0.3 | - | 0.3 | - |
| 25-44 | 5.1 | 3.4 | 4.1 | 4.1 | 5.4 |
| 45-64 | 81.3 | 73.0 | 76.7 | 79.0 | 77.8 |
| 65+ | 401.9 | 381.1 | 387.3 | 387.8 | 373.0 |

*IDPH, Vital Records*

**Notes: ICD 10 codes = C33-C34, F17, J40-J42; to match legislative updates 21 DX fields were queried including Underlying Cause of Death;**

**Figure 51: Tobacco Associated Death Rates (over 85% Attributable) by Gender, IDPH - Vital Records**

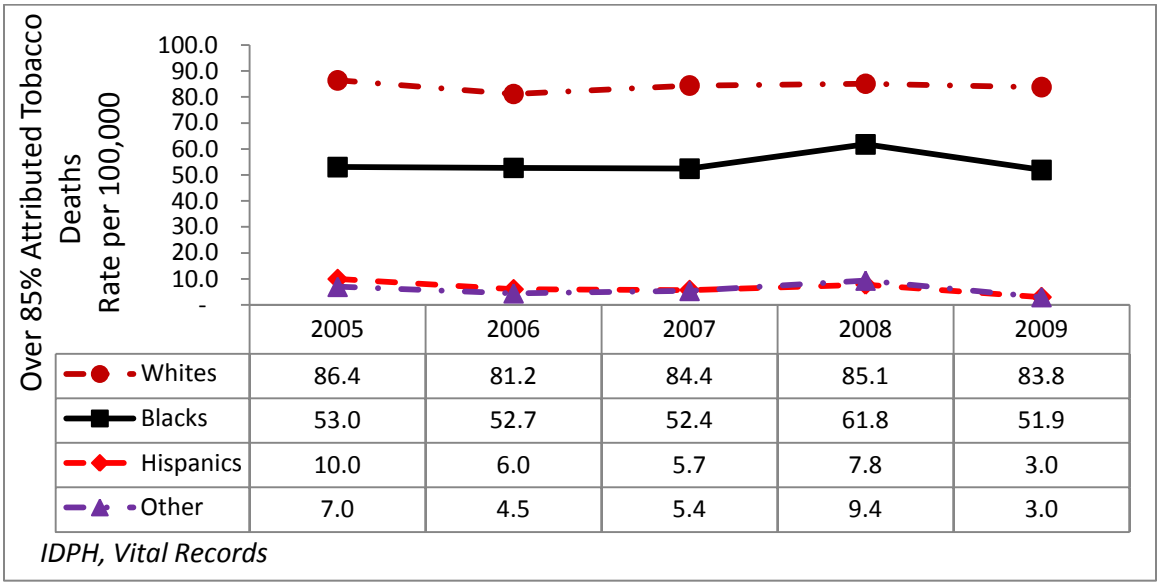



| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Male | 95.7 | 89.8 | 90.1 | 90.3 | 86.6 |
| Female | 66.1 | 61.5 | 66.4 | 67.9 | 67.7 |

*IDPH, Vital Records*

**Notes: ICD 10 codes = C33-C34, F17, J40-J42; To match legislative updates 21 DX fields were queried including Underlying Cause of Death;**

**Figure 52: Tobacco Associated Death Rates (over 85% Attributable) by Race, IDPH - Vital Records**

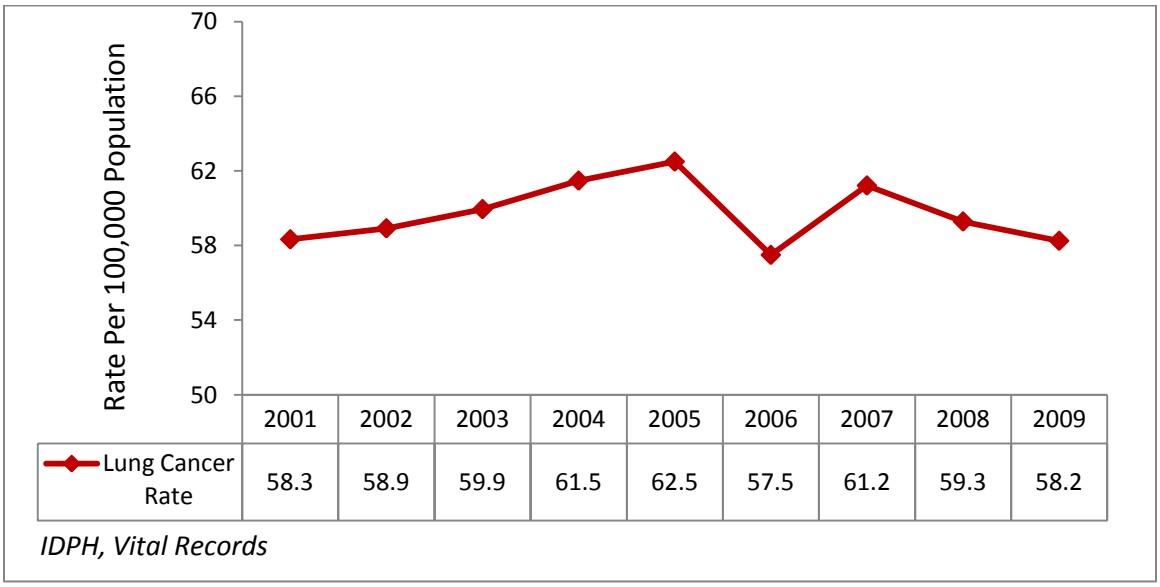



| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Whites | 86.4 | 81.2 | 84.4 | 85.1 | 83.8 |
| Blacks | 53.0 | 52.7 | 52.4 | 61.8 | 51.9 |
| Hispanics | 10.0 | 6.0 | 5.7 | 7.8 | 3.0 |
| Other | 7.0 | 4.5 | 5.4 | 9.4 | 3.0 |

*IDPH, Vital Records*

**Notes: ICD 10 codes = C33-C34, F17, J40-J42; to match legislative updates 21 DX fields were queried including Underlying Cause of Death;**

**Figure 53: Lung Cancer Death Rates per 100,000, IDPH Vital Records**




| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|
| Lung Cancer Rate | 58.3 | 58.9 | 59.9 | 61.5 | 62.5 | 57.5 | 61.2 | 59.3 | 58.2 |

*IDPH, Vital Records*

**Notes: ICD 10 code= 'C34'; only Underlying Cause of Death was queried**

**Table 17 : Lung Cancer Death Rates per 100,000 Iowans by Demographics, IDPH Vital Records**

| Year | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Age | | | | | |
| <18 | - | - | - | - | - |
| 18-24 | - | - | - | 1 (0.3) | - |
| 25-44 | 25 (3.3) | 20 (2.7) | 24 (3.2) | 18 (2.4) | 23 (3.1) |
| 45-64 | 474 (64.2) | 443 (58.6) | 479 (61.7) | 471 (60.2) | 478 (60.2) |
| 65+ | 1,348 (311.0) | 1,246 (286.4) | 1,326 (302.4) | 1,290 (292.0) | 1,251 (281.6) |
| Gender | | | | | |
| Male | 1,085 (74.7) | 1,001 (68.5) | 1,026 (69.8) | 1,015 (68.7) | 954 (64.2) |
| Female | 762 (50.9) | 708 (47.1) | 803 (53.2) | 765 (50.5) | 798 (52.4) |
| Race | | | | | |
| Whites | 1,797 (64.4) | 1,668 (59.6) | 1,784 (63.5) | 1,736 (61.6) | 1,713 (60.6) |
| Blacks | 28 (38.7) | 30 (39.9) | 32 (40.9) | 26 (31.9) | 28 (33.3) |
| Other | 16 (18.6) | 8 (9.0) | 10 (10.9) | 13 (13.6) | 5 (5.0) |

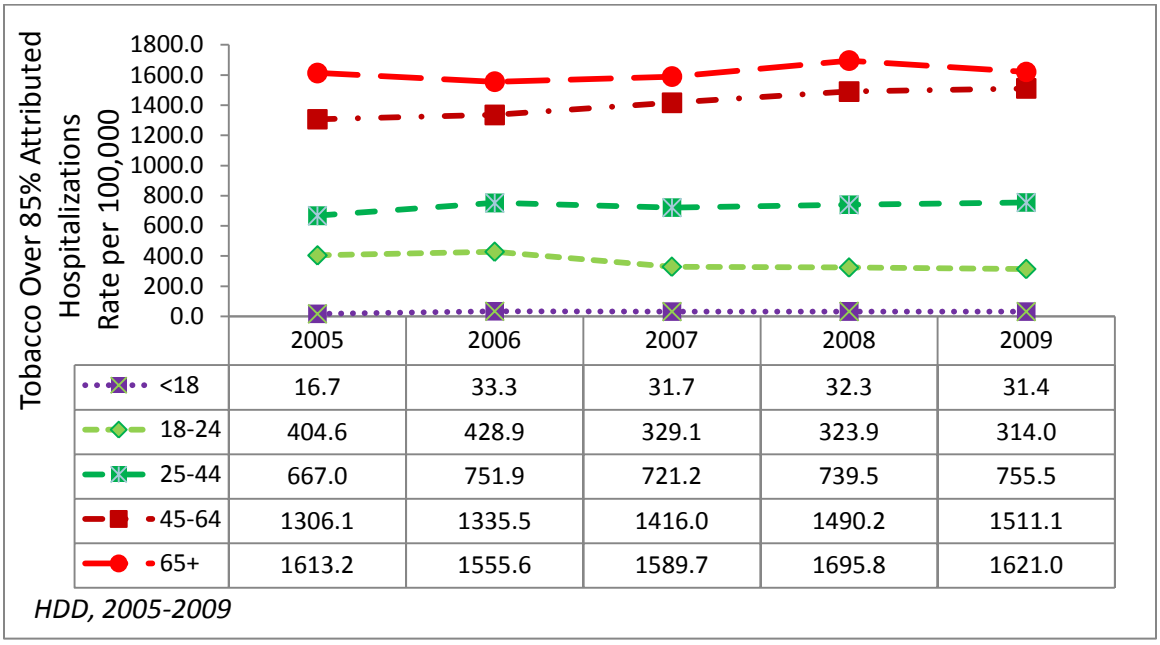
**Notes: ICD 10 code= 'C34'; only Underlying Cause of Death was queried**

Tobacco Associated Morbidity:

Tobacco related hospitalizations using the equivalent ICD9 codes showed a different picture than mortality. While overall tobacco associated deaths decreased 5% from 2005 to 2009, the rate of hospitalizations increased 11% (Figure 55). For every death associated to tobacco, there were on average 10 hospitalizations. Tobacco associated hospitalization rates increased significantly and differently across age groups, gender and race (Table 18). The increase was more pronounced for the 45-64 age groups, reaching the same level as of the 65+. All other age groups presented steady rates from 2005 to 2009. Males were significantly more likely to be hospitalized for tobacco associated causes. The rate of tobacco associated cause of hospitalizations increased much more for males than for females. From 2005 to 2009, in males the increase was 15% compared to 5% in females. However, the increase was much more accentuated from 2006 and 2008. Blacks had higher rates of tobacco associated causes of hospitalizations. Although, there were at least two main limitations in the use of racial characteristics, including a change in the way the information was collected (Hispanics and other ethnicity in 2009) and a higher rate (18%) of missing information compared to gender or age, smoking attributed health disparities by race may need to be addressed.

Hospitalization rates due to lung cancer have been decreasing irregularly. After an increase in 2006, followed by a smaller slope, the rate decreased 4% from 2005 to 2009 (Figure 56). Similarly with deaths, the hospitalization rates were higher among the 65+, males, and Whites. Across age groups, gender and race, on average for every lung cancer death, there were two hospitalizations (Table 19).

**Figure 54: Tobacco Associated Hospitalization (>85% Attributable) Rates by Age, HDD – 2005-2009**

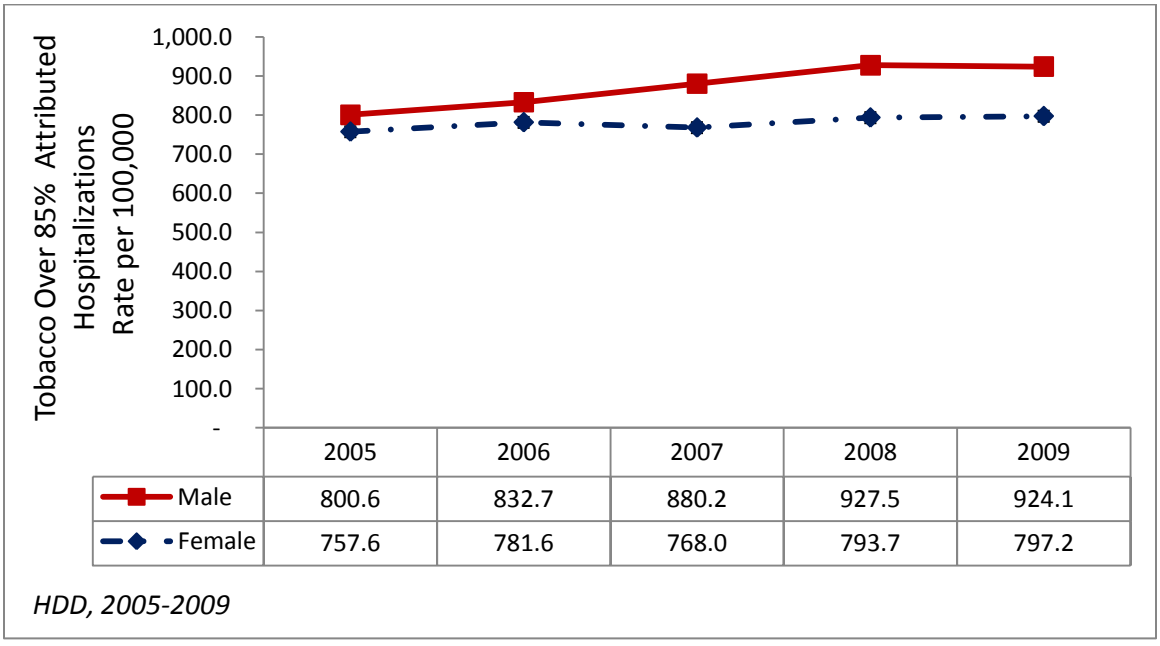



| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| <18 | 16.7 | 33.3 | 31.7 | 32.3 | 31.4 |
| 18-24 | 404.6 | 428.9 | 329.1 | 323.9 | 314.0 |
| 25-44 | 667.0 | 751.9 | 721.2 | 739.5 | 755.5 |
| 45-64 | 1306.1 | 1335.5 | 1416.0 | 1490.2 | 1511.1 |
| 65+ | 1613.2 | 1555.6 | 1589.7 | 1695.8 | 1621.0 |

*HDD, 2005-2009*

**Notes: HDD= hospital discharge data, ICD 9 codes: 162 (Trachea, lung, bronchial cancers), 490-492 (Bronchitis and Emphysema), 305.1 (mental and behavioral disorders due to tobacco use)**

