
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;

DOC - Iowa Department of Corrections;

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 Interval: 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.
- Drug/Narcotic Violations: The unlawful cultivation, manufacture, distribution, sale, purchase, use, possession, transportation, or importation of any controlled drug or narcotic substance.
- Drug Equipment Violations: The unlawful manufacture, sale, purchase, possession, or transportation of equipment or devices utilized in preparing and/or using drugs or narcotics or importation of any controlled drug or narcotic substance.
- Interference: In the LSI-R, when a person has a current substance abuse problem, which “interferes” in major life areas such as: passing out, substance related arrests, employment or education problems, family and social problems, personality changes, access of health services for substance abuse, or diagnosis of substance dependence.
- 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 (BRFSS): Proportion of adult reporting having had (men more than two drinks, women more than one) drink per day.

- Liquor Law Violations: Offenses dealing with sales or provision of alcohol.
- Operating While Intoxicated: Violation of [Iowa Code chapter 321J](#) (BAC>.08).
- P. value: Probability that the observed result is due to chance.
- Prescription drug abuse: The use of a medication without a prescription, in a way other than as prescribed, or for the experience or feelings elicited.
- Prescription medications: Medications used to treat pain, attention deficit disorders, sleep disorders and anxiety that are not over the counter drugs.
- Prevalence: Number or proportion (percent) of cases or events in a given population. Often further distinguished as point prevalence (single point in time) or period prevalence (over a period of time).
- 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.
- Public Intoxication: Violation of [Iowa Code chapter 123.46](#).
- Rate per 100,000: (Number of cases or events / total population)* 100,000.
 - Age-adjusted rate: A rate statistically modified to eliminate the effect of different age distributions in the different populations
 - Age-specific rate: A rate limited to a particular age group. The numerator is the number of cases in that age group; the denominator is the number of persons in that age group in the population.
 - Gender-specific rate: A rate limited to a particular gender. The numerator is the number of cases in that gender; the denominator is the number of persons of that gender in the population.
 - Race-specific rate: A rate limited to a particular racial category. The numerator is the number of cases in that racial category; the denominator is the number of persons from that racial category in the population.
- Rho: Also called correlation coefficient, it is a statistical measure of the linear relationship (correlation) between a dependent-variable and an independent variable; its value varies between -1 and 1. The squared Rho is called coefficient of determination, or r^2 , which expresses the strength of the relationship between an outcome and predictor variables.
- Underage Possession: Violation of Code 123.47A which prohibits minors from purchasing or attempting to purchase, or possessing or having control of alcoholic beverages.

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EXECUTIVE SUMMARY

In 2006, the Iowa Department of Public Health received funding from the U.S. Department of Health and Human Services, Substance Abuse and Mental Health 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 subsequent 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 (SPF SIG). After receiving the SPF SIG cooperative agreement, the 2010 epidemiological profile served as a continuation of the state epidemiologic outcome workgroup in the surveillance of substance use and its consequences. The 2010 Profile introduced the analysis of death and hospital discharge data. Using Internal Classification of Diseases (ICD) 9th and 10th revision, conditions attributed to alcohol (100%), tobacco (85%) and drugs (100%) were identified and computed to generate rates. The 2012 profile briefly introduced Synar data, which assessed how tobacco outlets are compliant to the Alcohol, Drug Abuse, and Mental Health Administration Reorganization Act. The Synar amendment prohibits the sale or distribution of tobacco products to individuals under the age of 18,

Key findings in the 2012 profile include:

Alcohol

- The analysis of Iowa substance abuse treatment services data revealed alcohol as the most reported substance of use by individuals on admission. Overall, the total number of admissions for substance use disorder reported in the Treatment Episode Data Sets (TEDS, 2010) increased 17% from 27,828 (2009) to 32,345 (2010).
- The 2008-2009 NSDUH estimated approximately 1,408,000 (56.7%) Iowans, 12 and older, had had a drink in the past month. Likewise, 710,000 (28.6%), reported binge drinking in the past

month. Binge drinking rate in Iowa is still significantly higher than the nation with an estimated average of 23.5%. This may be due to a significant lower perception of great to moderate risk of binge drinking in Iowa than the national average.

- 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.
- The health and social consequences of alcohol are numerous. Alcohol abuse is associated with financial, social, interpersonal and legal difficulties. The overall rate of suspensions and expulsions for alcohol has been stable from 2008-2009.
- Nearly 20,000 drunkenness and liquor law arrests were recorded in 2009, which corresponded to a 7% decrease from 2008. Although in terms of magnitude, adult Iowans (over 18 years old) made up the majority of liquor law arrests; in terms of age-specific rates there was a greater risk among youth between 10 and 17 years of age.
- Contrary to the reduction in alcohol arrests, alcohol related conviction numbers are still on the rise. Consistently over the years, 38% of inmates with a completed LSI-R assessment had a current alcohol problem.
- Alcohol related mortality rates were greater among Iowans over the age of 45 compared to the younger age groups and among males. There was no difference of alcohol associated death rates between Whites and Blacks.
- Although the rates of traffic fatalities have been stable, between 2000 and 2010, approximately one-quarter to one-third of Iowa traffic fatalities involved a driver who used alcohol.
- The total number of hospitalization events 100% attributed to alcohol has increased from 7,800 cases in 2009 to 10,600 in 2010. The hospitalization rates per 100,000 increased with age as they were highest among the 45-64 and the 65 and older age. Stratified by gender or race, alcohol hospitalization rates were greater in males and Blacks.

Tobacco

- In Iowa, two major legislations pertaining to smoking occurred these last few years. The cigarette excised Tax was enacted in 2007, ranking Iowa 25th among states with the highest cigarette Tax. The Iowa Smoke Free Air Act legislation enacted in 2008 prohibited smoking in almost all public places and enclosed areas within places of employment, as well as some outdoor areas.
- Based upon NSDUH estimates, adult tobacco use in Iowa remained unchanged from 2003 to 2009, and was similar to national tobacco usage rates with prevalence around 28.8%. These results are corroborated by the BRFSS, which finds no difference in the proportion of adult (over 18 years of age) smokers in the state or the nation.
- The proportion of Iowa mothers reporting using tobacco during pregnancy has been stable since 2002; however younger mothers were more likely to smoke.
- 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 remains the leading cause of preventable deaths and any level of smoking has been associated with increasing risk of death and morbidity.
- The overall tobacco associated death rates have been steady over the years with a downward trending. The overall number is estimated at 6 Iowans dying every day from a condition associated with tobacco. For every death associated with tobacco, there were on average 10 hospitalizations. Tobacco related hospitalization rates demonstrated a decrease in 2010 among the younger age groups but stayed constant among the 65+.
- Overall, tobacco compliance rates have been steady with more than 90% of outlets checked were found compliant.

Illicit Drugs

- Illicit drug use in Iowa is still holding steady with the percent of people reporting past 30-day use lower than the national average. The most used illicit drug among Iowans - as reported by TEDS- was marijuana, followed by methamphetamine.
- Compared to the nation, Iowans were less likely to report past 30-day marijuana use across all age groups.
- The proportion of Iowans reporting non-medical use of pain relievers in the past year has remained the same with highest use occurring among the 18-25 age groups.
- The 2010 IYS showed that marijuana was still the most widely used illicit drug among students, with 13% of 11th graders reporting current use. Marijuana use by 8th and 11th graders seems to be trending upward.
- According to the IYS 2010, prescription drug abuse among Iowa students has increased from 2002 to 2010.
- On average there were more than 11,000 arrests for drug violations per year in Iowa. The trend of drug arrests decreased 11% from a rate of 421.6 per 100,000 people in 2005 to 374.9 drug arrests in 2010.
- The percent of confirmed or founded child abuse cases with the presence of illegal drugs in a child's body (PID) in Iowa, after a significant decrease between the years 2004 and 2009, increased in 2010 and 2011. In addition, PID was associated with an increased number of confirmed or founded child abuse cases involving manufacturing methamphetamine in the presence of a minor in 2010-2011, almost reaching 2005 values.
- Prisoners under the age of 21 and Blacks had a higher proportion of current drug problem with negative effects on physical health, family and social life (interference). Although there were more males than females in prisons, the proportion of females who had current drug interference in 2011 was higher compared to males.
- The number of deaths associated (100% Attributable) with drug consumption (including non-medical use of prescription drugs) continues to increase. In Iowa, drug related death rates were higher among males and people over the age of 65. . However, drug associated hospitalization rates were higher among the 25-44 years old and among females.

Conclusion:

- The Iowa SPF SIG selected underage alcohol use and adult binge drinking as its main priorities for prevention. Even though tobacco use remains the leading cause of premature and preventable deaths in the nation, this EPI Profile found over 10,000 hospitalizations occurring in Iowa because of alcohol with increasing trends. Meanwhile, the rise in prescription drugs mortality and morbidity nationwide and in Iowa as well is a matter of concern.

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 dedicated 94% of its total substance-related spending on remediating the effects of substance abuse, it was estimated that only 2.4% of the spending was geared towards prevention. The amount spent on research, prevention, and treatment of substance abuse ranks Iowa among the 10th states that spend the least in substance abuse prevention.

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. Through SEOW, 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 were divided into sections that summarized data by consumption patterns and consequences of use for the various substances.

In 2009, the Iowa Department of Public Health was successfully awarded a cooperative agreement, Strategic Prevention Framework State Incentive Grant (SPF SIG), from SAMHSA to address underage drinking and adult binge drinking and related consequences in the state of Iowa. In 2011, another one-year award, the Strategic Prevention Enhancement- was presented to the department to, among other deliverables, expand the work of the SEW, and increase partnership, collaboration and data sharing between the different state agencies. The new expanded SEW has the delicate mission of redefining the scope of its work and identifying meaningful epidemiological products (besides the Epidemiological Profiles) for the public, researchers, local staffs and legislators

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 indicator 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 9.2, Cary Institute) 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 2012 EPI Profile?

- Whenever possible all previous data points were updated except for the Iowa Youth Survey and the Department of Public Safety for which data were not yet available.
- In this 2012 report, we introduced Iowa Synar data. Named after its sponsor, Synar is an amendment to the Alcohol, Drug Abuse, and Mental Health Administration Reorganization Act and requires states to enact and enforce laws prohibiting the sale or distribution of tobacco products to individuals under the age of 18. Underage "inspectors" are sent to tobacco outlets and businesses selling tobacco to attempt buying tobacco products. The Iowa State University is in charge of the sampling of outlets, the collection and analysis of the data.

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

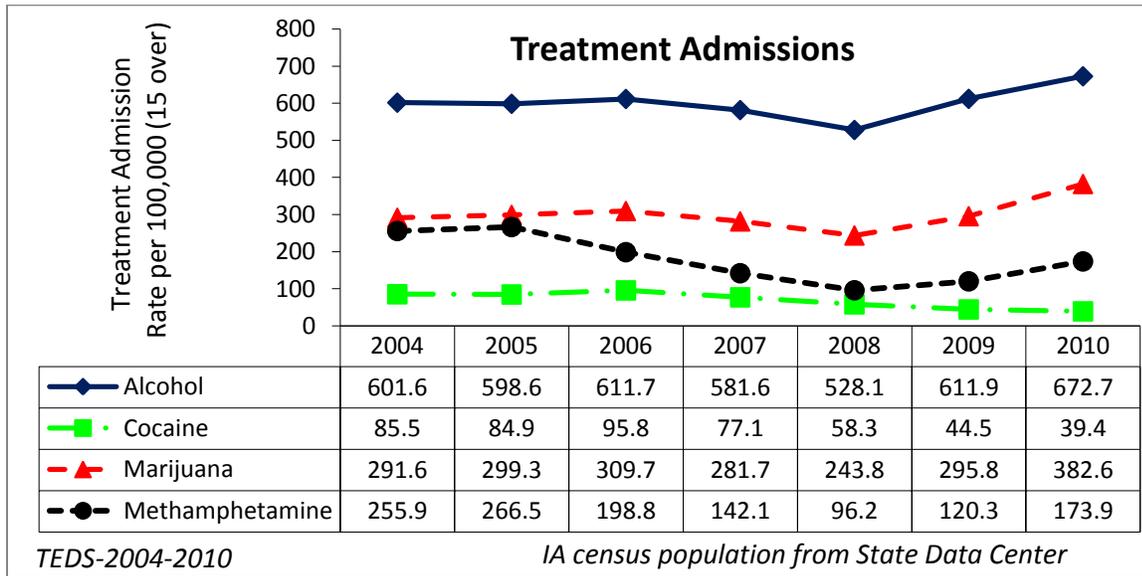
Treatment Episode Data Sets (TEDS):

The analysis of Iowa substance abuse treatment services data has revealed alcohol as the most reported substance of use by individuals on admission. Overall as presented in Table 1, compared to 2009, the total number of admissions for substance use disorder reported by the Treatment Episode Data Sets (TEDS, 2010) increased 17% from 27,828 (2009) to 32,345 (2010).² For more than a quarter of those admissions, 8,901 (27.2%), alcohol only was the primary substance of choice and 7,150 (22.0%), were due to alcohol associated with other secondary drugs. Despite an increase in the total number of admissions for substance abuse treatment, the relative proportion of alcohol only admissions in 2010 (27.2%) seemed lower than the 2009 percent (31.1%).

Marijuana, methamphetamine, and heroine and other opiates were the next most cited substances with a respective proportion of 28.1% (compared to 26.1% in 2009), 12.7 (compared to 10.6% in 2009) and 5.9 % (compared to 4% in 2009). Compared to 2009, the rates of treatment episodes per 100,000 Iowans 15 years and older increased 30% for Marijuana, and 40% for amphetamines/meth (Figure 1). These increases in the number of treatment admissions may very well reflect programs linking Iowans to needed services and funding to treatment centers.

Over two-thirds of the clients were males (68%), aged 18-45 (84%) and White (88 %). 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. Whites were more likely to seek treatment for alcohol, Marijuana, and Methamphetamines.

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



Notes: Alcohol treatment admission rate per 100,000 has increased 10% from 2009;

Table 1: Demographic Distribution of Treatment Episodes by Primary Substance of Choices, TEDS 2010

STATE: IOWA	Prim Subst.	Alc. only	Alc. with 2ndary	Mar.	Amph. /Meth	Other stim.	Coc. (smoke d)	Coc. (other)	Heroin	Other opiates	Other Drug
Total - N	33225	9106	7327	9346	4248	12	705	257	377	1375	472
%	100	27.4	22.1	28.1	12.8	0	2.1	0.8	1.1	4.1	1.4
SEX - %											
Male	67.8	71.2	72.0	73.2	53.2	66.7	54	69.3	60.5	44.1	53.8
Female	32.2	28.8	28.0	26.8	46.8	33.3	46	30.7	39.5	55.9	46
AGE AT ADMISSION - %											
12 - 17	9.9	2.8	7.2	24.6	1.4	8.3	0.7	3.9	1.6	1.7	19.3
18 - 25	29.2	19.8	30.1	41.5	23.7	83.3	9.4	24.1	30.8	29.8	30.7
26 - 45	44.5	46.2	46.9	29.5	63.2	0	60.7	57.6	48.2	53.7	38.3
46-65	16	29.5	15.6	4.4	11.6	8.3	29.2	14.4	19.4	14.6	10.8
>=66	0.5	1.8	0.1	0	0	0	0	0	0	0	0.4
RACE - %											
White	86.0	90.2	86.0	79.4	93.5	100	61.7	66.5	80.6	94.9	89.4
Blacks	8.4	4.3	7.8	14.6	1.2	0	34.3	24.5	15.4	2	5.1
Natives	1.2	1.1	1.9	0.9	1.4	0	1.3	0	1.1	0.4	0.6
Asians	0.4	0.7	0.5	0.2	0.3	0	0.3	2.3	0.8	0.2	0
ETHNICITY - %											
Hispani cs	4.9	5.2	4.3	6.5	3.1	8.3	3.1	7.8	3.4	1.9	3.2

Notes: Subst.= Substance; Alc.= alcohol; Mar.= marijuana; Meth. = Methamphetamine; Amph. =Amphetamine; Cocc.= cocaine; Minorities include Blacks, Native-Americans and Hawaiians, Asians and Pacific Islanders; Percent are Column percent;

Adult Consumption Patterns

At the State level

Consumption Indicator (NSDUH):

Past month alcohol use and Binge drinking are assessed in the NSDUH by asking two questions. For past month alcohol use: *“During the past 30 days, on how many days did you drink one or more drinks of an alcoholic beverage?”* and for Binge drinking: *“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.”* When a respondent reports at least one day within the last 30-day in either questions, he was considered a current or a binge drinker.

The 2008-2009 NSDUH estimated approximately 1,408,000 (56.7%) compared to 1,339,000 - (54.0%) in 2007-2008 of Iowa residents 12 years of age or older had used alcohol during the past month. However, in terms of statistical significance, alcohol drinking is stable. Likewise with 710,000 (28.6%) of Iowans reporting binge drinking on alcohol during the past month in 2008-2009, compared to 674,000 (27.2%) in 2007-2008, binge drinking demonstrated a tendency for increase without any statistical difference. The prevalence of binge drinking in Iowa was still significantly higher than the nation, whose prevalence did not change (23.3% in 2007-2008 compared to 23.5 in 2008-2009). In terms of the ranking of point prevalence estimates, Iowa was among the five states with the highest reported binge drinking prevalence. When considering whether the differences in prevalence were significant, Iowa tied with 29 states with highest prevalence.

Perception of risk is protective intervening variable in SA prevention. 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?”* Compared to the nation, Iowans had a significant lower perception of great to moderate risk of binge drinking than the national average with a tendency for decreasing proportion. The 2008-2009 NSDUH report estimated that only 34.5% (compared to 37.0% in 2007-2009) 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. Although the Iowa rate remained comparable to previous years, it was 18% lower than the national rate of 41.9%. These results showed that alcohol use is not deemed as high of a risk in Iowa as it is across the nation.

Current Consumption (BRFSS):

In 2010, 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. Based on estimates from the 2010 BRFSS findings,

alcohol use among men and women is not significantly different in Iowa compared to the nation. There seems to be an increase in past-month alcohol consumption in the nation associated with a decreasing trend in Iowa (Figure 2).

The age groups that reported the highest percent of past 30-day alcohol use include 25-34 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 only significantly different among the 25-34 and 45-54 age groups (Table 2).

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 (66%) compared to those who had less than HS education (30%) or HS diploma/GED (48%) or some post-HS education (58%). Compared to previous years, there was a decreasing trend in of past-month alcohol use across the spectrum of SES proxies among Iowans. Compared to the nation, there was no difference in the proportion of 30-day alcohol users between the state and the nation by SES proxies (Table 3).

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

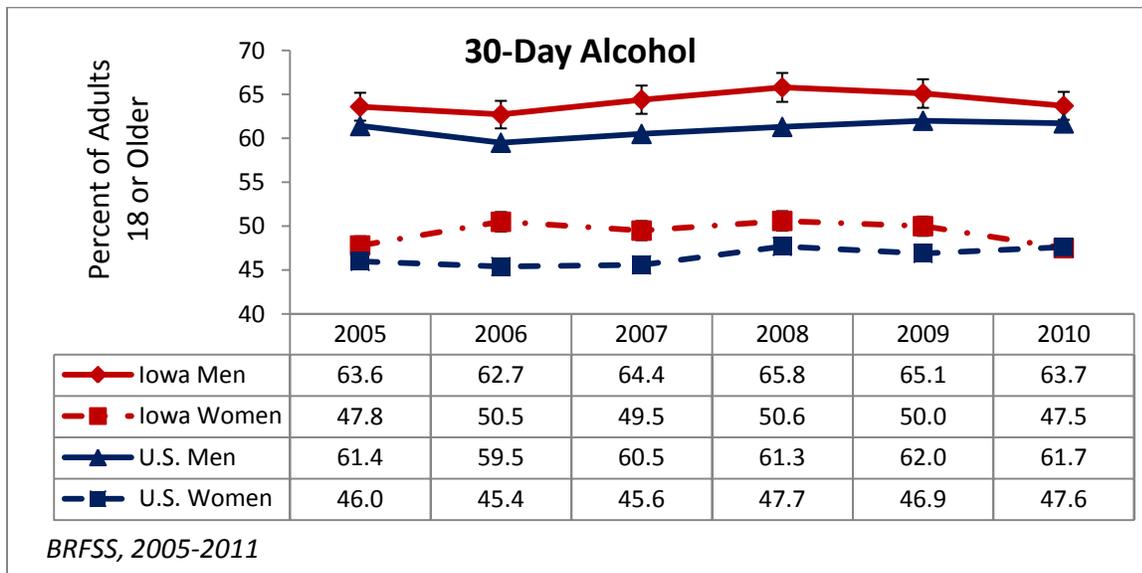


Table 2: Percent Reporting Past-30-Day Alcohol Use by Age, BRFSS 2007-2010

Year	2007		2008		2009		2010	
	Iowa	Nation	Iowa	Nation	Iowa	Nation	Iowa	Nation
18-24	52.7	52.6	54.0	49.9	52.6	49.9	48.5	48.3
25-34	69.2	58.0	70.0	60.5	68.3	60.2	66.8	61.0
35-44	66.7	58.2	67.2	60.5	67.2	60.3	63.7	60.2
45-54	61.5	55.8	61.5	58.5	64.3	57.6	62.0	57.7
55-64	55.3	50.8	54.9	53.5	56.5	54.1	54.3	53.6
65+	36.1	39.4	39.2	40.7	36.8	41.0	37.4	40.5

Table 3: Percent Reporting Past-30-Day Alcohol Use by Education Level Achievement and Income, BRFSS 2007-2010

Proxy- SES	2007		2008		2009		2010	
	Iowa	Nation	Iowa	Nation	Iowa	Nation	Iowa	Nation
Education								
Less than H.S.	34.2	34.9	32.3	38.3	30.7	29.3	30.6	30.9
H.S. or G.E.D.	46.7	50.4	46.3	51.6	45.7	50.6	48.1	44.7
Some post-H.S.	56.5	57.8	55.3	59.5	56.3	60.7	57.7	54.2
College graduate	65.4	70.5	66.2	68.3	66.1	68.9	66.3	66.3
Income								
Less than \$15,000	33.5	31.6	32.4	39.2	31.5	40.4	30.5	32.1
\$15,000- 24,999	38.4	37.1	39.2	39.8	39.4	43.4	40.9	38.8
\$25,000- 34,999	47.4	52.5	47.3	51.4	46.7	47.9	50.4	47.2
\$35,000- 49,999	53.7	62.4	53.3	58.4	53.4	59.2	52.8	52.3
\$50,000+	67.4	70.2	66.6	69.4	67.9	68.1	70.2	68.4

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

Binge Drinking (BRFSS):

According to 2010 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 2010, the difference in binge drinking prevalence among Iowa males compared to the nation (25.4% compared to 21.3%) was no longer significant because of a downward trending in Iowa. For Iowa females, the situation remained the same (12.0% compared to 10.6%), (Figure 3).

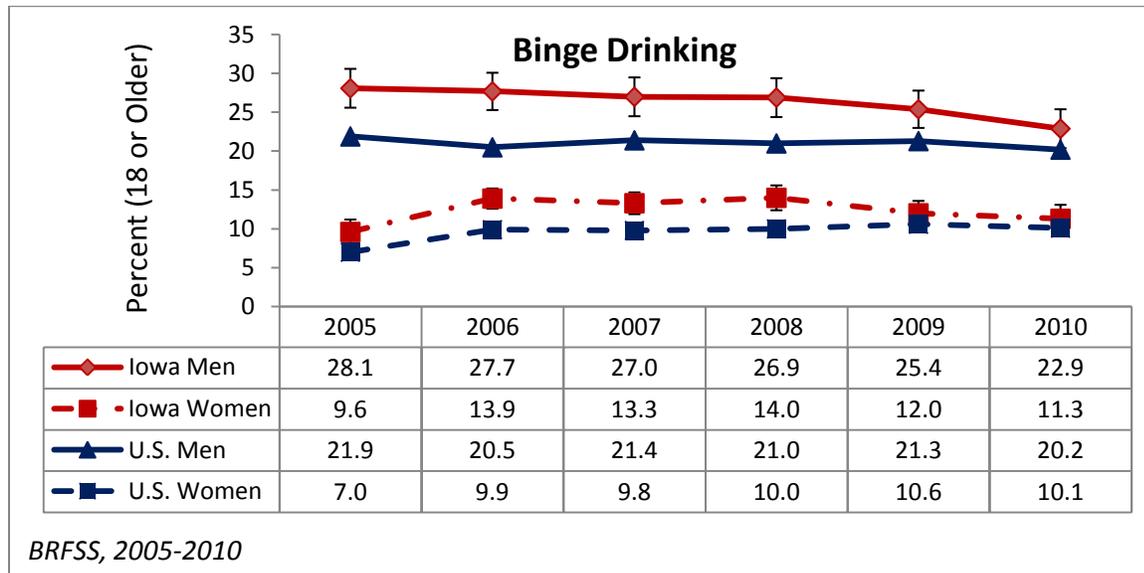
The age-stratified estimates of the proportion of binge drinking among Iowans were not significantly different in younger age groups up to 54 years of age. Among older Iowans, 55 and older, the proportion

of binge drinkers was lower in the 65 and older age group. In 2010, Iowa binge drinking rates were no longer different from the US rates across age groups, except for 45-54 years old (Table 4).

The binge drinking construct, using the ratio of binge drinking and 30-day use, estimated that 52% of 18-24 years old Iowans reporting drinking in the past month were engaged in binge drinking. This proportion of current drinkers who also binge drink decreased as people aged. On a positive note, compared to previous years, the proportion of drinkers who binged has been overall steadily decreasing.

Assessing the effects of SES on binge drinking, Iowans with education level greater than HS were more likely to binge than their US counterparts. In addition, higher level of income was associated with higher proportion of binge drinkers. Above \$50,000 a year, binge drinking in Iowa was more prevalent than in the US (Table 6).

Figure 3: Percent reporting Binge Drinking in the Past Month- 18 and older, BRFSS 2005-2010



Notes: 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; in 2011 changes in methodology prohibit trending

Table 4: Percent Reporting Binge Drinking in the Past Month by Age, BRFSS 2007-2010

Year	2007		2008		2009		2010	
	Iowa	Nation	Iowa	Nation	Iowa	Nation	Iowa	Nation
18-24	30.8	26.5	31.7	24.7	27.6	25.2	27.2	22.4
25-34	31.3	22.7	32.9	23.8	29.3	23.9	25.0	22.6
35-44	26.5	18.0	24.8	18.1	25.2	18.4	21.6	19.1
45-54	20.6	14.3	21.1	14.2	19.4	14.4	18.0	14.9
55-64	10.9	9.0	11.5	8.6	10.9	9.4	10.7	9.5
65+	2.7	3.8	2.8	3.2	2.8	3.5	3.6	3.4

Notes: 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 2010

Percent	Age						Overall
	18-24	25-34	35-44	45-54	55-64	65+	
30-Day Alcohol Use (2010)	48.5	66.8	63.7	62	54.3	37.4	55.4
30-Day Binge Drink	27.2	25.0	21.6	18	10.7	3.6	16.9
Drinkers who Binge Drink - 2010	56.1	37.4	33.9	29.0	19.7	9.6	30.5
Drinkers who Binge Drink - 2009	52.5	42.9	37.5	30.2	19.3	7.6	32.2
Drinkers who Binge Drink - 2008	58.7	47.0	36.9	34.3	20.9	7.1	35.1

Notes: Drinkers who Binge Drink is a construct obtained by dividing the 30-day Binge Drink by the 30-day Alcohol Use percentage;

Table 6: Percent Reporting Binge Drinking by SES proxies, Education and Income level, BRFSS 2007-2010

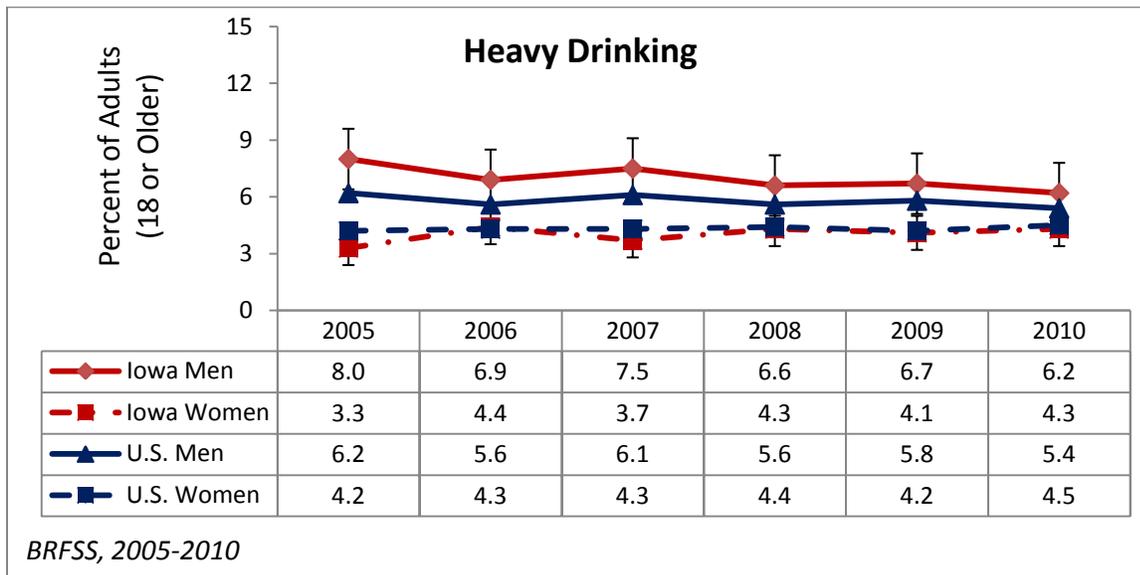
Characteristics	2007		2008		2009		2010	
	Iowa	Nation	Iowa	Nation	Iowa	Nation	Iowa	Nation
Education								
Less than H.S.	13.6	13.3	12.1	12.2	9.9	11.6	10.8	11.8
H.S. or G.E.D.	18.4	16.0	20.5	15.7	18.9	15.5	15.0	14.8
Some post-H.S.	22.3	16.5	23.1	15.7	21.0	16.3	19.2	16.1
College graduate	21.3	14.1	19.0	14.8	17.8	14.8	18.2	14.7
Income								
Less than \$15,000	11.0	11.0	20.0	10.9	19.7	11.1	7.9	10.9
\$15,000- 24,999	14.3	12.7	12.5	12.9	15.8	12.6	14.1	12.3
\$25,000- 34,999	18.3	14.7	15.5	12.9	13.9	14.3	13.4	13.4
\$35,000- 49,999	22.0	16.4	20.8	16.1	19.3	15.1	16.5	14.2
\$50,000+	25.4	17.9	25.5	17.8	21.3	18.4	21.5	18.1

Notes: H.S= High School, G.E.D= General Education Diploma, bolded values are statistically significant from the nation; in 2011 changes in methodology prohibit trending;

Heavy Drinking (BRFSS):

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.” As in previous years, 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 also not different (data not shown).

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



Notes: In 2011 changes in methodology prohibit trending

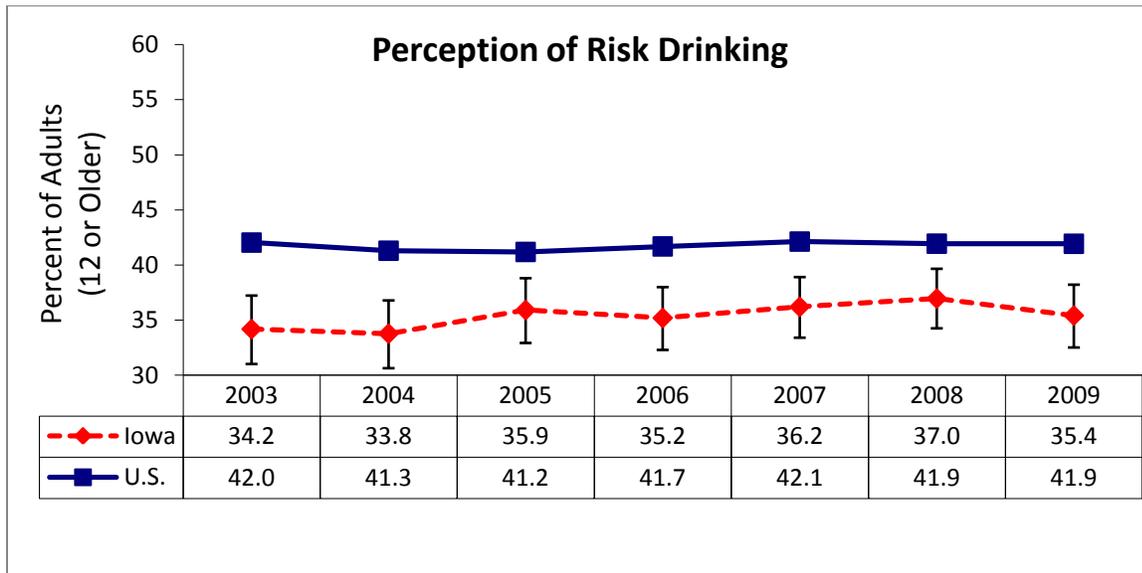
Other Consumption Indicators:

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 except for 2010 where it is stable (Figure 6). On average in Iowa, alcohol sales amount to two gallons per person for a total over 4,000,000 gallons.