**Figure 55: Tobacco Associated Hospitalization (>85% Attributable) Rates by Gender, HDD – 2005-2009**

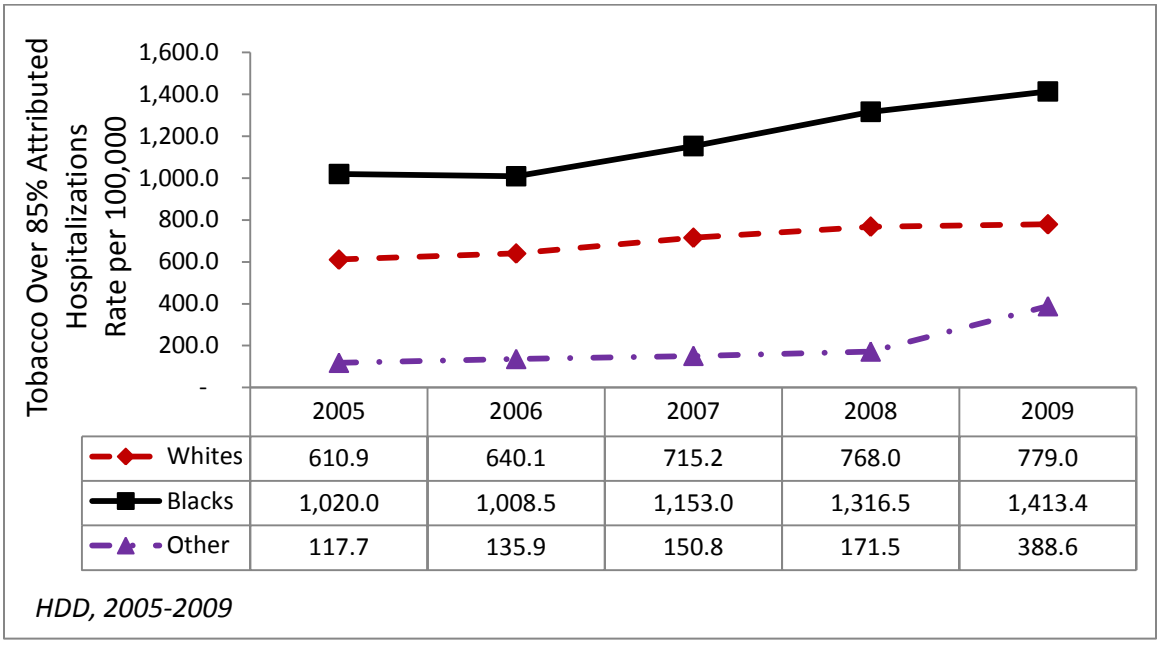



| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Male | 800.6 | 832.7 | 880.2 | 927.5 | 924.1 |
| Female | 757.6 | 781.6 | 768.0 | 793.7 | 797.2 |

*HDD, 2005-2009*

**Notes: HDD= hospital discharge data, ICD 9 codes: 162 (Trachea, lung, bronchial cancers), 490-492 (Bronchitis and Emphysema), T65.2 (mental and behavioral disorders due to tobacco use); 95% CI very small**

**Figure 56: Tobacco Associated Hospitalizations (over 85% Attributable) by Race, HDD - 2005-2009**




**Notes: HDD= hospital discharge data, ICD 9 codes: 162 (Trachea, lung, bronchial cancers), 490-492 (Bronchitis and Emphysema), 305.2 (mental and behavioral disorders due to tobacco use); 95% CI very small; Caution with interpreting racial trends as details only collected in 2009;race variable had 18% missing or unknown;**

**Table 18: Lung Cancer Hospitalization Rate per 100,000 Iowans by Demographics, HDD - 2005-2009**

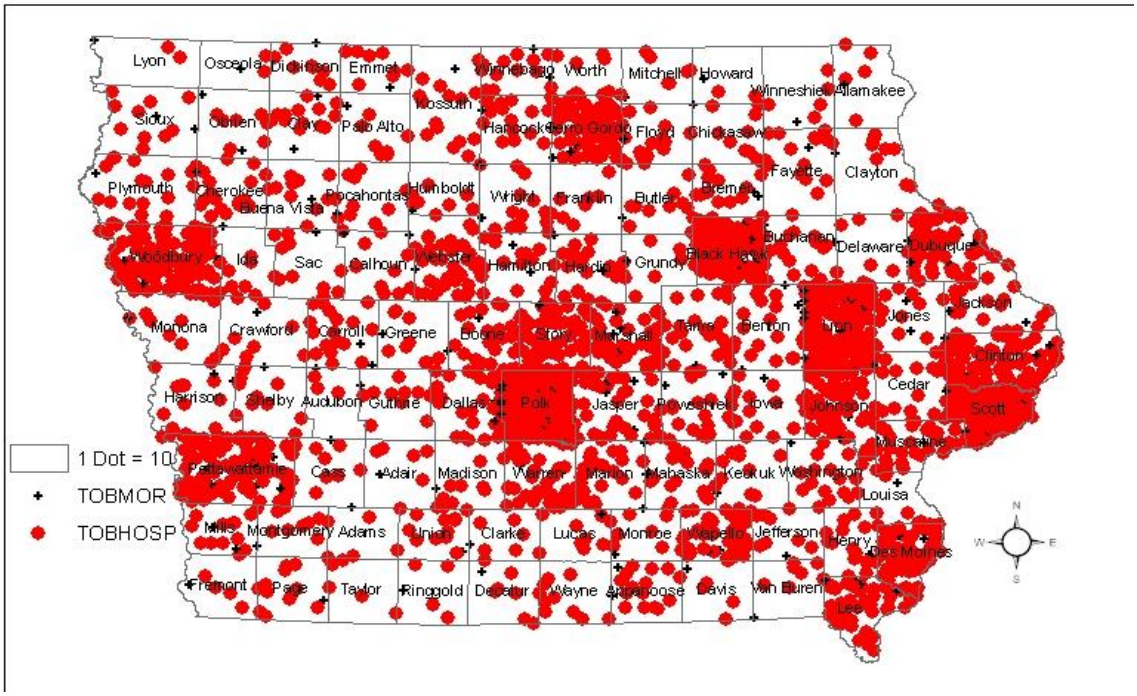
| YEAR | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Age | | | | | |
| <18 | - | - | - | - | - |
| 18-24 | - | - | - | - | - |
| 25-44 | 80 (10.7) | 56 (7.6) | 66 (8.7) | 52 (7.1) | 75 (10.2) |
| 45-64 | 1,162 (157.4) | 1,223 (161.8) | 1,254 (161.5) | 1,216 (155.4) | 1,219 (153.4) |
| 65+ | 2,726 (628.9) | 2,634 (605.5) | 2,708 (617.6) | 2,750 (622.6) | 2,562 (576.6) |
| Gender | | | | | |
| Male | 2,252 (155.0) | 2,152 (147.3) | 2,157 (146.8) | 2,108 (142.6) | 2,114 (142.3) |
| Female | 1,718 (114.8) | 1,761 (117.1) | 1,875 (124.2) | 1,911 (126.1) | 1,742 (114.4) |
| Race | | | | | |
| Whites | 3,113 (111.5) | 3,147 (112.4) | 3,594 (128.0) | 3,577 (127.0) | 3,479 (123.2) |
| Blacks | 63 (87.1) | 48 (63.9) | 67 (85.6) | 85 (104.4) | 87 (103.5) |
| Other | 13 (15.1) | 6 (6.7) | 7 (7.6) | 20 (20.9) | 19 (19.2) |

**Notes: ICD 9 codes 162; 10 DX fields queried;**

*At the County level*

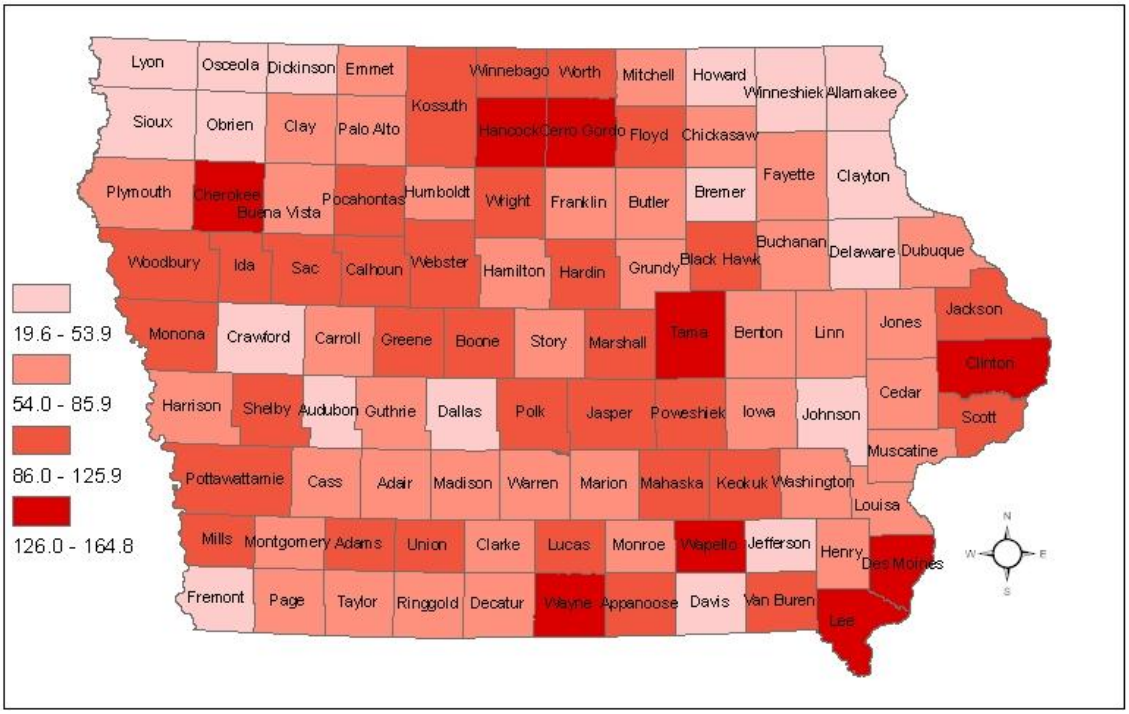
Tobacco deaths and hospitalizations represented conditions that are 85% attributed to tobacco, including lung and tracheal cancers, COPD and tobacco associated mental health disorders and addiction. A high number of cases clustered in southeastern and central Iowa, particularly in cities and urban areas (Figure 57). When the rate was plotted, peripheral counties had higher rate of tobacco hospitalizations. Counties in central Iowa had rates not significantly higher than the state (Figure 58).

**Figure 57: Plot of the Number of Tobacco Associated Deaths and Hospitalizations (>85% Attributable) by County, 2009 - HDD and IDPH Vital Records**




**Note: TOBMOR = number of deaths, TOBHOSP = number of hospitalizations, HDD = hospital discharge data**

**Figure 58: Distribution of Tobacco Associated Hospitalization (>85% Attributable) by County, 2009 - HDD and IDPH Vital Records**




**Notes: rates are per 10,000 of county population from 2009 census estimates**

# ILLICIT DRUGS

## Consumption

The use of hard drugs such as cocaine, heroin and LSD, has been constantly decreasing in the US. Marijuana rose 8% nationwide between 2008 and 2009. Other drugs probably used as replacements are increasing faster in a context of relaxation of individual attitudes and perception, and economic hardship.[10] The 2010 mid-course revision of Healthy people 2010 objectives implemented in 2005 discovered no change or a worsening effect in several substance abuse indicators. Among indicators with no change in magnitude were past month illicit drug use and perception of great risk using marijuana or cocaine; while drug induced deaths and ED visits moved away from the HP 2010 objectives.[11]

<u>Adult Consumption Patterns</u>

*At the State Level*

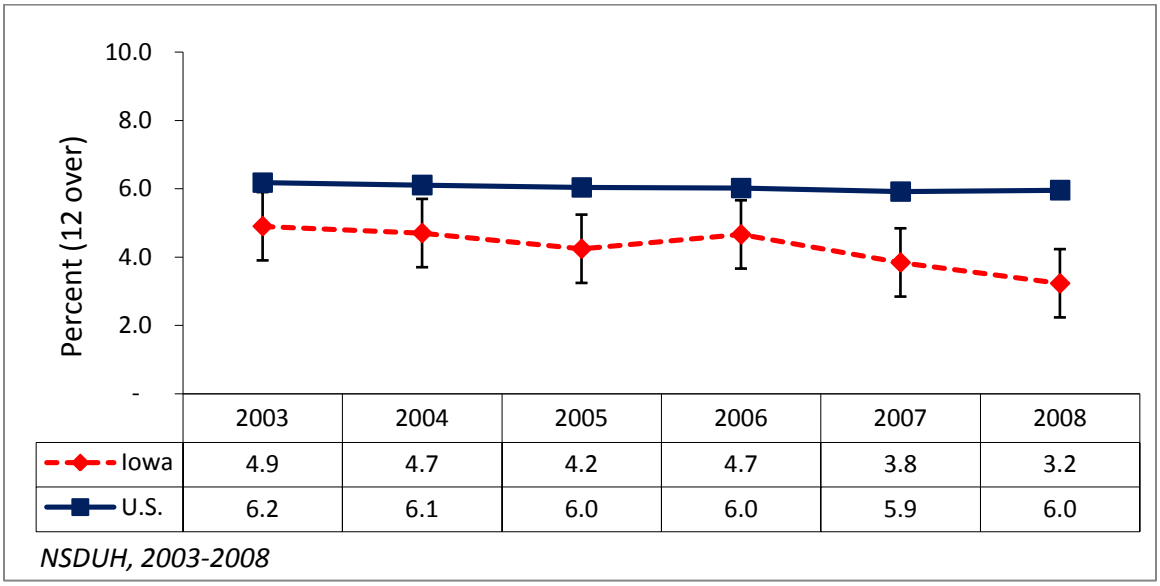
Illicit drug use in Iowa is still holding steady with the percent of people reporting past 30-day use lower than the national. The illicit drug reported by TEDS as most used by Iowans was marijuana, followed by methamphetamine (Figure 1 and Table 1). The NSDUH documented

that marijuana was also the most widely used illicit drug in the United States, approximately 14.7 million Americans aged 12 and older reported past 30 day marijuana use.

Marijuana Use:
Despite a tendency toward reduction, the proportion of Iowans currently using marijuana (past 30 days) remained essentially unchanged between the 2002-2003 and 2007-2008 NSDUH. The 2007-2008 NSDUH data analysis estimated 3.2% of Iowans over age 12 were current marijuana users. This proportion is not significantly different from the3.6 in 2006-2007. However, the Iowa estimates were significantly lower than the 6.0% national estimates (Figure 58).

In general, the 18-25 age groups were more likely to report using marijuana in the past month than to the 12 to 17 and the 26 year and older age groups. Compared to the nation, Iowans were less likely to report past month Marijuana use across all the age groups. While the age-specific rates were constant, the proportion of Iowans 18-24 years of age reporting using marijuana in the past month significantly declined from 13.1% in 2004 to 8.5% in 2008, which was significantly different from the nation's 16.9% (Figure 59). The proportion of Iowans reporting perception of great risk associated with marijuana smoking at least once a month was similar to the rest of the nation and witnessed a small increase. NSDUH assess perception of risk using several questions. The values reported in this profile reflect answering "great or moderate risks" to the question: "*How much do people risk harming themselves physically or in other ways when they smoke marijuana once a month?*" The 2007-2008 NSDUH estimated proportion (39.1%) of Iowans reporting that smoking marijuana at least once a month was a great risk is not different from the 2006-2007. In fact, the perception of risk for using marijuana has remained unchanged since 2003. The risk perception is not different from the national estimate of 39.4% (Figure 60).

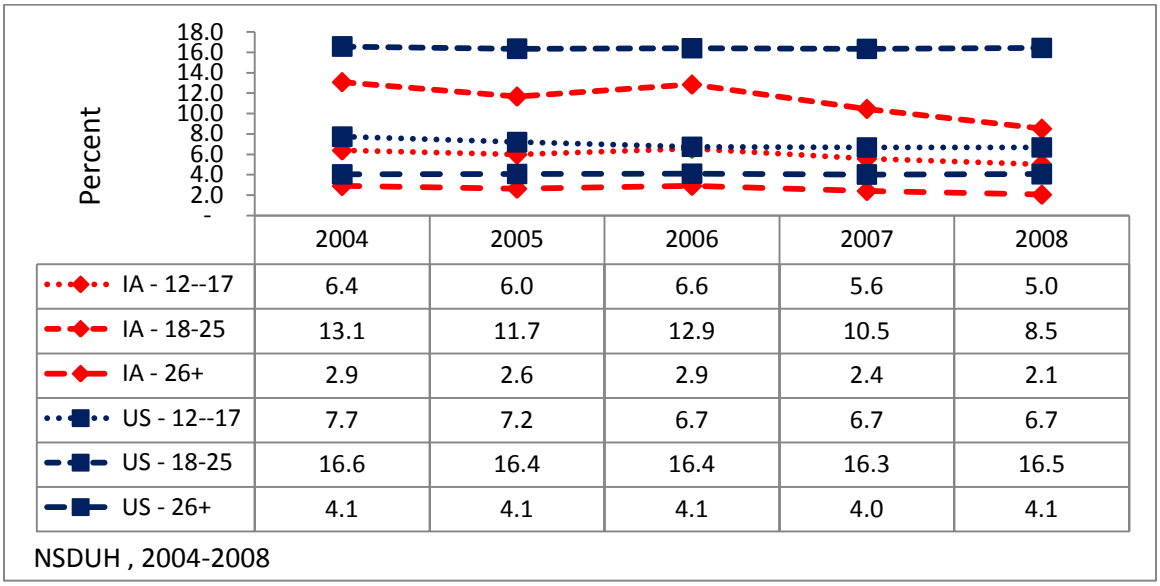
**Figure 59: Percent of People Reporting Using Marijuana in Past Month, NSDUH**




| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|
| Iowa | 4.9 | 4.7 | 4.2 | 4.7 | 3.8 | 3.2 |
| U.S. | 6.2 | 6.1 | 6.0 | 6.0 | 5.9 | 6.0 |

*NSDUH, 2003-2008*

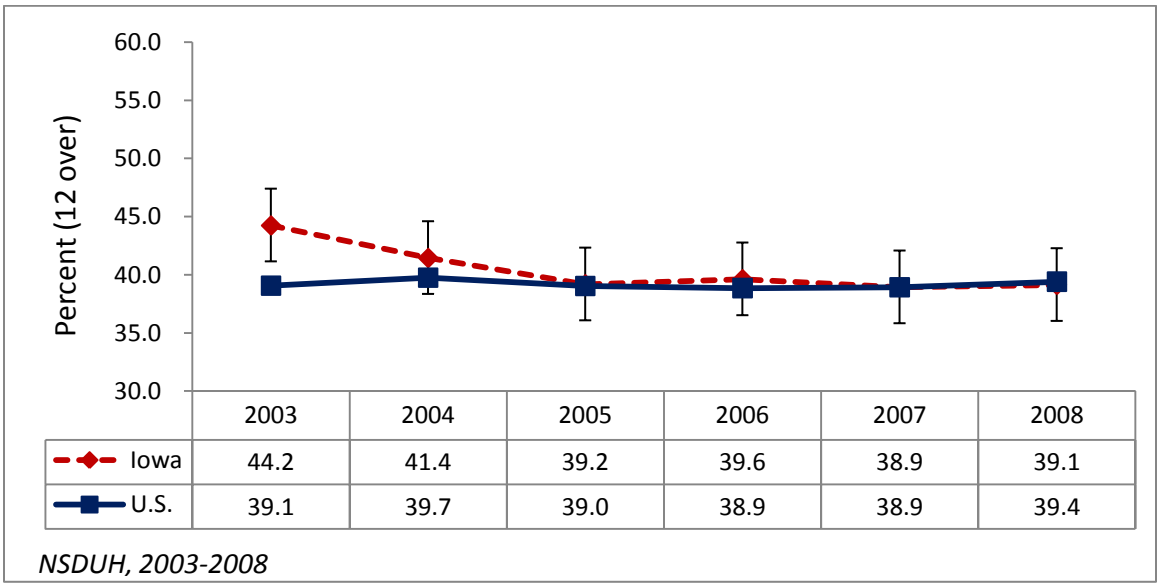
**Figure 60: Percent of People Reporting Using Marijuana in Past Month by Age, NSDUH**




| | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|
| IA - 12--17 | 6.4 | 6.0 | 6.6 | 5.6 | 5.0 |
| IA - 18-25 | 13.1 | 11.7 | 12.9 | 10.5 | 8.5 |
| IA - 26+ | 2.9 | 2.6 | 2.9 | 2.4 | 2.1 |
| US - 12--17 | 7.7 | 7.2 | 6.7 | 6.7 | 6.7 |
| US - 18-25 | 16.6 | 16.4 | 16.4 | 16.3 | 16.5 |
| US - 26+ | 4.1 | 4.1 | 4.1 | 4.0 | 4.1 |

NSDUH , 2004-2008

**Figure 61: Percent of People Reporting Perceiving Great Risk from Smoking Marijuana Once a Month, NSDUH**

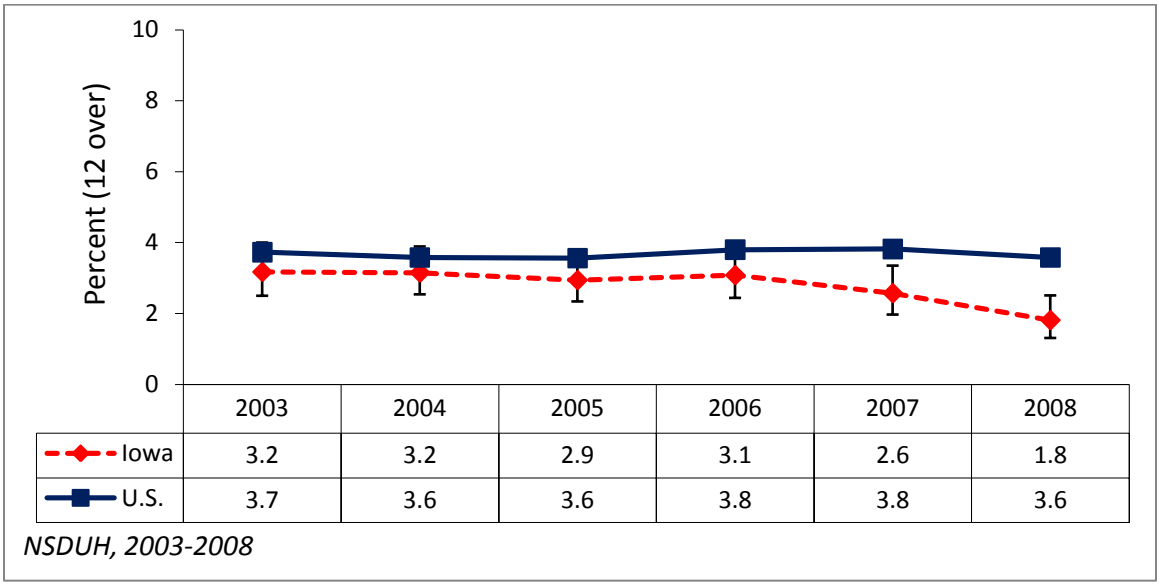



| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|
| Iowa | 44.2 | 41.4 | 39.2 | 39.6 | 38.9 | 39.1 |
| U.S. | 39.1 | 39.7 | 39.0 | 38.9 | 38.9 | 39.4 |

*NSDUH, 2003-2008*

Illicit Drugs Other Than Marijuana:
From the 95% CI, the percent of Iowans reporting current use of illicit drugs other than marijuana (past 30-day) also remained statistically unchanged from the 2002-2003 NSDUH through the 2006-2007 NSDUH. Data from the 2007-2008 NSDUH showed a significant difference in the percent of people, age 12 and older, reporting current use of an illicit drug other than marijuana between Iowa (1.8%) and the nation (3.6%). On a positive note in terms of point estimates magnitude, while the national rate stayed the same, Iowa's percentage is heading in the right direction (Figure 62).

**Figure 62: Percent of People Reporting Using Illicit Drugs Other than Marijuana in Past Month, NSDUH**



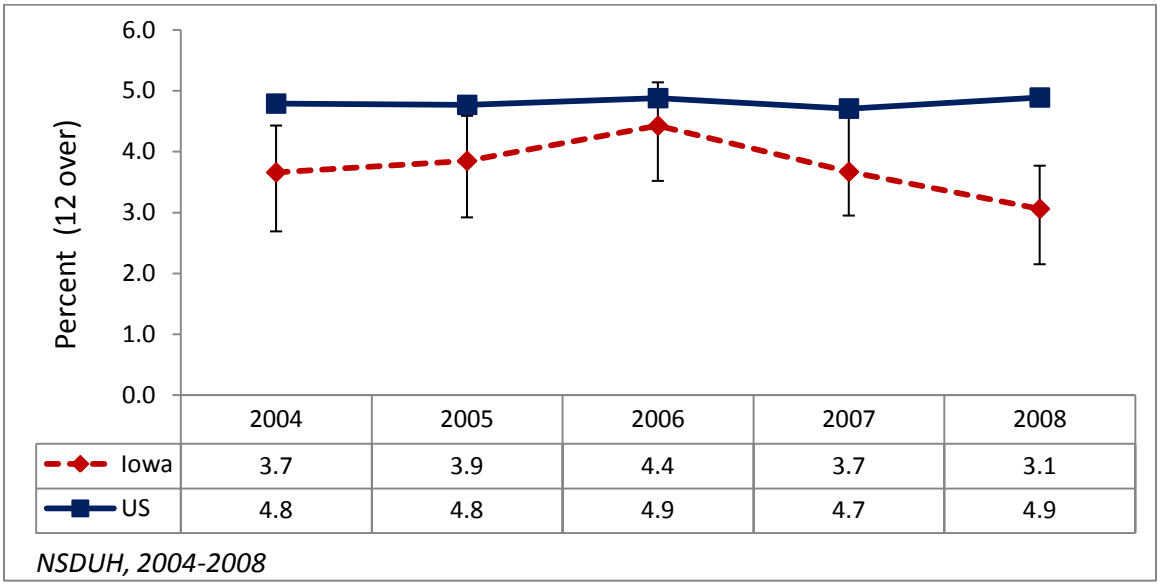

| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|
| Iowa | 3.2 | 3.2 | 2.9 | 3.1 | 2.6 | 1.8 |
| U.S. | 3.7 | 3.6 | 3.6 | 3.8 | 3.8 | 3.6 |

*NSDUH, 2003-2008*

Prescription Drug Abuse:
The CDC surveillance system has been reporting an increase of prescription medication intoxications and deaths. From 1990 to 2002, unintentional drug overdose deaths have increased in the US five-folds with pain medication implicated in more than half of the cases. [12] Prescription drug abuse reported by NSDUH is defined as the use of at least one of the listed medications without a prescription drug belonging to the respondent or use that occurred simply for the experience or feeling the drug caused. The core question is "*How long has it been since you last used any prescription [pain reliever, sedative, stimulant, or tranquilizer] that was not prescribed for you or that you took only for the experience or the feeling it caused*" (NSUDH technical appendix). The percent reported from NSDUH is defined as non-medical use of pain relievers in the past year.

In Iowa, 3% of Iowans (12 years and over) reported using pain relievers not prescribed to them in the past year compared to 4.9% in the nation (Figure 62). The proportion of Iowans reporting non medical-use of pain relievers in the past year, in terms of point estimates, is heading in the right direction (decreasing) contrary to the national trend, which has stayed stable. The highest proportion of use occurred in the 18-25 age group, which reached 20% for the nation and 15% in Iowa in 2005. The percentages among the other age groups are not different than those in the nation (Figure 63).

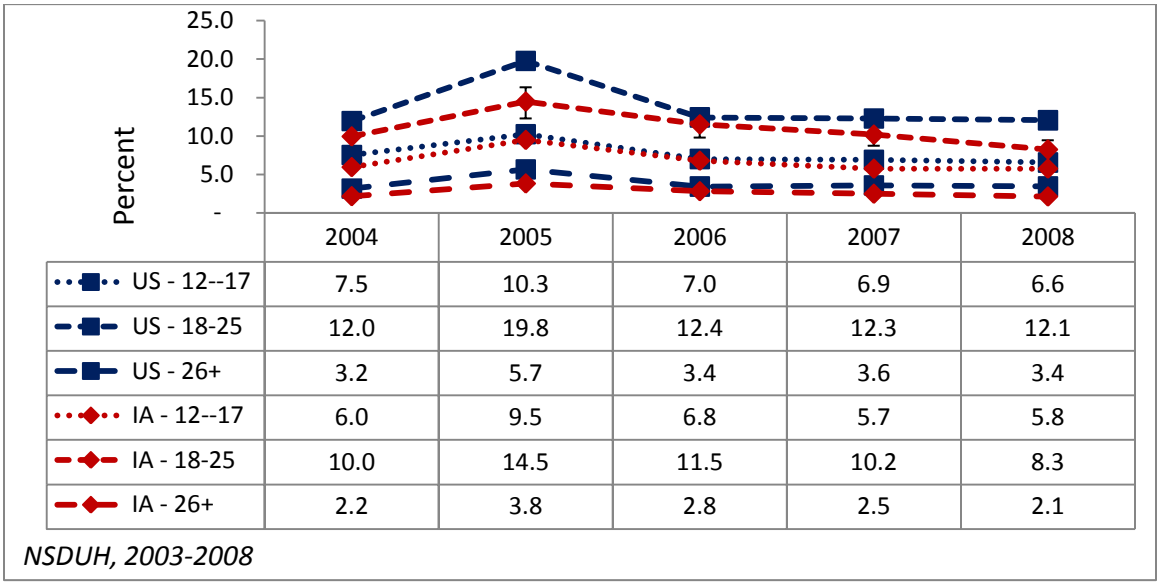
**Figure 63: Percent of People Reporting Non-Medical Use of Pain Relievers in Past Year, NSDUH**




| | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|
| Iowa | 3.7 | 3.9 | 4.4 | 3.7 | 3.1 |
| US | 4.8 | 4.8 | 4.9 | 4.7 | 4.9 |

*NSDUH, 2004-2008*

**Figure 64: Percent of People Reporting Non-Medical Use of Pain Relievers in Past Year by Age, NSDUH**




| | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|
| US - 12--17 | 7.5 | 10.3 | 7.0 | 6.9 | 6.6 |
| US - 18-25 | 12.0 | 19.8 | 12.4 | 12.3 | 12.1 |
| US - 26+ | 3.2 | 5.7 | 3.4 | 3.6 | 3.4 |
| IA - 12--17 | 6.0 | 9.5 | 6.8 | 5.7 | 5.8 |
| IA - 18-25 | 10.0 | 14.5 | 11.5 | 10.2 | 8.3 |
| IA - 26+ | 2.2 | 3.8 | 2.8 | 2.5 | 2.1 |

*NSDUH, 2003-2008*

Youth Consumption Patterns

*At the State Level*

The 2007-2008 NSDUH estimated that approximately 24,000 Iowans, 12-17 years old, used illicit drugs including marijuana, cocaine, heroin, hallucinogens, inhalants, and prescription medications in the past month. This estimate includes 16,000 12 to 17 year old marijuana users.

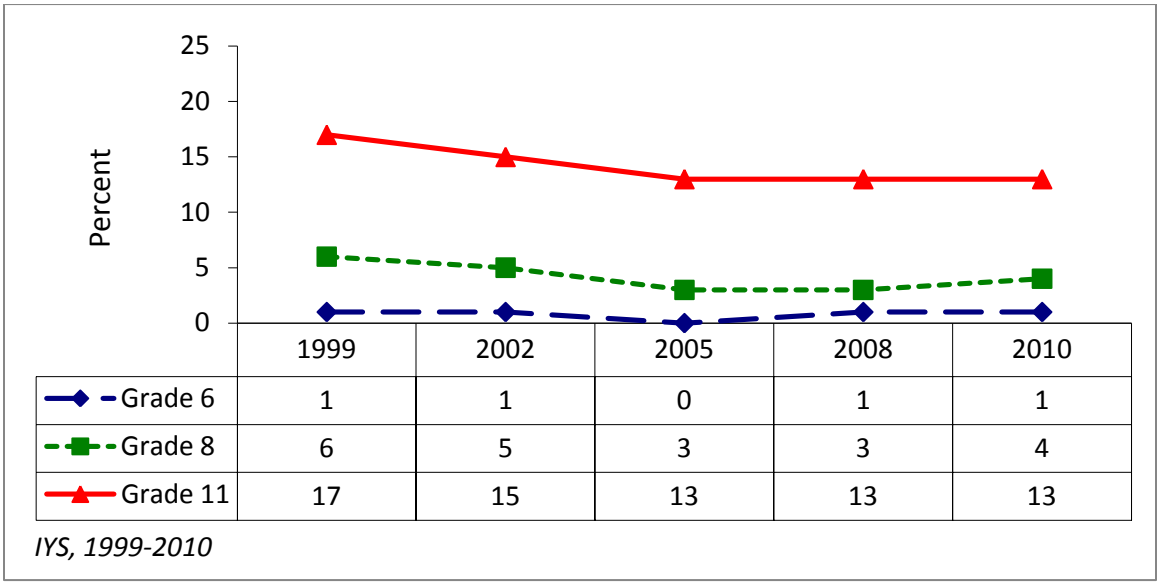
Marijuana Use among Iowa Students (IYS):

The 2010 IYS shows that marijuana was still the most widely used illicit drug, with 13% of 11th graders reporting current use (Table 19). Marijuana use by 6th, 8th, and 11th graders decreased significantly between 1999 and 2010 (Figure 64).