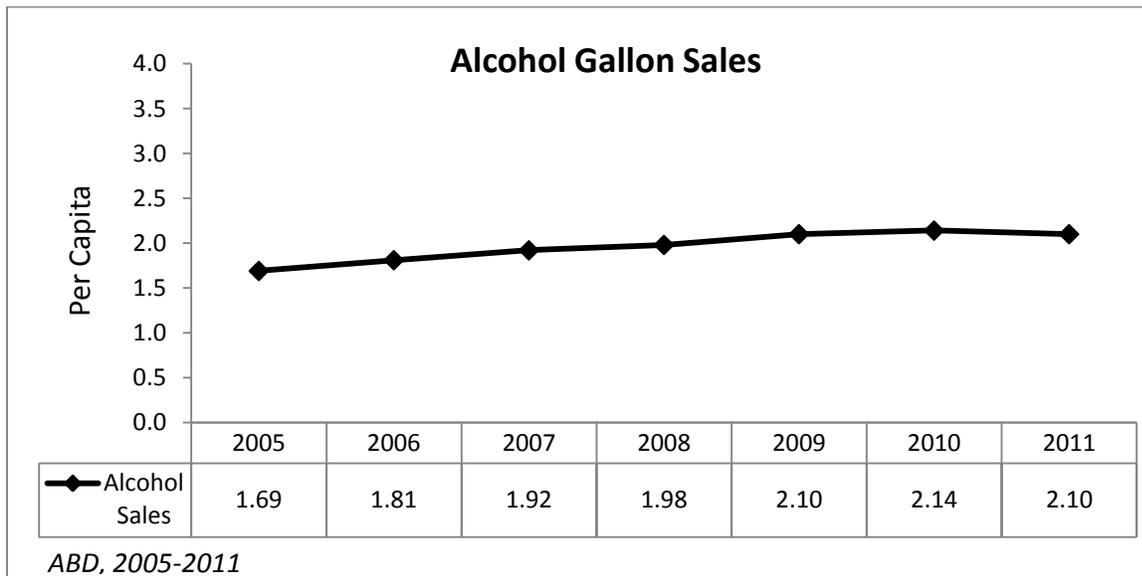
Men are more likely than women to be current alcohol users, to engage in binge or heavy drinking. This gender effect occurs at both state and national levels. Data on Alcohol use by pregnant women are no longer collected as of January 1, 2007 due to questions regarding accuracy. Due to the small number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

Figure 5: Percent Reporting Perception of Great Risk of Drinking five or more Drinks once or twice a week-12 and Older, NSDUH - 2003-2009



Notes: CI allows for comparison between Iowa and US; differences in perception of risk are significant

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



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

At the County Level

The current alcohol and binge drinking prevalence, maps of alcohol use and binge drinking were produced with the combined BRFSS 2007-2010. Counties were stratified into quintiles. The proportion of people reporting current use (30-day) was higher in northern edges of the state (Figure 7). Several

counties on the northern edge of the state were among the highest quintile for binge drinking. 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 and 2010. 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).

Despite the change in methodologies in presenting the maps, no major differences were noted compared to using classic standard deviations in the classification of the percent distribution.

Figure 7: Percent Distribution of Adults Reporting Current Drinking by County - BRFSS 2007- 2010

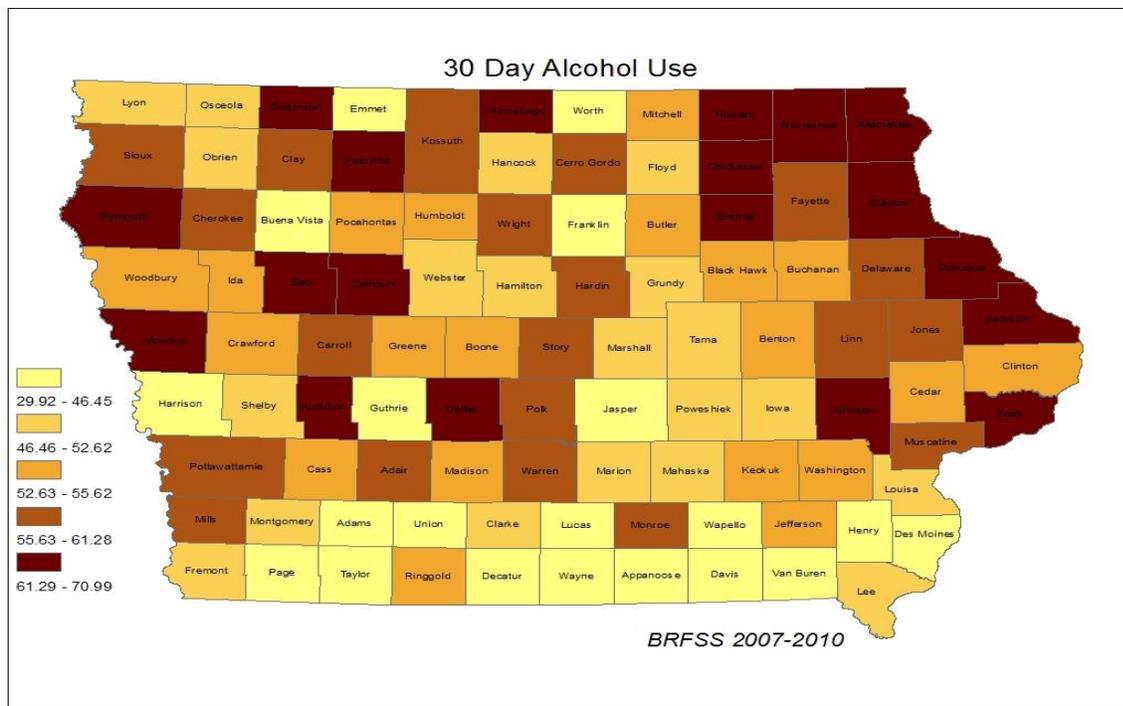
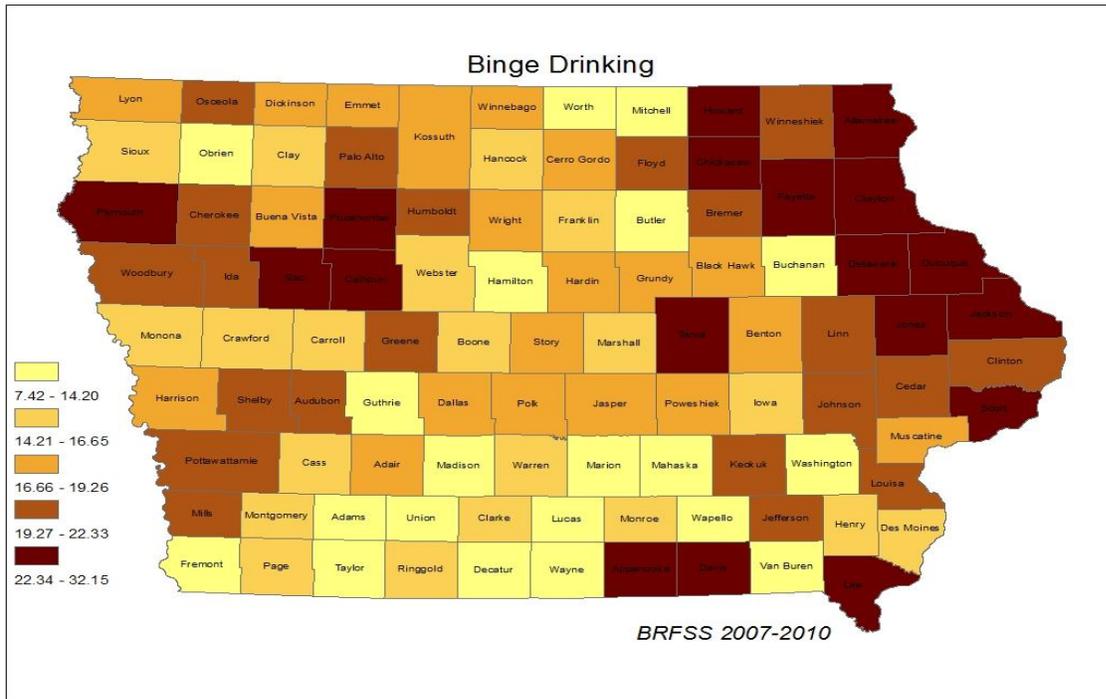
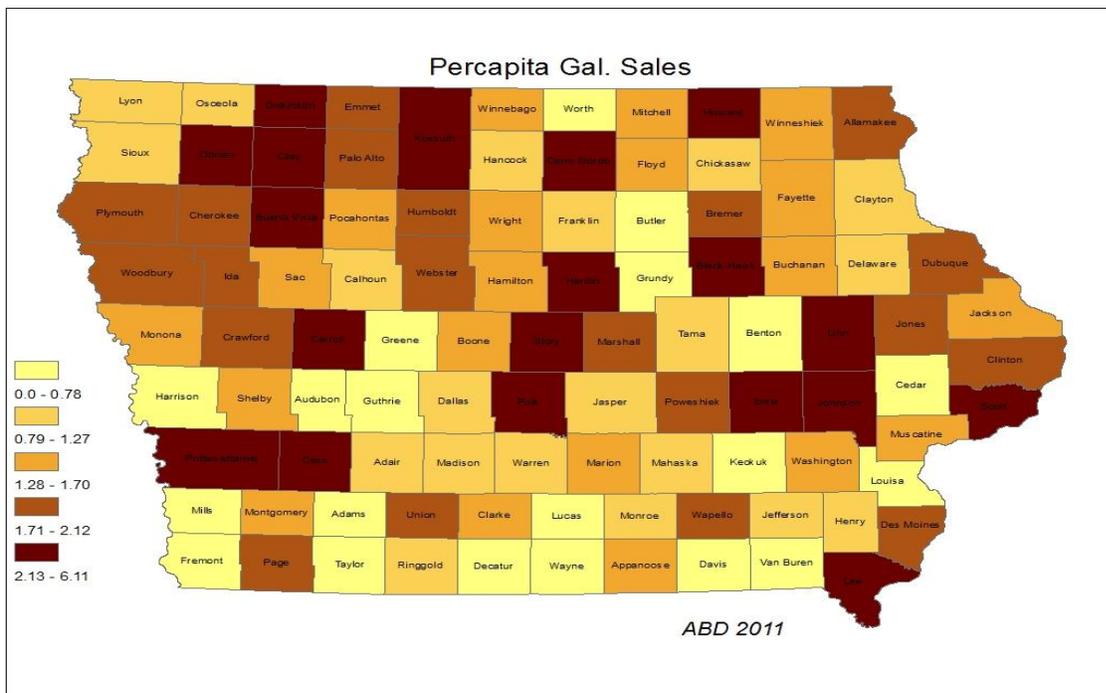


Figure 8: Percent Distribution of Adults Reporting Binge Drinking by County – BRFSS 2007- 2010



Notes: 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, 2011



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 20% decrease in participation rate. The students came from 338 schools (307 public and 31 private) equivalent to 14% decrease in the number of schools enrolled. 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 related to 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.

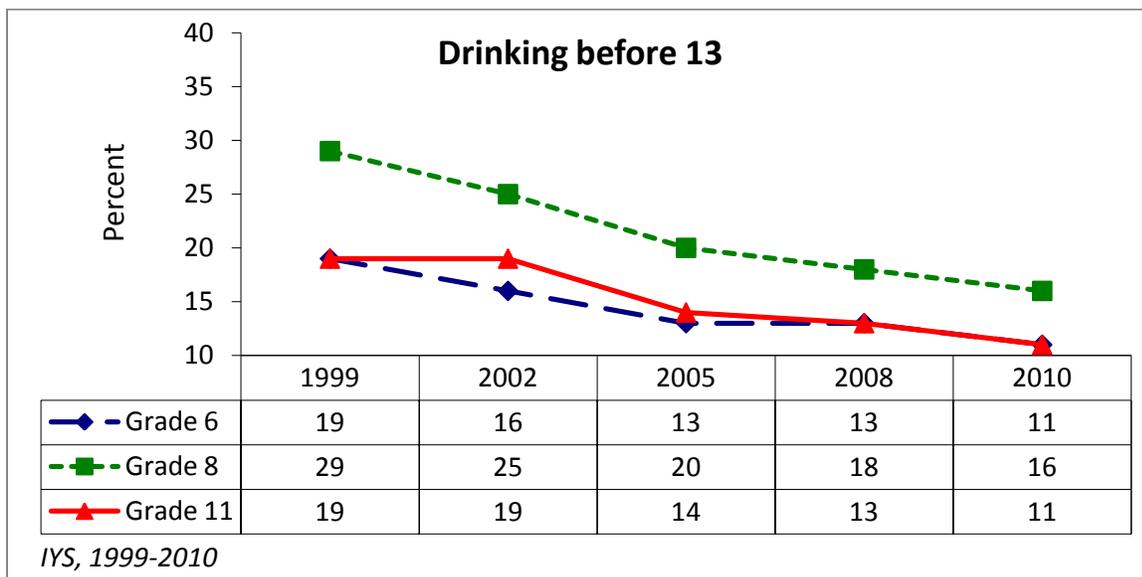
Past month or 30-day alcohol use is assessed by asking the students "*In the past 30 days, on how many days have you: Had at least one drink of alcohol (glass, bottle or can of beer; glass of wine, liquor or mixed drinks)?*" The proportion of students who responded one or more days has been steadily 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%).

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 6th, 8th, and 11th-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.

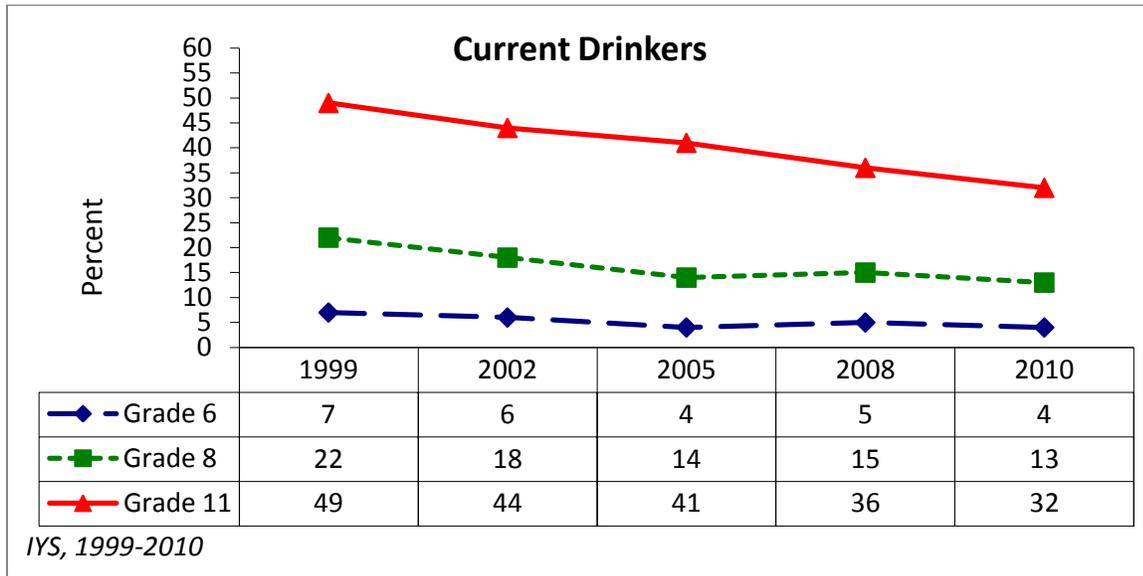
The IYS perceived risk of alcohol use question reads as follows: “*How much do you think you risk harming yourself (physically or otherwise) if you: Drink 3 or more drinks (glasses, cans or bottles of beer; glasses of wine, liquor or mixed drinks) of alcohol nearly every day?*” The majority of 6th, 8th, 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 perceive greater to moderate risk of alcohol use than males (Table 7). The gender difference remained relatively stable from 1999 to 2010.

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



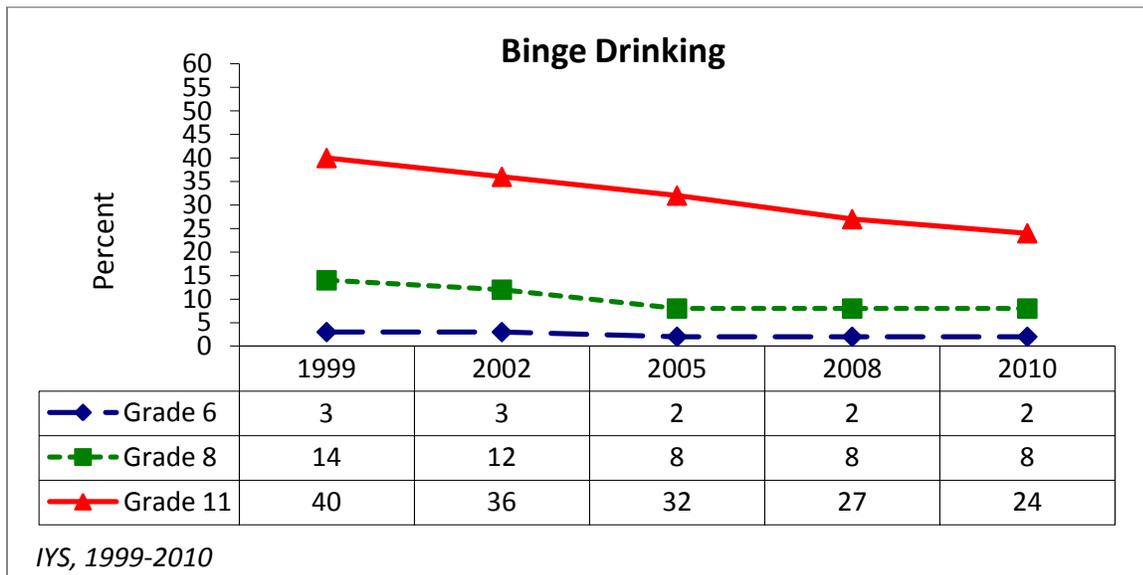
Notes: Error bars are too small to represent and are less than +/- 1%.

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



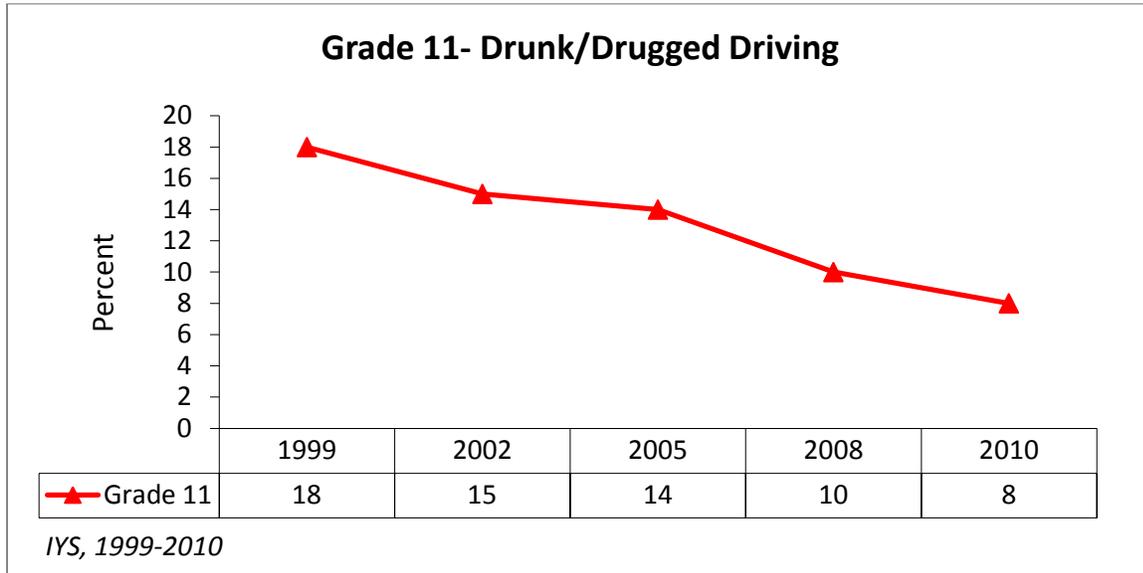
Notes: Error bars are too small to represent and are less than +/- 1%.

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



Notes: Error bars are too small to represent;

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



Notes: Significant decline from 1999;

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

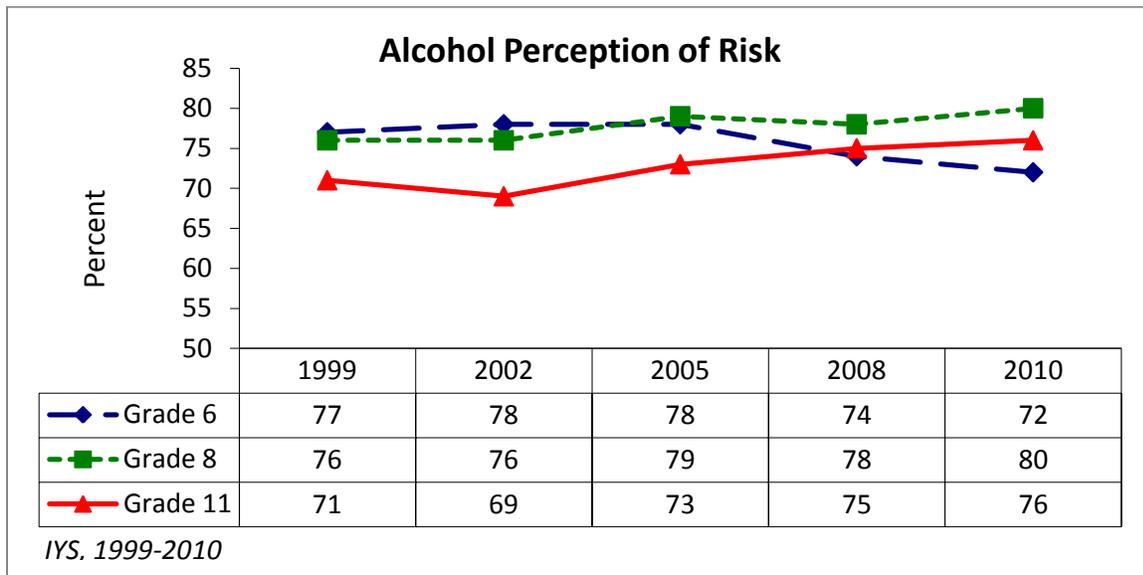


Table 7: Percent Reporting Perceived Moderate or Great Risk of Alcohol Use by Gender, IYS

Gender	Year				
	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 (over 17%) in counties along the northeastern, western, and southern regions. 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 to 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). No correlation were found between the percent of 11th graders in counties and the proportion of student reporting 30 day and binge drinking.

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

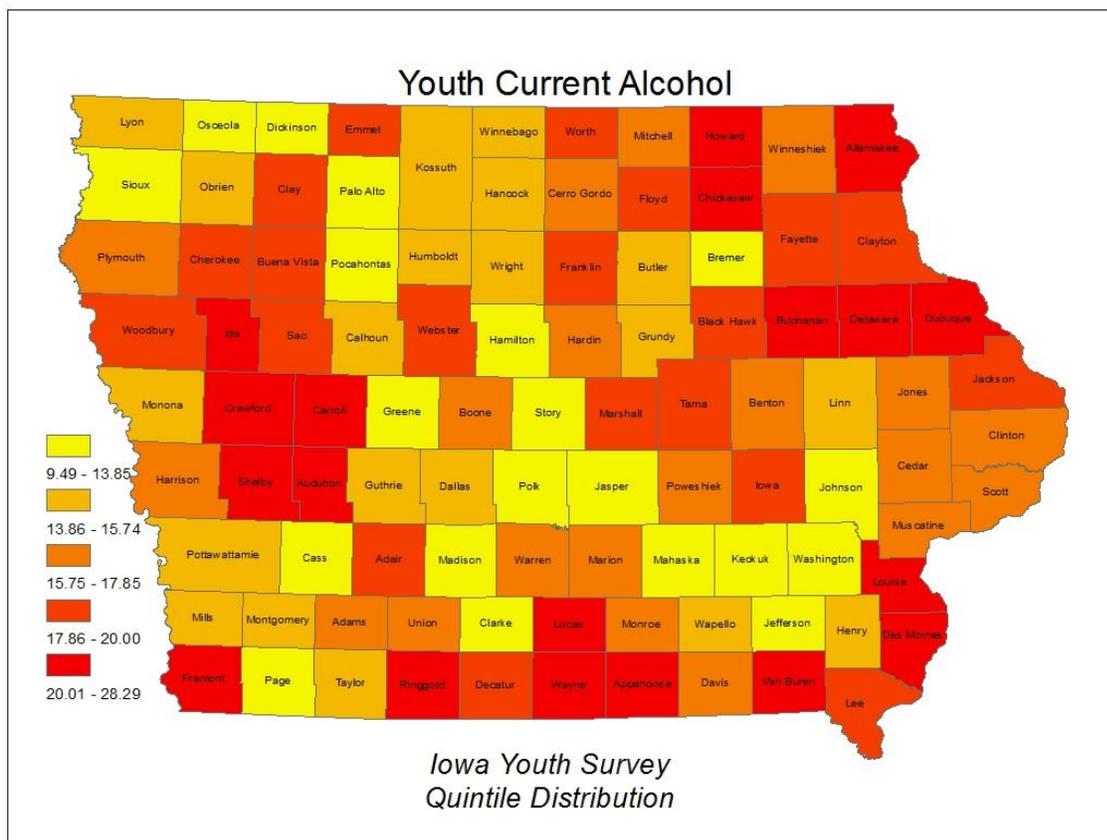
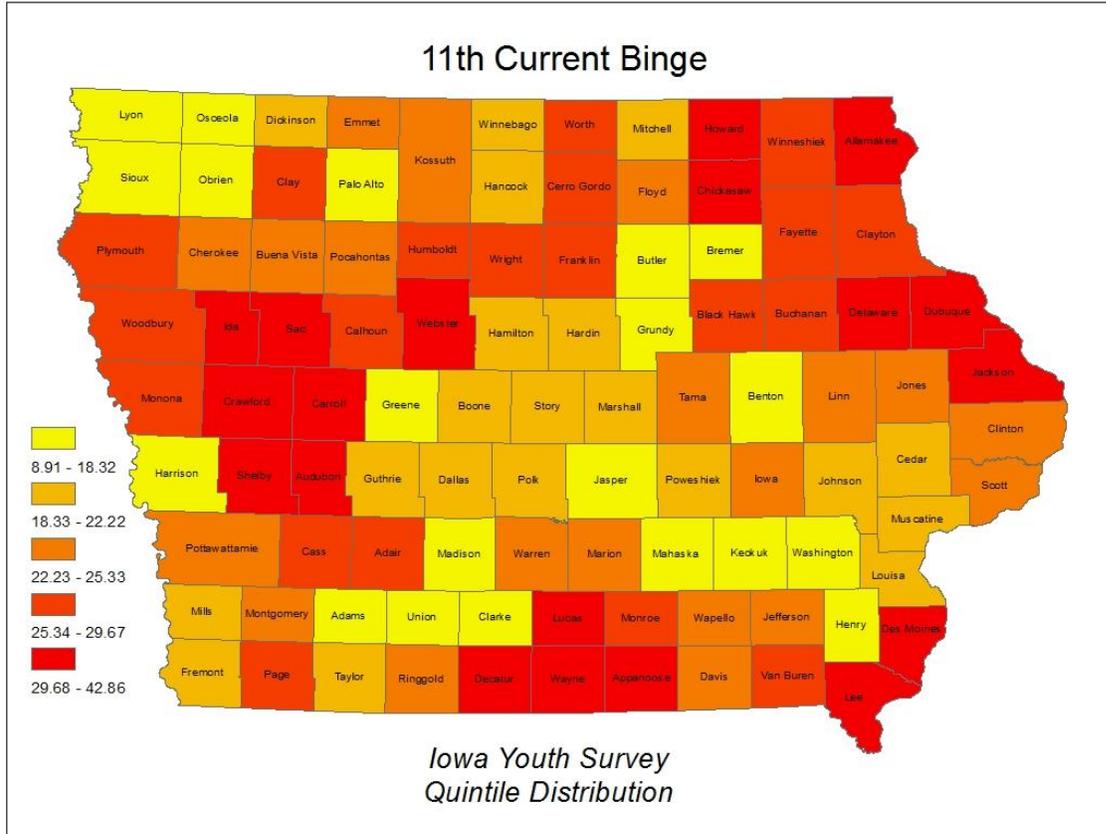


Figure 16: Distribution of Percent of 11th Graders Reporting Binge Drinking by County, IYS 2010



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.

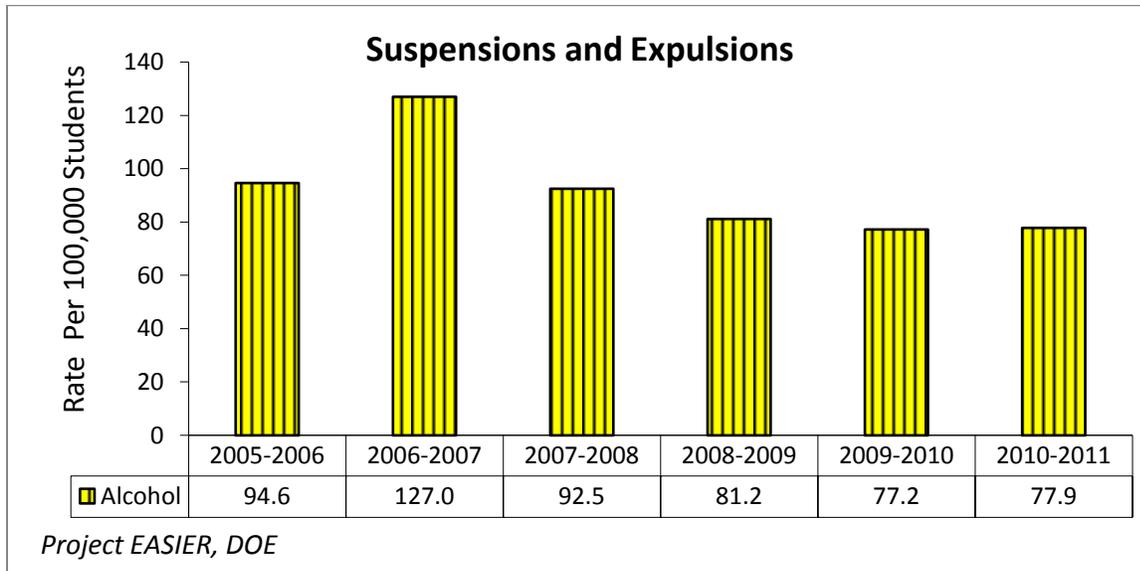
At the State Level

Education Consequences:

Approximately 495,897 youths (compared to 490,417 in 2009) were enrolled in Iowa public schools for 2009-2010 school years (Project EASIER). The removal rates were calculated using the total number of students from K-12 instead of all student population. The overall rate of suspensions and expulsions for

alcohol has been stable from 2008-2009, averaging around 78.8 per 100,000 students (Figure 17). On average, there were 370 alcohol related removals per year from 2008-2009 to 2010-2011 school-years.

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



Notes: The project EASIER has been renamed the Student Reporting System

Legal Consequences:

Drunkness is defined as, *“To drink alcoholic beverages to the extent that one’s mental faculties and physical coordination are substantially impaired.”* Drunkness 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 drunkness offenses.

Nearly 20,000 drunkness and liquor law arrests were recorded in 2009, which corresponded to a 7% decrease from 2008. Since 2004, increases in drunkness arrests were offset by a corresponding decrease in liquor law violation arrests. The FBI UCR that received data from state reporting agencies, showed a 27% decrease in the total number of liquor law violations compared to a 3% increase in drunkness arrests (Table 8). The FBI UCR rate of liquor law violation arrests per 100,000 Iowans, except for the 2009 unexplained increase, has decreased to its lowest level in 10 years. The fact that liquor law violation arrests and drunkness seem to evolve in opposite direction calls for more investigation.

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 liquor law and drunkness arrests were more pronounced among the underage populations. In 2010, the age specific rate of liquor violation arrests among youth decreased significantly while that of drunkness arrest remained unchanged (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 to reach its lowest in 2010 (Figure 20).

Though the terms OWI and DUI (Driving under the Influence) are often used interchangeably, Iowa code referenced OWI. Hence, the profile used 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 decrease in OWI arrests could be better awareness among Iowans of the risk of drunk driving and its consequences, and the zero tolerance policies toward motor vehicle-alcohol offenses, which however may wane after the intervention.

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 associated with 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 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 from 2000-2009 (Figure 21).

Contrary to the reduction in alcohol arrests, the total numbers of alcohol related convictions (including sales to minors) are still on the rise with 21,772 convictions handed to adult Iowans in 2011, which amounted to a 7% increase from the 20,150 in 2010 (Figure 22). The number of convictions for underage possession stayed constant in 2011 compared to 2010 while that of adult increased, reaching its highest since 2004 (Figure 23). The alcohol offense conviction rates per 100,000 adults and youths were stable over the years (Figure 24).

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.