**Table 19: Percent of Youth Reporting Current Drug Use, IYS 2010**

| Substance Type | Grade | | |
|---|---|---|---|
| | 6th | 8th | 11th |
| Marijuana | 0 | 3 | 13 |
| Inhalants | 2 | 3 | 2 |
| Cocaine | 0 | 1 | 2 |
| Methamphetamine | 0 | 1 | 2 |
| Amphetamines | 0 | 0 | 1 |

**Figure 65: Percent of 6th, 8th, and 11th-Graders Reporting Past 30-Day Marijuana Use, IYS**




| | 1999 | 2002 | 2005 | 2008 | 2010 |
|---|---|---|---|---|---|
| Grade 6 | 1 | 1 | 0 | 1 | 1 |
| Grade 8 | 6 | 5 | 3 | 3 | 4 |
| Grade 11 | 17 | 15 | 13 | 13 | 13 |

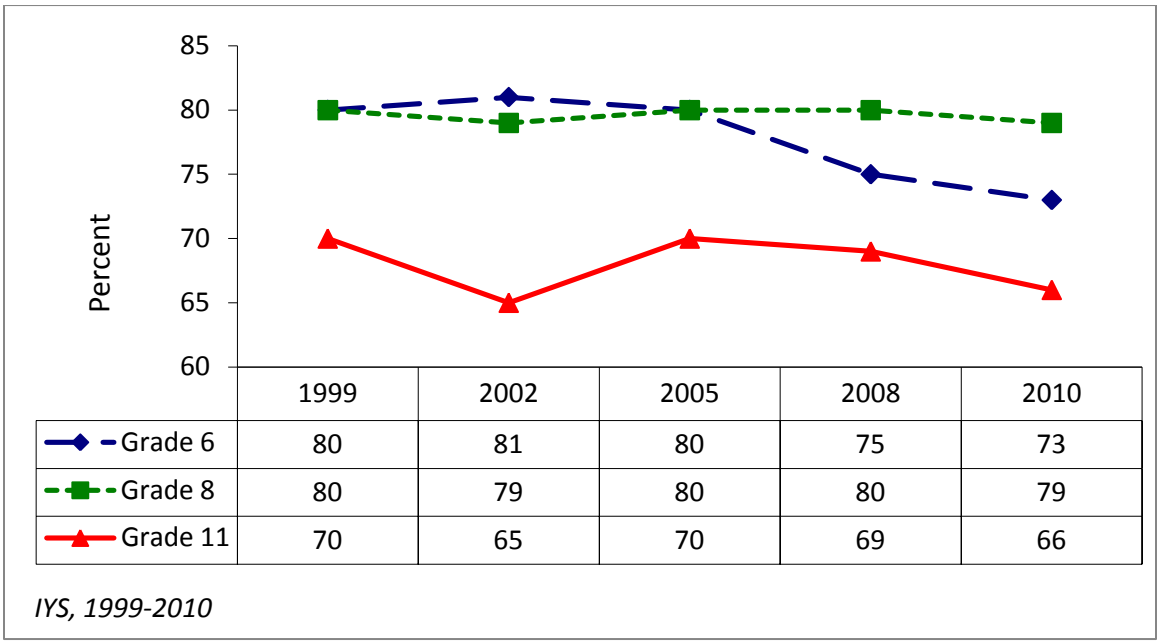
*IYS, 1999-2010*

Perception of Risk with Smoking Marijuana (IYS):
The IYS asks the question, "*How much do you think you risk harming yourself if you smoke marijuana once a week?*" The majority of students, 73% of 6th graders and 80% of 8th-graders responded "Great Risk" or "Moderate Risk" to this question while only 66% of 11th-graders did in 2010 (Figure 65). Female students were about 5% more likely to respond "Great Risk" or "Moderate Risk" than male students in 2008 (Table 20). The percent of students reporting first use of marijuana before age 13 decreased for all three grades between 2002 and 2008 (Figure 66).

**Table 20: Perceived Moderate or Great Risk of Marijuana Use by Gender, IYS**

| Gender | Year | | | | |
|---|---|---|---|---|---|
| | 1999 | 2002 | 2005 | 2008 | 2010 |
| Males | 73 | 72 | 74 | 72 | 70 |
| Females | 79 | 77 | 79 | 77 | 76 |

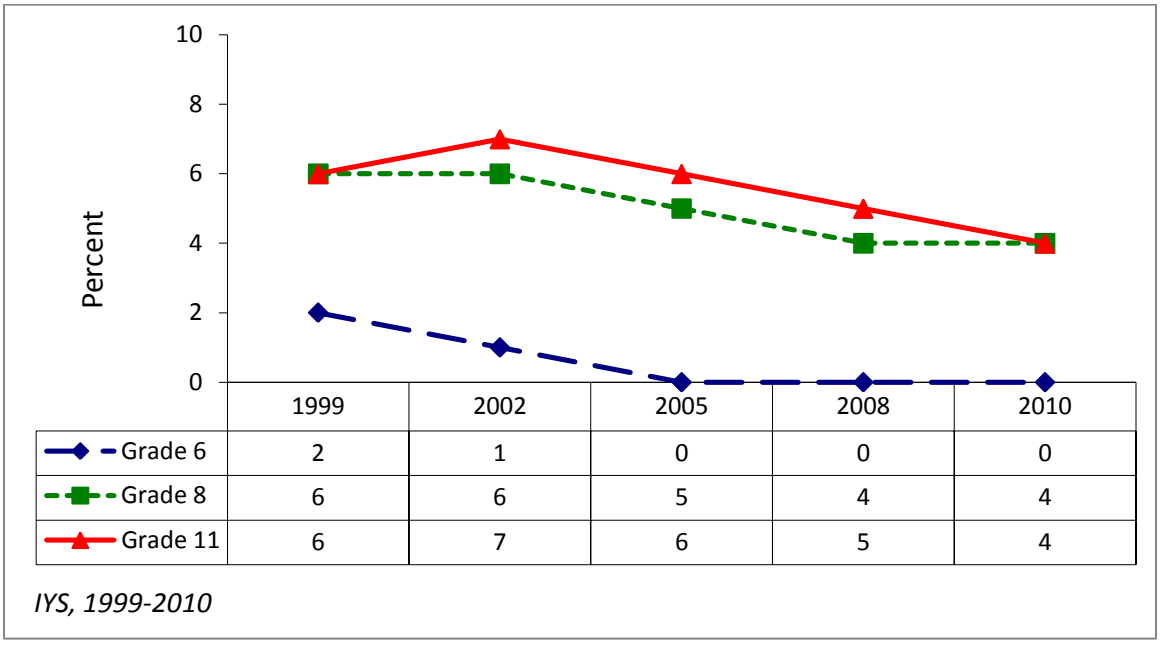
**Figure 66: Percent of 6th, 8th, and 11th-Graders Reporting Perception of Marijuana Use as Moderate or Great Risk, IYS**




| | 1999 | 2002 | 2005 | 2008 | 2010 |
|---|---|---|---|---|---|
| Grade 6 | 80 | 81 | 80 | 75 | 73 |
| Grade 8 | 80 | 79 | 80 | 80 | 79 |
| Grade 11 | 70 | 65 | 70 | 69 | 66 |

*IYS, 1999-2010*

**Figure 67: Percent of 6th, 8th, and 11th-Graders Reporting First Use of Marijuana before Age 13, IYS**

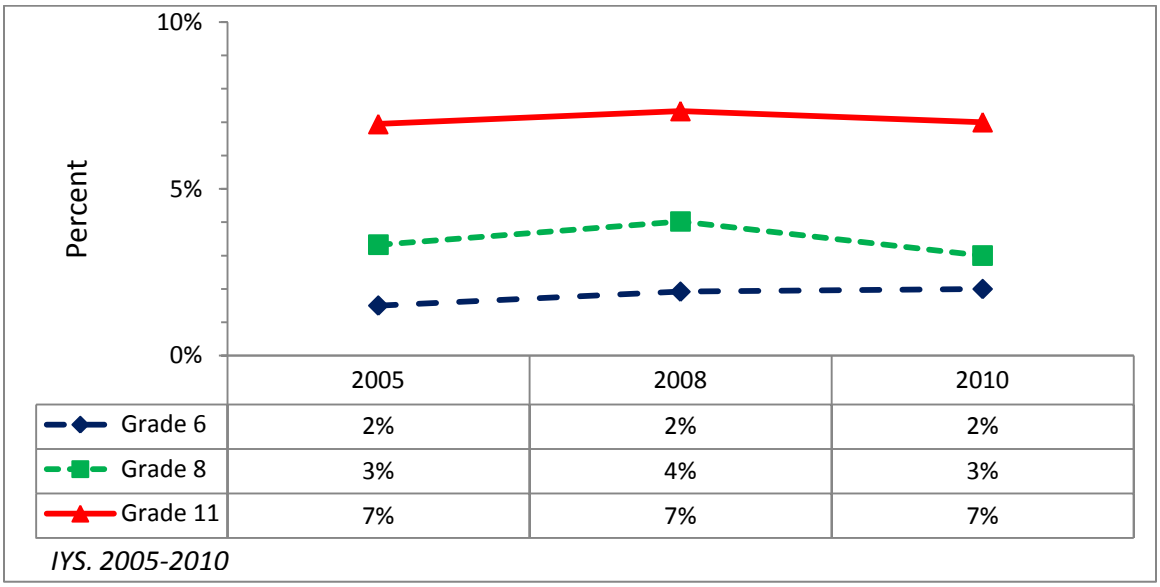



| | 1999 | 2002 | 2005 | 2008 | 2010 |
|---|---|---|---|---|---|
| Grade 6 | 2 | 1 | 0 | 0 | 0 |
| Grade 8 | 6 | 6 | 5 | 4 | 4 |
| Grade 11 | 6 | 7 | 6 | 5 | 4 |

*IYS, 1999-2010*

Prescription Drug Use among Iowa Students (IYS):
Prescription drug abuse has increased from 2002 to 2010. Earlier IYS reports asked question about steroid, inhalant, and tranquilizer use without a Doctor prescriptions. In 2005, the questions regarding prescription medication was more precise with students being asked "*In the past 30 days, on how many days have you used prescription medications not prescribed for you by your doctor?*" The proportion of student who responded one or more days was greater among the 11th graders (7%) and was stable across the grade levels (Figure 67).

**Figure 68: Percent of 6th, 8th and 11th-Graders Reporting Prescription Drugs Use, IYS 2005-2010**



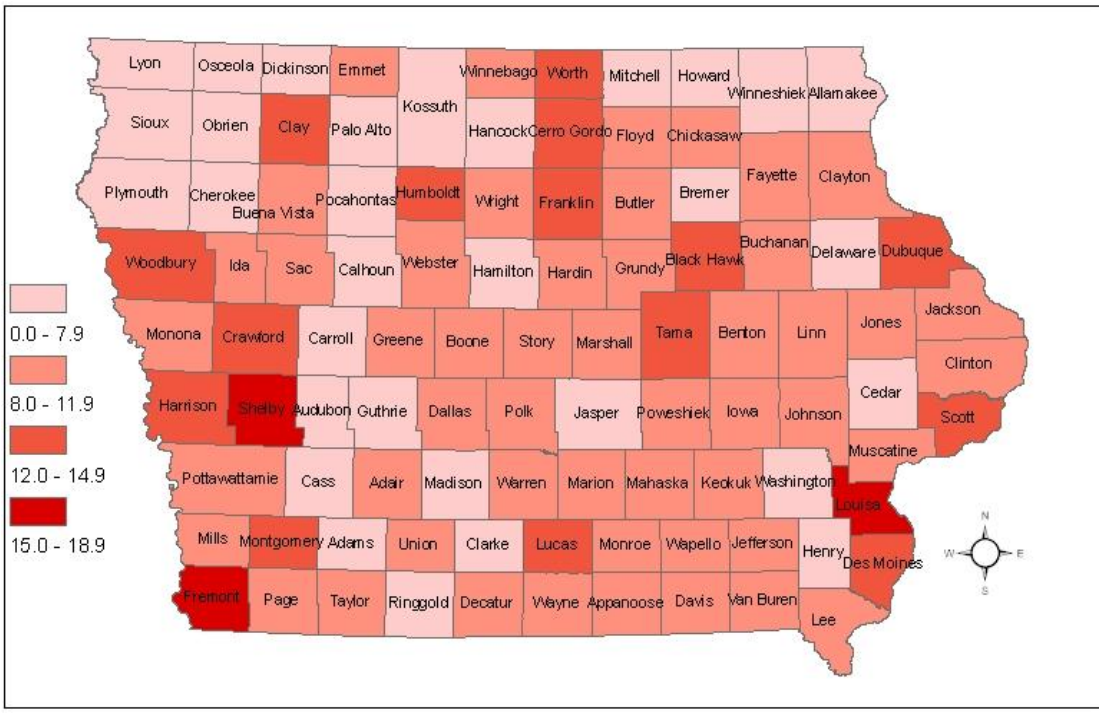

| | 2005 | 2008 | 2010 |
|---|---|---|---|
| Grade 6 | 2% | 2% | 2% |
| Grade 8 | 3% | 4% | 3% |
| Grade 11 | 7% | 7% | 7% |

*IYS. 2005-2010*

*At the County Level*

Since adult drug use at the county level was not available, only youth consumption -estimated by the IYS 2010 drug consumption construct- was plotted (Figure 68). The drug consumption construct consists of positive responses to any type of drug, such as marijuana, cocaine, and prescription meds.

**Figure 69: Distribution of Percent of Youth (6, 8th, and 11th graders) Reporting Drug Consumption, IYS 2010**




## Consequences

The Office of National Drug Control Policy (ONDCP) reported in 2007 one drug induced death in the USA every 15 minutes. The national drug induced death rate per 100,000 has almost doubled from the 6.8 in 1999 to 12.6 in 2007. Those reported deaths only include cases directly attributed to drug use such as accidental poisoning and overdose, excluding violence, HIV/AIDS and other indirect causes. Drug induced deaths are believed to exceed, in terms of preventable deaths, those due to firearms and alcohol[13]. From drugged-driving to environmental threats, drug use results in a variety of consequences, such as poor school performance, acute health effects evidenced by hospital and ED visits, criminal justice and economical burden. This report however does not address the economic costs of drugs in Iowa.

*At the State Level*

Drug Legal Problems:
Drugs and narcotic offenses/violations include the "*unlawful cultivation, manufacture, distribution, sales, purchase, use, possession, transport or importation of any drug or narcotic*

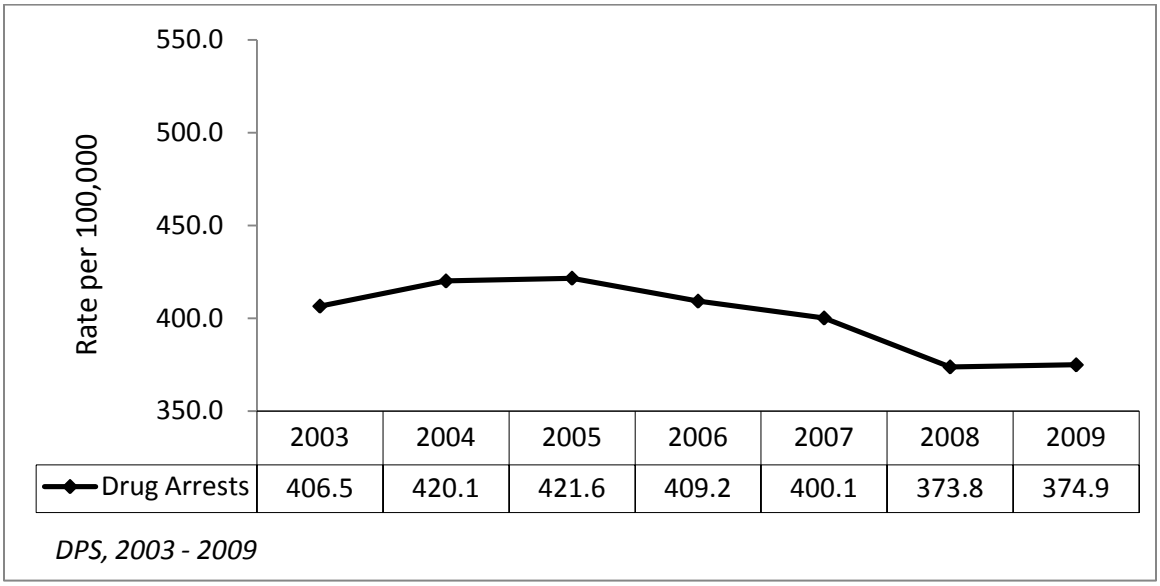
*substance*." On average there are more than 11,000 arrests for drug violations per year in Iowa. The trend of drug arrests decreased 11% from a 2005 rate of 421.6 to a 2009 rate of 374.9 drug arrests per 100,000 (Figure 69). The highest average percent decrease of arrests occurred with cocaine/crack and meth/amphetamine. Conversely, arrests for other drugs such as heroin increased three times, from nine arrests in 2006 to 41 in 2009. Historically, marijuana was the most frequent cause of drug arrests, accounting for 60 to 71% of all drug arrests in Iowa with a total number over 8,000. The only other substance resulting in more than 1,000 arrests over the years was methamphetamine (Table 21). According to DPS report comparing drug offense violations to drug equipment, the drug offense arrest rates were higher than that of the drug equipment violation arrests across age groups (Figure 70 & 71).