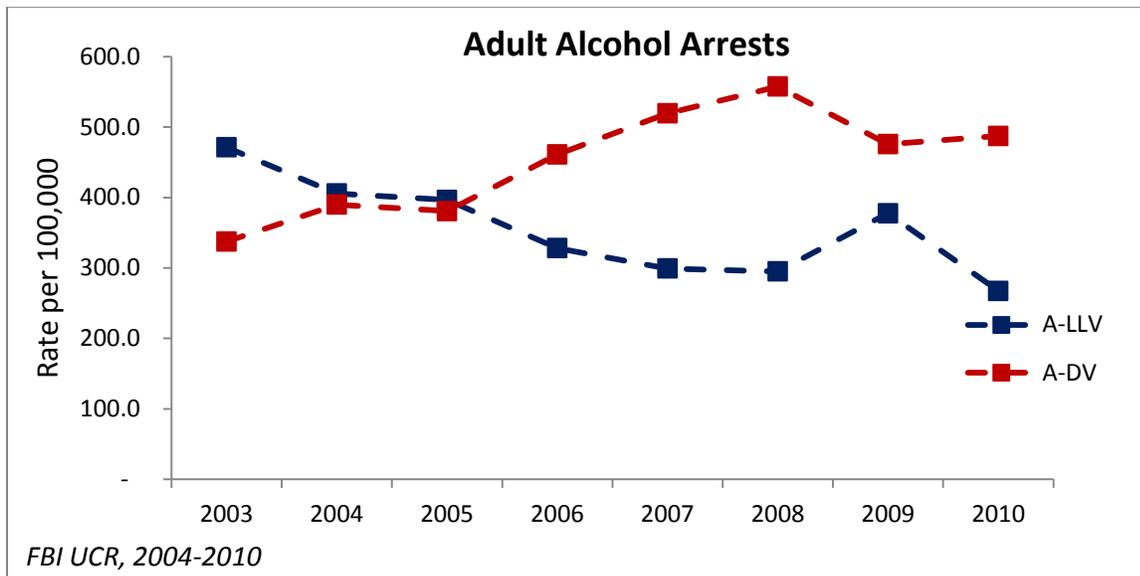
About 95% of prison inmates participated in the interviews from 2006 onward and all prisoners in 2010. For offenders with multiple assessments/reassessments, the assessment that was completed closest to the date of prison admission was chosen. Consistently over the years, 38% of inmates with a completed LSI-R assessment had a current alcohol problem in 2010, labeled as “interference” and over 70% had a lifetime alcohol problem. In 2011 the percent of interference decreased to 36.5% (Table 10). Although, the LSI-R has evidenced, from previous years, a greater proportion of current alcohol interference among

underage (<21), males and Native-Americans prison inmates, the 2011 demonstrated a decrease in relative proportion of interference particularly among males and youths. Interference among minorities remains unchanged (Table 11).

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

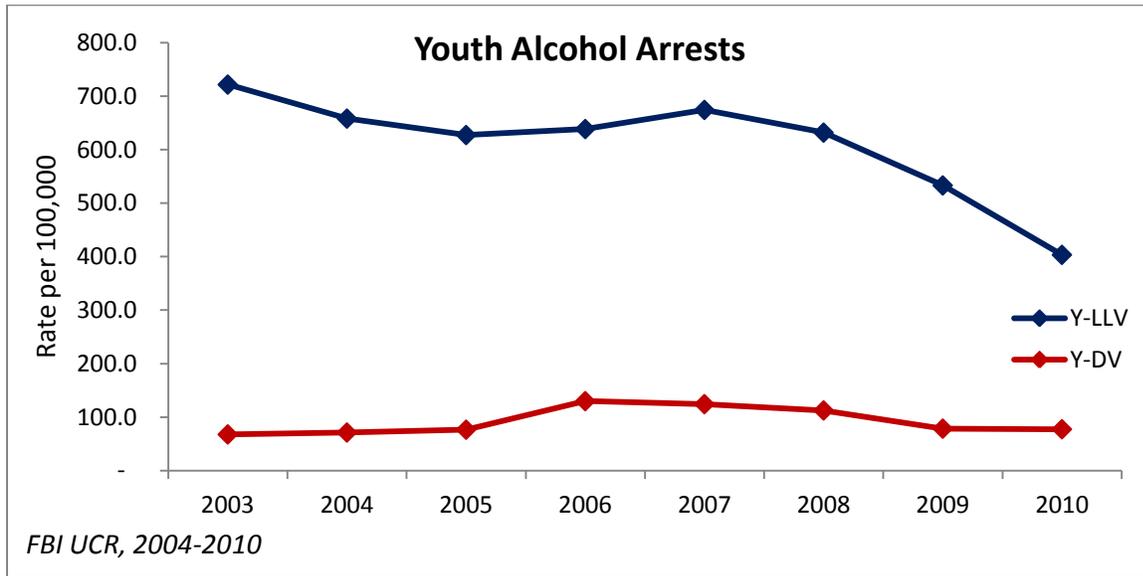
Year	Liquor Law			Drunkenness		
	<18	18+	Total	<18	18+	Total
2004	2,187	9,053	11,240	237	8,702	8,939
2005	2,071	8,890	10,961	253	8,535	8,788
2006	2,093	7,405	9,498	426	10,403	10,829
2007	2,185	6,800	8,985	403	11,802	12,205
2008	2,020	6,758	8,778	360	12,769	12,129
2009	1,683	8,663	10,346	248	10,917	11,165
2010	1,312	6,197	7,509	252	11,297	11,549

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



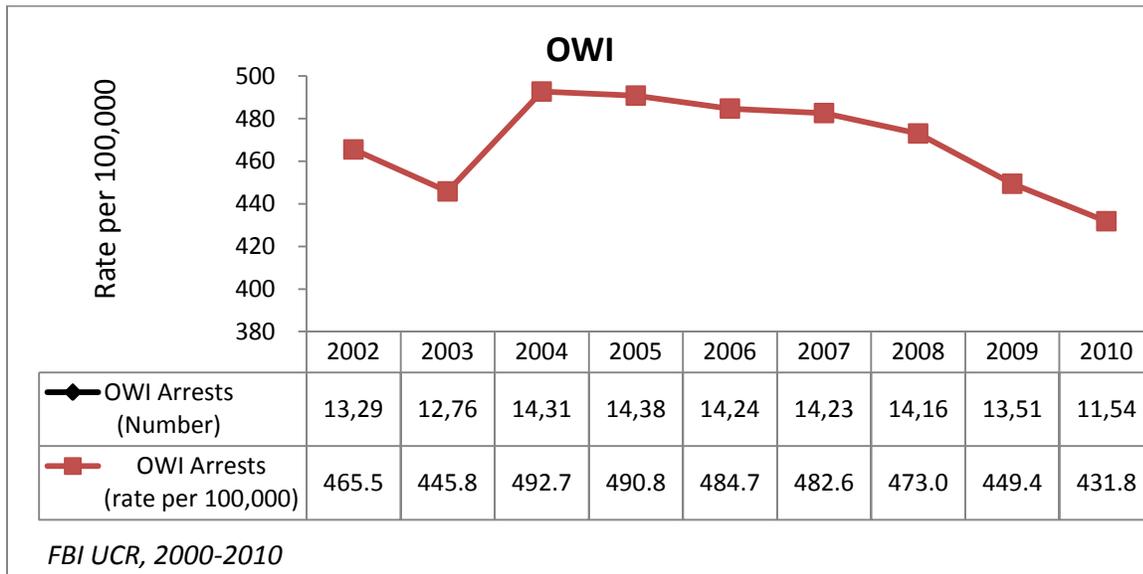
Notes: A-LLV: adult liquor law arrests; A-DV: adult drunkenness arrests; Year-specific population denominator from State Datacenter used for rate calculation (adults: >=18).

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



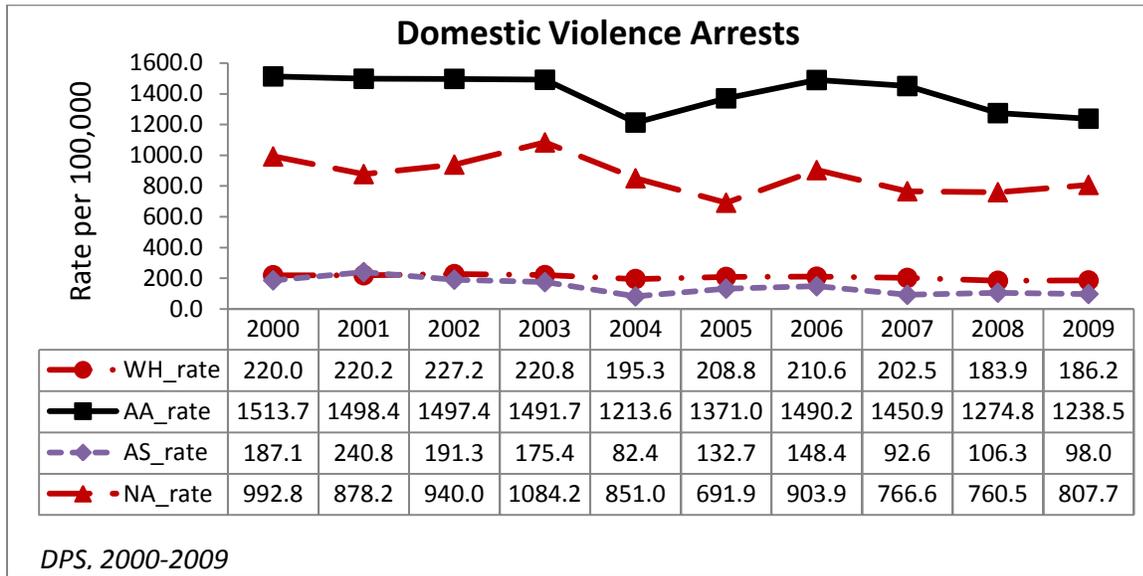
Notes: Y-LLV=Youth liquor law arrests; Y-DV: Youth drunkenness arrests; Year-specific population denominator from State Datacenter used for rate calculation (Youth: 10 to 17).

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



Notes: As of July 1, 2003, the “legal limit” in Iowa is .08 BAC, lowered from .10 BAC; rate calculated from FBI provided population estimates.

Figure 21: Domestic Violence Arrest Rates per 100,000 by Race, DPS



Notes: Race crude 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)

Table 9: Number and Percent of 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

Figure 22: Total Number of Convictions for Alcohol-Related Offenses Including Sales to Minors, JDW

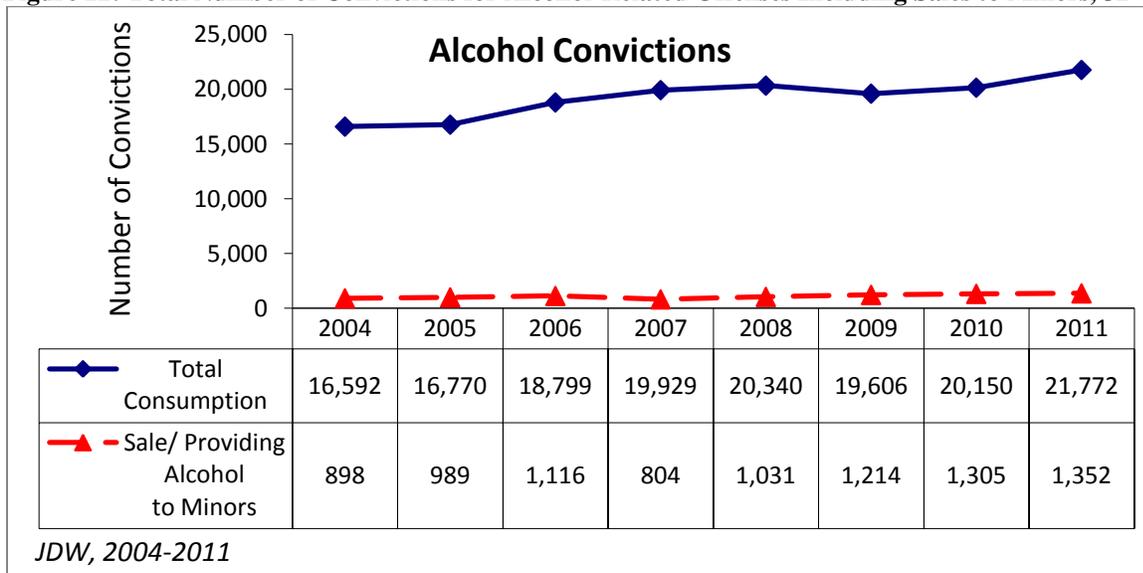
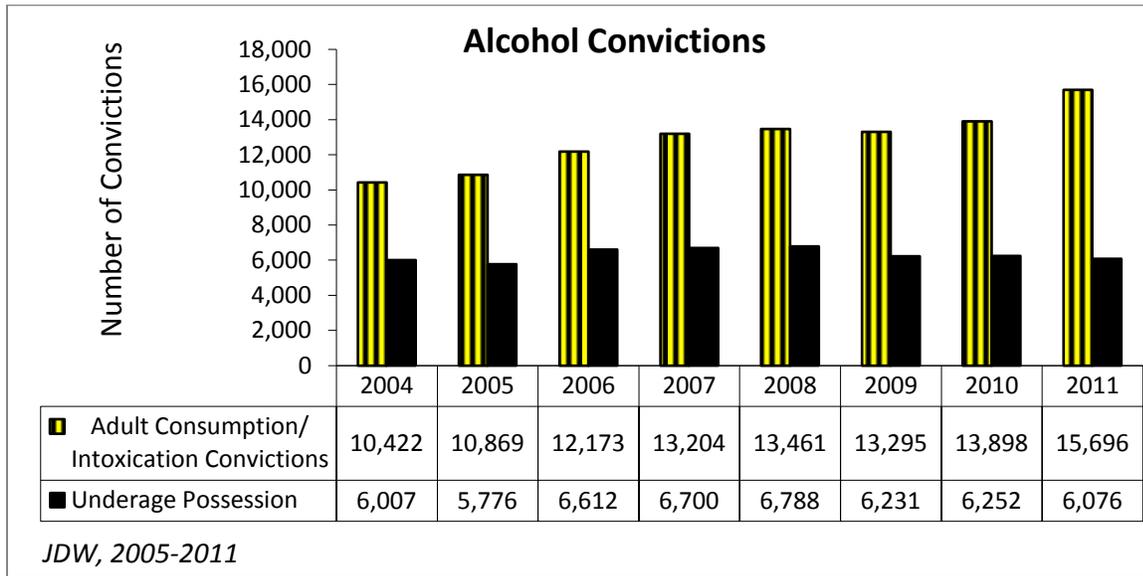
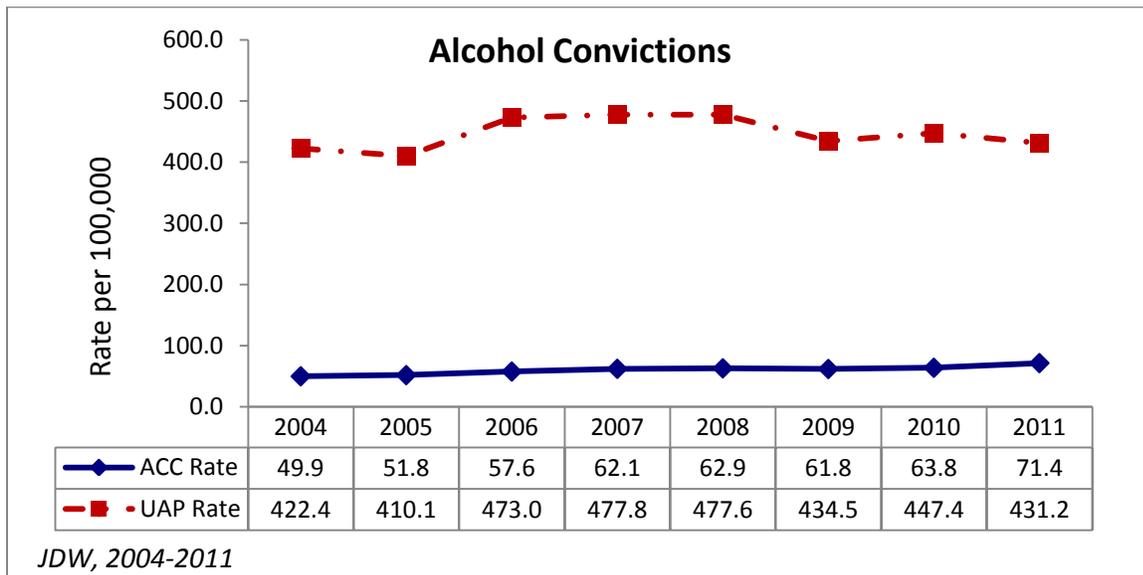


Figure 23: Number of Alcohol Consumption and Underage Possession related Convictions, JDW



Notes: JDW data as provided by CJJP

Figure 24: Adult and Underage Alcohol offense Conviction Rates per 100,000, 2004-2011



Notes: 2010 rates were calculated using Census population (18-20 for underage and GE 21 for adults); for other years, Census population estimates of July 1st from State Datacenter were used.

Table 10: Percent of Prison Inmates with Reported Alcohol Use and Problem, LSI-R 2009-2011

Alcohol Problem, Currently	Percent 2009	Percent 2011	Alcohol Problem, Ever	Percent 2009	Percent 2011
Unknown	0.5%	0.7%	Unknown	0.3%	0.5%
None or No use in past year	32.5%	31.9%	No	28.0%	29.8%
Rare/Infrequent Use	28.6%	30.9%	Yes	71.7%	69.7%
Interference	38.3%	36.5%			
Inmates screened : 8,438 (2009) compared to 7702 (2011)	95.6%	100%			

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

Demographics	Alcohol Problem Currently	Year	Interference N (%)	Rare/ Infrequent N (%)	None or No use N (%)
Age	Adults (>=21) - N (%)	2009	2987 (37.5)	2294 (28.8)	2643 (33.2)
		2011	2633 (36.0)	2265 (30.9)	2379 (32.5)
	Underage (< 21) – N (%)	2009	246 (52.3)	123 (26.2)	100 (21.3)
		2011	175 (46.3)	118 (31.2)	81 (21.4)
Gender	Female – N (%)	2009	221 (31.8)	207 (29.7)	258 (37.1)
		2011	213 (32.4)	220 (33.5)	221 (33.6)
	Male – N (%)	2009	3012 (39.1)	2210 (28.7)	2485 (32.2)
		2011	2595 (37.0)	2163 (30.9)	2239 (31.9)
Race	Whites – N (%)	2009	2317 (38.6)	1700 (28.3)	1955 (32.6)
		2011	1995 (36.6)	1682 (30.8)	1745 (32.0)
	African American – N (%)	2009	803 (36.5)	657 (29.9)	728 (33.1)
		2011	703 (36.5)	650 (32.3)	645 (32.0)
	Native-Americans – N (%)	2009	89 (58.9)	33 (21.9)	29 (19.2)
		2011	88 (58.9)	32 (20.4)	36 (22.9)
	Asians /API– N (%)	2009	24 (28.9)	27 (32.5)	31 (37.3)
		2011	22 (28.9)	19 (25.3)	34 (45.3)

Notes: Percents are row percent; do not equal to 100% because unknowns not shown;

Alcohol Mortality

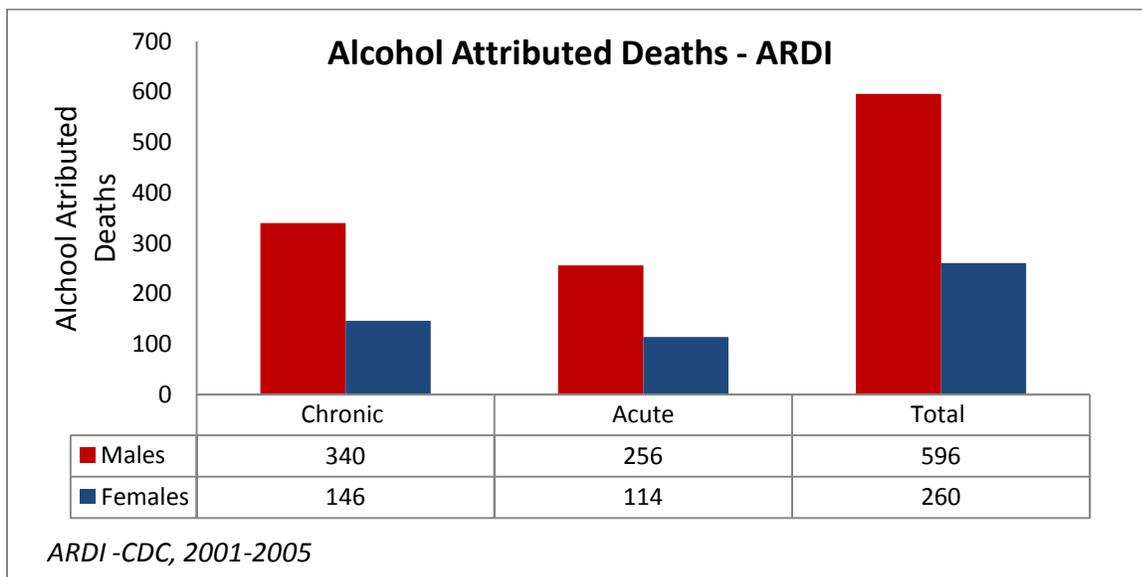
Alcohol Attributed Deaths:

The CDC online application to compute Alcohol Attributable deaths (Alcohol-Related Disease Impact-ARDI) was not updated for this reporting period; therefore no changes were made to the results.⁴ The software uses a two-tiered approach to estimate the total number of alcohol-attributed deaths. First, ICD10 codes were 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 were applied.⁵ Though the software allows import of custom data for local manipulation, the number of alcohol-attributed deaths available in this report was 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-organ 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 25).

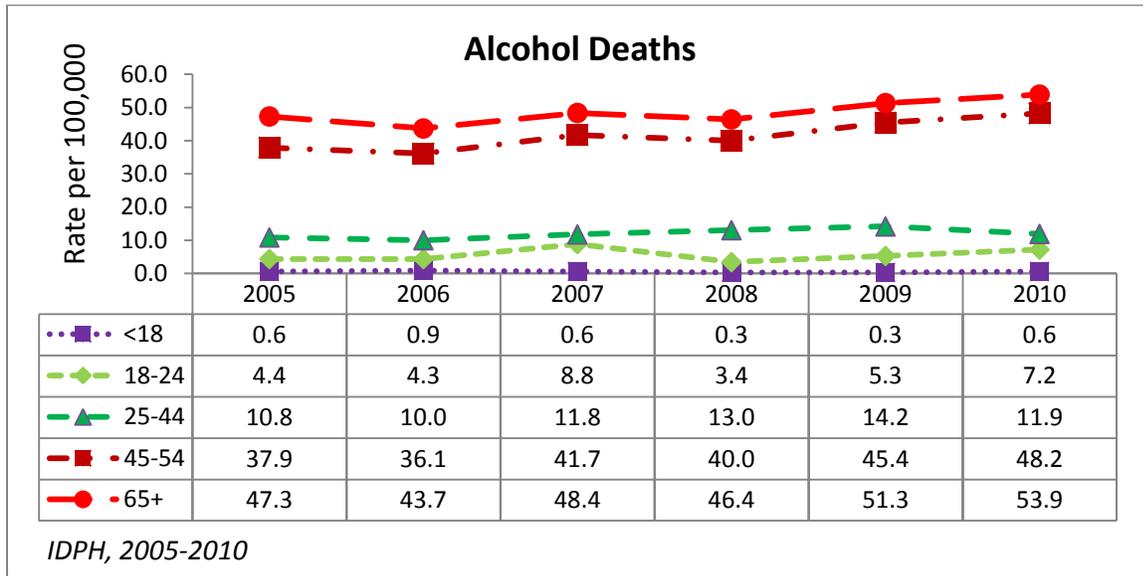
When the analysis of the Iowa death certificate data was limited to the ICD10 codes (100% Alcohol Attributable Fractions) using the legislative updates methodology, the total number of alcohol associated deaths from 2006-2010 averaged 658 (compared to 625- 2005 to 2009). Across levels of age (Figure 26) and gender (Figure 27), 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 28).

Figure 25: Average Number of Alcohol-Attributed Deaths per Year by Gender, ARDI 2001-2005



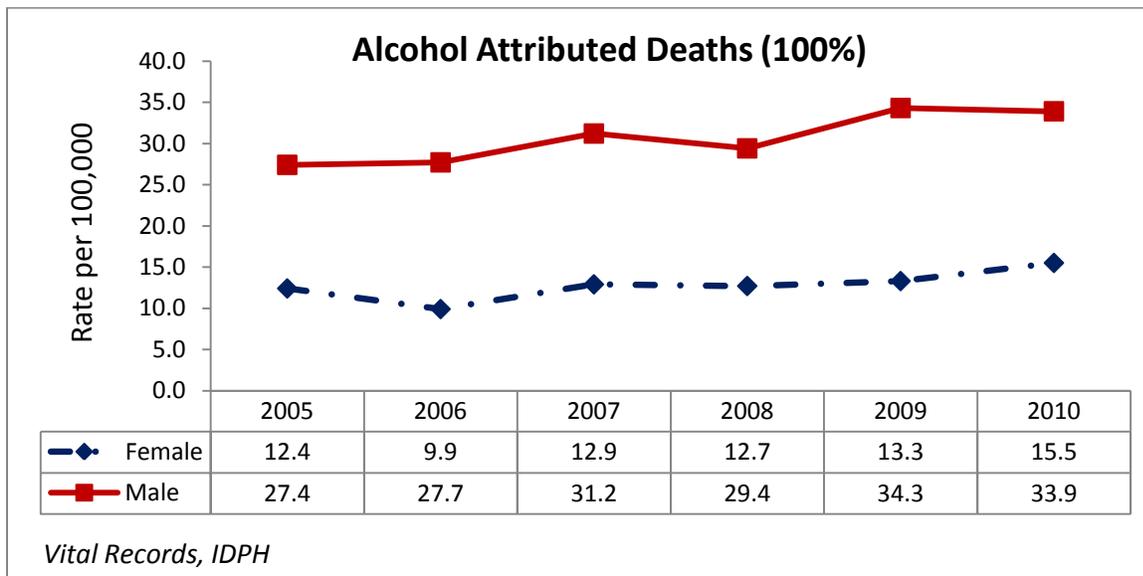
Notes: ARDI=Alcohol Related Disease Impact (CDC);

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



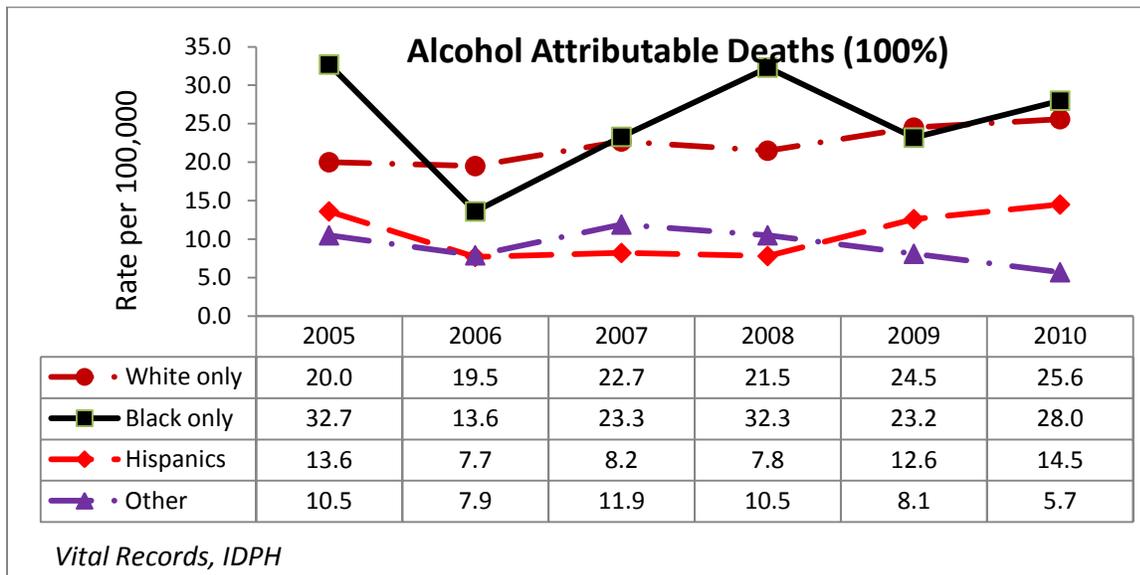
Notes: Year-age specific rates were calculated using census data; <18 corresponded to 10-17 age groups; 21 DX fields queried to match Legislative Updates; ICD10 codes: 'F10', 'I42.6', 'G31.2', 'G62.1', 'K29.2', 'K70', 'K86.0', 'T51', 'X45', 'X65', 'Y15', 'Y90', 'Y91';

Figure 27: Alcohol Associated Death Rates (100% Attributable) by Gender, IDPH Vital Records



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



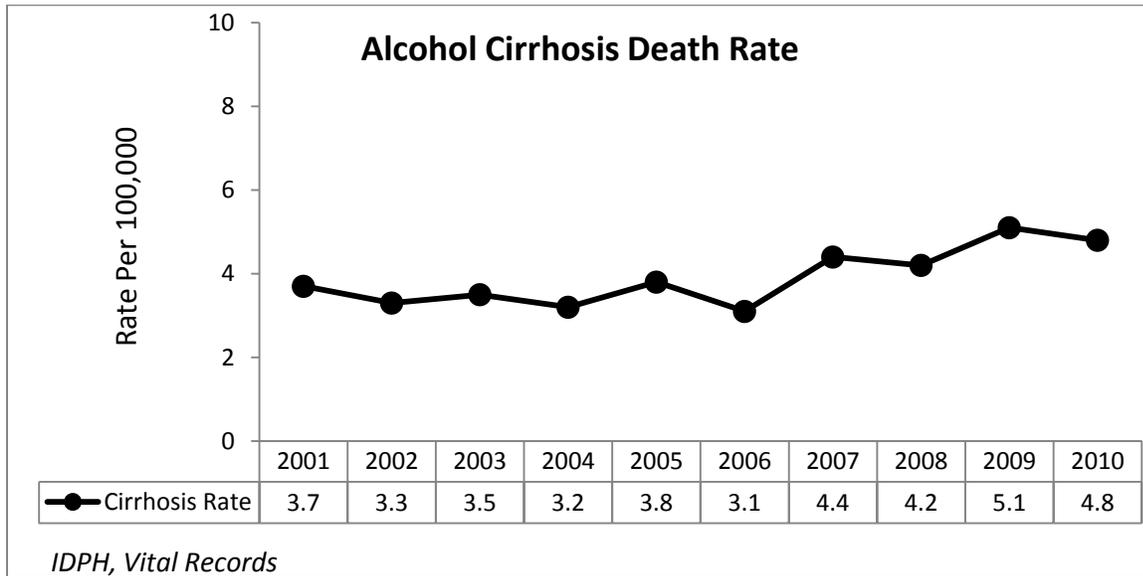
Notes: Other: Asians, Pacific Islanders, Native-Americans, Hawaiians; Unknown race was set as missing; 21 DX fields queried to match Legislative Updates; ICD10 codes: 'F10', 'I42.6', 'G31.2', 'G62.1', 'K29.2', 'K70', 'K86.0', 'T51', 'X45', 'X65', 'Y15', 'Y90', 'Y91';

Alcohol Cirrhosis Deaths:

Compared to 2009, 146 deaths primarily due to alcohol cirrhosis (ICD-10 code K70, underlying cause field only) occurred in 2010, resulting in a death rate of 4.8 per 100,000. Compared to 2001-2005, the 5-year average (2006-2010) showed a 25% increase in the number cirrhosis deaths. Though the rates presented some level of variability over the years, there is evidence of an overall increase at 16% slope (Figure 29).

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 two to three times the risk of dying from alcoholic cirrhosis than females. When the adjusted risk difference of dying from alcohol cirrhosis compared to all other causes of death was modeled using Generalized Linear Modeling (GLM) - controlling for age, race and year - males had 89% excess risk of dying compared to females. Likewise, the crude rate of cirrhosis death seemed to differ among race or ethnic groups but when adjusted for age, gender and year with the inclusion of 2010, Non-Hispanic Whites did not significantly differ from minorities in terms of adjusted excess risk of dying from alcohol cirrhosis. The inclusion in the model of years to test the differences in risk over the years showed significant lower risk of cirrhosis deaths in earlier years until 2007 compared to 2010 (Table 13).

Figure 29: 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: Total Number of Alcoholic Cirrhosis Deaths and Rate per 100,000 by Demographics, Vital Records-IDPH

Demographics	2005 N (Rate)	2006 N (Rate)	2007 N (Rate)	2008 N (Rate)	2009 N (Rate)	2010 N (Rate)
Age						
<18	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
18-24	0 (0.0)	0 (0.0)	1 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)
25-44	14 (1.9)	10 (1.4)	16 (2.1)	18 (2.5)	18 (2.5)	15 (2.0)
45-64	75 (10.2)	60 (7.9)	86 (11.1)	84 (10.7)	106 (13.3)	95 (11.7)
65+	23 (5.3)	23 (5.3)	27 (6.2)	23 (5.2)	30 (6.8)	36 (7.9)
Gender						
Females	32 (2.1)	25 (1.7)	33 (2.2)	37 (2.4)	39 (2.6)	45 (2.9)
Males	80 (5.5)	68 (4.7)	97 (6.6)	88 (6.0)	115 (7.7)	101 (6.7)
Race						
NH Whites	104 (3.7)	87 (3.1)	121 (4.3)	116 (4.1)	143 (5.1)	137 (5.1)
NH Blacks	1 (1.4)	1 (1.3)	5 (6.4)	1 (1.2)	2 (2.4)	2 (2.3)
Other	7 (8.2)	5 (5.6)	4 (4.3)	8 (8.4)	9 (9.1)	7 (2.7)

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

Table 13: Regression Estimates of the Risk Difference of Alcohol Cirrhosis Death, Vital Records – IDPH

Risk Parameters	Estimated Risk Difference	Wald Chi-Square	P. Value
NH Whites compared to Minorities	-19%	2.3	0.129
Male compared to Females	85%	165.4	<.0001
2000 compared to 2010	-50%	13.6	0.000
2001 compared to 2010	-31%	5.7	0.017
2002 compared to 2010	-41%	9.8	0.002
2003 compared to 2010	-36%	7.5	0.006
2004 compared to 2010	-42%	9.8	0.002
2005 compared to 2010	-29%	5.0	0.025
2006 compared to 2010	-44%	10.8	0.001
2007 compared to 2010	-11%	0.8	0.360
2008 compared to 2010	-20%	2.5	0.115
2009 compared to 2010	5%	0.2	0.688

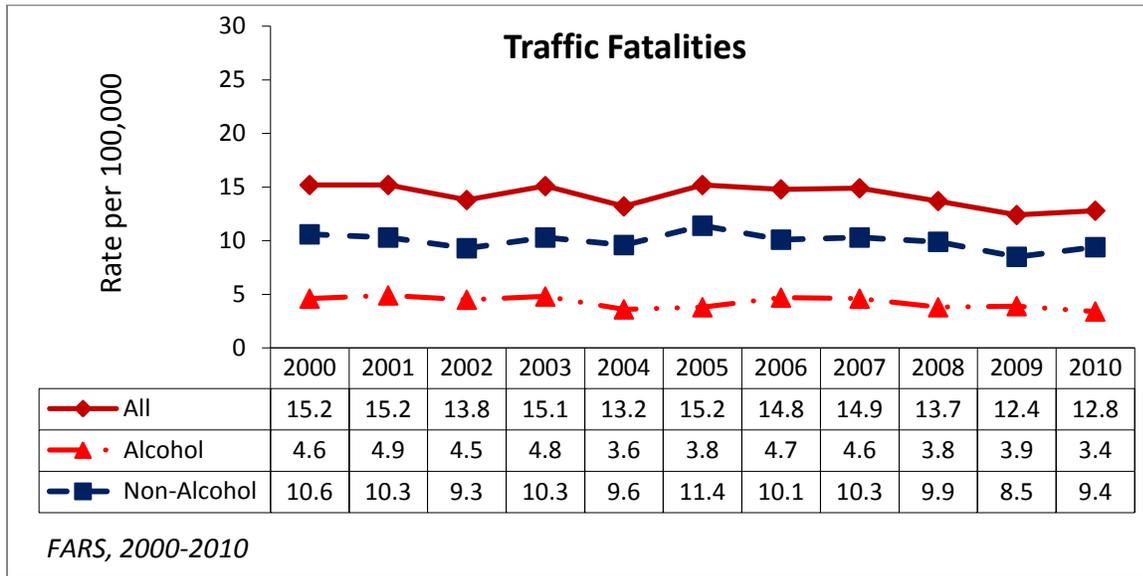
Notes: Modeling the risk of dying from alcohol cirrhosis outcome variable (1= death from alcohol cirrhosis, 0= other deaths) using Generalized Linear Model; Age-adjusted Risk Difference estimates;

Traffic Fatalities:

Between 2000 and 2010, 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. The rates of traffic fatalities have been stable (Figure 30).

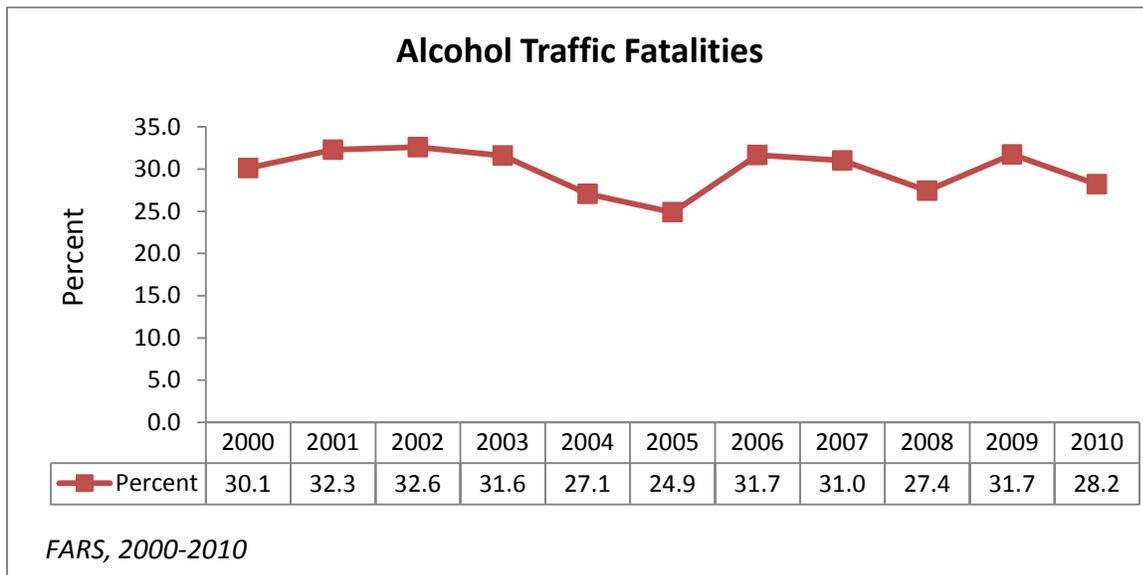
Overall the number of alcohol related fatalities decreased reaching a 10-year low of 372 cases. However, the proportion due to alcohol is remaining relatively constant since 2000, fluctuating around 25 to 30% (Figure 31). In the 10-year period, the percent change (decrease) was much greater for non-alcohol related fatalities (18%) than for alcohol (11%).

Figure 30: Traffic Fatalities Rates per 100,000 Iowans, FARS



Notes: Alcohol fatalities calculated based on BAC. 0.01.

Figure 31: Annual Percent of Fatalities Due to Alcohol, FARS 2000-2010



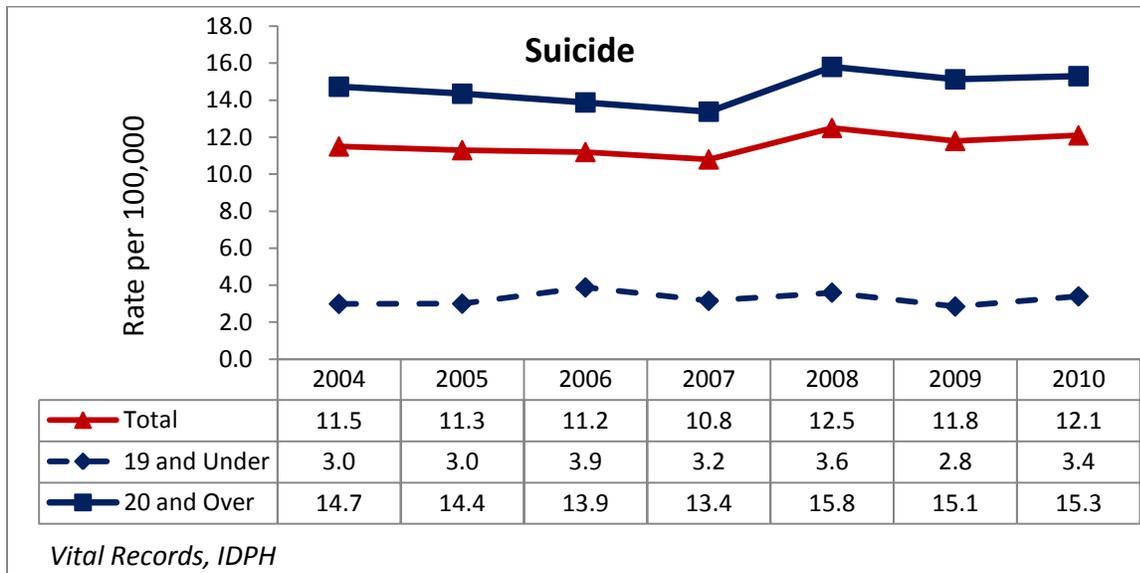
Notes: BAC level was lowered to .08 in 2006;

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. In 2010, there were 369 suicides.

Overall suicide rate, as well as the age-specific suicide rate comparing Iowans younger than 20, remained relatively stable. The 2010 suicide rate was 12.1 per 100,000. Adults over the age of 20 had five times the rate of youth, 19 and younger (Figure 32). Age specific rates point to a higher suicide rate among the 45-64 years old. In 2010, the number of suicide among that age group increased 25% compared to 2009. In fact they constituted almost half of the total number of cases. Males were approximately five times more likely to complete suicide. Whites had a higher rate compared to Blacks (Table 14).

Figure 32: Age-Specific Suicide Rates, IDPH Vital Records



Notes: Icd10 codes= X60-X84, Y87.0

Table 14: Total number of Suicide and Rates per 100,000 by Demographics, VR- 2005-2010

Demographics	2005 N (Rate)	2006 N (Rate)	2007 N (Rate)	2008 N (Rate)	2009 N (Rate)	2010 N (Rate)
Age						
<18	11 (3.3)	21 (6.4)	13 (4.0)	10 (3.1)	9 (2.9)	16 (4.9)
18-24	46 (14.3)	36 (11.2)	34 (11.1)	45 (14.0)	49 (15.2)	35 (11.4)
25-44	120 (16.1)	116 (15.7)	112 (14.8)	137 (18.6)	122 (16.6)	116 (15.5)
45-64	111 (15.0)	118 (15.6)	117 (15.1)	129 (16.5)	114 (14.3)	143 (17.6)
65+	43 (9.9)	39 (9.0)	46 (10.5)	55 (12.5)	62 (14.0)	59 (13.0)
Gender						
Female	76 (5.1)	61 (4.1)	62 (4.1)	71 (4.7)	67 (4.4)	67 (4.4)
Male	255 (17.6)	269 (18.4)	260 (17.7)	305 (20.6)	289 (19.5)	302 (20.0)
Race						
Whites	317 (11.4)	316 (11.3)	307 (10.9)	358 (12.7)	334 (11.8)	350 (12.9)
Blacks	5 (6.9)	10 (13.3)	4 (5.1)	8 (9.8)	3 (3.6)	3 (3.4)

Notes: the death certificate form was changed to reflect different ethnicities making hard to compare with previous years.

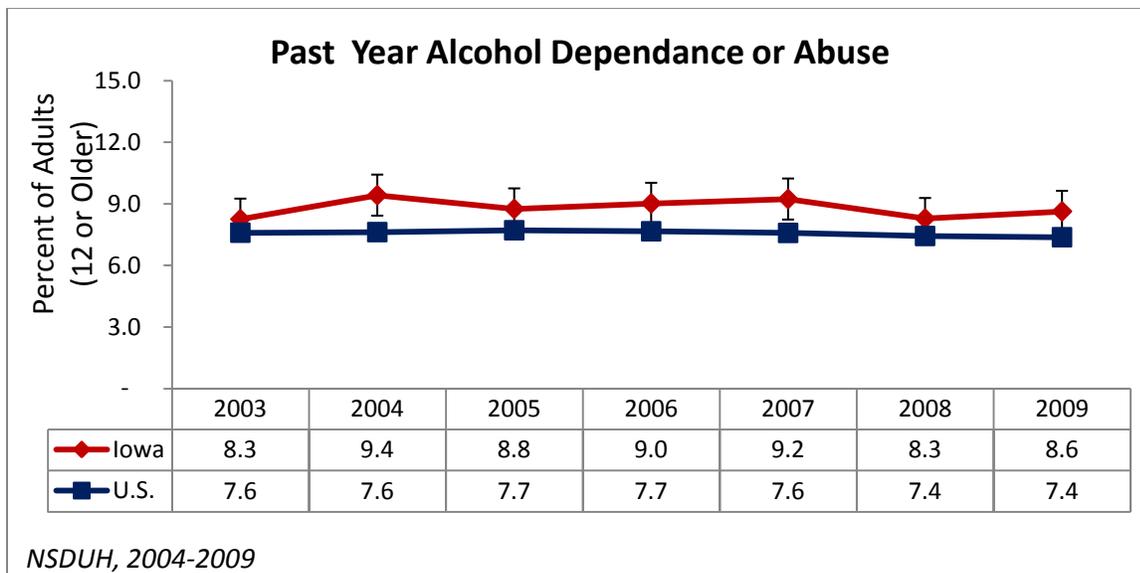
Alcohol Morbidity

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 2008-2009 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 2009 (Figure 33).

Figure 33: Percent of Iowans Reporting Past Year Alcohol Dependence or Abuse - 12 and Older, NSDUH



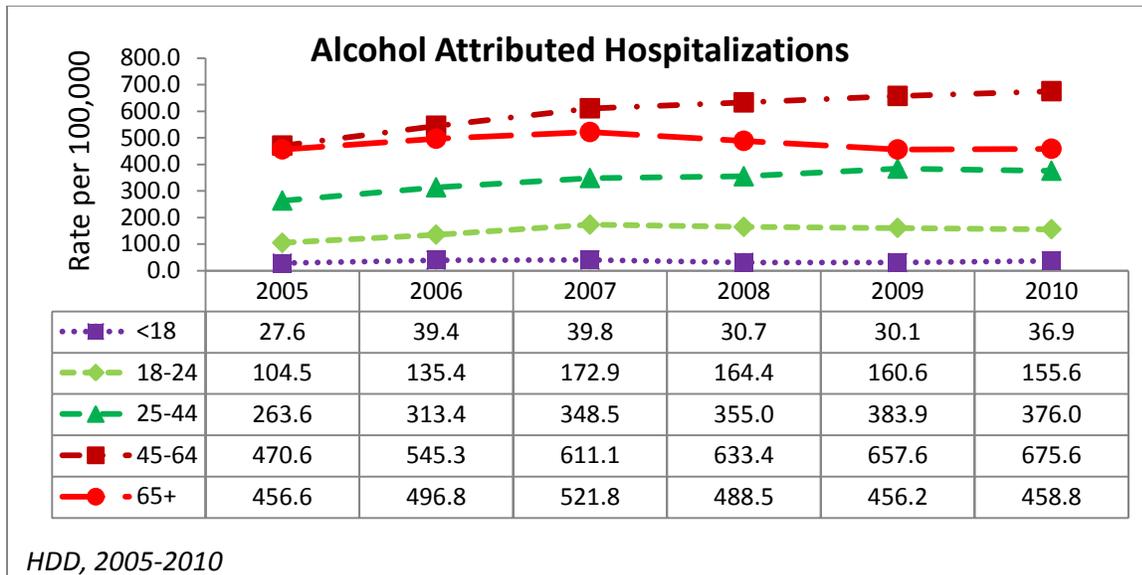
Notes: No difference between Iowa and the US.

Alcohol Attributed Hospitalizations:

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

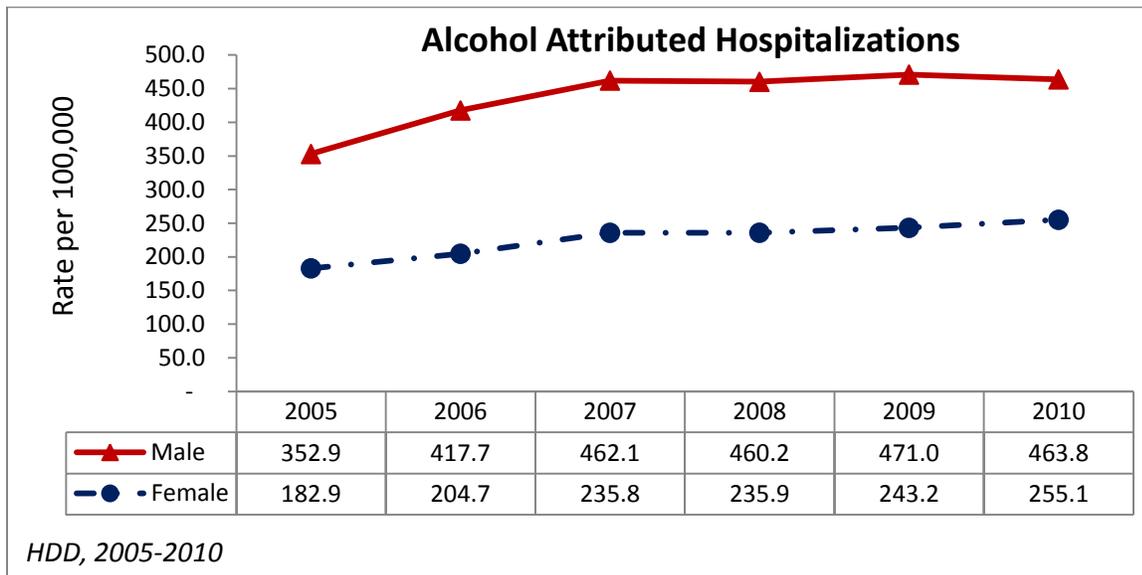
From 2005 to 2009, the total number of hospitalization events 100% attributed to alcohol increased 36% from 7,800 cases to 10,600 in 2010. The hospitalization rates per 100,000 increased with age. Hospitalization rates were highest among the 45-64 and the 65 and older age groups with respective rates of 675.6 and 458.8 hospitalization events per 100,000 (Figure 34). Among those vulnerable age groups, the rates were steadily increasing, especially among the 45-64 age groups. 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 35). Compared to Whites, Blacks had a risk twice higher (Figure 36).

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



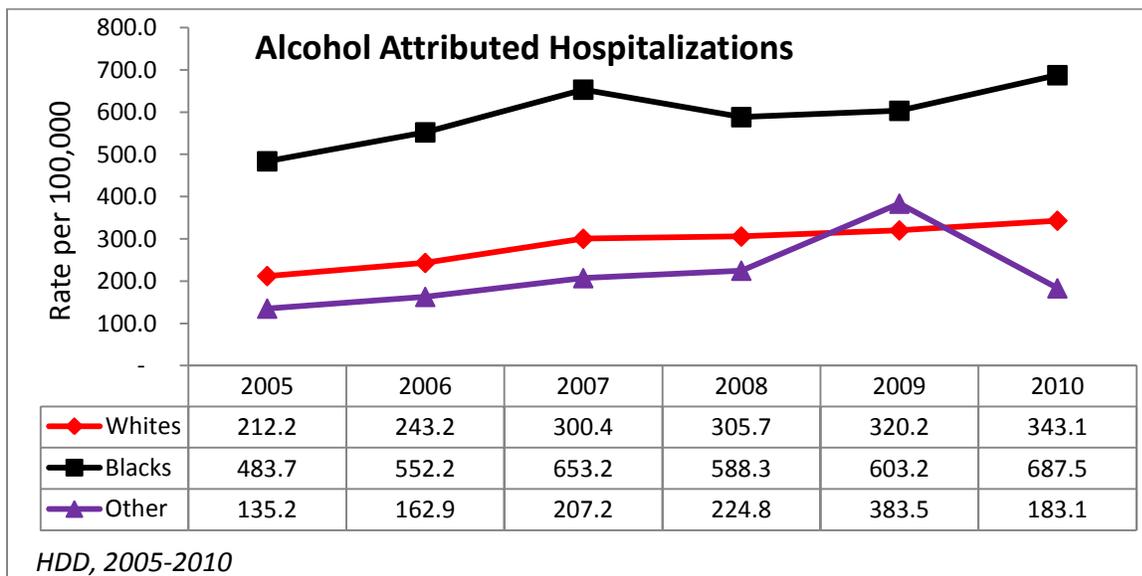
Notes: HDD= hospital discharge data (Iowa Hospital Association), ICD 9 CM - 265.2, 291, 303, 305.0, 357.5, 425.5, 535.3, 571, 572.3, 655.4, 760.71, 790.3, 980.0, V79.1; 10 DX fields queried;

Figure 35: Alcohol Associated Hospitalization Rates (100% Attributable) by Gender, HDD



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 36: Alcohol Associated Hospitalization Rates (100% Attributable) by Race, HDD



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); the 2010 Census showed an increase in population other than NH Whites or NH Blacks.

Similarly 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 was more than twice higher (133.1 compared to 55.2). Males were more likely to be hospitalized for alcohol cirrhosis than females (Table 15).

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 hospitalizations 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. 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 ICD9 codes.

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 2.3 times higher in 18-24 and 45-64 compared to 65+ age groups; 60% higher in females; and 2 times higher in Blacks (Table 16). However compared to previous years the rate of suicide among different age groups, gender and race was stable.

Table 15: Total Number of Alcohol Cirrhosis Hospitalizations and Rates per 100,000 by Demographics, HDD- 2005-2010

Demographics	2005 N (Rate)	2006 N (Rate)	2007 N (Rate)	2008 N (Rate)	2009 N (Rate)	2010 N (Rate)
Age						
<18	0	0	0	0	0	0 (0.0)
18-24	0	6 (1.9)	4 (1.3)	4 (1.2)	7 (2.2)	11 (3.6)
25-44	254 (34.0)	258 (34.9)	332 (43.9)	377 (51.2)	353 (48.1)	415 (55.5)
45-64	725 (98.2)	660 (87.3)	786 (101.2)	905 (115.6)	960 (120.8)	1081 (133.1)
65+	261 (60.2)	277 (63.7)	214 (48.8)	206 (46.6)	215 (48.4)	250 (55.2)
Gender						
Male	857 (59.0)	819 (56.1)	912 (62.1)	1032 (69.8)	1088 (73.2)	1225 (79.6)
Female	383 (25.6)	382 (25.4)	424 (28.1)	460 (30.3)	447 (29.4)	532 (35.3)
Race						
Whites	948 (34.0)	939 (33.5)	1099 (39.1)	1201 (42.6)	1268 (44.9)	1432 (53.0)
Blacks	39 (53.9)	33 (43.9)	57 (72.9)	53 (65.1)	76 (90.4)	77 (87.8)
Other *	46 (53.6)	30 (33.7)	47 (51.0)	72 (75.3)	87 (87.8)	145 (56.6)

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); the 2010 Census showed an increase in population other than NH Whites or NH Blacks.

Table 16: Total Number of Suicide Attempt Hospitalizations and Rates per 100,000 by Demographics, HDD 2005-2010

Demographics	2005 N (Rate)	2006 N (Rate)	2007 N (Rate)	2008 N (Rate)	2009 N (Rate)	2010 N (Rate)
Age						
<18	133 (40.3)	167 (51.0)	187 (57.6)	214 (67.1)	210 (66.5)	206 (63.3)
18-24	301 (93.9)	313 (97.2)	396 (129.7)	496 (154.8)	556 (173.0)	462 (151.0)
25-44	737 (98.7)	766 (103.6)	880 (116.4)	1050 (142.6)	1166 (158.7)	1184 (158.5)
45-64	333 (45.1)	371 (49.1)	407 (52.4)	511 (65.3)	618 (77.8)	607 (74.7)
65+	133 (40.3)	167 (51.0)	187 (57.6)	214 (67.1)	210 (66.5)	206 (63.3)
Gender						
Male	556 (38.3)	604 (41.3)	690 (47.0)	859 (58.1)	999 (67.2)	1054 (68.5)
Female	904 (60.4)	963 (64.1)	1123 (74.4)	1347 (88.9)	1463 (96.1)	1458 (96.7)
Race						
Whites	1037(37.2)	1280 (45.7)	1490 (53.1)	1861 (66.1)	2126 (75.3)	2137 (79.0)
Blacks	57 (78.8)	47 (62.5)	81 (103.5)	87 (106.8)	95 (113.0)	130 (148.2)
Other *	11 (12.8)	19 (21.3)	27 (29.3)	33 (34.5)	70 (70.7)	83 (32.4)

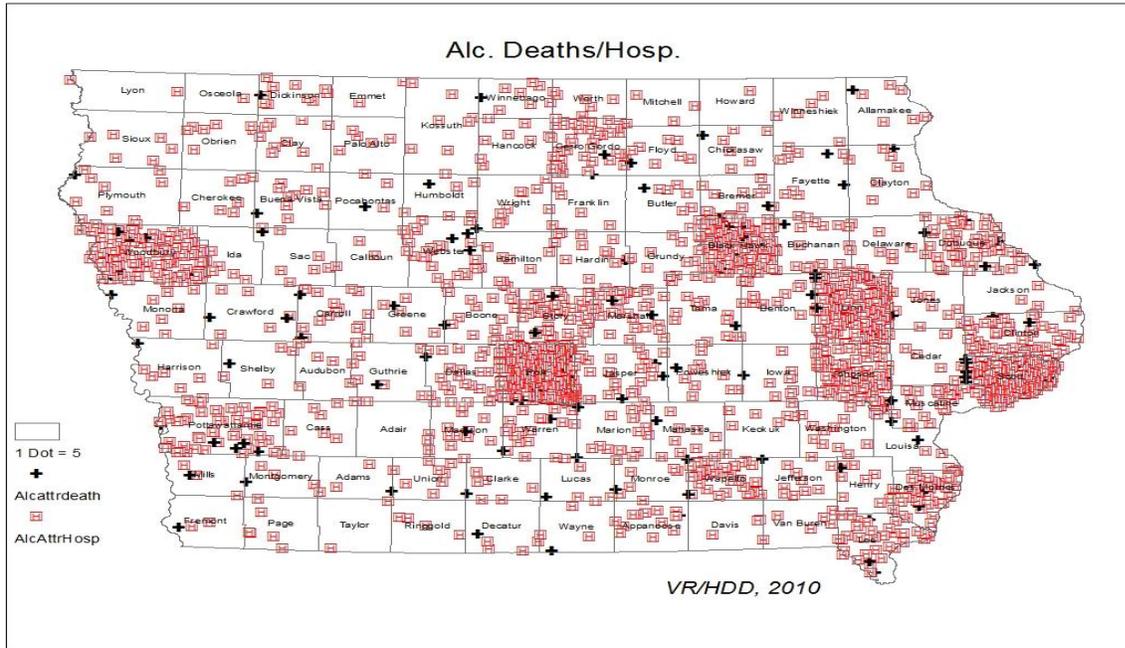
Notes: Only primary cause of hospitalization queried; *Other = Asians, Native-Americans, Hispanics; * Caution should be exercised in the interpretation of trend since there was a change in race categorization (collection of detailed race groups including Hispanics started in 2009); the 2010 showed an increase in population other than NH Whites or NH Blacks

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 5 cases) and hospitalizations (symbolized with red **H**) clustered in high population areas such as big cities (Figure 37). However, when the rates were plotted using quintiles, counties belonging to the highest 5th quintile tended to be next to borders but a bit different from prevalence maps (Figure 38).

Among youths, 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 and central 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 39).

Figure 37: Plot of the Number of 100%-Alcohol-Attributed Deaths and Hospitalizations by County, IDPH



Notes: “+”= alcohol attributable deaths (100%); “H”= alcohol attributable hospitalizations (100%);

Figure 38: Distribution of 100% Alcohol Attributed Hospitalization Rates per 10,000 by County, IDPH

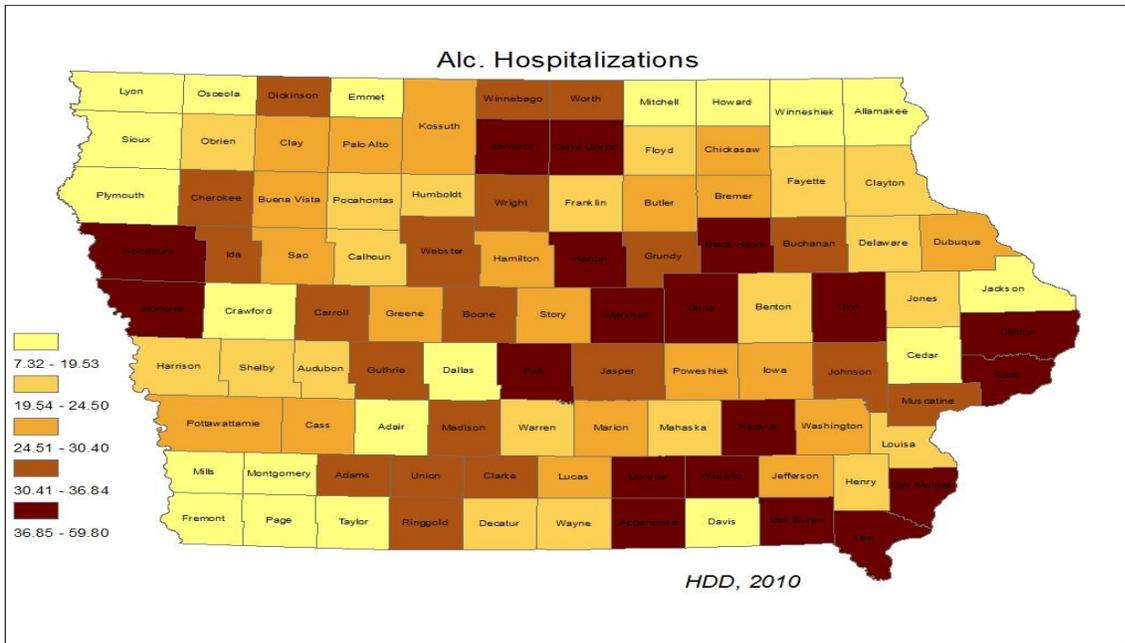
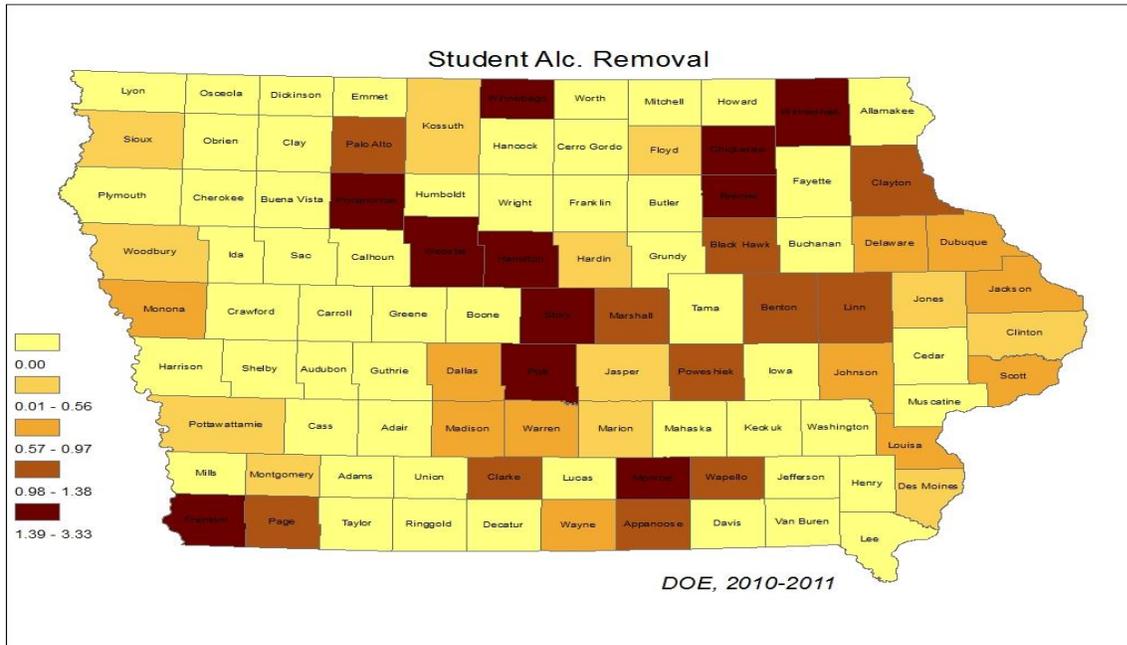


Figure 39: County Distribution of the Rate per 1,000 Students of Alcohol School Suspensions and Expulsions, Project EASIER 2010-2011



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 few 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

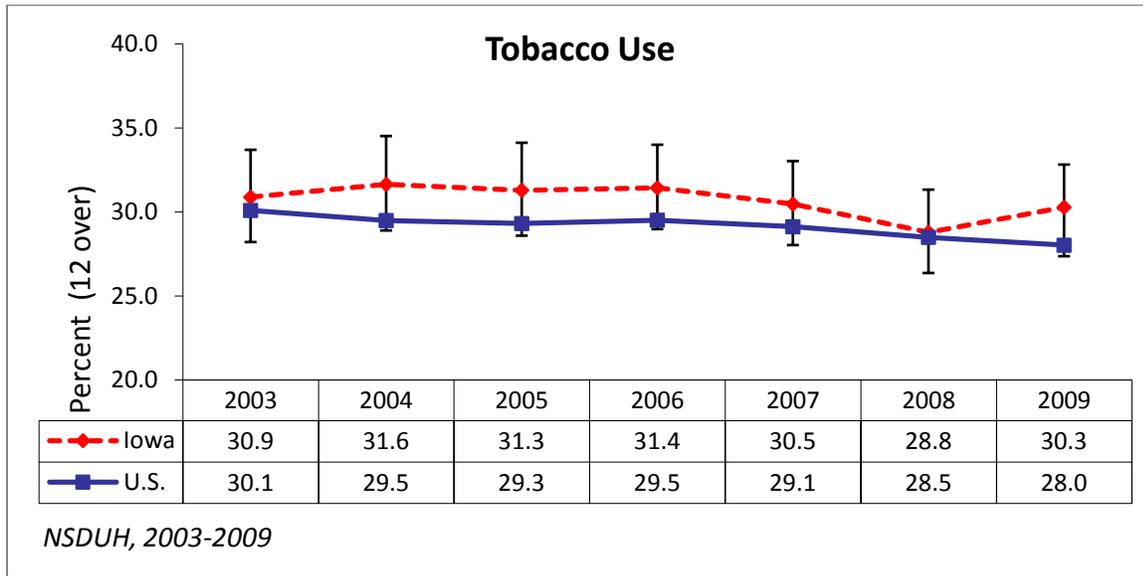
At the State Level

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.