**Table 21: Number of Drug Arrests by Listed Substances, Iowa UCR**

| Drug | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Cocaine/Crack | 1,122 | 1,147 | 1,113 | 985 | 725 |
| Heroin | 29 | 9 | 18 | 23 | 41 |
| Other Narcotics /Opiates | 192 | 262 | 246 | 255 | 218 |
| Marijuana | 8,830 | 8,277 | 8,991 | 7,792 | 8,009 |
| Hallucinogen | 79 | 58 | 74 | 63 | 57 |
| Methamphetamine | 2,410 | 1,618 | 1,100 | 1,026 | 1,075 |
| Others (Stim., Barb.) | 592 | 573 | 596 | 780 | 844 |
| Unknown | 313 | 223 | 185 | 299 | 308 |
| Total | 13,567 | 14,207 | 14,352 | 11,223 | 11,277 |
| Marijuana-% | 65.1% | 58.3% | 62.6% | 69.4% | 71.0% |
| Methamphetamine -% | 17.8% | 11.4% | 7.7% | 9.1% | 9.5% |
| Cocaine-% | 8.3% | 8.1% | 7.8% | 8.8% | 6.4% |

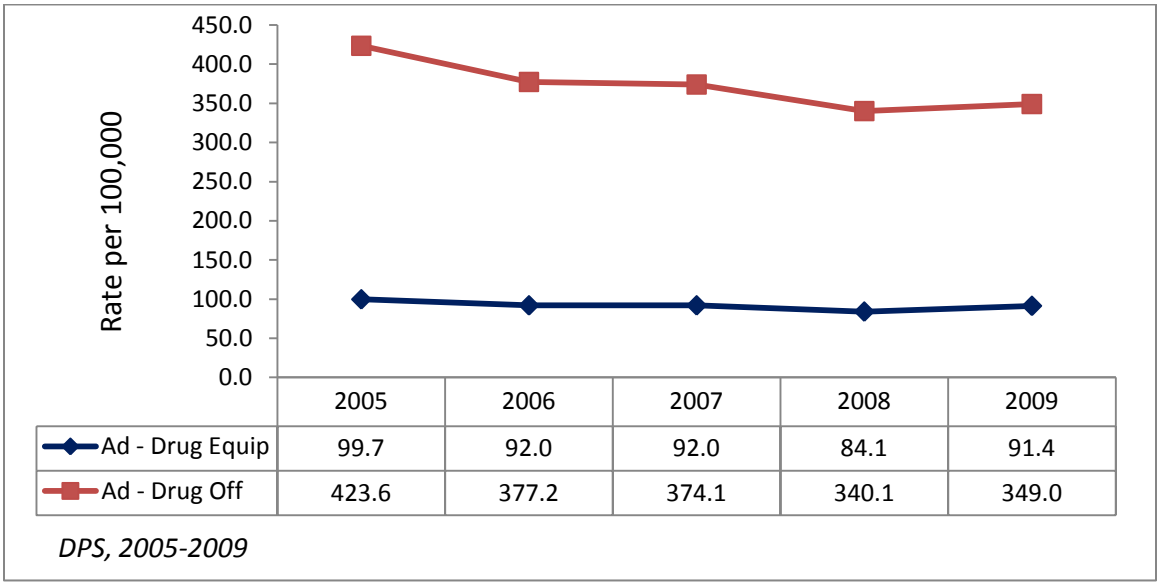
**Notes: Hallucinogens include LSD; Other Narcotics includes Hashish, percent change from 2009 vs. 2006; Stim.= Stimulants, Barb.=barbiturates;**

**Figure 70: Trend of Drug Arrest Rates per 100,000 Iowans, Iowa UCR**




**Notes: Offenses include manufacture/distribution and possession/use of drugs; more than on violation or type of drug can be entered (DPS); Exclude equipment violations; Data reviewed using DPS report; rate are calculated using year-specific census population**

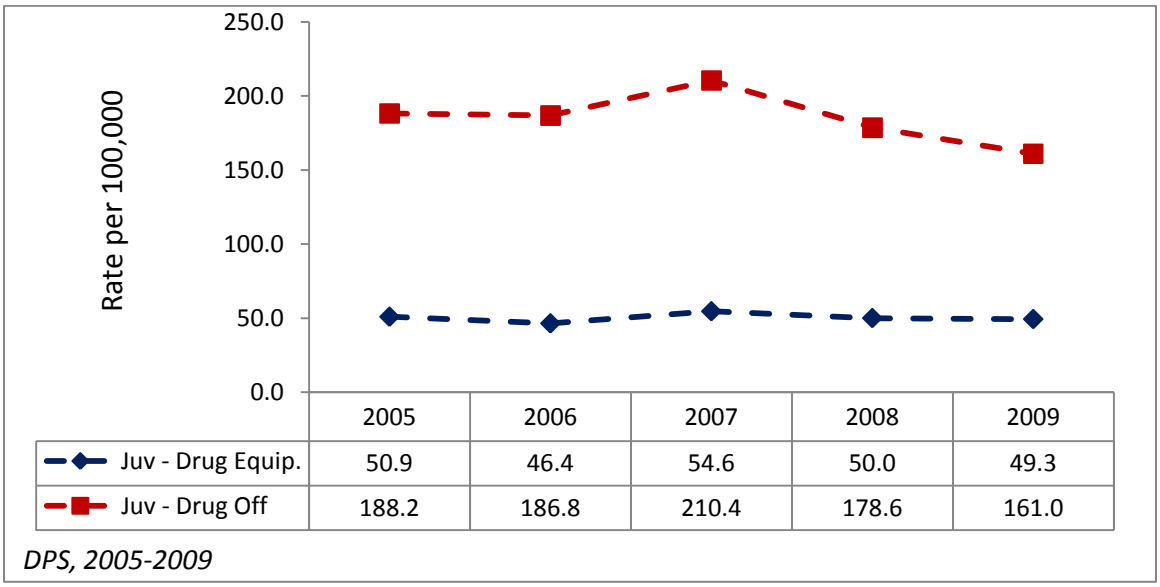
**Figure 71: Trend of Drug Arrest Rate by Violation Types among Adults, DPS**




| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Ad - Drug Equip | 99.7 | 92.0 | 92.0 | 84.1 | 91.4 |
| Ad - Drug Off | 423.6 | 377.2 | 374.1 | 340.1 | 349.0 |

**Notes: Ad = Adults; Equip. = Equipments; Off. = Offenses; Rates are those indicated by DPS report**

**Figure 72: Trend of Drug Arrest Rate by Violation Types among Juveniles, DPS**




| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Juv - Drug Equip. | 50.9 | 46.4 | 54.6 | 50.0 | 49.3 |
| Juv - Drug Off | 188.2 | 186.8 | 210.4 | 178.6 | 161.0 |

**Notes: Juv. = Juveniles; Equip.= Equipments; Off. = Offenses; Rates are those indicated by DPS report**

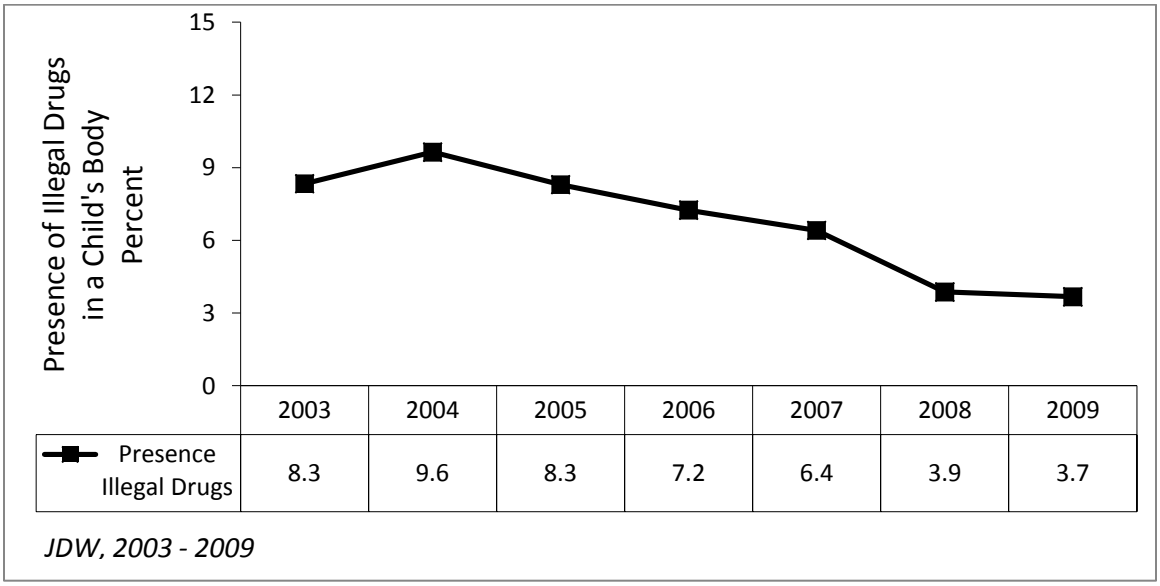
Drug Associated Child Abuse:

The percent of confirmed or founded child abuse cases with the presence of illegal drugs (in a child's body) in Iowa has decreased since 2004 and was 3.7% in 2009 (Figure 72). The number of confirmed or founded child abuse cases involving manufacturing methamphetamine in the presence of a minor decreased annually from 2003 to 2007 and stayed constant onward (Figure 73). Many circumstances besides a change in the use of illegal substances could influence these numbers, including funding for law enforcement and the Department of Human Services,

detection technology advances, changes in the Iowa code, and public awareness and pressure. The enactment in May of 2005 of the Iowa Pseudoephedrine Control Act, which required selling pseudoephedrine products from behind the counter rather than on store shelves, probably helped decrease the number child abuse cases involving manufacturing methamphetamine in the presence of a minor. These numbers included each confirmed type of abuse recorded on each report of abuse for each child. Each child may be confirmed to have suffered multiple types of abuse on a single report, and each child may have multiple reports.

Presence of an illegal drug is defined as the presence of an illegal drug in a child's body as a direct consequence of the acts or omissions of the person responsible for the child's care. Illegal drugs used in this definition include cocaine, heroin, amphetamine, methamphetamine, marijuana, other illegal drugs, or combinations or derivatives of drugs not prescribed by a health practitioner. Manufacturing methamphetamine in the presence of a minor is defined in Iowa Code 232.2 subsection 6, paragraph p. It occurs when the person responsible for the care of a child manufactures a dangerous substance or has possession of the methamphetamine precursors, ephedrine or pseudoephedrine, with the intent to use the product as a precursor or intermediary to a dangerous substance in the presence of a child.

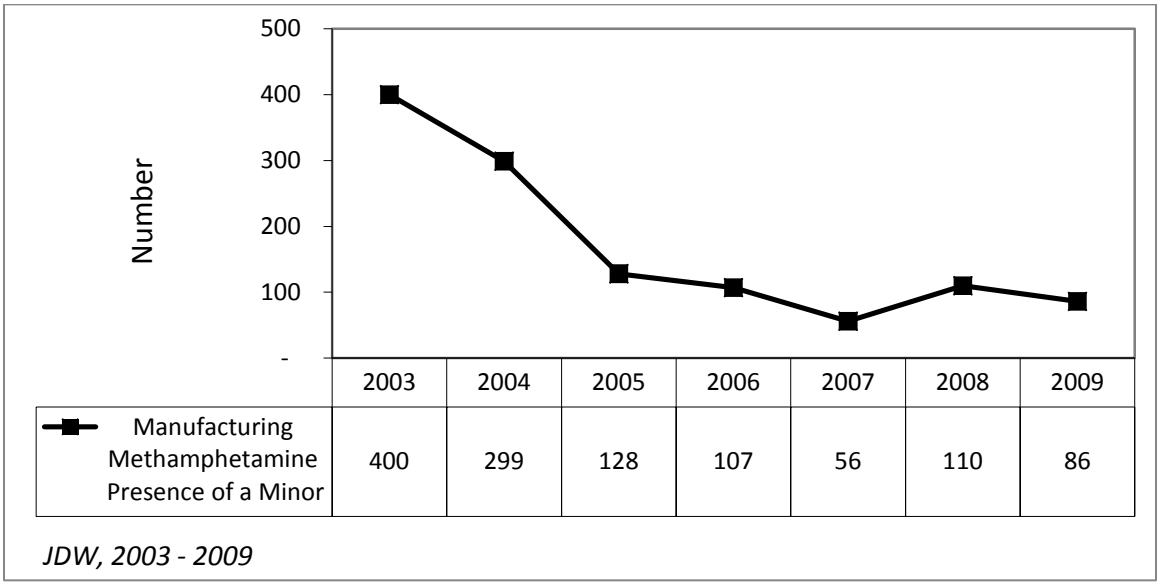
**Figure 73: Percent Confirmed or Founded Child Abuse Cases Involving the Presence of Illegal Drug in Child's Body, Iowa DHS**




| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|
| Presence Illegal Drugs | 8.3 | 9.6 | 8.3 | 7.2 | 6.4 | 3.9 | 3.7 |

*JDW, 2003 - 2009*

**Figure 74: Number of Confirmed or Founded Child Abuse Cases Involving Manufacturing Methamphetamine in the Presence of a Minor, Iowa DHS**




Prison Substance Screening:

Most inmates are screened using the LSI-R upon entry in Iowa prison hospitals. The LSI-R definition of drug includes prescription drugs not prescribed by a doctor and any other illicit drug. Alcohol was not included in the definition. Of the 95% of inmates who had a completed the screening in 2010, more than 80% had at least one drug (illicit) problem in their lifetime. Specifically, 81% had a lifetime drug problem, 46% had a current drug problem labeled as "interference" and 21% reported infrequent use. When assessed by demographic characteristics, prisoners under the age of 21 and Blacks had a higher proportion of current drug interference. There was no difference by demographic characteristics in the proportion of prisoners reporting lifetime drug problem. Although there were more males than females in prisons, the proportion of females who had current drug or lifetime drug problem was not different from males. About 51% of female inmates had a current drug problem compared to 46% in males (Figure 73). Across age groups and races, the proportion of current drug problem was not different except for Asians/Hawaiians; however with their small numbers, caution is advised in the interpreting the percent (Table 22).