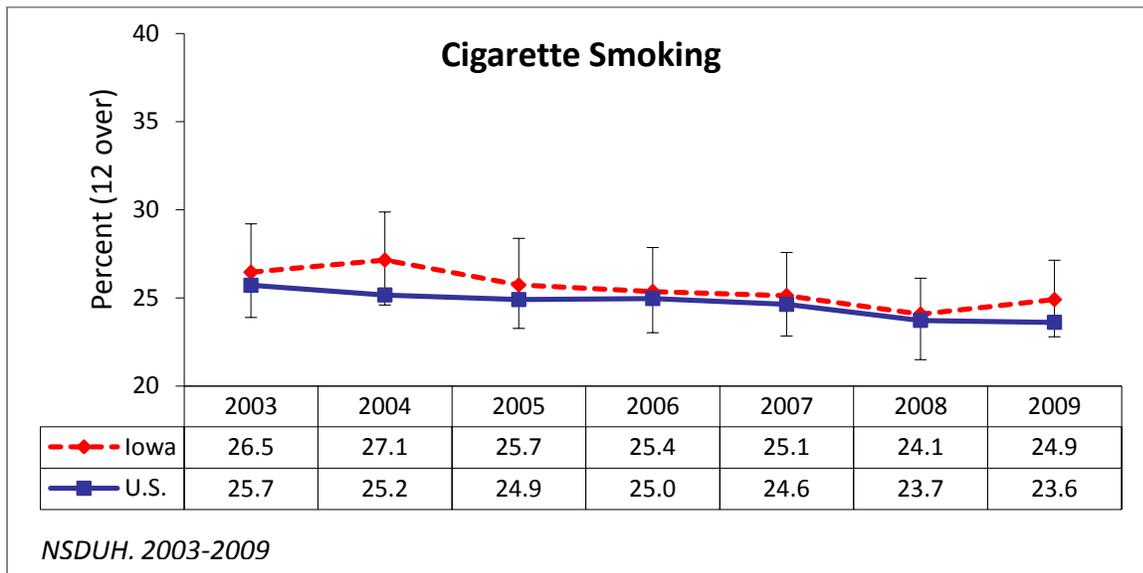
Based upon NSDUH estimates, adult tobacco use in Iowa remained unchanged from 2003 to 2009, and was similar to national tobacco usage rates with prevalence around 28.8%. The national trend supports a reduction in the prevalence of tobacco product use and cigarette smoking. The 2008-2009 NSDUH estimated 753,000 Iowans over age 12 have used tobacco, numbers that are not significantly different from the 714,000 number in 2007-2008. 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 2009 Iowa rates (Figure 40). Due to the small sample size and weighting approach used by the NSDUH, no additional analysis (breaking out race, gender, or age) can be conducted. Cigarette use mirrors overall tobacco use rates for Iowa and the U.S. from 2003-2009, with no significant difference between years or between Iowa and national rates (Figure 41).

Figure 40: Percent of People reporting Past 30-Day Tobacco Use-12 or Older, Iowa compared to US, NSDUH



Notes: No significant difference in tobacco use;

Figure 41: Percent of People Reporting Past 30-Day Cigarette Smoking- 12 or Older, Iowa compared to US, NSDUH



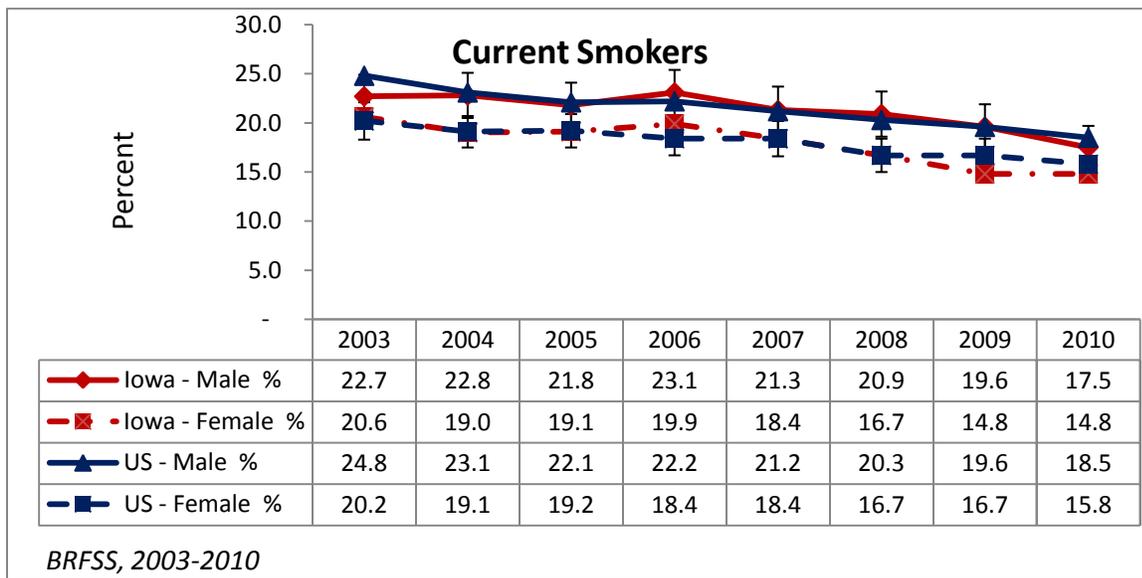
Notes: No significant difference in cigarette smoking;

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 compared to females. The proportion of female current smokers was significantly lower than that of males (Figure 42). Compared to 2006 results, smoking prevalence in 2010 is significantly decreasing (24%) from a high 23.1% to a low 17.5% among males and 25% in females (19.9% compared to 14.8%).

Figure 42: Percent of Adults (18 over) Reporting Current Cigarette Smoking by Gender, Iowa compared to US, BRFSS



Notes: No significant difference between Iowa and US

Other Consumption Indicators:

The overall perception of risk related to tobacco smoking among Iowans over age 12 was significantly different from the nation. The 2008-2009 NSDUH, found that approximately 65.4% of Iowans over age 12 felt that smoking at least one pack of cigarettes per day was very risky compared to 72.3% 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 2009 percentage was similar but is significantly lower than the national estimate (Figure 43).

The proportion of Iowa mothers reporting using tobacco during pregnancy has been stable since 2002 around 15-17% (Figure 44). 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 in 2006 and 2010 (Figure 45).

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 43: Percent of People Reporting Perception of Great Risk of Smoking One or More Packs of Cigarettes per Day- 12 or Older, Iowa compared to US, NSDUH

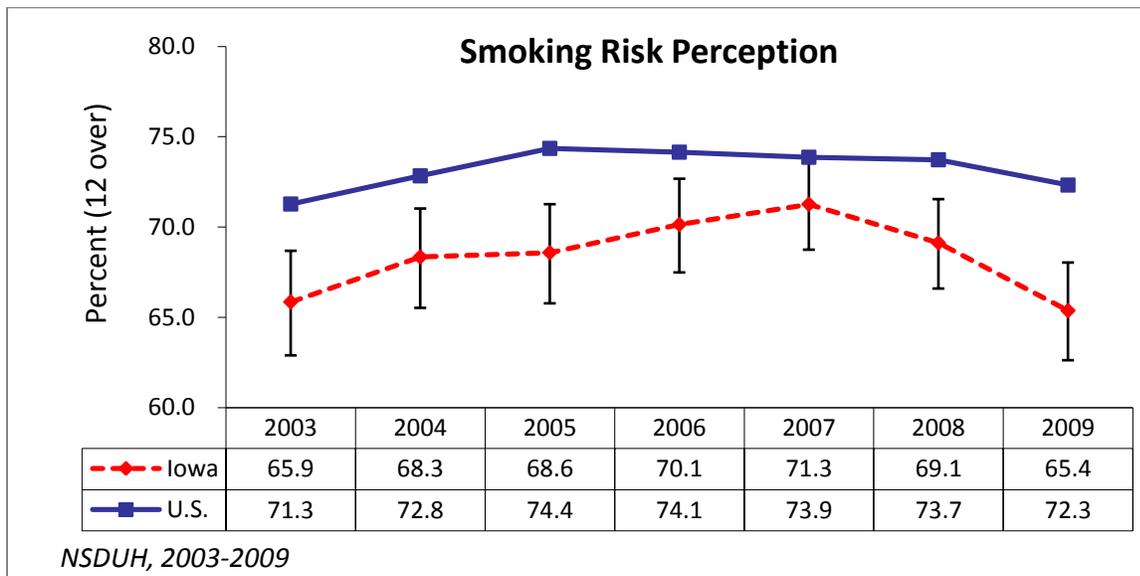
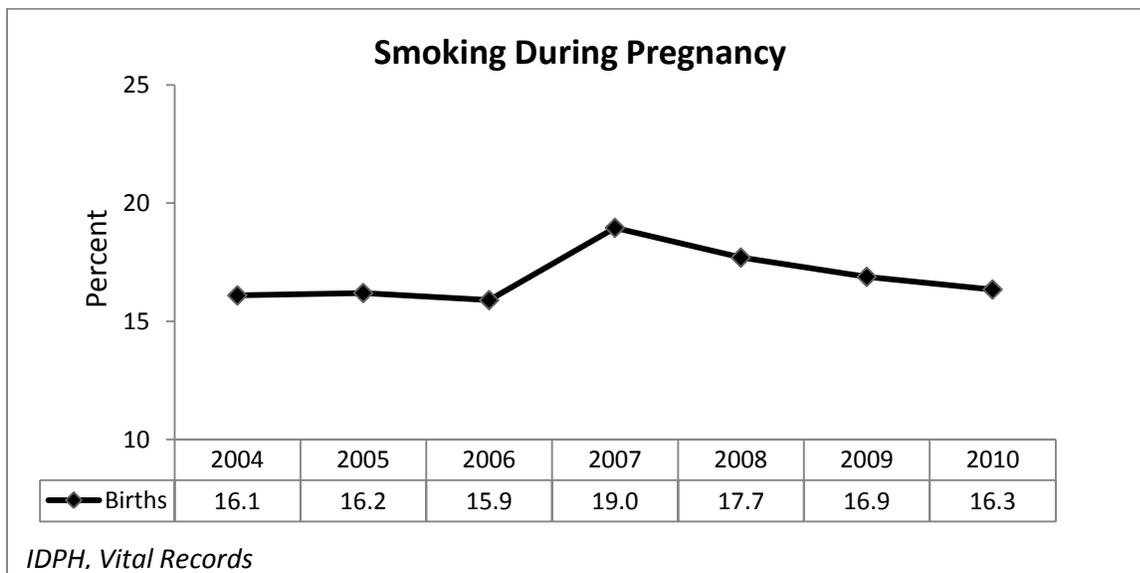
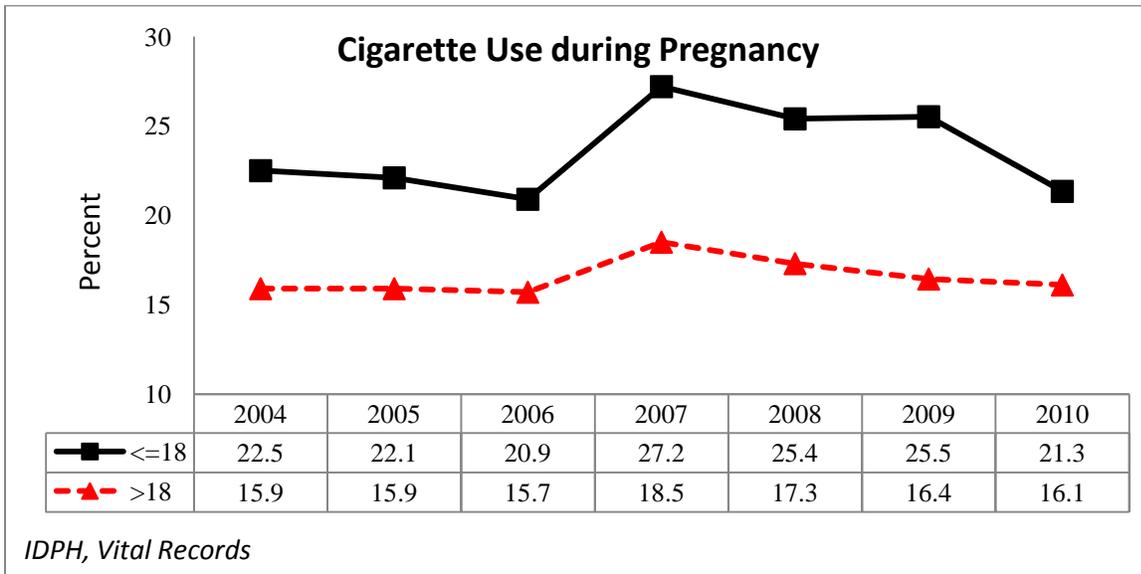


Figure 44: Percent of Iowa Women who had Live Births Reporting Cigarette Use during Pregnancy – All Ages, IDPH Vital Records



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

Figure 45: Percent of Iowa Women who had Live Births that Reported Tobacco Use during Pregnancy by Age Group, IDPH Vital Records



Notes: 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 Pattern

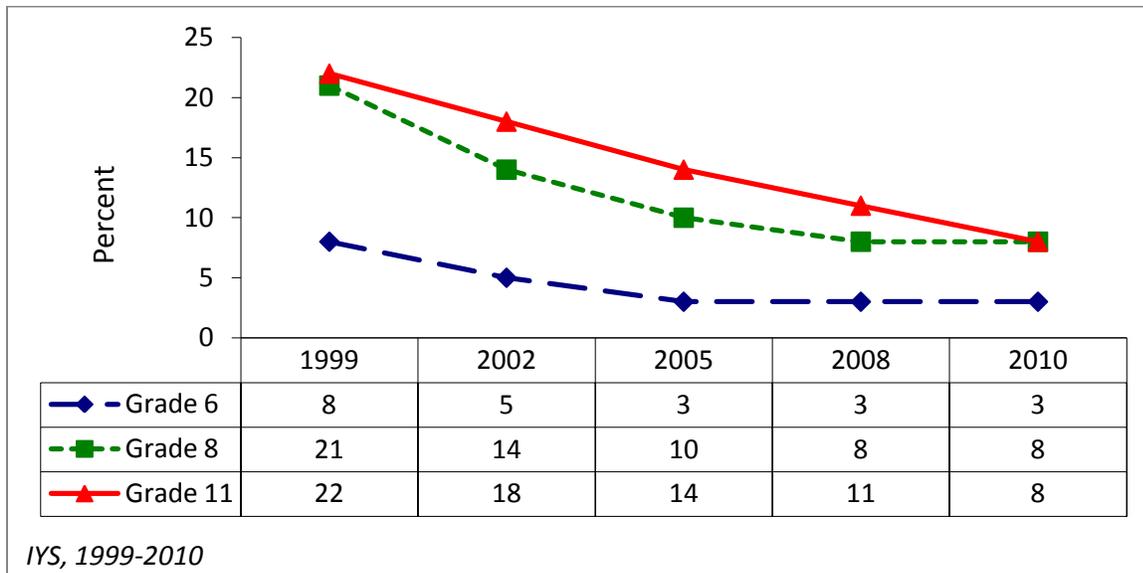
At the State Level

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:

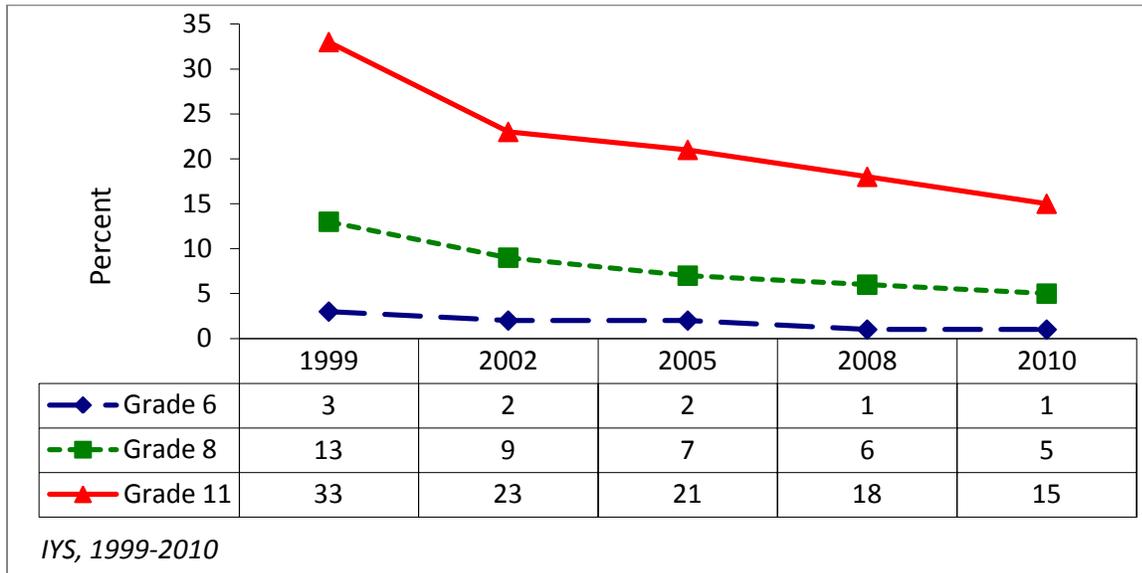
The IYS The percent of 6th, 8th, and 11th-graders that first used cigarettes before age 13, has decreased each time the IYS has been administered since 1999 (Figure 46). Reported past 30-day cigarette use has also decreased on each IYS (Figure 47). Iowa and national youth heavy smoking rates do not differ as reported by the Youth Risk Behavioral Survey (YRBS). The Iowa rate of heavy smoking increased in 2011 (Figure 48). However, because of variability of the YRBSS due to sample size issues, that apparent increase was not significantly different from previous survey.

Figure 46: Percent of 6th, 8th, and 11th-Graders Reporting First Use of Cigarettes before Age 13, IYS



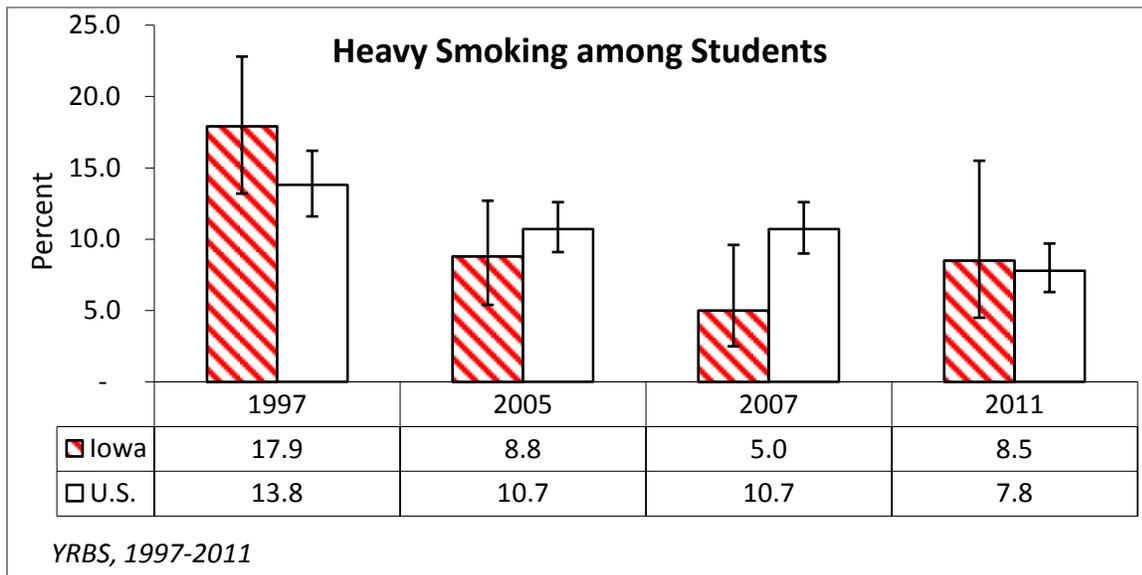
Notes: decrease of smoking most noticeable among 11 graders;

Figure 47: Percent of 6th, 8th, and 11th-Graders Reporting Past 30-Day Cigarette Use, IYS



Notes: decrease of smoking most noticeable among 11 graders;

Figure 48: Percent of Students Reporting Heavy Smoking among Youth Iowa compared to US, YRBS



Notes: No significant difference between Iowa and US and over the years;

Other Indicators:

The percent of students reporting moderate to great risk were stable around 85% among 8th and 11th graders. The proportion has been regularly decreasing among 6th graders (Figure 49).

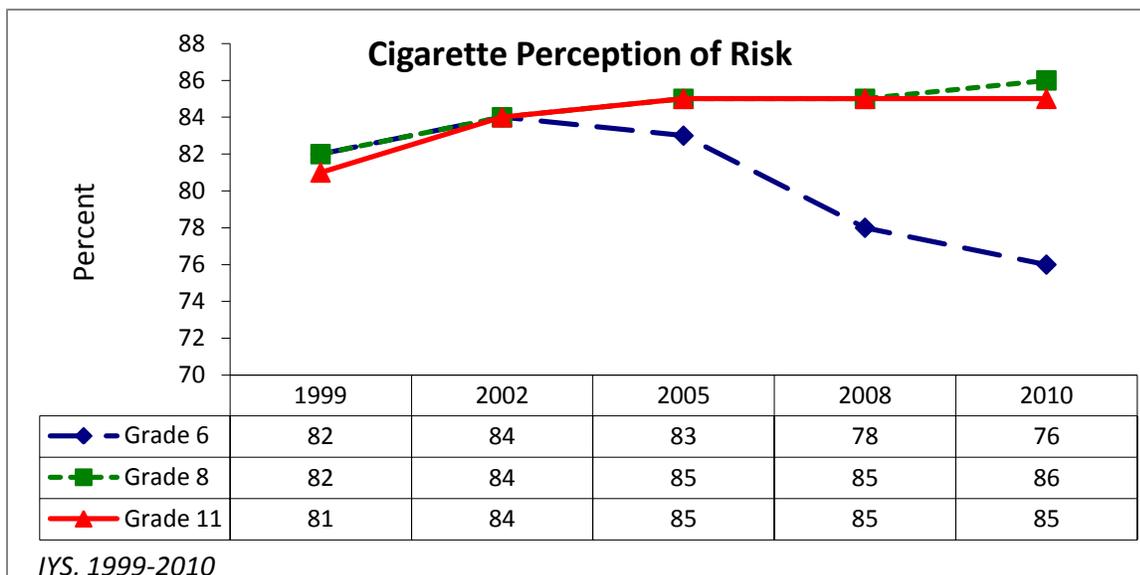
Sixth, Eighth, and Eleventh-grade students responded similarly when asked in the IYS, “How much do you think you risk harming yourself if you smoke cigarettes every day?” “Great Risk” and “Moderate

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 17).

In July 1992, Congress included in the Alcohol, Drug Abuse, and Mental Health Administration Reorganization Act an amendment, named for its sponsor, Congressman Mike Synar, to decrease youth access to tobacco. This amendment required states to enact and enforce laws prohibiting the sale or distribution of tobacco products to individuals under the age of 18. In Iowa, the Synar program is an example of inter-agency and academia partnership. While the program oversight is under IDPH division of Behavioral Health, the partnership extends to the division of Tobacco Use Control and Prevention and the Alcoholic Beverage Division. Iowa State University is responsible for the technical aspect of the survey such as identifying the sample of outlets based on sound survey sampling methodology, developing the survey implementation plan, analyzing the data collected and reporting the results. According to the Iowa SYNAR report, on average, there were 759 outlets from the sample eligible for inspection and 231 youths were recruited as “confidential informants” to conduct the inspections. There were 128 males and 108 females ranging in age from 15 to 17 years. Overall, they conducted 752 attempted buys (average 4 attempts per inspector) and had an 8% successful buy rate in 2012 (Table 18 & 19).

The Iowa Alcoholic Beverages Division has been consistently reporting over 90% tobacco compliance rates from 2008 to 2012 (Figure 50). However, the total number of tobacco compliance checks completed in Iowa in 2012 (3,620) decreased significantly compared to 2010 (6,655).

Figure 49: Percent of 6th, 8th, and 11th-Graders Who Reported Perceiving Cigarette Use as a Moderate or Great Risk, IYS



Notes: Significant decrease among 6th graders;

Table 17: Percent of 6th, 8th, and 11th-Graders who Reported Perceiving Cigarette Use as a Moderate or Great Risk by Gender, IYS

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

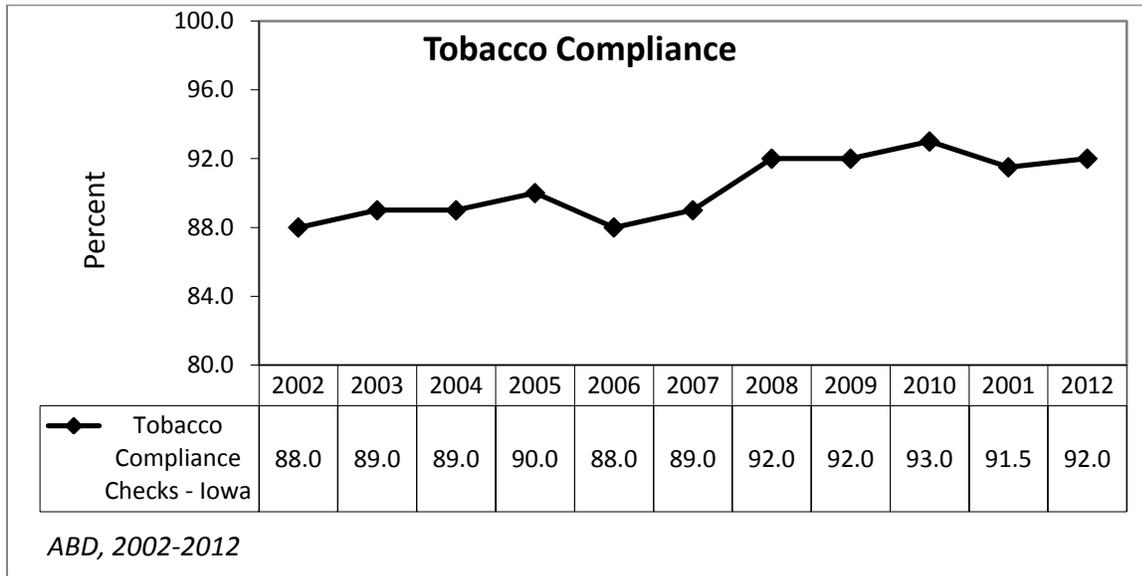
Table 18: Proportion of Tobacco Outlet Retailers found in Sales to Minor Violation, SYNAR

Service Outlets	Outlet Sample Size	Number of Eligible Outlets in Sample	Number of Sample Outlets Inspected	Number of Sample Outlets in Violation	Retailer Violation Rate(%)
All Outlets	785	759	752	62	8%
Over the Counter Outlets	337	319	316	28	9%
Vending Machines	7	7	7	0	0%

Table 19: Demographic Distribution of Confidential Informants and Successful Buy Rate, SYNAR

Gender	Age	Number of Inspectors	Attempted Buys	Successful Buys	Buy Rate Percent
Male	15	17	58	6	10%
	16	40	158	8	5%
	17	71	182	16	9%
	Subtotal	128	398	30	8%
Female	15	8	21	4	19%
	16	46	171	11	6%
	17	49	162	17	10%
	Subtotal	103	354	32	9%
Grand Total		231	752	62	8%

Figure 50: Tobacco Compliance Check – Percent Compliant, Iowa ABD

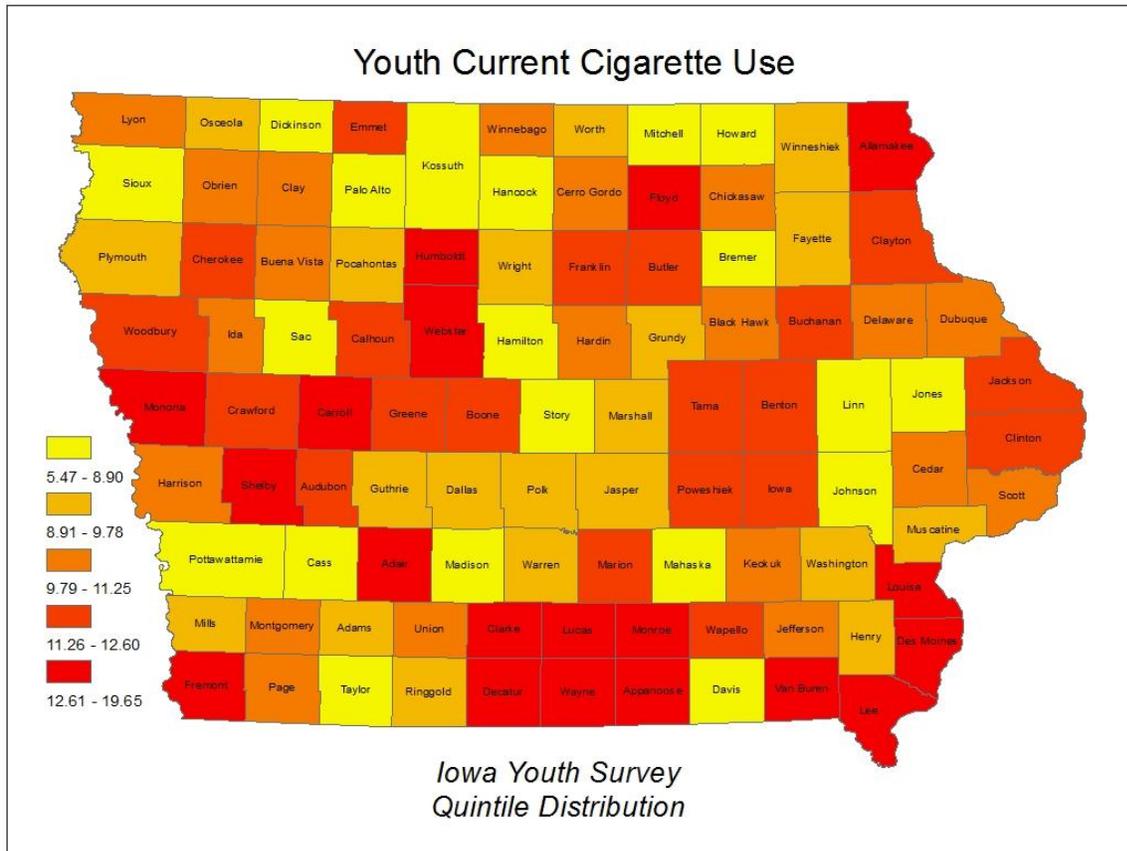


Notes: Overall decrease in the number of compliance checks performed from 2009;

At the County Level

The distribution of current smoker prevalence (current smoker 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 51). A simple correlation test assessing the association between the current smoking prevalence and the proportion of 11th graders in the counties showed no significant correlation between the two variables.

Figure 51: Distribution of the Percent of Students (6th, 8th, 11th) Reporting Current Cigarette Smoking by County, IYS 2010



Notes: Correlation test between smoking prevalence and percent 11th grader in counties, Rho= 0.14

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:

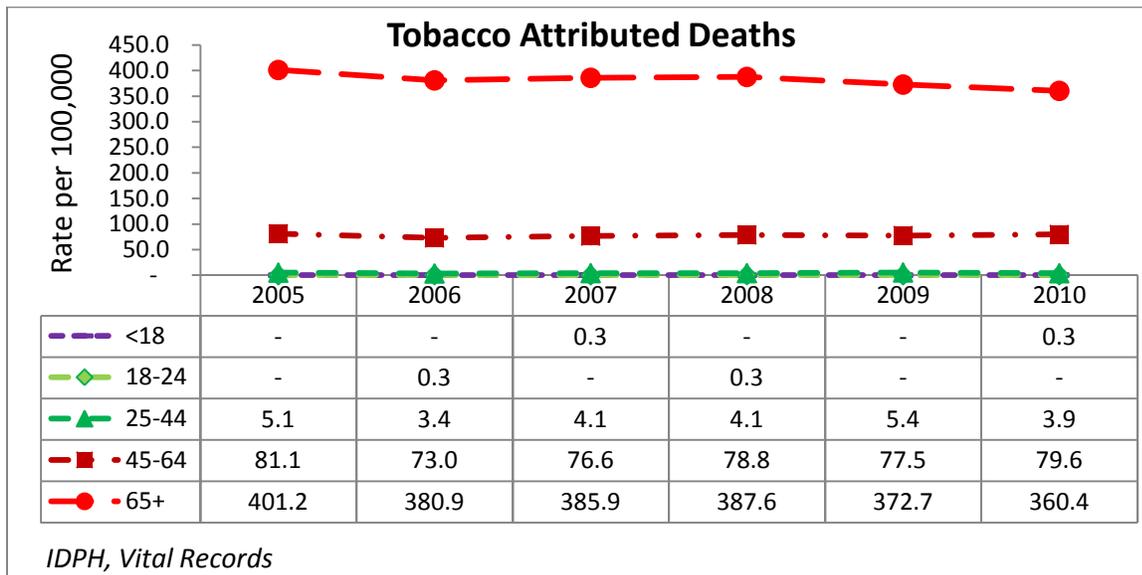
The overall tobacco associated death rates have been steadily trending down over the years ranging from 80.6 in 2005 to 75.8 per 100,000 in 2010, which corresponded to an average of 2,300 deaths per year. This number is equivalent to 6 Iowans dying every day from a condition associated with tobacco. The rates were greater among the 65+ age groups with a specific rate of 360.4 per 100,000 in 2010, (Figure 52).