**Figure 75: Current Drug Problem in Inmates by Gender (N = 8438) - 2010, Iowa DOC**

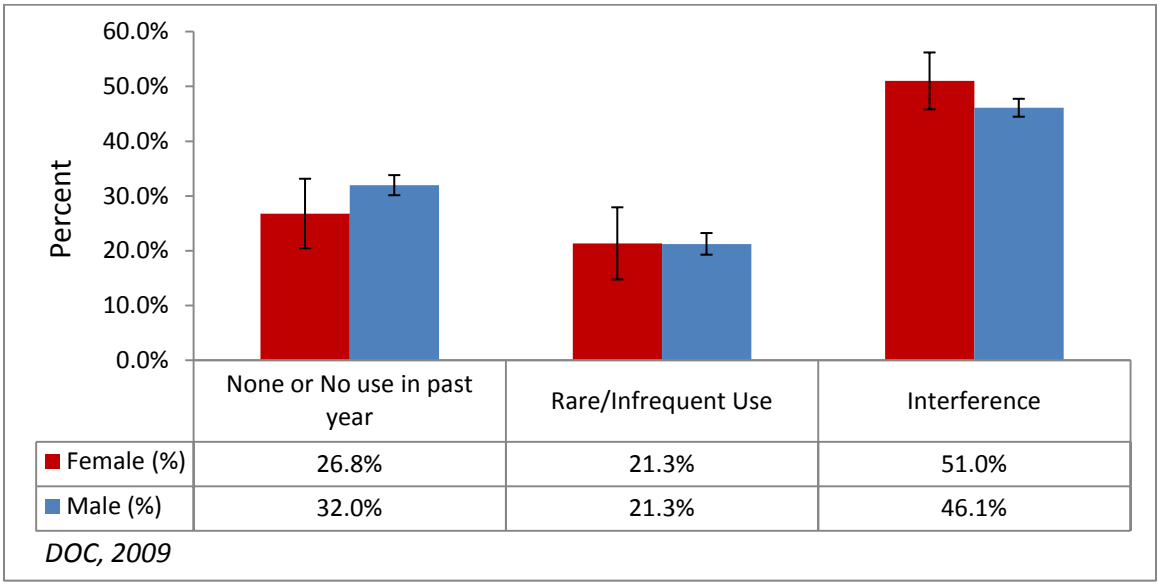


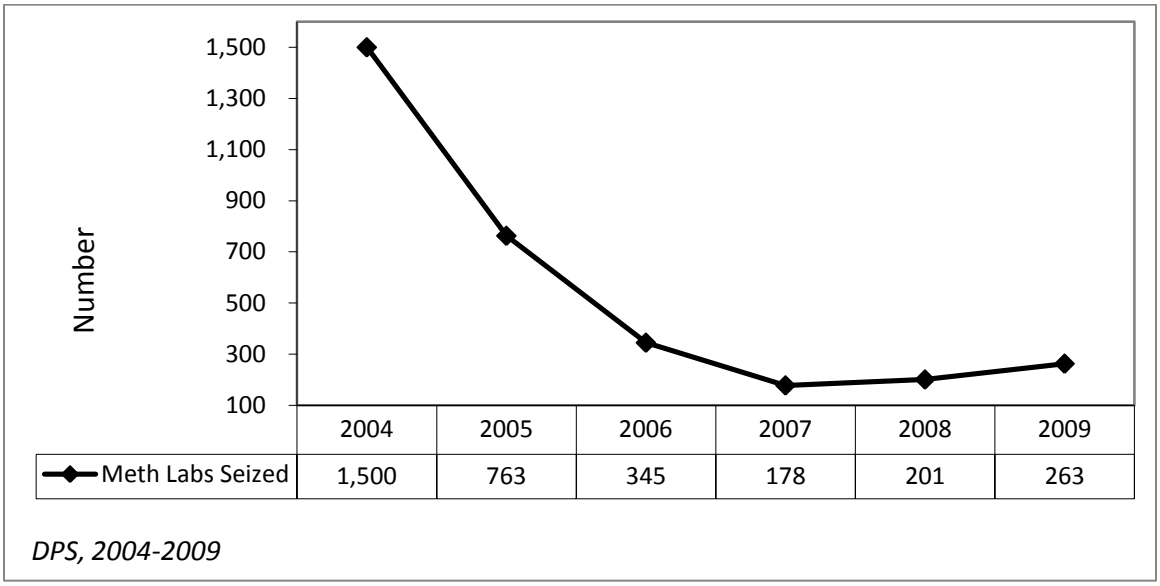

**Table 22: Iowa Prison Inmates – Drug Problems, Currently and Ever (N = 8,438) - 2009, Iowa DOC**

| Demographics | Drug Problem, Currently Interference N (%) | Drug Problem, Ever Yes N (%) |
|---|---|---|
| Age | | |
| 21 and Older | 3,577(44.9%) | 6,405 (80.4%) |
| Under 21 | 347 (73.8%) | 394 (83.8%) |
| Gender | | |
| Female | 356 (51.0%) | 557 (79.8%) |
| Male | 3,568 (46.1%) | 6,242 (80.6%) |
| Race | | |
| Whites | 2,740 (45.6%) | 4,705 (78.4%) |
| Blacks | 1,087 (49.4%) | 1,915 (87.0%) |
| Asian/Pacific Islanders | 24 (28.9%) | 51 (61.4%) |
| American Indians/ Alaska Native-Americans | 73 (48.3%) | 128 (84.8%) |

Other Law Enforcement Efforts:

The number of clandestine laboratories seized by the Iowa Department of Safety was cut in half from 1,500 in 2004 to 763 in 2005. From 2004, the number of labs seized decreased on average 50% per year until 2008 when an 11% increase was noticed. In 2009, the number of labs seized started to increase (Figure 75). After the enactment in May of 2005 of the Iowa Pseudoephedrine Control Act, which required selling pseudoephedrine products from behind the counter rather than on store shelves, DPS reported a reduction on the meth labs. However, the supply has evolved with Meth being imported from outside sources.

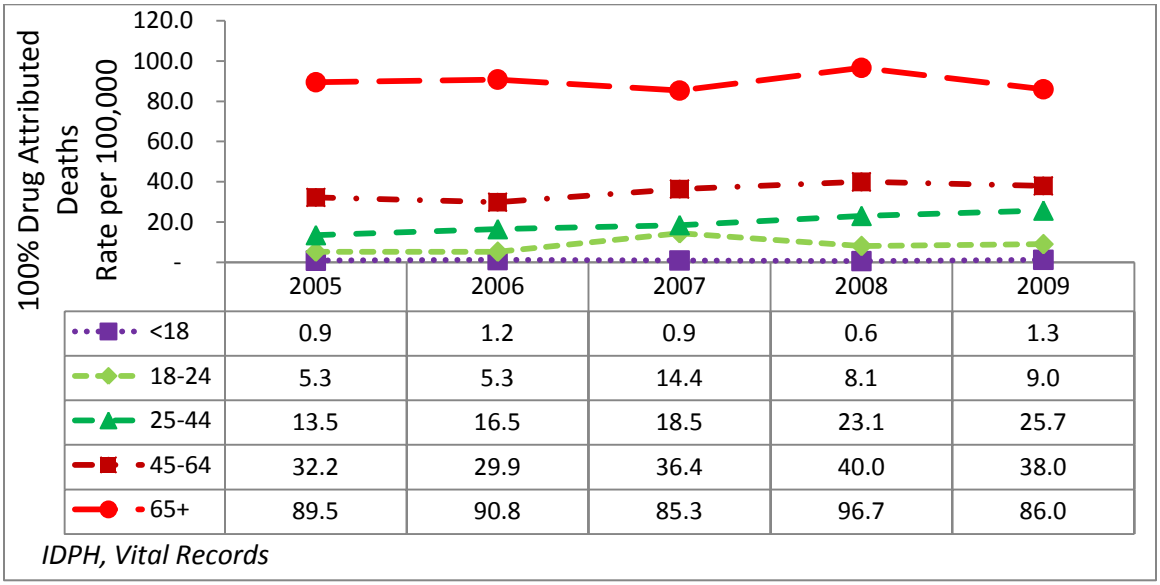
**Figure 76: Number of Meth Labs Seized by State and Local Authorities, DPS**




Drug Associated Mortality:

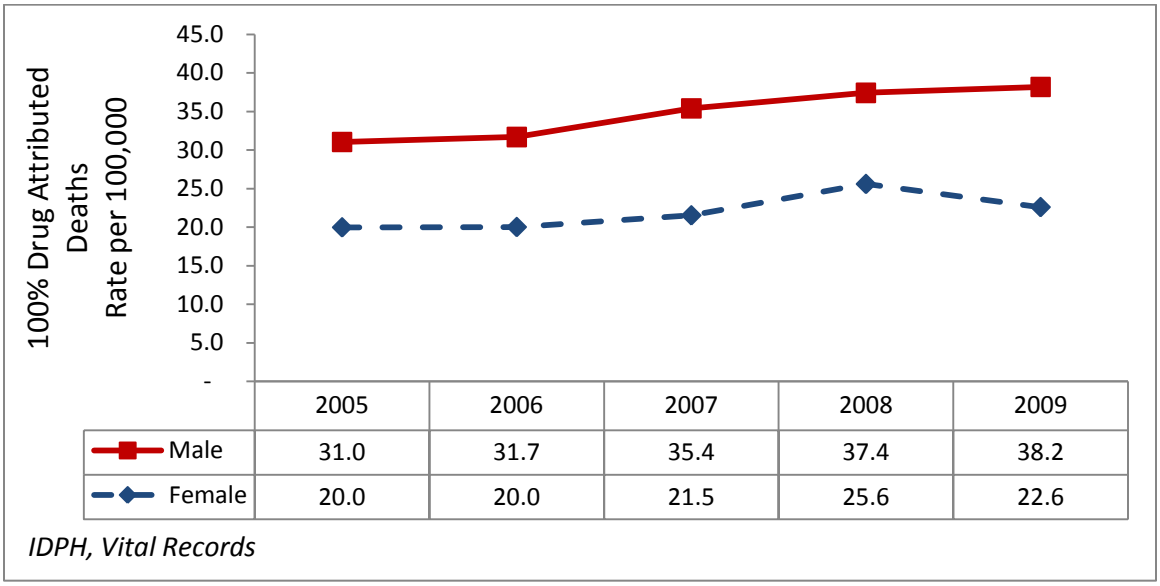
There was an increase in the number of deaths associated with illicit drug consumption (including non-medical use of prescription drugs) from 747 in 2005 to 906 in 2009. In Iowa, illicit drug death rates (100% Attributable) were higher among males and age 65 and over. The rates was almost nil for youth (10-17). Compared to the 18-24 age groups, the rate of illicit drug associated deaths was twice as high for the 45-64 and 10 times higher for the 65 and older (Figure 76). Males had a 50% higher rate of deaths associated with illicit drugs than females (Figure 77). The rates were increasing over the years with a higher slope among males (0.96) than females (0.54). In terms of race, Whites and Blacks had higher rate of deaths than other minorities, including Hispanics (Figure 78).

**Figure 77: Drug Associated Death Rates (100% Attributable) by Age, IDPH Vital Records**




**Notes: To match legislative updates 21 DX fields were Queried; ICD10 code s= 'F11-16',' F18', 'F19', 'X40-43', 'X60-64', 'Y10-12'; <18 rate = Year-specific census 10-17 years old population;**

**Figure 78: Drug Associated Death Rates (100% Attributed) by Gender, IDPH Vital Records**

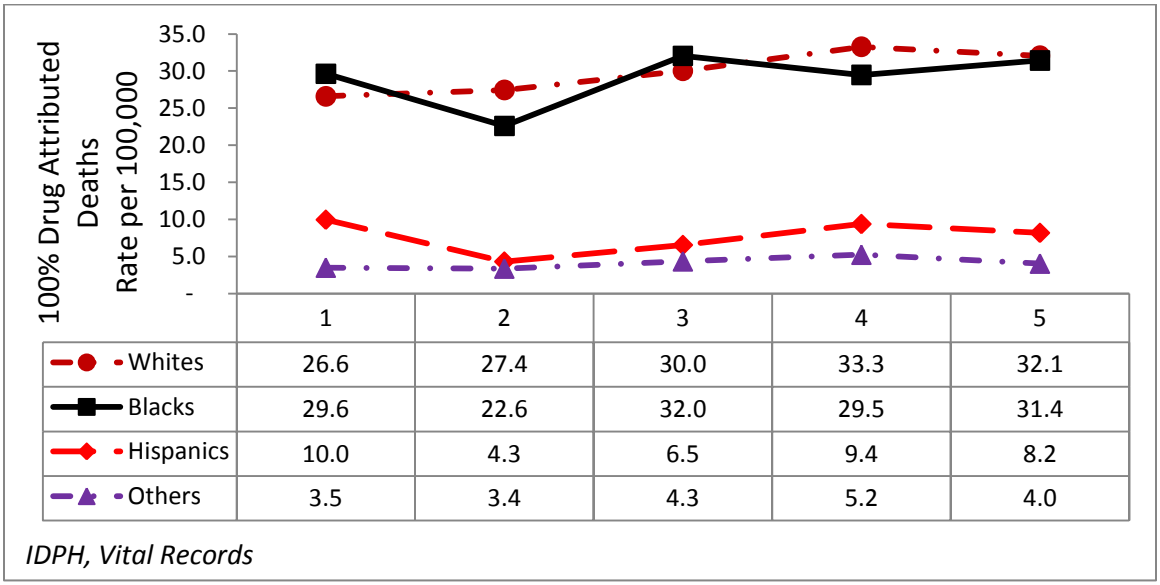



| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Male | 31.0 | 31.7 | 35.4 | 37.4 | 38.2 |
| Female | 20.0 | 20.0 | 21.5 | 25.6 | 22.6 |

*IDPH, Vital Records*

**Notes: To match legislative updates 21 DX fields were Queried; ICD10 codes='F11-16',' F18', 'F19', 'X40-43', 'X60-64', 'Y10-12';**

**Figure 79: Drug Associated Death Rates (100% Attributable) by Race, IDPH Vital Records**




| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Whites | 26.6 | 27.4 | 30.0 | 33.3 | 32.1 |
| Blacks | 29.6 | 22.6 | 32.0 | 29.5 | 31.4 |
| Hispanics | 10.0 | 4.3 | 6.5 | 9.4 | 8.2 |
| Others | 3.5 | 3.4 | 4.3 | 5.2 | 4.0 |

*IDPH, Vital Records*

**Notes: To match legislative updates 21 DX fields were Queried; ICD10 codes = 'F11-16',' F18', 'F19', 'X40-43', 'X60-64', 'Y10-12';**

Drug Associated Morbidity:

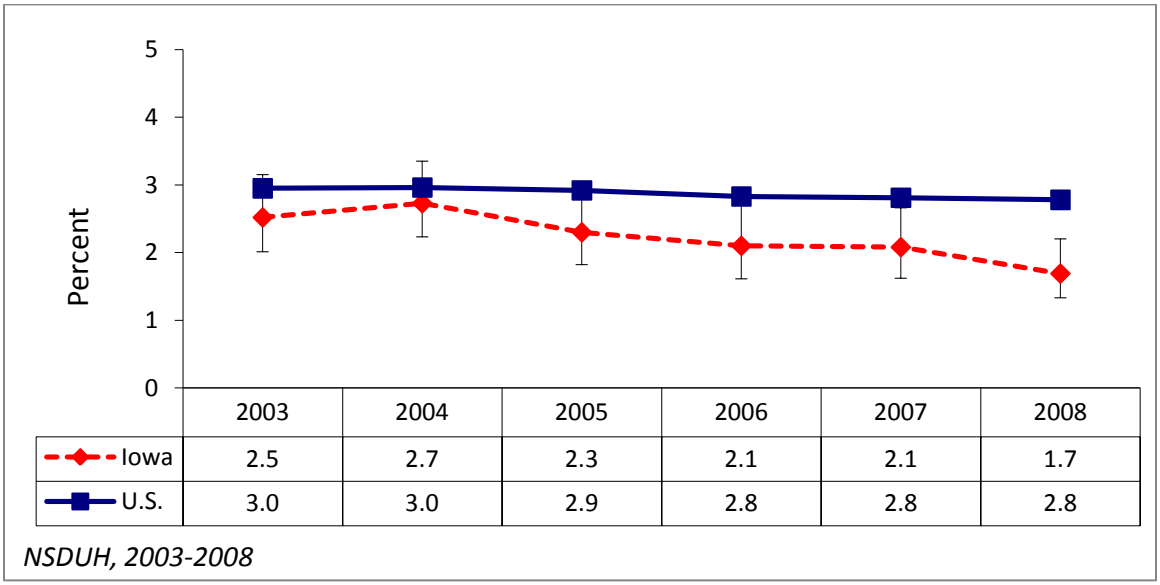
Past year illicit drug dependence or abuse in Iowa, as reported by NSDUH, remained stable from the 2002-2003 to 2007-2008. Iowans age 12 and older are less likely to report illicit drug dependence or abuse (2.1%) than the national percentage (2.8%), (Figure79). The NSDUH uses the DSM-IV definitions of dependence and abuse.

Drug associated hospitalization rates were higher among the 65 and over age group with a stable rate from 2006 to 2008 and small increase in 2009. The 25-44 years old followed with a stable rate. In 2007, the hospitalization rates for the ages 18-24 peaked significantly to reach that of the 25-44 age groups but were unstable. The same can be observed with the trend among the 45-64 (Figure 80). Females had a greater rate of hospitalizations associated with drugs; particularly because of the drug related suicide attempts (Figure 81).

Blacks were hospitalized for conditions associated with drugs at a rate three times higher than for Whites, which may be due to secondary chronic conditions and as later seen noticed, Blacks had a higher proportion of hospitalization due to hard drugs. In terms of magnitude, there were respectively, on average, nearly 3447, 324, and 95 hospitalizations for Whites, Blacks and Others (Figure 82). When the drug type is assessed by race, Blacks drug hospitalizations were more likely associated with cocaine/crack (19.1%), and alcohol combined with other drugs (22.6%) than for Whites and other racial groups. However, there are some difficulties in hospital data to ascertain the drug type associated with the poisoning as about 30% are unspecified (Figure 83). White and other racial groups had a higher percent of undetermined drug type.

Drug use is associated in the spread of HIV/AIDS infection. The AIDS registry has identified more than 2,000 adults/adolescents with HIV or AIDS living in Iowa. Since 2005, more than 120 new cases of HIV have been occurring every year; 11% of those cases are injecting drug users (IDU), which comprised 7% drug users and 2.2% of men who have sex with men and inject drugs (MSM/IDU) for a total number of 15 cases out of the 136 in 2009. The incidence rates of HIV for both IDU and MSM/IDUs have remained relatively stable in Iowa at about 0.48 per 100,000 Iowans for IDU and 0.12 for MSM/IDU in 2009 (Figure 83).

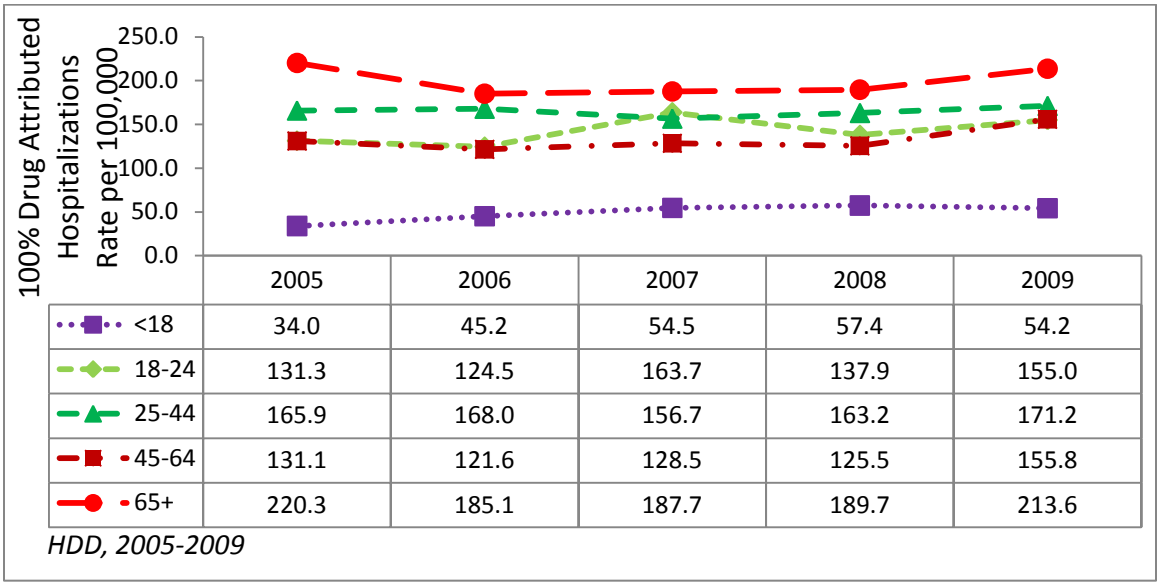
**Figure 80: Percent of People Reporting Past-Year Illicit Drug Dependence or Abuse, NSDUH**




| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|
| Iowa | 2.5 | 2.7 | 2.3 | 2.1 | 2.1 | 1.7 |
| U.S. | 3.0 | 3.0 | 2.9 | 2.8 | 2.8 | 2.8 |

*NSDUH, 2003-2008*

**Figure 81: Drug Associated Hospitalization Rates (100% Attributable) by Age, HDD**

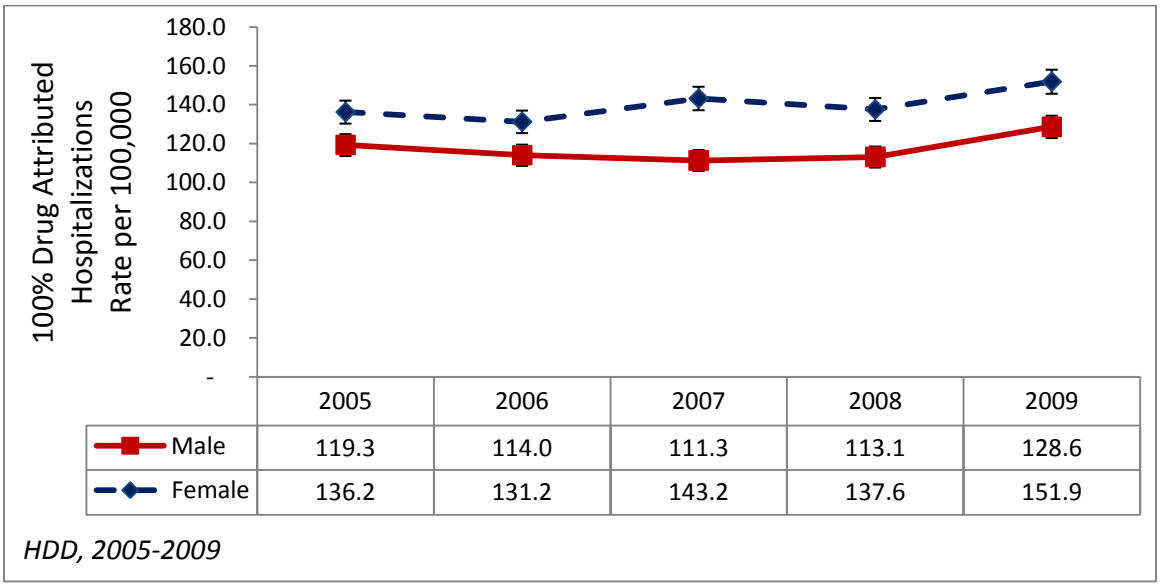



| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| <18 | 34.0 | 45.2 | 54.5 | 57.4 | 54.2 |
| 18-24 | 131.3 | 124.5 | 163.7 | 137.9 | 155.0 |
| 25-44 | 165.9 | 168.0 | 156.7 | 163.2 | 171.2 |
| 45-64 | 131.1 | 121.6 | 128.5 | 125.5 | 155.8 |
| 65+ | 220.3 | 185.1 | 187.7 | 189.7 | 213.6 |

*HDD, 2005-2009*

**Note: HDD= Hospital Discharge data; ICD9 codes: N 304, 305, 306, 962, 977; E850 (.0,2,4,7,8,9) E851-58, E935, E937-40, E950(.0-.5), E980; 10 DX fields queried;**

**Figure 82: Drug Associated Hospitalization Rates (100% Attributable) by Gender, HDD**

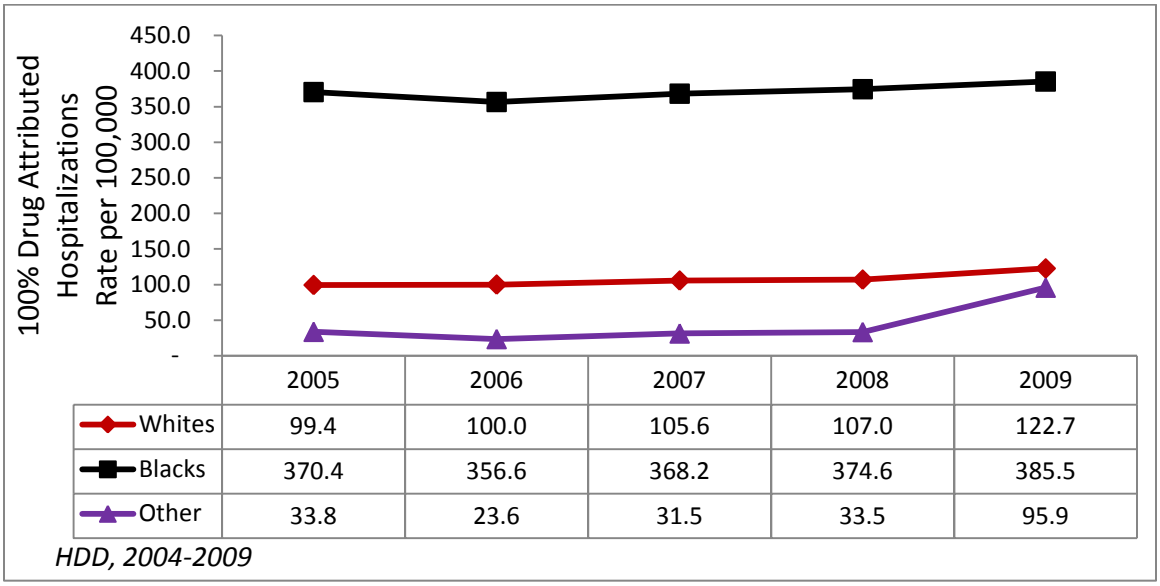



| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Male | 119.3 | 114.0 | 111.3 | 113.1 | 128.6 |
| Female | 136.2 | 131.2 | 143.2 | 137.6 | 151.9 |

*HDD, 2005-2009*

**Note: Algorithm from Pacific Research Institute (PIRE); HDD = Hospital Discharge data; ICD9 codes: N 304, 305, 306, 962, 977 ; E850 (.0,2,4,7,8,9) E851-58, E935, E937-40, E950(.0-.5), E980; 10 DX fields queried;**

**Figure 83: Drug Associated Hospitalization Rates (100% Attributable) by Race, HDD**

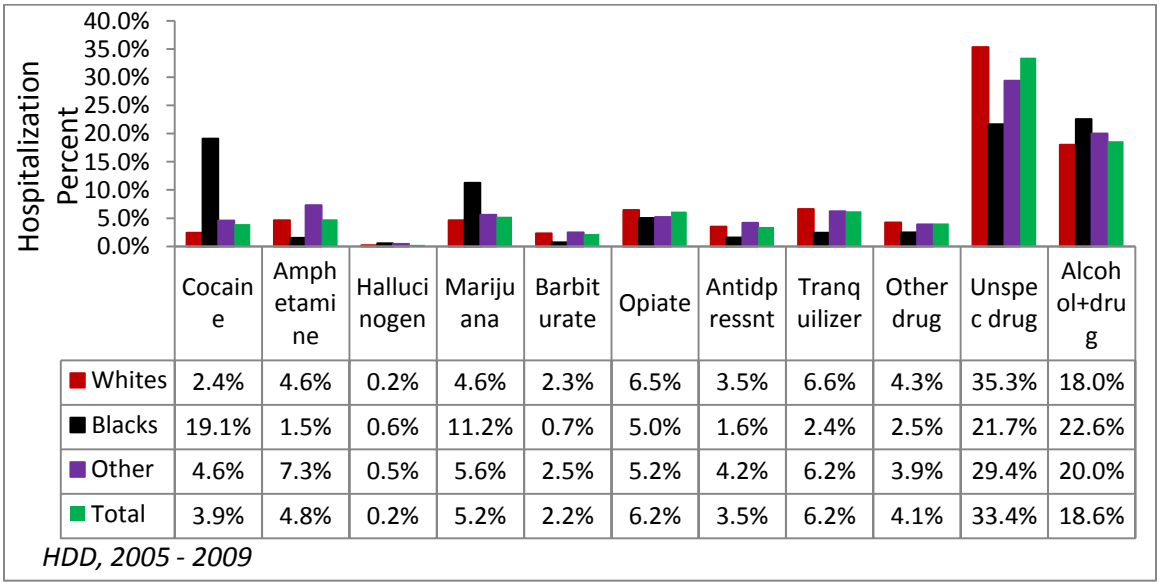



| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Whites | 99.4 | 100.0 | 105.6 | 107.0 | 122.7 |
| Blacks | 370.4 | 356.6 | 368.2 | 374.6 | 385.5 |
| Other | 33.8 | 23.6 | 31.5 | 33.5 | 95.9 |

*HDD, 2004-2009*

**Note: Algorithm from Pacific Research Institute (PIRE); HDD = Hospital Discharge data; ICD9 codes: N 304, 305, 306, 962, 977 ; E850 (.0,2,4,7,8,9) E851-58, E935, E937-40, E950(.0-.5), E980; 10 DX fields queried;**

**Figure 84: Percent of Drug Types Associated with Hospitalizations (100% Attributable) by Race**

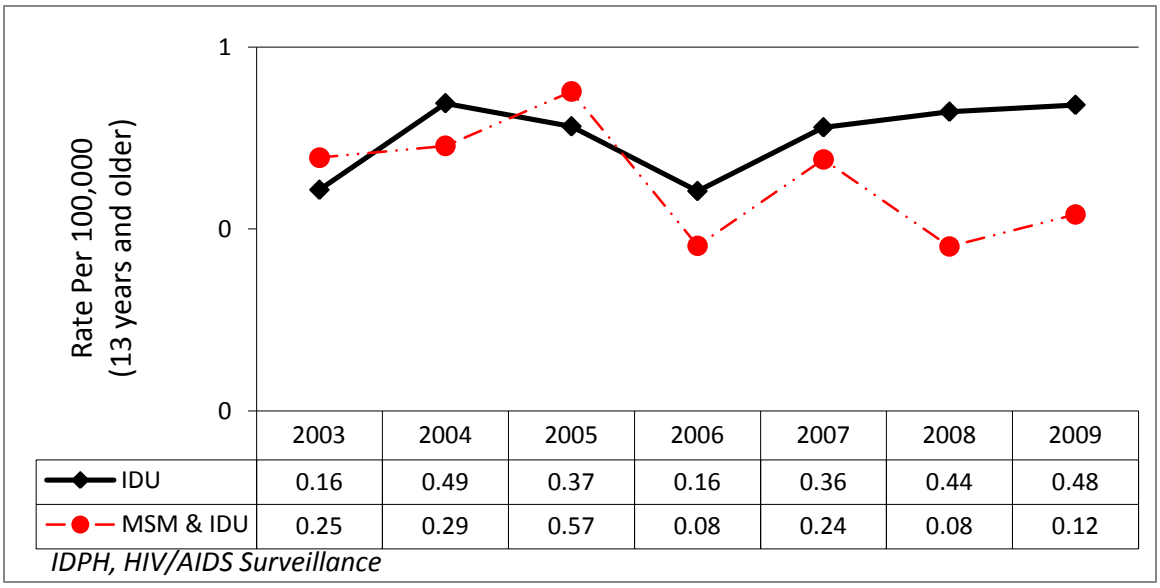



| | Cocaine | Amphetamine | Hallucinogen | Marijuana | Barbiturate | Opiate | Antidpressnt | Tranquilizer | Other drug | Unspec drug | Alcohol+drug |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Whites | 2.4% | 4.6% | 0.2% | 4.6% | 2.3% | 6.5% | 3.5% | 6.6% | 4.3% | 35.3% | 18.0% |
| Blacks | 19.1% | 1.5% | 0.6% | 11.2% | 0.7% | 5.0% | 1.6% | 2.4% | 2.5% | 21.7% | 22.6% |
| Other | 4.6% | 7.3% | 0.5% | 5.6% | 2.5% | 5.2% | 4.2% | 6.2% | 3.9% | 29.4% | 20.0% |
| Total | 3.9% | 4.8% | 0.2% | 5.2% | 2.2% | 6.2% | 3.5% | 6.2% | 4.1% | 33.4% | 18.6% |

*HDD, 2005 - 2009*

**Note: Algorithm from Pacific Research Institute (PIRE); HDD = Hospital Discharge data; ICD9 codes: N 304, 305, 306, 962, 977 ; E850 (.0,2,4,7,8,9) E851-58, E935, E937-40, E950(.0-.5), E980; 10 DX fields queried;**

**Figure 85: Reported Incidence of HIV Cases per 100,000 due to Drug Use- 13 years and over, IDPH AIDS Surveillance**




| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|
| IDU | 0.16 | 0.49 | 0.37 | 0.16 | 0.36 | 0.44 | 0.48 |
| MSM & IDU | 0.25 | 0.29 | 0.57 | 0.08 | 0.24 | 0.08 | 0.12 |

*IDPH, HIV/AIDS Surveillance*

**Notes: IDU = Injecting Drug users; MSM = Men Having Sex with Men; Rate use specific population age 13 and over**

*At the County Level*

Drug deaths and hospitalizations tend to cluster in central and southeast Iowa particularly in urban areas (Figure 84). The hospitalization rates showed only three counties with rate significantly higher than the state (Figure 85).