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 the 25-44 groups is still alarming with 30 deaths every year in Iowa. Males had higher rates than females (Figure 53). Whites had much higher rates of tobacco associated deaths than Blacks and other racial groups (Figure 54).

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%. When co-morbid conditions were assessed by looking into the secondary diagnostic fields, ICD 10 - F17 (mental and behavioral health disorders due to tobacco) was associated with on average 500 deaths per year, nearly 20% of the cases, which brings doubts to the validity of hospital billing codes as a surveillance tool.

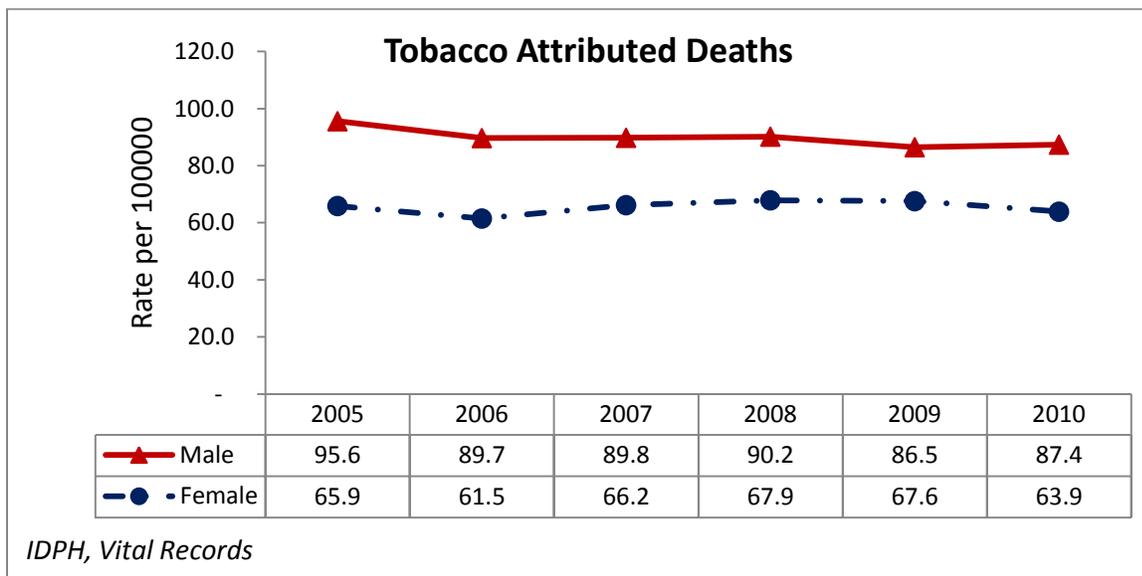
The lung cancer death rate, as reported on death certificates using the underlying cause of death (ICD10 code C34 - Malignant neoplasm of bronchus and lung) rose slightly from 2001 to 2005, and showed a significant drop from 2005 and is still dropping. There were on average 1,730 lung cancer deaths per year from 2005 to 2010. The lung cancer death rate was associated with age, gender and race (Table 20). The rates were greater among the 65+ years of age. Lung cancer death rates per 100,000 were higher in Whites (62.4), and followed by Blacks (41.3). The 2010 change in death certificate collection form limits the value of the "other race" rate finding.

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



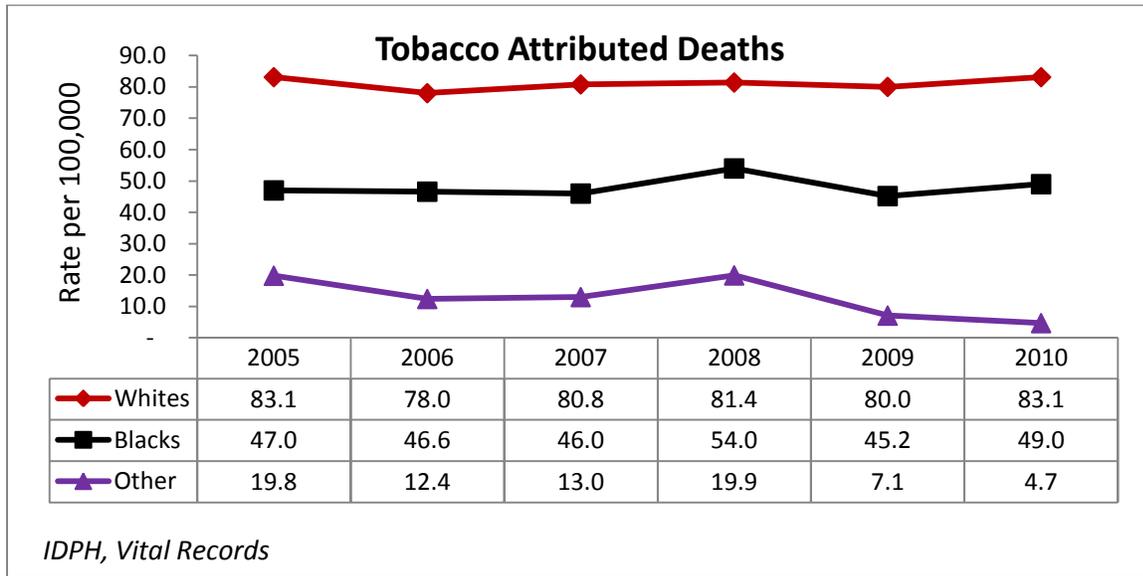
Notes: ICD 10 codes = C33-C34, F17, J40-J42; to match legislative updates 21 DX fields were queried including Underlying Cause of Death;

Figure 53: Tobacco Associated Death Rates (over 85% Attributable) by Gender, IDPH - Vital Records



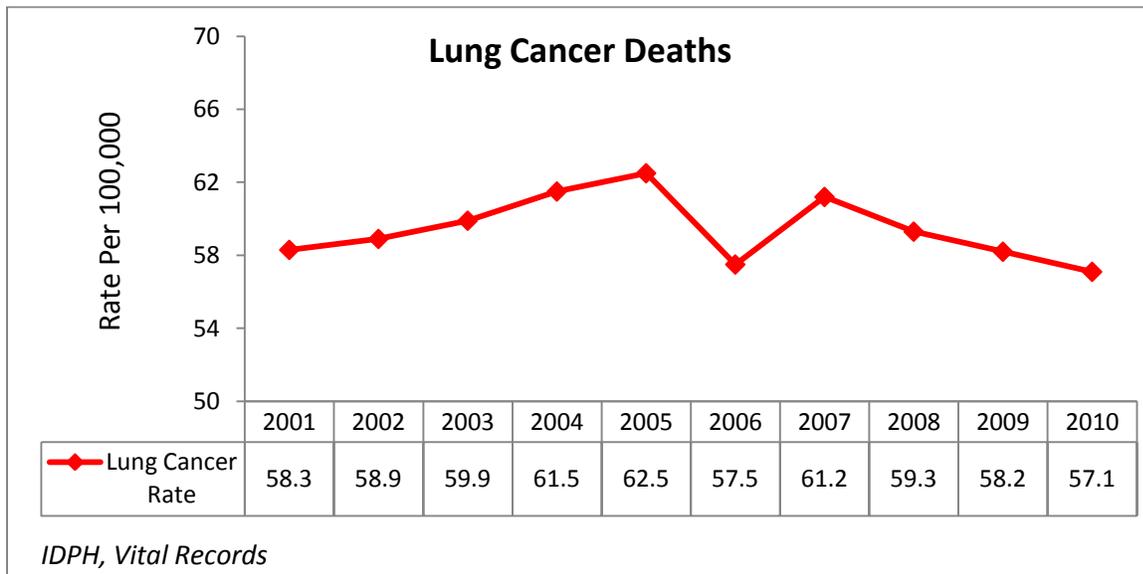
Notes: ICD 10 codes = C33-C34, F17, J40-J42; To match legislative updates 21 DX fields were queried including Underlying Cause of Death;

Figure 54: Tobacco Associated Death Rates (over 85% Attributable) by Race, 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 55: Lung Cancer Death Rates per 100,000, IDPH Vital Records



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

Table 20: Lung Cancer Death Rates per 100,000 Iowans by Demographics, IDPH Vital Records

Year	2005 N (Rate)	2006 N (Rate)	2007 N (Rate)	2008 N (Rate)	2009 N (Rate)	2010 N (Rate)
Age						
<18	-	-	-	-	-	0 (0.0)
18-24	-	-	-	1 (0.3)	-	0 (0.0)
25-44	25 (3.3)	20 (2.7)	24 (3.2)	18 (2.4)	23 (3.1)	19 (2.5)
45-64	474 (64.2)	443 (58.6)	479 (61.7)	471 (60.2)	478 (60.2)	467 (57.5)
65+	1,348 (311.0)	1,246 (286.4)	1,326 (302.4)	1,290 (292.0)	1,251 (281.6)	1,252 (276.4)
Gender						
Female	762 (50.9)	708 (47.1)	803 (53.2)	765 (50.5)	798 (52.4)	731 (47.5)
Male	1,085 (74.7)	1,001 (68.5)	1,026 (69.8)	1,015 (68.7)	954 (64.2)	1,007 (66.8)
Race						
Whites	1,797 (64.4)	1,668 (59.6)	1,784 (63.5)	1,736 (61.6)	1,713 (60.6)	1,686 (62.4)
Blacks	28 (38.7)	30 (39.9)	32 (40.9)	26 (31.9)	28 (33.3)	36 (41.0)
Other	16 (18.6)	8 (9.0)	10 (10.9)	13 (13.6)	11 (11.1)	16 (6.2)*

Notes: ICD 10 code= 'C34'; only Underlying Cause of Death was queried; the changes in death certificate collection form on Hispanics and ethnicity call for caution in the present other race rate; the other population group (non NH whites or Blacks) substantially increased during the Census 2010.

Tobacco Associated Morbidity:

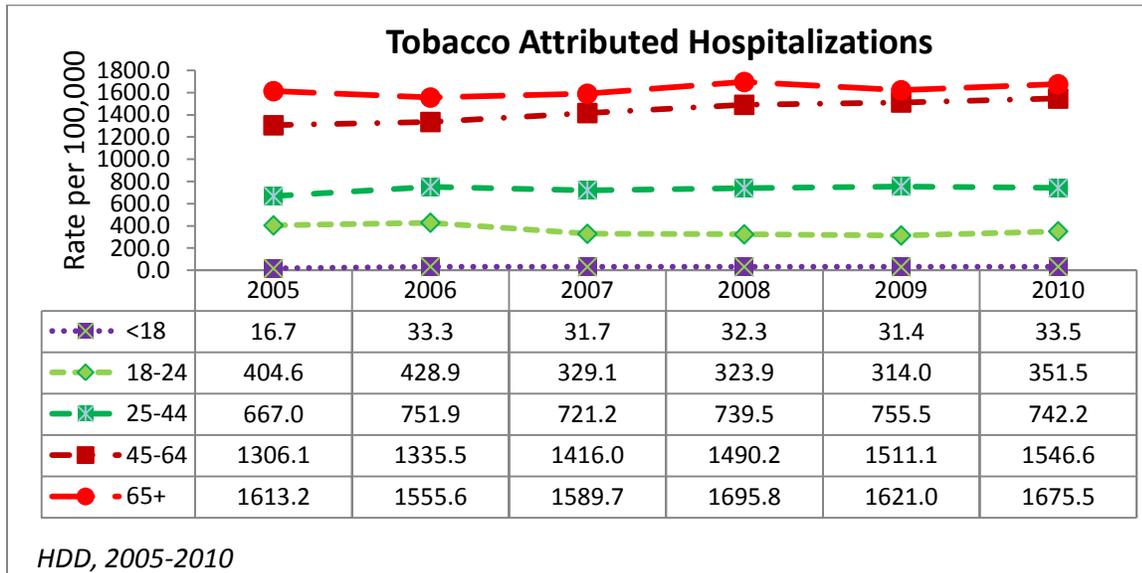
Tobacco related hospitalizations using the equivalent ICD9 codes showed a different picture than mortality. While overall tobacco associated deaths have been steady from 2005 to 2010, the rate of hospitalizations decreased in 2010 to 882.5 per 100,000 (Figure 56). For every death associated to tobacco, there were on average 10 hospitalizations. Tobacco associated hospitalization rates demonstrated a decrease in 2010 among the younger age groups but stayed constant among the 65+ (Table 21).

Males were significantly more likely to be hospitalized for tobacco associated causes. The rate of tobacco associated cause of hospitalizations decreased among males in 2010 but was still significantly higher than for females (Figure 57).

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 percent of missing information compared to gender or age, smoking attributed health disparities by race may need to be addressed (Figure 58).

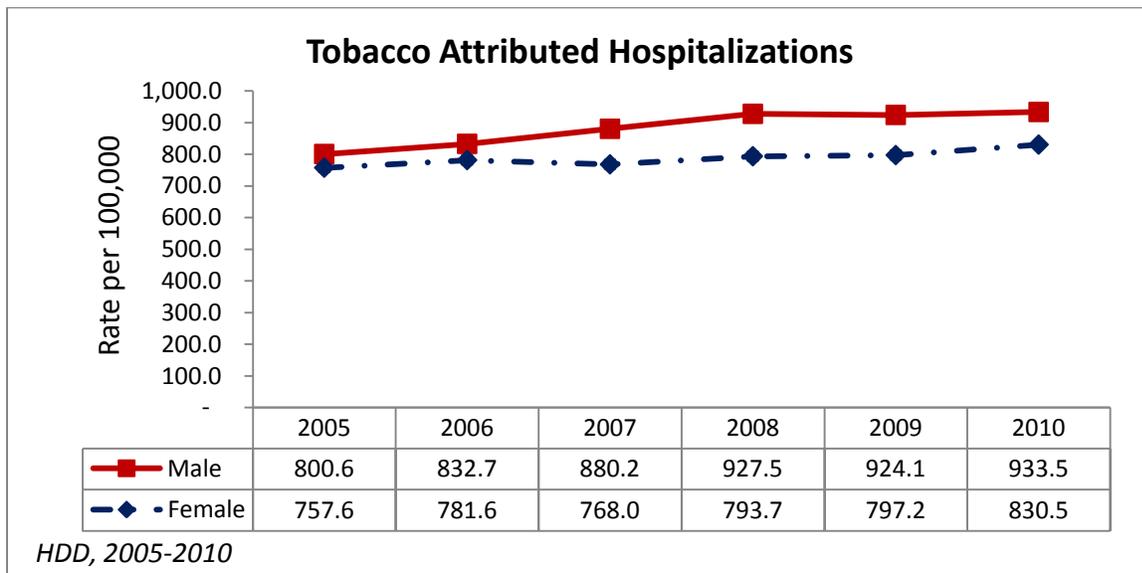
Hospitalization rates due to lung cancer have been decreasing irregularly. Similarly with deaths, the hospitalization rates were higher among the 65+, males, and Whites (Table 22). Across age groups, gender and race, on average for every lung cancer death, there were two hospitalizations.

Figure 56: Tobacco Associated Hospitalization (>85% Attributable) Rates by Age, HDD – 2005-2010



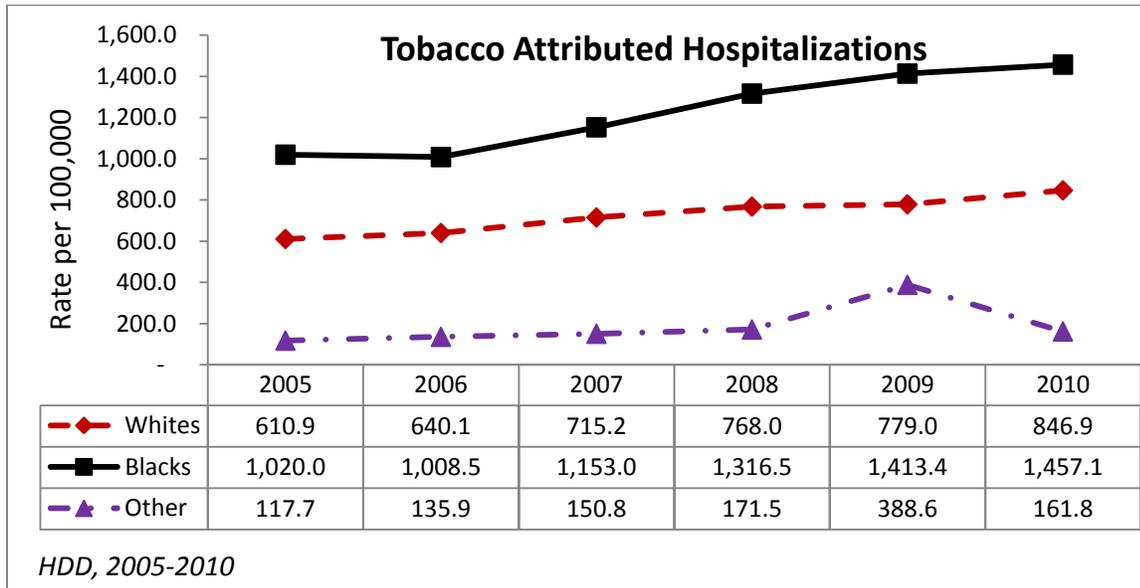
Notes: HDD= hospital discharge data, ICD 9 codes: 162 (Trachea, lung, bronchial cancers), 490-492 (Bronchitis and Emphysema), 305.1 (mental and behavioral disorders due to tobacco use)

Figure 57: Tobacco Associated Hospitalization (>85% Attributable) Rates by Gender, HDD – 2005-2010



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 58: 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 21: Lung Cancer Hospitalization Rates per 100,000 Iowans by Demographics, HDD - 2005-2009

YEAR	2005 N (Rate)	2006 N (Rate)	2007 N (Rate)	2008 N (Rate)	2009 N (Rate)	2010 N (Rate)
Age						
<18	-	-	-	-	-	1 (0.3)
18-24	-	-	-	-	-	2 (0.7)
25-44	80 (10.7)	56 (7.6)	66 (8.7)	52 (7.1)	75 (10.2)	59 (7.9)
45-64	1162 (157.4)	1223 (161.8)	1254 (161.5)	1216 (155.4)	1219 (153.4)	1152 (141.8)
65+	2726 (628.9)	2634 (605.5)	2708 (617.6)	2750 (622.6)	2562 (576.6)	2621 (578.7)
Gender						
Male	2252 (155.0)	2152 (147.3)	2157 (146.8)	2108 (142.6)	2114 (142.3)	2126 (138.2)
Female	1718 (114.8)	1761 (117.1)	1875 (124.2)	1911 (126.1)	1742 (114.4)	1709 (113.3)
Race						
Whites	3113 (111.5)	3147 (112.4)	3594 (128.0)	3577 (127.0)	3479 (123.2)	3466 (128.2)
Blacks	63 (87.1)	48 (63.9)	67 (85.6)	85 (104.4)	87 (103.5)	91 (103.8)
Other	13 (15.1)	6 (6.7)	7 (7.6)	20 (20.9)	19 (19.2)	18 (7.1)

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

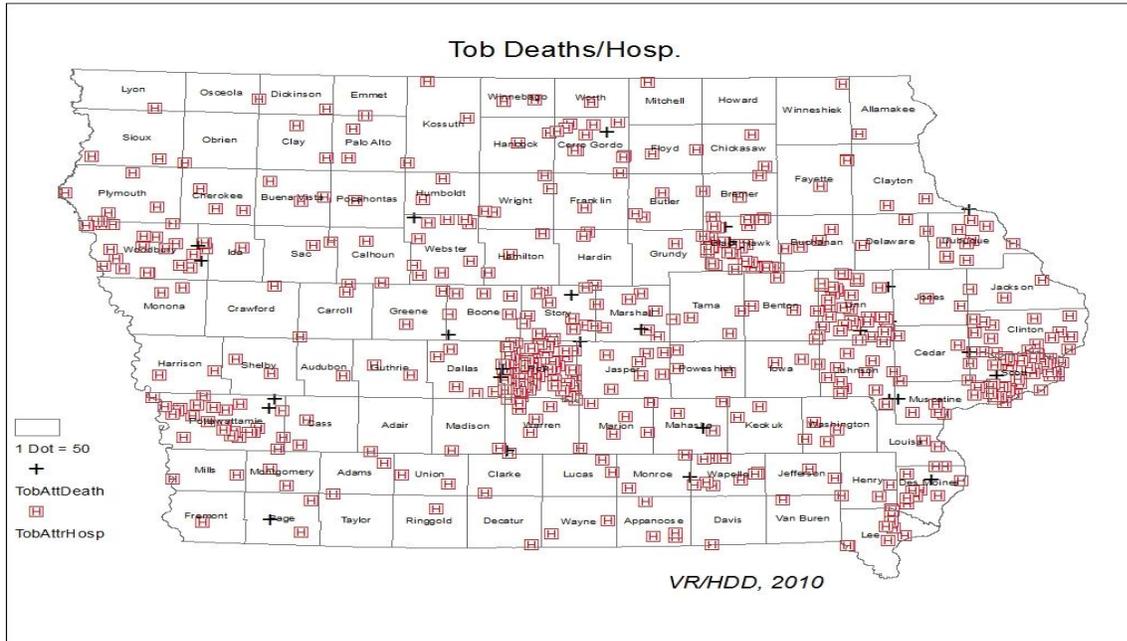
At the County level

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 59). When the rate was plotted, the county distribution was not specific (Figure 60).

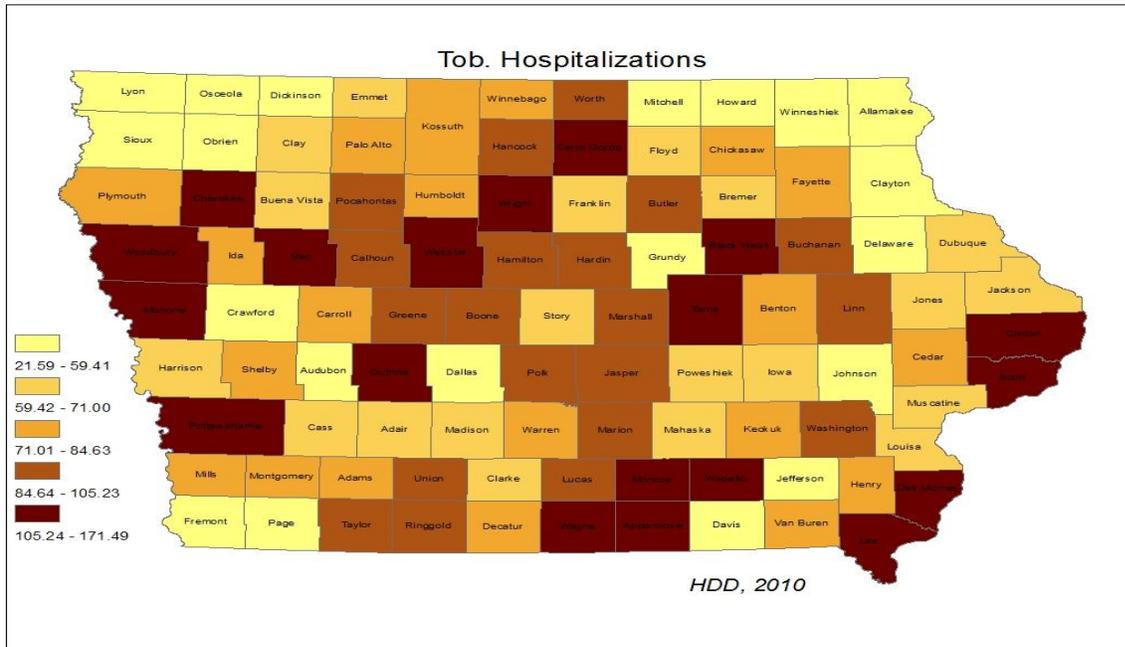
The rate of student removal because of smoking was highest among the lower tier counties (Figure 61).

Figure 59: Plot of the Number of Tobacco Associated Deaths and Hospitalizations (>85% Attributable) by County, 2010 - HDD and IDPH Vital Records



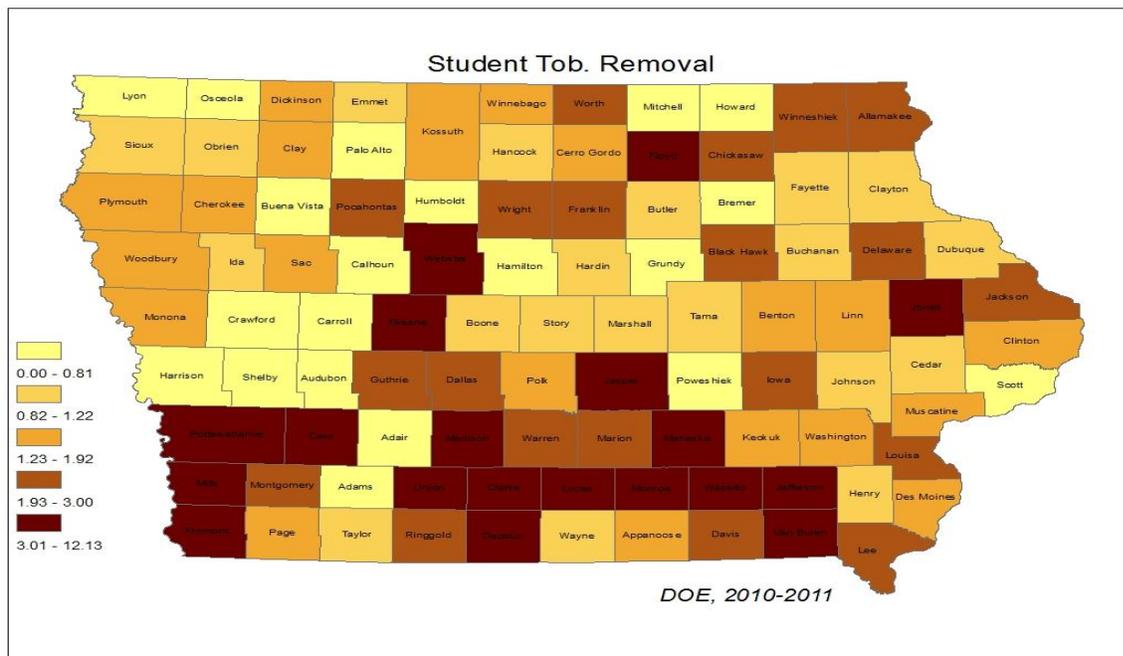
Notes: “+” = number of deaths attributable to Tobacco (85%) using ICD10, “H” = number of hospitalizations attributed to Tobacco (85%) using ICD9 codes, HDD = hospital discharge data

Figure 60: 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 2010 decennial census;

Figure 61: Distribution of the Rates of Removal for Smoking per 1,000 Students by County, Project Easier, 2010



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 Findings from ONDCP chart the course of evolving threats in drug abuse with increasing potency of marijuana seized in the United States. However, results from surveillance indicated a significant drop in cocaine use (40%) as well as its availability from 2006 to 2009; a 23% decrease in the number of cocaine-related emergency department visits decrease; a 31% decrease in the number of cocaine as primary reason for treatment admissions; and finally 21% reduction in potential cocaine production, particularly from South America.

The 2010 National Drug Control Strategy took a leap forward in recognizing that drug addiction was “*not a moral failing but rather a disease of the brain that can be prevented and treated.*” Hence, the 2010 and 2011 ONDCP strategies are promoting a “*balance of evidence-based public health and safety initiatives focusing on key areas such as substance abuse prevention, treatment, and recovery.*”¹¹ In the 2010 mid-course revision of Healthy people 2010, objectives implemented in 2005 were evaluated and demonstrated 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.¹²

Adult Consumption Patterns

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.

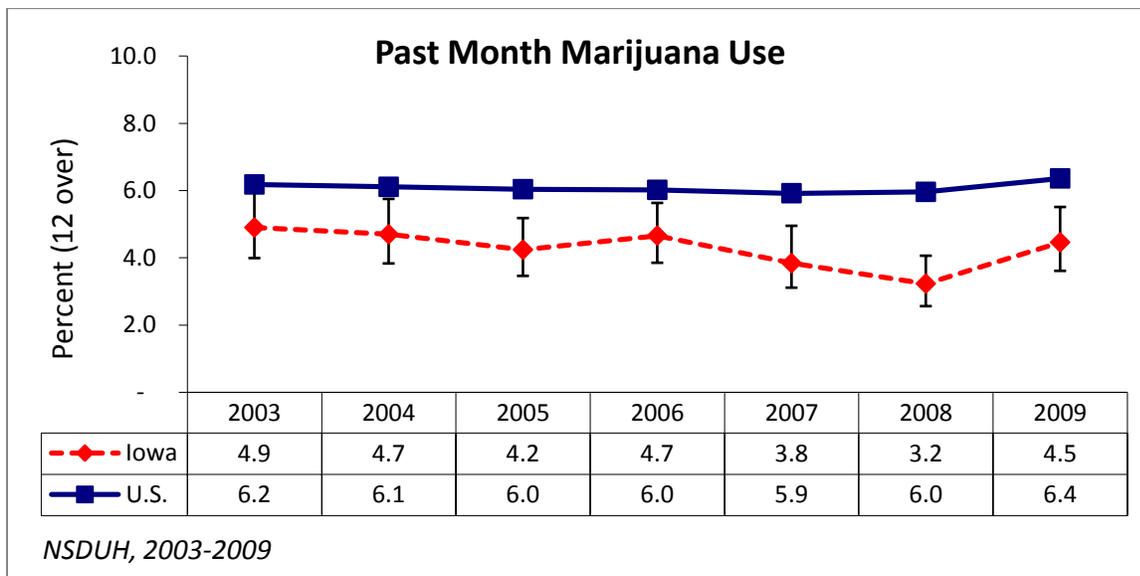
Marijuana Use:

Despite a tendency toward reduction, the proportion of Iowans currently using marijuana (past 30-day) remained essentially unchanged between the 2002-2003 and 2008-2009 NSDUH. The 2008-2009 NSDUH data analysis estimated 4.5% of Iowans over age 12 were current marijuana users compared to 3.2% in 2008, which is not significantly different. However, the Iowa estimates were significantly lower than the 6.4% national estimates (Figure 62).

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 years and older age groups. Compared to the nation, Iowans were less likely to report past 30-day Marijuana use across all the age groups. While the age-specific percentages were constant, the proportion of Iowans 18-24 years of age reporting using marijuana in the past month in 2009 increased to reach the 2006 proportion (Figure 63).

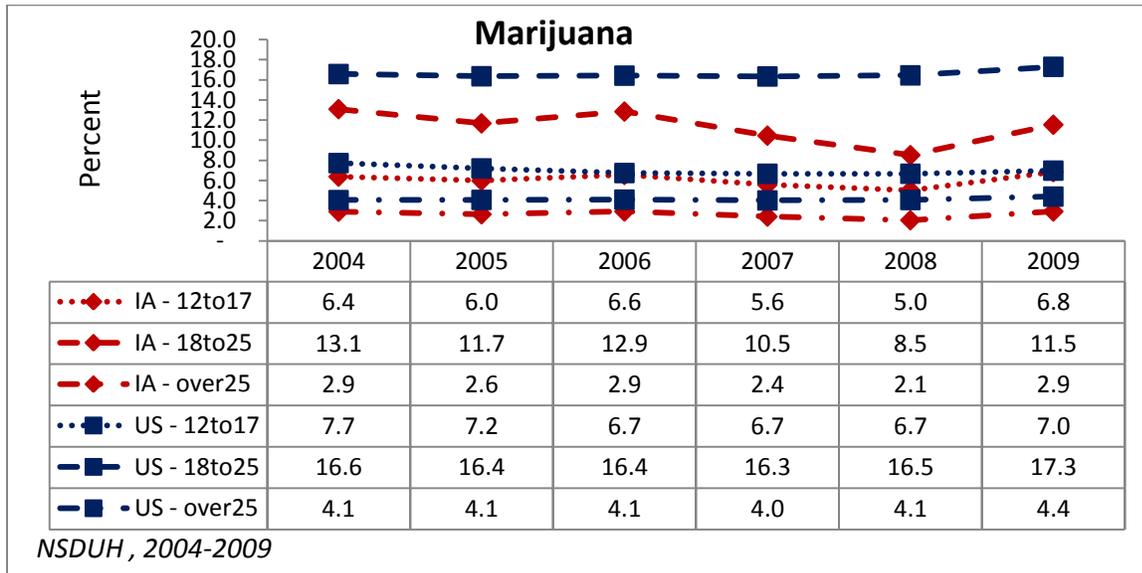
The proportion of Iowans reporting perception of great risk associated with marijuana smoking at least once a month was similar to the rest of the nation. NSDUH assess perception of risk using several questions. The values reported in this profile reflect answering “great or moderate risks” to the question: “How much do people risk harming themselves physically or in other ways when they smoke marijuana once a month?” The 2008-2009 NSDUH estimated proportion (35.3%) of Iowans reporting that smoking marijuana at least once a month was a great risk is not different from the 2007-2008 (39.1%). 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 36.1%, which in turn isn’t different from the previous national estimates (Figure 64).