**Figure 86: Plot of the Number of Drug Associated Deaths and Hospitalizations (100% Attributable), 2009 HDD and IDPH Vital Records**

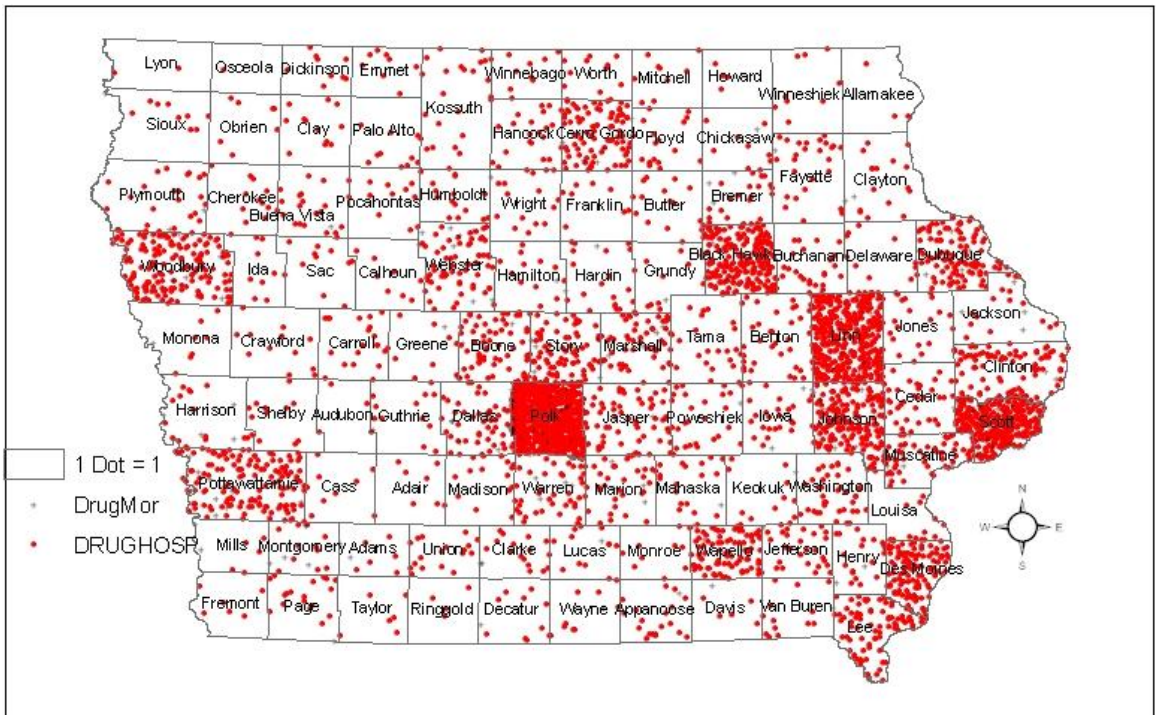
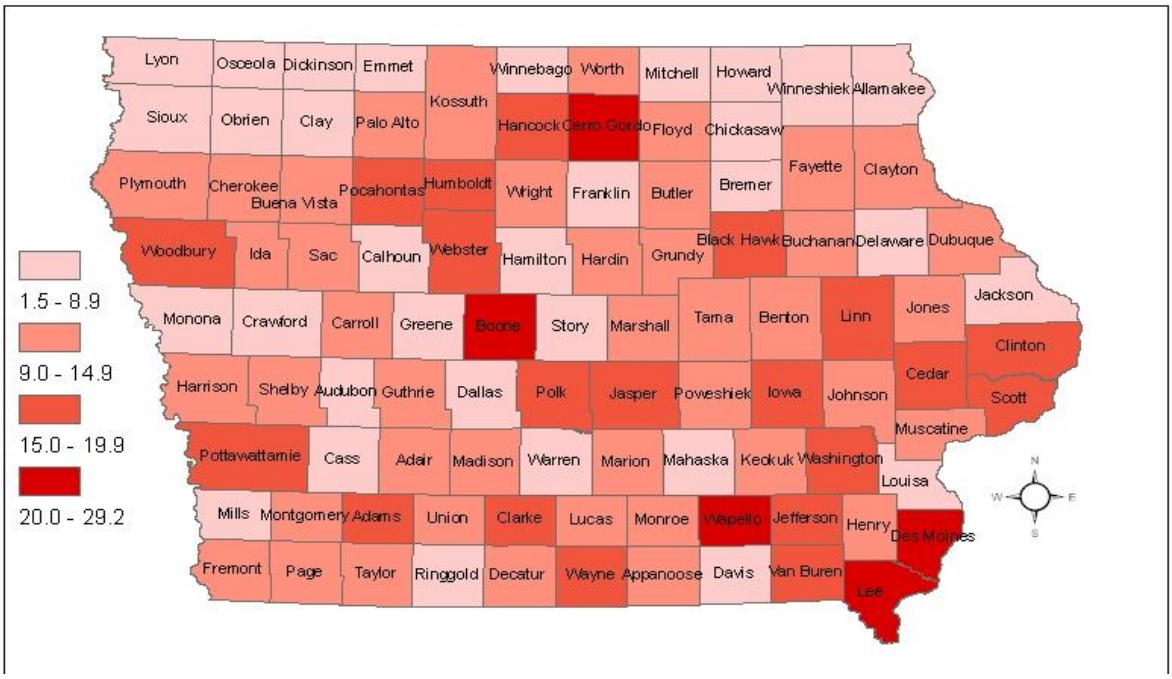



**Figure 87: Drug Associated Hospitalization (100% Attributable) Rates by County, HDD - 2009**



## Discussion and Conclusion

Iowa is a rural state with many of the same social and substance abuse problems as other rural states: erosion of rural life resulting from 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 for addressing substance abuse issues. Iowa is among the small number of states not dominated by a major metropolitan area. It is instead comprised of rural areas, small towns, and small cities. Its population is markedly older than most states, moderately educated, and less likely to be members of minority groups. In the future, it will be necessary to expand the current statewide epidemiological profile to understand how Iowa's fairly unique demographic and geographic characteristics affect substance use and abuse data in different areas of the state. 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. This situation results in three small cities with extraordinarily large numbers of students and young adults concentrated in one place, and engaged in a lifestyle where alcohol is widely accessible and accepted. Iowa also has an unusually large number of private colleges (73) and nineteen state-supported colleges and universities ranging in size from very small (<5,000 – 85%), medium (5000-15,000 – 10% and large (>15,000 -5%).[14]

Iowa legislature has been forthcoming in intervening with substance abuse. Several legislations at the state and local level have been enacted to curb alcohol (Keg registration, 21 only proposition), tobacco ($1 tax raise in 2006) and illicit drug, methamphetamine (Pseudo-ephedrine Act). Despite these efforts, the burden of substance abuse calls for statewide mobilization. Compared to the nation, Iowa does not differ from other states in terms of tobacco and illicit drug consumption and consequences. However, the burden is not negligible. Moreover, with counties bordering other states such as Illinois, Missouri, and Nebraska having greater alcohol and tobacco consumption, there is a need to look into the factors that explain this phenomenon. Those factors may be casinos or lower alcohol and tobacco tax rates leading to "across-state line shopping." In opposition to tobacco and illicit drug use, the Iowa binge drinking prevalence is considerably higher than national average. This situation may be intuitively understood from the data on attitudes toward use and abuse of alcohol; namely that Iowans have markedly higher levels of acceptance of drinking and lower fear of adverse consequences compared to other Americans as proven by its fifth rank that the NSDUH reports. It is in the best interest of all citizens of Iowa to reduce the burden of substance abuse and dependence.

The Iowa SPF SIG selected underage alcohol use and adult binge drinking as its main priorities for prevention. Despite an increase of the scope of this profile with the inclusion of other consumption and consequence indicators, the chosen SPF SIG priorities remained the key issues that needed to be cared for. Even though tobacco mortality and morbidity are still recognized as among the most challenging issues in modern times, this EPI Profile found over 10,000 hospitalizations occurring in Iowa because of alcohol with increasing trends. Meanwhile, tobacco or drug morbidity stayed constant.

# APPENDICES

## ICD 9/10 Codes for Alcohol-Attributable Mortality Fractions

| ICD-9 Diagnosis Category | Percent | Age | ICD-9 Code[1] | ICD-9CM Diagnosis Category[2] | ICD-9CM Code[3] | ICD-10 Diagnosis Category | ICD-10 Code |
|---|---|---|---|---|---|---|---|
| **CHRONIC CONDITIONS 100 % ATTRIBUTABLE** | | | | | | | |
| Alcohol Induced Mental Disorders | 100 | >20 | 291 | Alcohol Induced Mental Disorders (includes additional 5th digit codes 291.81 [alcohol withdrawal] and 291.89 [Other alcohol induced disorder: anxiety, mood, sleep, sexual dysfunction]) | 291 | Mental and behavioral disorders due to use of alcohol | F10.0-F10.1, F10.3-F10.9 |
| Alcohol dependence syndrome | 100 | >20 | 303 | Alcohol dependence syndrome (acute alcohol intoxication [303.0], Other and unspecified alcohol dependence [303.9], fifth digits for 303: 0 unspecified, 1 continuous, 2 episodic, 3 in remission) | 303 | Alcohol dependence syndrome | F10.2 |
| Nondependent abuse of alcohol | 100 | >20 | 305.0 | Nondependent abuse of alcohol (fifth digits for 305.0: 0 unspecified, 1 | 305.0 | Nondependent abuse of alcohol | -- |

[1] From http://www.cdc.gov/nchs/data/statab/gmwki_98.pdf
[2] Yellow highlights indicate that ICD-9CM codes are more detailed than ICD-9 codes.
[3] From http://www.cdc.gov/nchs/icd9.htm#BTF
-- No corresponding ICD-9 or ICD-10 code available for that particular condition.

**Attributable Fraction Source: Alcohol-Related Disease Impact (ARDI) software – http://apps.nccd.cdc.gov/ARDI/HomePage.aspx** 1

## ICD 9/10 Codes for Smoking-Attributable Mortality Fractions

| Disease Category | ICD 10 Codes | ICD 9 Codes | 35-64 (%) | 65 + (%) | 35-64 (%) | 65 + (%) |
|---|---|---|---|---|---|---|
| | | | | | | |
| **MALIGNANT NEOPLASMS** | | | | | | |
| Lip, Oral Cavity, Pharynx | C00-C14 | 140-149 | 77% | 71% | 55% | 42% |
| Esophagus | C15 | 150 | 72% | 72% | 66% | 53% |
| Stomach | C16 | 151 | 28% | 27% | 13% | 11% |
| Pancreas | C25 | 157 | 28% | 19% | 29% | 21% |
| Larynx | C32 | 161 | 84% | 82% | 78% | 69% |
| Trachea, Lung, Bronchus | C33-C34 | 162 | 89% | 87% | 77% | 67% |
| Cervix Uteri | C53 | 180 | - | - | 14% | 8% |
| Kidney and Renal Pelvis | C64-C65 | 189 | 40% | 38% | 7% | 4% |
| Urinary Bladder | C67 | 188 | 48% | 46% | 32% | 26% |
| Acute Myeloid Leukemia | C92.0 | 205 | 24% | 22% | 10% | 10% |
| | | | | | | |
| **CARDIOVASCULAR DISEASES** | | | | | | |
| Ischemic Heart Disease | I20-I25 | 410-414, 429.2 | 40% | 15% | 35% | 10% |
| Other Heart Disease | I00-I09, I26-I51 | 390-398, 415-417, 420-429.1, 429.3-429.9 | 21% | 18% | 12% | 8% |
| Cerebrovascular Disease | I60-I69 | 430-438 | 38% | 9% | 43% | 5% |
| Atherosclerosis | I70 | 440 | 32% | 26% | 16% | 7% |
| Aortic Aneurysm | I71 | 441 | 66% | 64% | 62% | 46% |
| Other Arterial Disease | I72-I78 | 442-448 | 22% | 11% | 23% | 12% |

Source: Smoking Attributable Mortality, Morbidity and Economic Costs (SAMMEC): http://apps.nccd.cdc.gov/sammec/saf_reports.asp

# ICD 9/10 Codes for Drug-Attributable Mortality Fractions

| ICD-9 Diagnosis Category[1] | Percent[1] | ICD-9 Code[1,2] | ICD-9CM Diagnosis Category[3] | ICD-9CM Code[4] | ICD-10 Diagnosis Category | ICD-10 Code[5] |
|---|---|---|---|---|---|---|
| **CHRONIC CONDITIONS 100 % ATTRIBUTABLE TO DRUG USE** | | | | | | |
| Drug psychosis | 100 | 292 | Drug psychosis [includes 5th digit codes with more specific drug induced mental disorders] | 292 | Mental and behavioral disorders due to psychoactive substance use (excluding alcohol and tobacco). [includes 4th characters: .0 acute intoxication, .1 harmful use, .2 dependence syndrome, .3withdrawal state, .4 withdrawal state with delirium, .5 psychotic disorder, .6 amnesic syndrome, .7 residual and late-onset psychotic disorder, .8 other mental and behavioral disorders, .9 unspecified mental and behavioral disorder] | F11-F16, F18 |
| Drug dependence | 100 | 304 | Drug dependence [includes 5th digit codes 0 unspecified, 1 continuous, 2 episodic, 3 in remission] | 304 | | -- |

[1] From Source: National Institute on Drug Abuse. *The economic costs of alcohol and drug abuse in the United States 1992*, Tables 5.5, 5.6, 6.8. http://www.drugabuse.gov/EconomicCosts/Index.html

[2] From http://www.cdc.gov/nchs/data/statab/gmwki_98.pdf

[3] Yellow highlights indicate that ICD-9CM codes are more detailed than ICD-9 codes.

[4] From http://www.cdc.gov/nchs/icd9.htm#RTF

[5] From http://www3.who.int/icd/vol1htm2003/fr-icd.htm

-- No corresponding ICD-9 or ICD-10 code available for that particular condition.

## Data Sources

BRFSS (Behavior Risk Factor Surveillance System) http://www.cdc.gov/brfss/index.htm

Criminal and Juvenile Justice Planning (CJJP), Justice Data Warehouse:
http://www.humanrights.iowa.gov/cjjp/jdw/index.html

Iowa Department of Public Safety, Incident Based Uniform Crime Reporting System:
http://www.dps.state.ia.us/commis/ucr/index.shtml

Iowa Vital Records: http://www.idph.state.ia.us/apl/health_statistics.asp

Iowa Youth Survey: http://www.iowayouthsurvey.org/counties/index.html

NSDUH (National Survey on Drug Use and Health) http://www.oas.samhsa.gov/nsduh.htm

Project EASIER:
http://www.iowa.gov/educate/index.php?option=com_content&task=view&id=44&Itemid=1261

Project EASIER – Iowa Department of Education, Project EASIER Fall Enrollment File:
http://www.iowa.gov/educate/index.php?option=com_docman&task=cat_view&gid=129&Itemid=55

Project EASIER – Iowa Department of Education, Project EASIER Suspension and Expulsion File:
http://www.iowa.gov/educate/index.php?option=com_docman&task=cat_view&gid=527&Itemid=55

I-SMART - Iowa Department of Public Health – Substance Abuse Reporting System:
http://www.idph.state.ia.us/ismart/default.asp

YRBS (Youth Risk Behavior Surveillance System) http://www.cdc.gov/healthyyouth/yrbs/index.htm

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