Figure 62: Percent of People Reporting Using Marijuana in Past Month, NSDUH



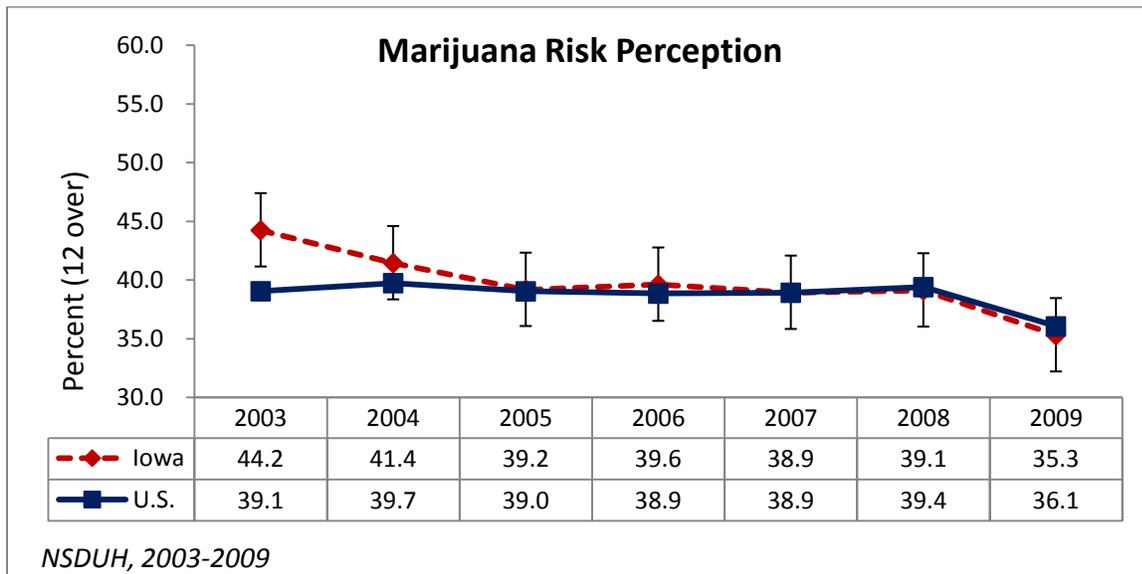
Notes: Significant difference between Iowa and US.

Figure 63: Percent of People Reporting Using Marijuana in Past Month by Age, NSDUH



Notes: Age-specific percentage constant over the years;

Figure 64: Percent of People Reporting Perceiving Great Risk from Smoking Marijuana Once a Month, NSDUH



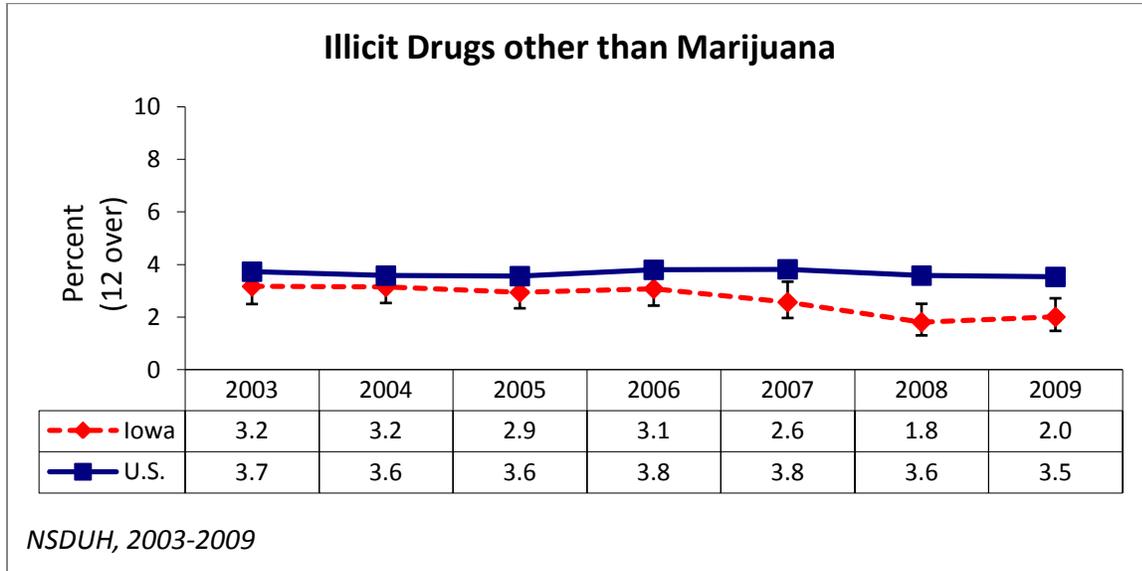
Notes: No difference between Iowa and US

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 2008-2009 NSDUH. Data from the 2006-2007 onward, subsequent NSDUH results showed a significant difference

in the percent of people reporting current use of an illicit drug other than marijuana between Iowa (2.1%) and the nation (3.5%) in 2009 (Figure 65).

Figure 65: Percent of People Reporting Using Illicit Drugs Other than Marijuana in Past Month, NSDUH



Notes: significant lower percentages in Iowa;

Prescription Drug Abuse:

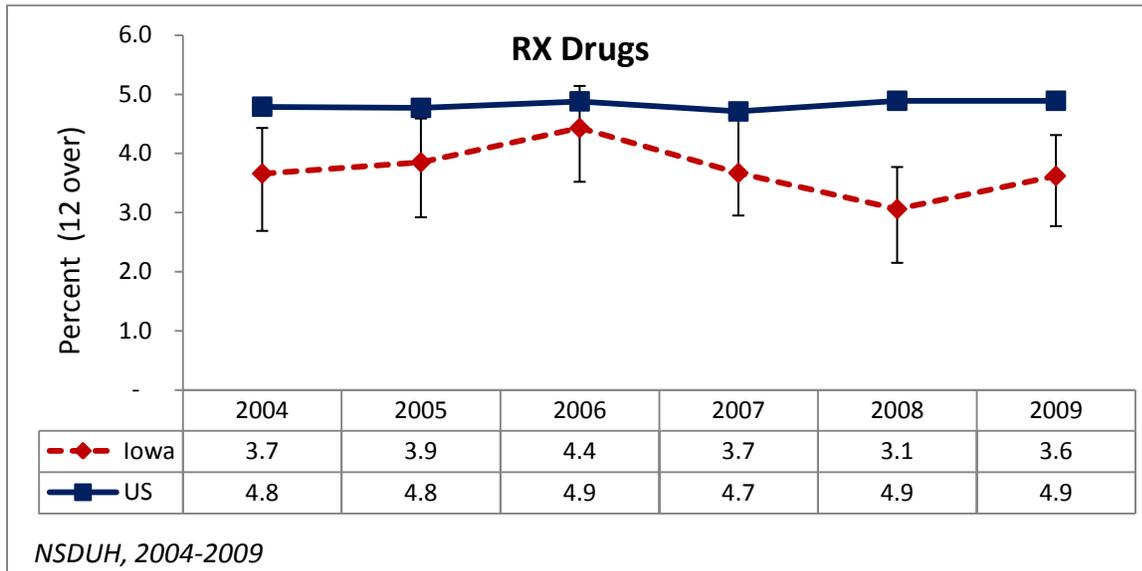
The CDC surveillance system has been reporting an increase of prescription medication intoxications and deaths. Prescription drug medications represent here drugs that are only obtained through a prescription from a licensed doctor. According to the CDC, from 1990 to 2002, unintentional drug overdose deaths have tremendously increased in the US (five times) with pain medications implicated in more than half of the cases.¹³ In 2009, 31,758 (76 %) of the 41,592 poisoning deaths in the US were unintentional and came second as a second leading cause of unintentional injury death for all ages, after motor vehicle crashes. Among people 25 to 64 years old, unintentional poisoning caused more deaths than motor vehicle crashes.¹⁴

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, 3.6% 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 66). The proportion of Iowans reporting non medical-use of pain relievers in the past year has remained the same. The highest proportion of use occurred in

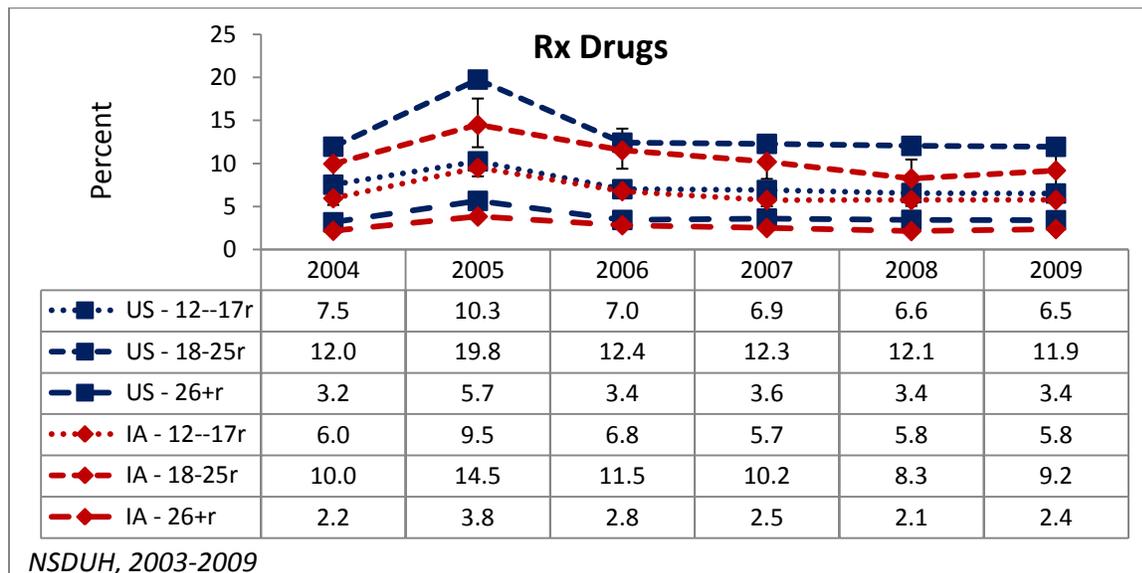
the 18-25 age group, which reached 20% for the nation and 15% in Iowa in 2005. Since then the rates have leveled down and were stable. In Iowa, the proportion of prescription drug users among the 18-25 was much lower (9%) in 2010 compared to 2005. The percentages in 2010 in the other age groups among Iowans were not different than those in the nation (Figure 67).

Figure 66: Percent of People Reporting Non-Medical Use of Pain Relievers in Past Year, NSDUH



Notes: RX= prescription drugs.

Figure 67: Percent of People Reporting Non-Medical Use of Pain Relievers in Past Year by Age, NSDUH



Notes: 12-17_r, 18-25_r, 26+: rate among those age groups;

Youth Consumption Patterns

At the State Level

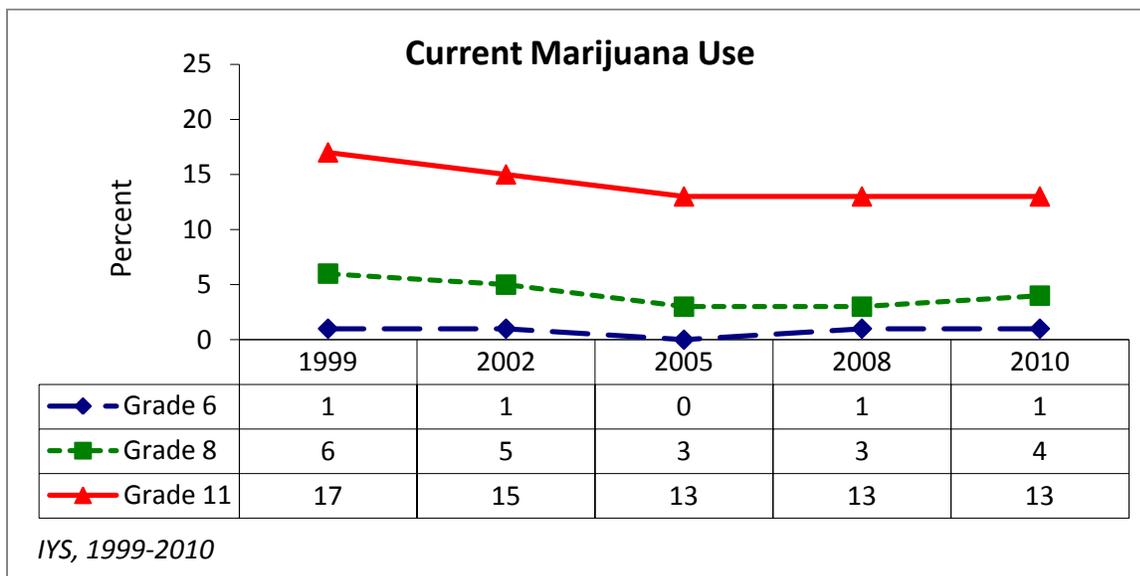
The 2007-2008 NSDUH estimated that approximately 24,000 Iowans, 12-17 years old, used illicit drugs including marijuana, cocaine, heroin, hallucinogens, inhalants, and prescription medications in the past month. This estimate includes 16,000 12 to 17 year old marijuana users. Marijuana Use among Iowa 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 22). Marijuana use by 8th and 11th graders seems to be trending upward after decreasing between 1999 and 2005 (Figure 68).

Table 22: Percent of Youth Reporting Current Drug Use, IYS 2010

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

Figure 68: Percent of 6th, 8th, and 11th-Graders Reporting Past 30-Day Marijuana Use, IYS



Notes: Error bars are too small to represent; with IYS sample size difference of 1% are significant;

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 69). Female students were about 5% more likely to respond “Great Risk” or “Moderate Risk” than male students in 2008 (Table 23). The percent of students reporting first use of marijuana before age 13 decreased for all three grades between 2002 and 2008 (Figure 70).

Table 23: 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 69: Percent of 6th, 8th, and 11th-Graders Reporting Perception of Marijuana Use as Moderate or Great Risk, IYS

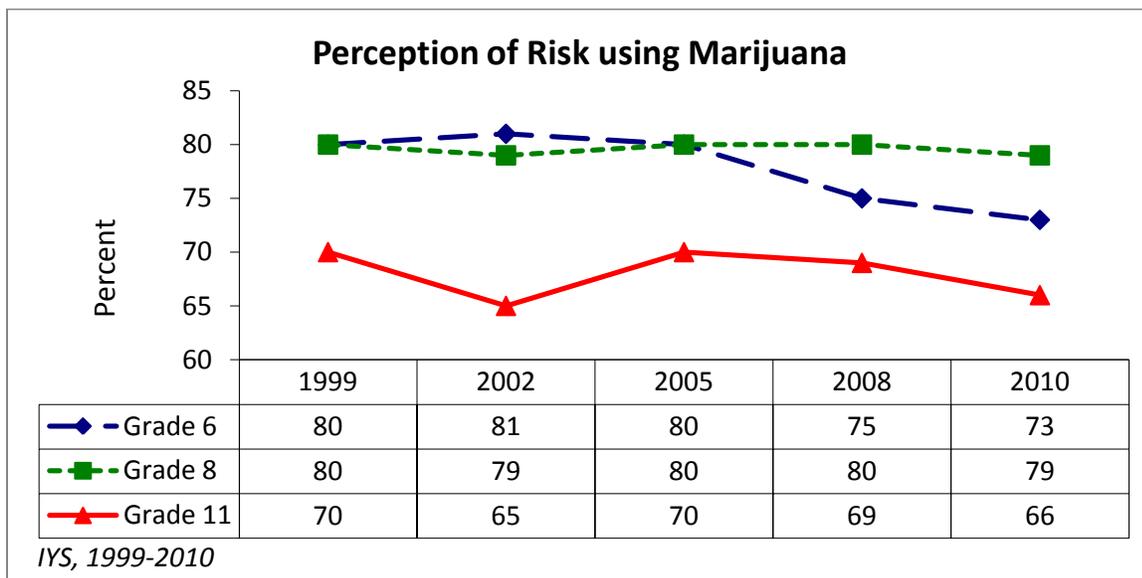
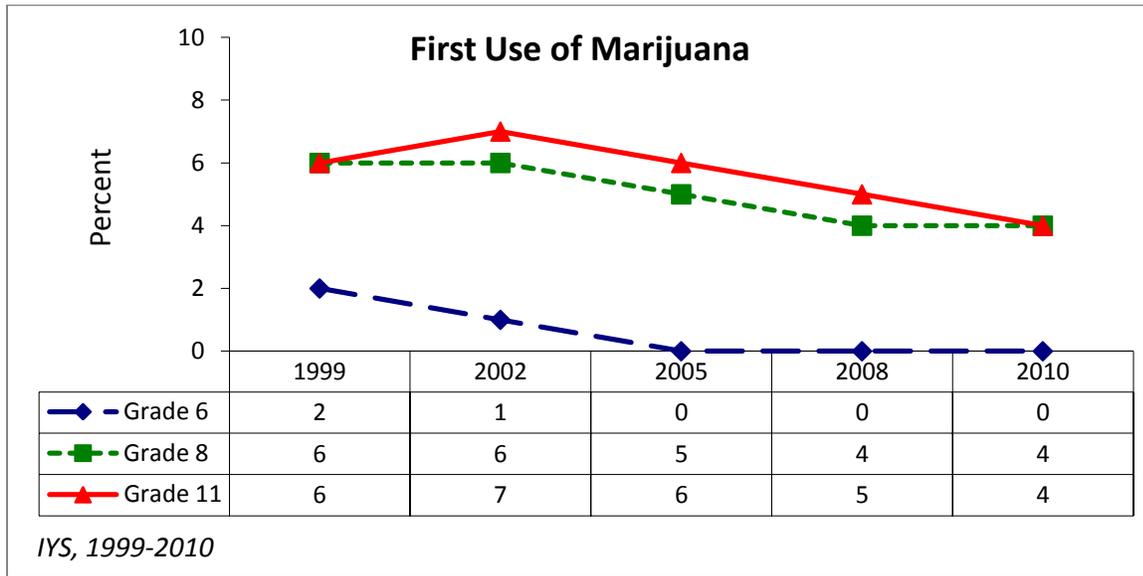


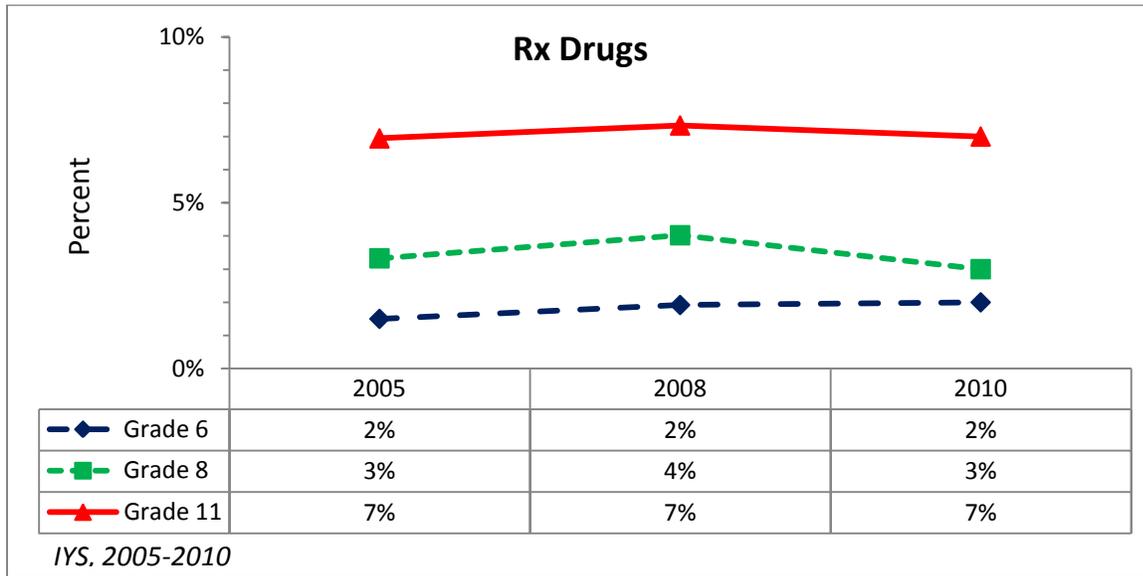
Figure 70: Percent of 6th, 8th, and 11th-Graders Reporting First Use of Marijuana before Age 13, IYS



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 medications 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 71).

Figure 71: Percent of 6th, 8th and 11th-Graders Reporting Prescription Drugs Use, IYS 2005-2010

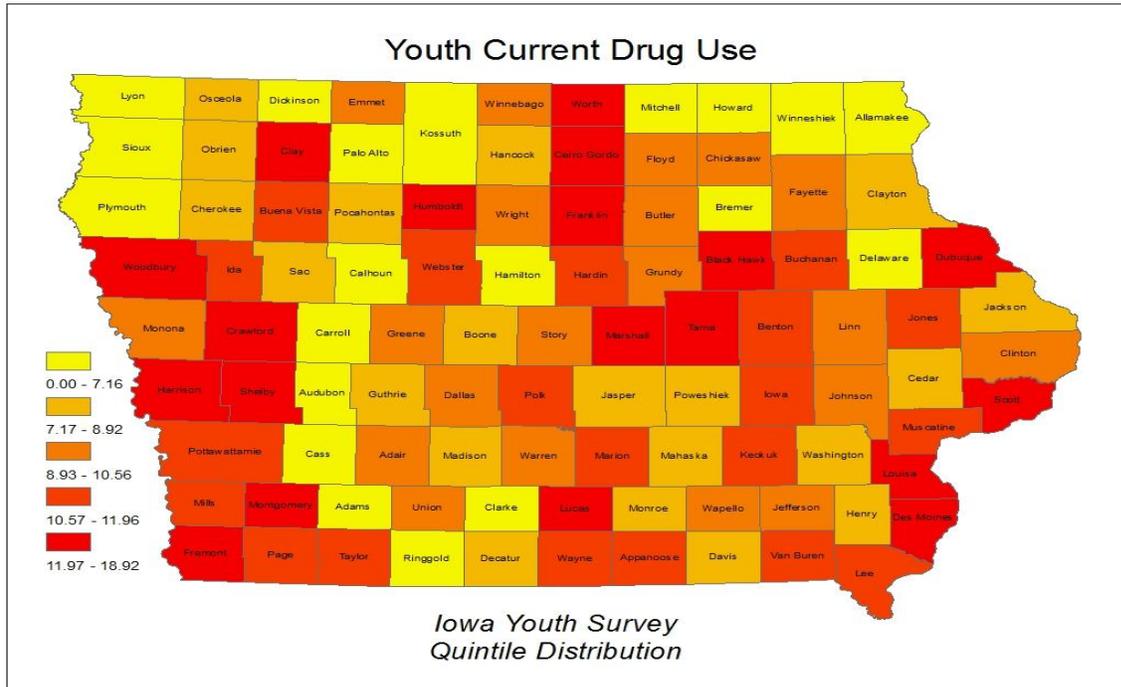


Notes: Error bars are too small to represent; significant difference in percentages; Rx= prescription drugs

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 72: 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, there was 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 or alcohol.^{15, 16}

At the State Level

Drug Legal Problems:

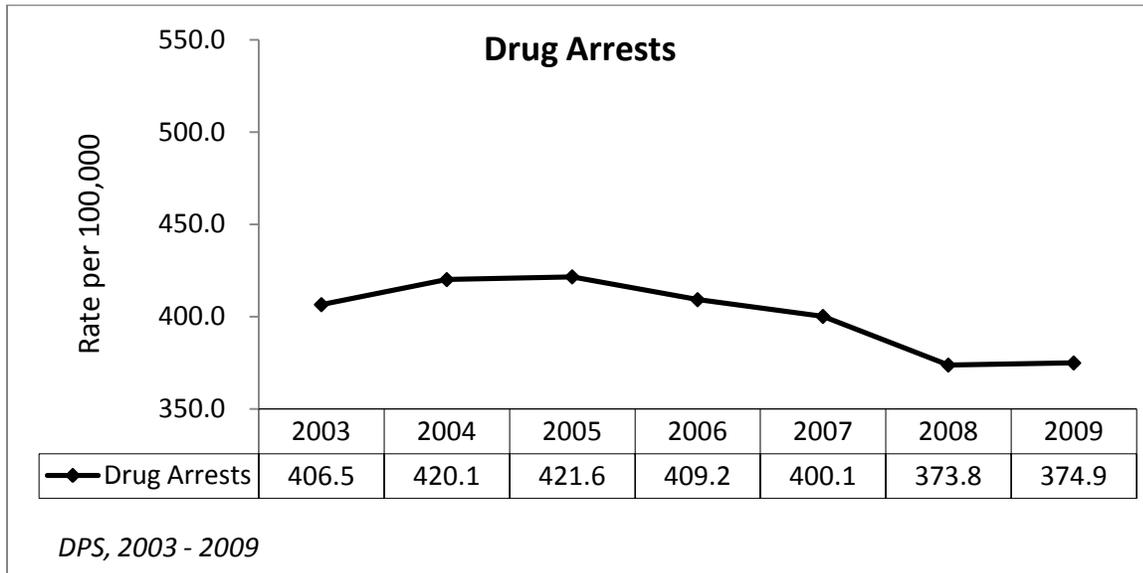
Drugs and narcotic offenses/violations include the “*unlawful cultivation, manufacture, distribution, sales, purchase, use, possession, transport or importation of any drug or narcotic substance.*” On average there are more than 11,000 arrests for drug violations per year in Iowa. The trend of drug arrests decreased 11% from a 2005 rate of 421.6 to a 2009 rate of 374.9 drug arrests per 100,000 (Figure 73). 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 24). 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 74 & 75).

Table 24: Number of Drug Arrests by Listed Substances, DPS

Drug	2005	2006	2007	2008	2009
Cocaine/Crack	1122	1147	1113	985	725
Heroin	29	9	18	23	41
Other Narcotics /Opiates	192	262	246	255	218
Marijuana	8830	8277	8991	7792	8009
Hallucinogen	79	58	74	63	57
Methamphetamine	2410	1618	1100	1026	1075
Others (Stim. Barb.)	592	573	596	780	844
Unknown	313	223	185	299	308
Total	13567	14207	14352	11223	11277
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

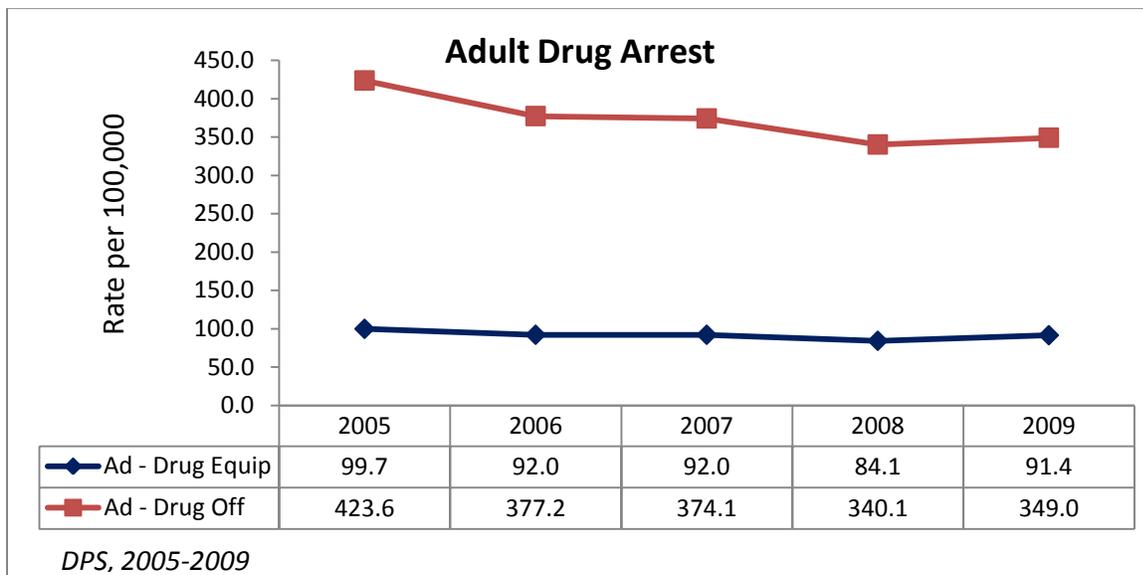
Notes: Hallucinogens include LSD; Other Narcotics includes Hashish, percent change from 2009 compared to 2006; Stim. = Stimulants, Barb.=barbiturates;

Figure 73: Trend of Drug Arrest Rates per 100,000 Iowans, DPS



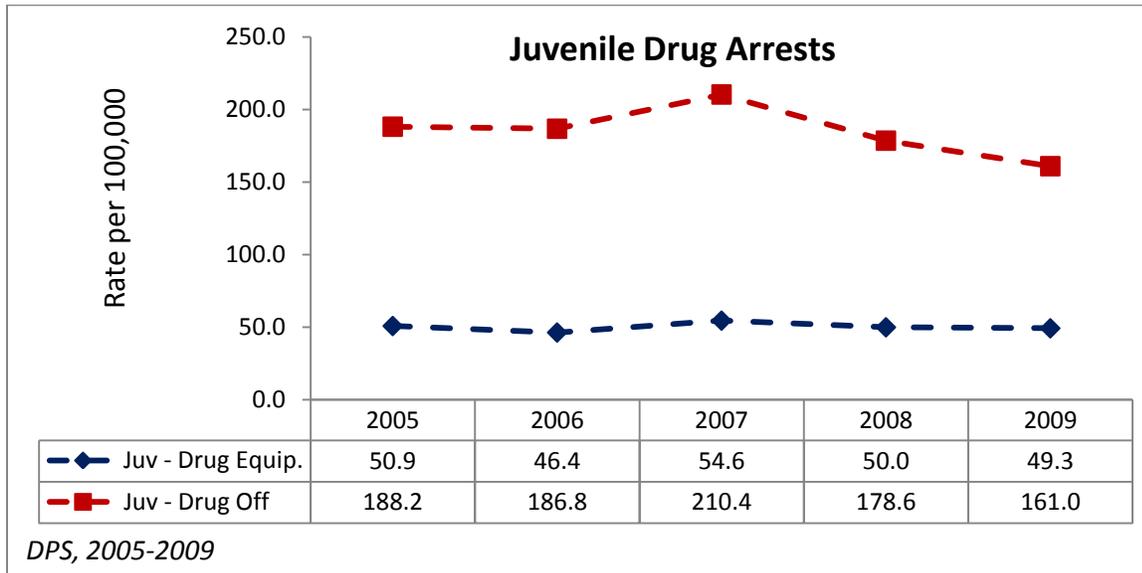
Notes: Offenses include manufacture/distribution and possession/use of drugs; more than one violation or type of drug can be entered (DPS); Exclude equipment violations; Data reviewed using DPS report; rate are calculated using year-specific census population;

Figure 74: Trend of Drug Arrest Rate by Violation Types among Adults, DPS



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

Figure 75: Trend of Drug Arrest Rate by Violation Types among Juveniles, DPS



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

Drug Associated Child Abuse:

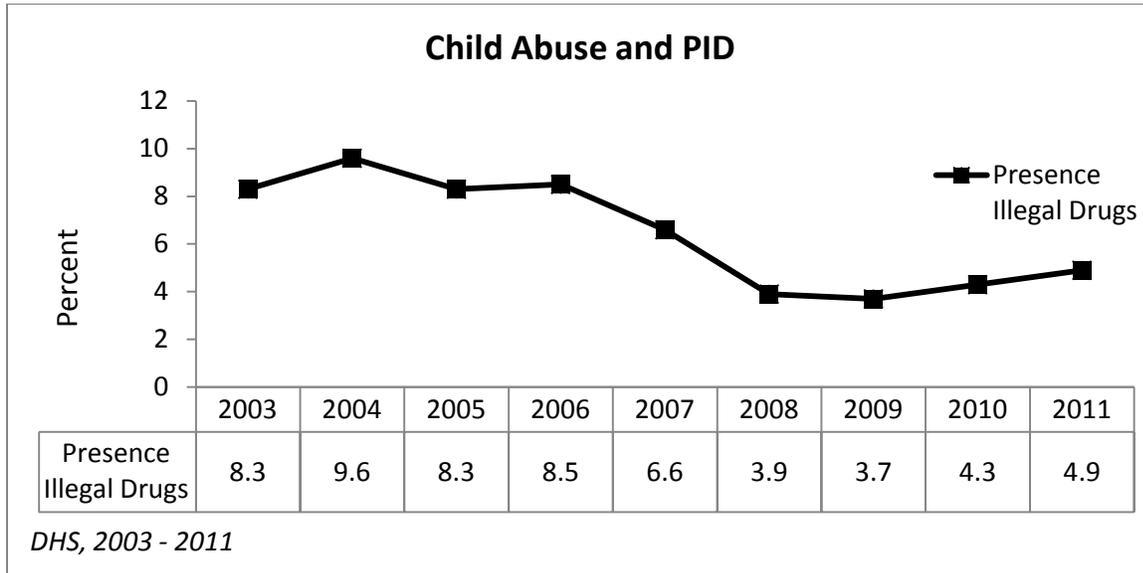
Many circumstances besides a change in the use of illegal substances could influence these numbers, including funding for law enforcement and the Department of Human Services, detection technology advances, changes in the Iowa code, and public awareness and pressure. The enactment in May of 2005 of the 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.

The percent of confirmed or founded child abuse cases with the presence of illegal drugs (in a child’s body) in Iowa after a significant decrease in 2004 up to 2009 increased in 2010 (4.3%), (Figure 76). This rate increase was associated with an increased number of confirmed or founded child abuse cases involving manufacturing methamphetamine in the presence of a minor in 2010, reaching pre-2005 values

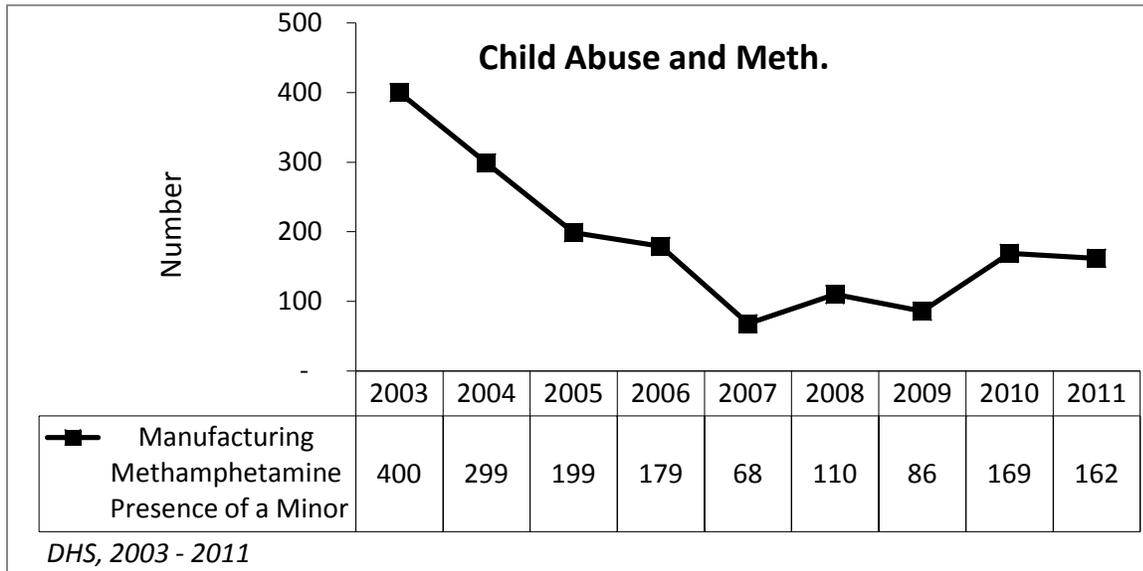
(Figure 77). The increase in child abuse is also correlated with an increase in Methamphetamine Labs discovery by DPS. It seems that the effect of the Iowa Pseudoephedrine Control Act is waning fast.

Figure 76: Percent Confirmed or Founded Child Abuse Cases Involving the Presence of Illegal Drug in Child’s Body, Iowa DHS



Notes: DHS= Department of Human Services; PID= presence of illicit drugs in child’s body;

Figure 77: Number of Confirmed or Founded Child Abuse Cases Involving Manufacturing Methamphetamine in the Presence of a Minor, Iowa DHS



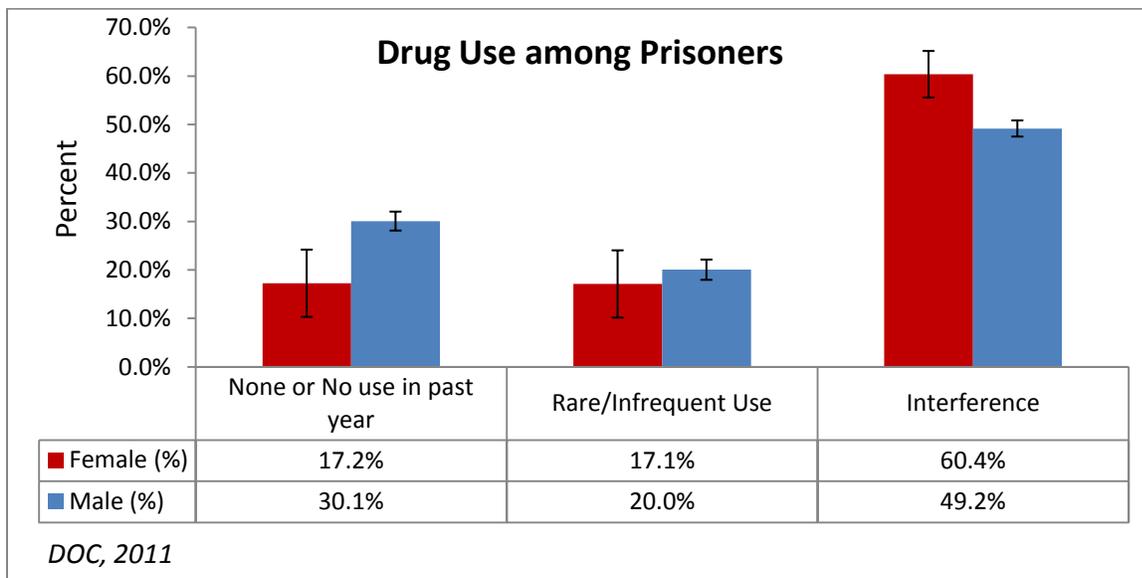
Notes: DHS= Department of Human Services;

Prison Substance Screening:

Most inmates are screened using the LSI-R upon entry in Iowa prison reception centers. Inmates are also re-screened several times during their prison stay. The LSI-R definition of drug includes prescription drugs not prescribed by a doctor and any other illicit drug. Alcohol was not included in this definition. Of the 100% of inmates who had a completed the screening in 2011, 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. Although there were more males than females in prisons, the proportion of females who had current drug problem (interference) in 2011 was higher compared to males. About 60% of female inmates had a current drug problem compared to 46% in males (Figure 78). Compared to 2009, there was an across the board increase in the proportion of current drug problem (Table 25).

Figure 78: Current Drug Problem in Inmates by Gender (N = 7702) - 2011, Iowa DOC



Notes: Significant difference in the proportion of interference between males and females

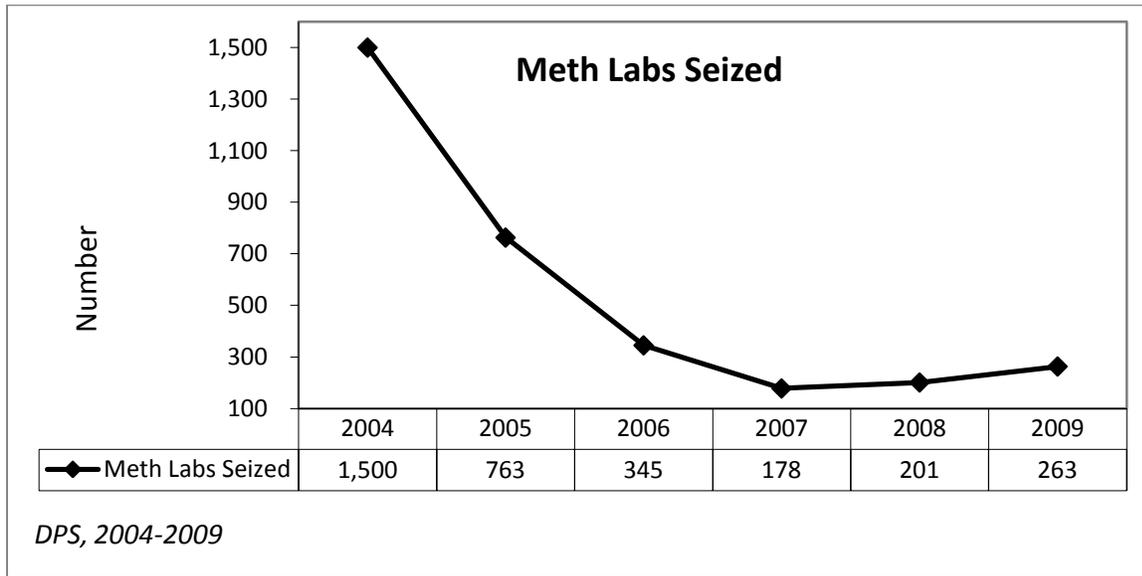
Table 25: Iowa Prison Inmates – Drug Problems, Currently and Ever (N = 8,438) - 2011, Iowa DOC

Demographics	Year	Drug Problem, Currently Interference N (%)	Drug Problem, Ever Yes N (%)
Age			
21 and Older	2009	3,577(44.9)	6,405 (80.4)
	2011	3,582 (48.9)	5,896 (80.5)
Under 21	2009	347 (73.8)	394 (83.8)
	2011	279 (73.8)	314 (83.1)
Gender			
Female	2009	356 (51.0)	557 (79.8)
	2011	399 (60.4)	552 (83.5)
Male	2009	3,568 (46.1)	6,242 (80.6)
	2011	3462 (49.2)	5,658 (80.4)
Race			
Whites	2009	2,740 (45.6)	4,705 (78.4)
	2011	2697 (49.4)	4,271 (78.3)
Blacks	2009	1,087 (49.4)	1,915 (87.0)
	2011	1054 (52.3)	1,753 (87.0)
Asian/Pacific Islanders	2009	24 (28.9)	51 (61.4)
	2011	34 (45.3)	53 (70.7)
American Indians/ Alaska Native-Americans	2009	73 (48.3)	128 (84.8)
	2011	78 (49.7)	133 (84.7)

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. Since 2009, the number of labs seized is still increasing with 263 in 2010 (Figure 79). 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. The increase in lab bust may be also due to increase in enforcement activities.

Figure 79: Number of Meth Labs Seized by State and Local Authorities, DPS



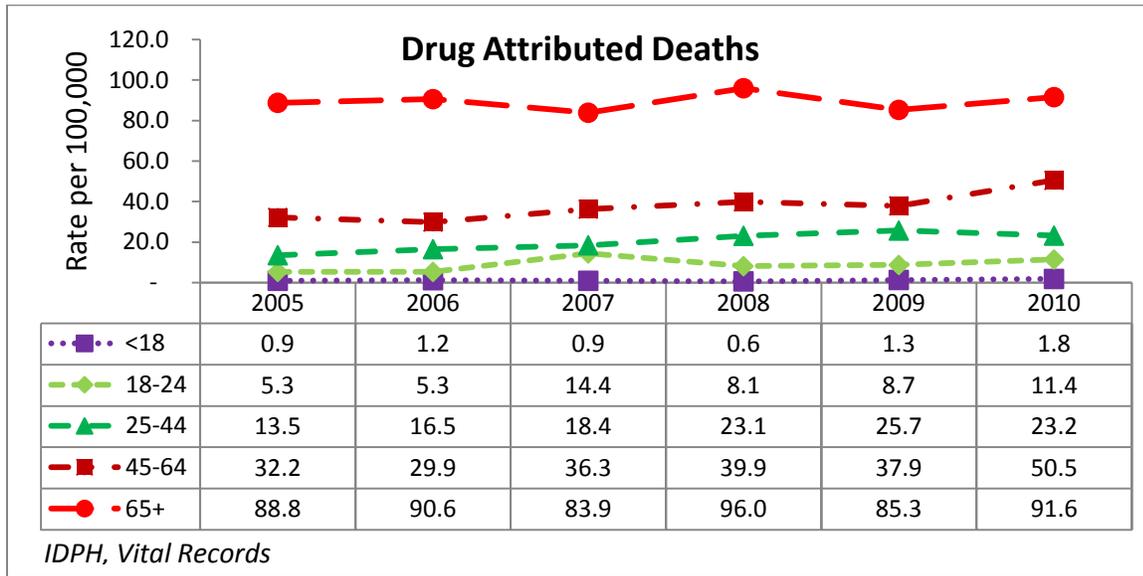
Notes: Seizures made by local and state agencies

Drug Associated Mortality:

The number of unintentional deaths (100% Attributable) associated with drug consumption (including non-medical use of prescription drugs) continues to increase, from 747 in 2005 to 1,039 in 2009. In Iowa, drug-related death rates were higher among males and age 65 and over. Compared to the 18-24 age groups, the rate of drug-related deaths was twice as high for the 45-64 old and 10 times higher for the 65 and older (Figure 80). Males had a 50% higher rate of deaths associated with drug consumption than females (Figure 81). The rates are still increasing over the years. Most of those deaths are from prescription drug medications.

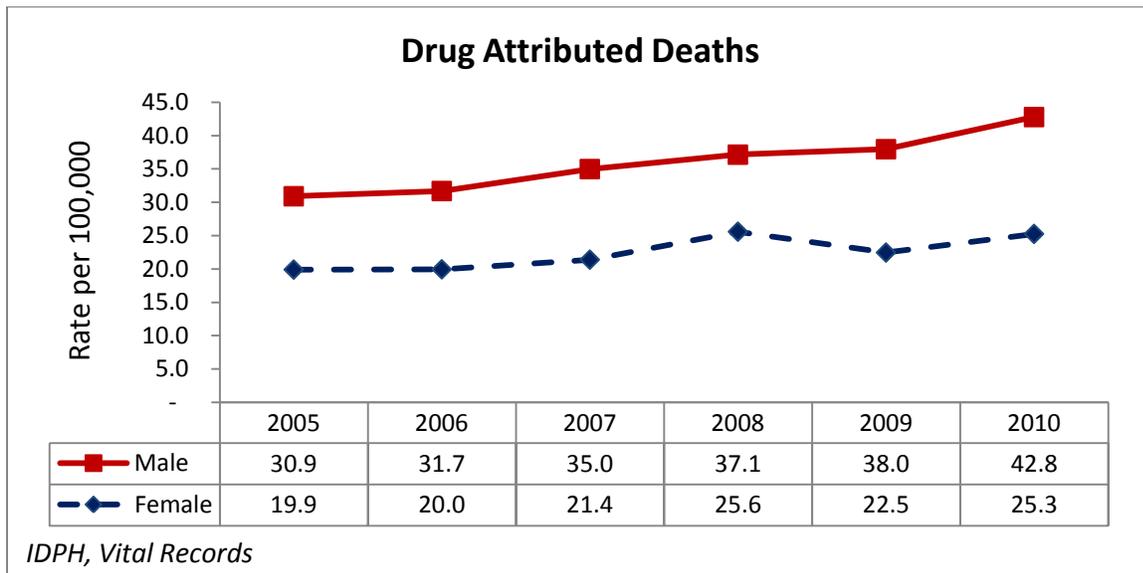
In terms of race, Whites had higher rate of deaths than other minorities in 2010, including Hispanics (Figure 82); however caution should be exercised when interpreting race trends.

Figure 80: Drug Associated Death Rates (100% Attributable) by Age, IDPH Vital Records



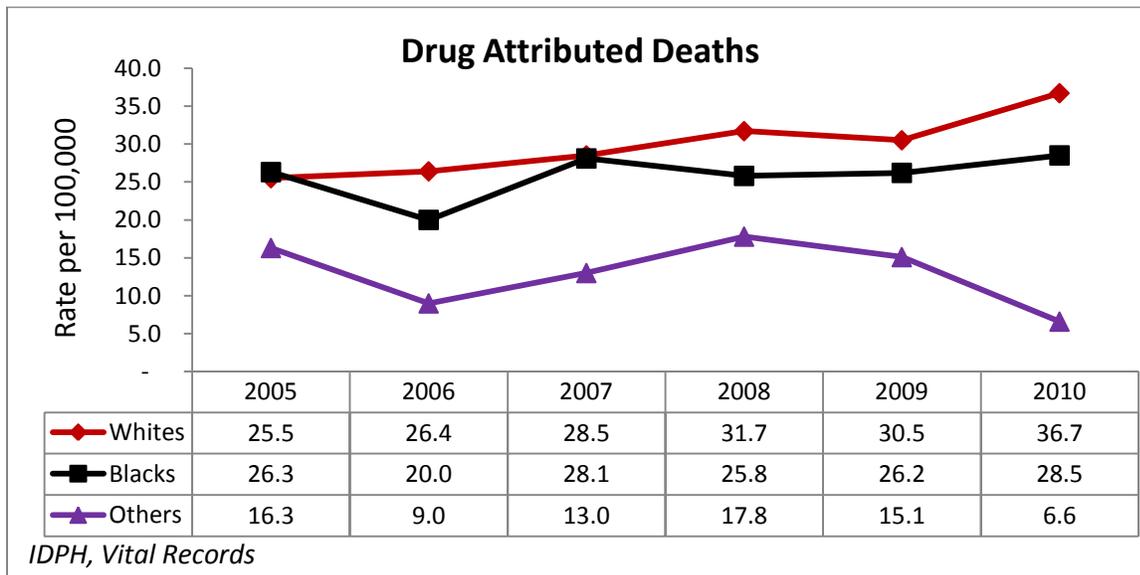
Notes: To match legislative updates 21 DX fields were Queried; ICD10 code s= 'F11-16', 'F18', 'F19', 'X40-43', 'X60-64', 'Y10-12'; <18 rate = Year-specific census 10-17 years old population;

Figure 81: Drug Associated Death Rates (100% Attributed) by Gender, 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 82: Drug Associated Death Rates (100% Attributable) by Race, 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 2008-2009. Iowans age 12 and older are less likely to report illicit drug dependence or abuse (1.9%) than the national percentage (2.6%), (Figure 83). The NSDUH uses the DSM-IV definitions of dependence and abuse.

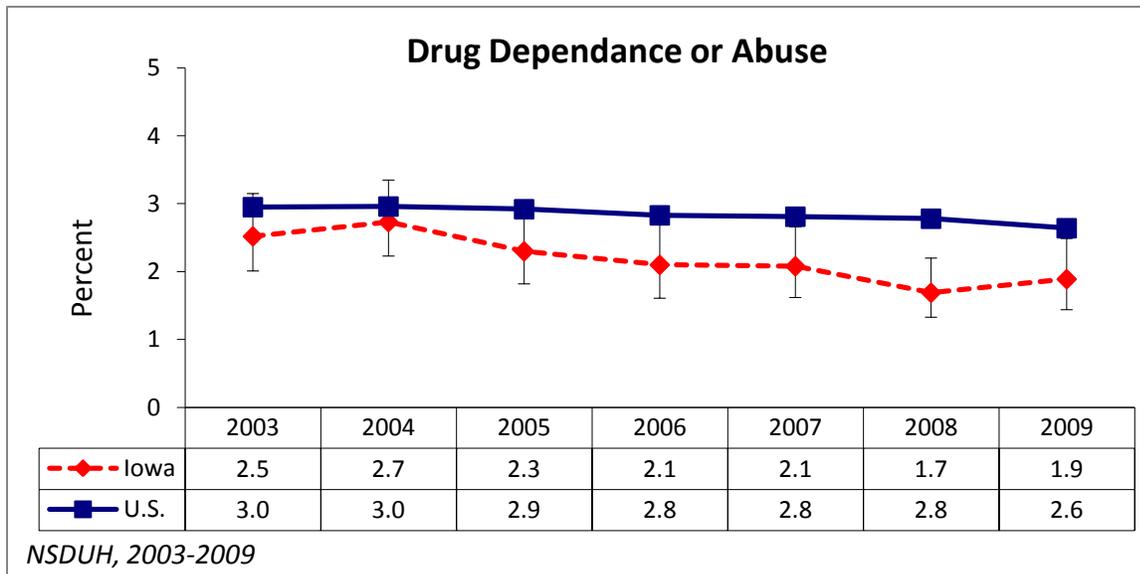
Drug associated hospitalization rates were higher among the 25-44 years old with a stable rate (Figure 84). Females had a greater rate of hospitalizations associated with drugs over the year; however, in 2010 the male rate increased closing the gap (Figure 85).

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 also due to the fact that Blacks had a higher proportion of hospitalization due to hard drugs (Figure 86). When the drug type was assessed by race, Blacks hospitalizations were more likely associated with marijuana, cocaine/crack, and alcohol combined with other drugs than for Whites and other racial groups. However, there are some difficulties to ascertain the drug type associated with the poisoning in hospital data as about 30% were unspecified (Table 26). White and other racial groups had a higher percent of undetermined drug type.

Illicit 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. In 2011, there were 119 new cases diagnosed with HIV; about 10% of those cases were injecting drug users (IDU), which comprised 2.5% drug users and 6.7% of men who have sex with men and inject drugs (MSM/IDU) for a total number of

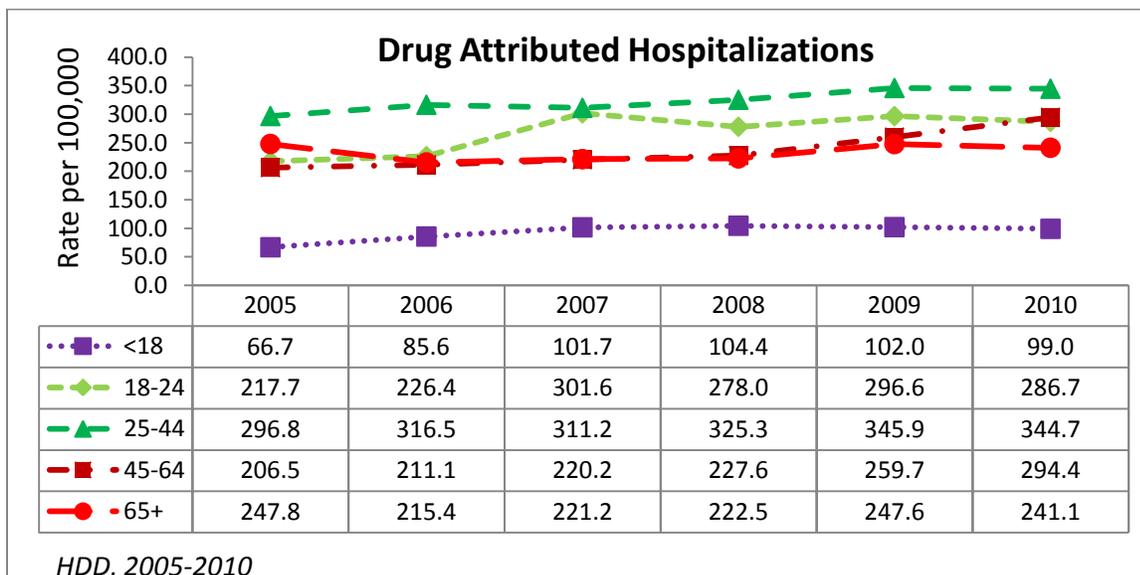
11 cases out of the 119 in 2011. There appears to be an inversion of HIV profile a decrease in IDU being contaminated. The incidence rates of HIV for IDU decrease four-folds in 2010-2011, while increased for MSM/IDUs (Figure 87).

Figure 83: Percent of People Reporting Past-Year Illicit Drug Dependence or Abuse, NSDUH, 2008



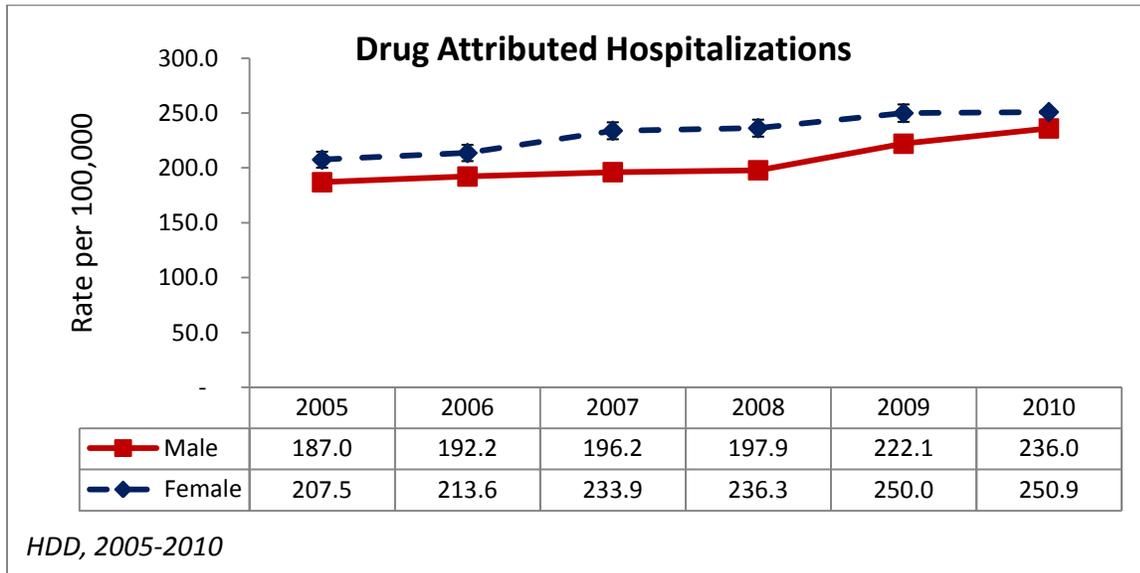
Notes: Not significantly different in 2010;

Figure 84: Drug Associated Hospitalization Rates (100% Attributable) by Age, HDD



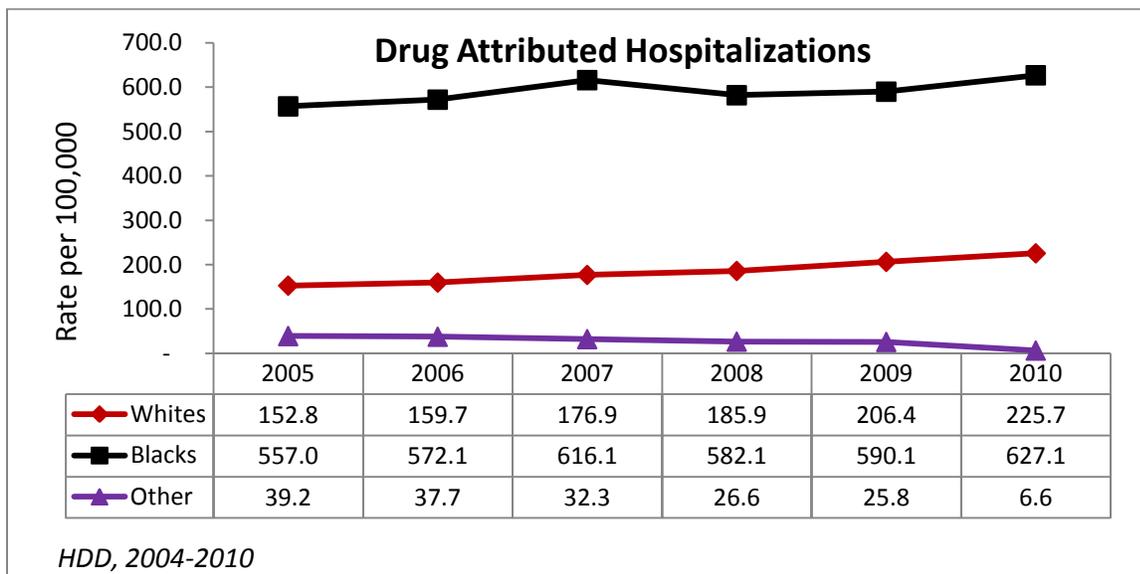
Notes: HDD= Hospital Discharge data; ICD9 codes: N 304, 305, 306, 962, 977; E850 (.0,2,4,7,8,9) E851-58, E935, E937-40, E950(.0-.5), E980; 10 DX fields queried;

Figure 85: Drug Associated Hospitalization Rates (100% Attributable) by Gender, HDD



Notes: 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 86: Drug Associated Hospitalization Rates (100% Attributable) by Race, HDD



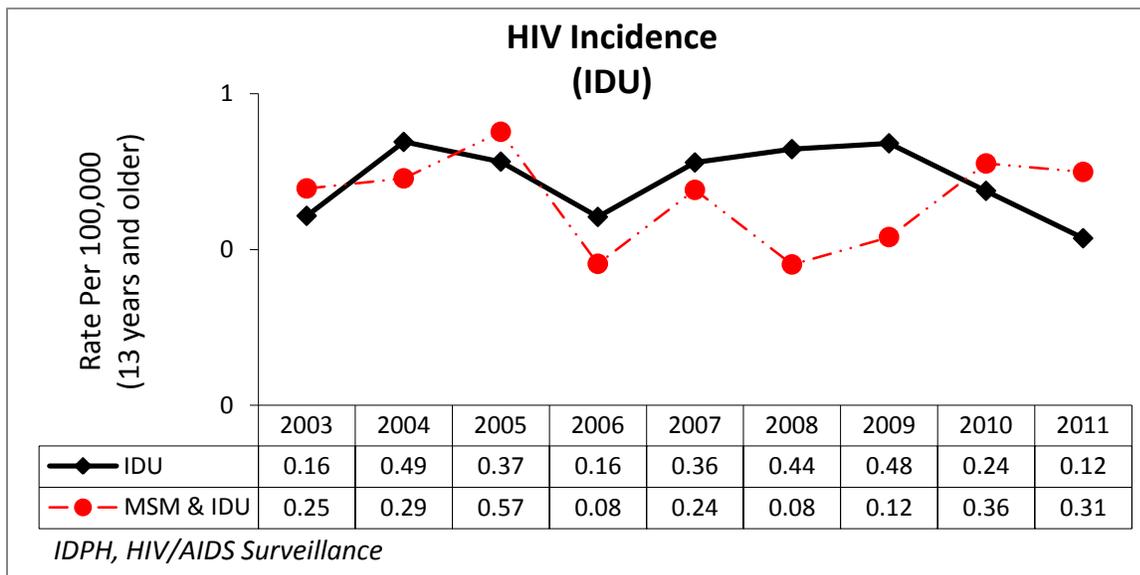
Notes: Algorithm from Pacific Research Institute (PIRE); HDD = Hospital Discharge data; ICD9 codes: N 304, 305, 306, 962, 977 ; E850 (.0,2,4,7,8,9) E851-58, E935, E937-40, E950(.0-.5), E980; 10 DX fields queried; Caution should be used when interpreting race; changes in race collection methods occurred in 2009 as well as differences in 2010 Census

Table 26: Percent of Drug of Choice Associated with Hospitalizations (100% Attributable) by Race, HDD 2010

Substance	NH Whites N (%)	Blacks N (%)	Others N (%)
Alcohol	8280 (57.6)	478 (46.5)	428 (68.2)
Cocaine	82 (0.6)	63 (6.1)	3 (0.5)
Amphetamine	222 (1.5)	6 (0.6)	9 (1.4)
Hallucinogen	14 (0.1)	6 (0.6)	3 (0.5)
Cannabis	305 (2.1)	87 (8.5)	14 (2.2)
Barbiturate	130 (0.9)	7 (0.7)	2 (0.3)
Opiates	374 (2.6)	19 (1.9)	6 (1.0)
Antidepressant	191 (1.3)	11 (1.1)	9 (1.4)
Tranquilizer	434 (3.0)	25 (2.4)	10 (1.6)
Other drug	260 (1.8)	17 (1.7)	6 (1.0)
Unspecified drug	2372 (16.5)	138 (13.4)	76 (12.1)
Alcohol + drug	996 (6.9)	125 (12.2)	41 (6.5)
Opiate + other	244 (1.7)	14 (1.4)	5 (0.8)
Amphetamine + other	131 (0.9)	6 (0.6)	4 (0.6)
Antidepressant + other	198 (1.4)	5 (0.5)	4 (0.6)
Other combo	148 (1.0)	21 (2.0)	8 (1.3)

Notes: 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; column percent;

Figure 87: Reported Incidence of HIV Cases per 100,000 due to Drug Use- 13 years and over, IDPH 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 88). The hospitalization rates showed counties in the highest quintiles clustering around central and eastern Iowa, (Figure 89). The rate of student removal because of drugs mimicked the hospital rate quintile distribution map, (Figure 90).

Figure 88: Plot of the Number of Drug Associated Deaths and Hospitalizations (100% Attributable), 2009 HDD and IDPH Vital Records

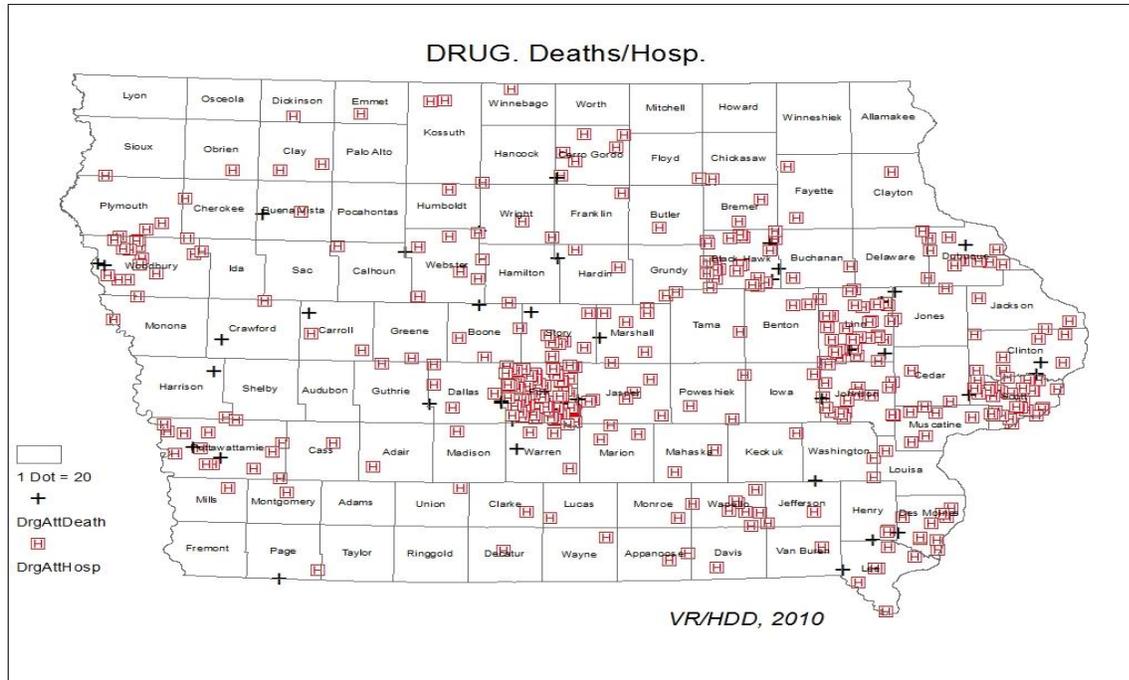


Figure 89: Drug Associated Hospitalization (100% Attributable) Rates by County, HDD – 2010

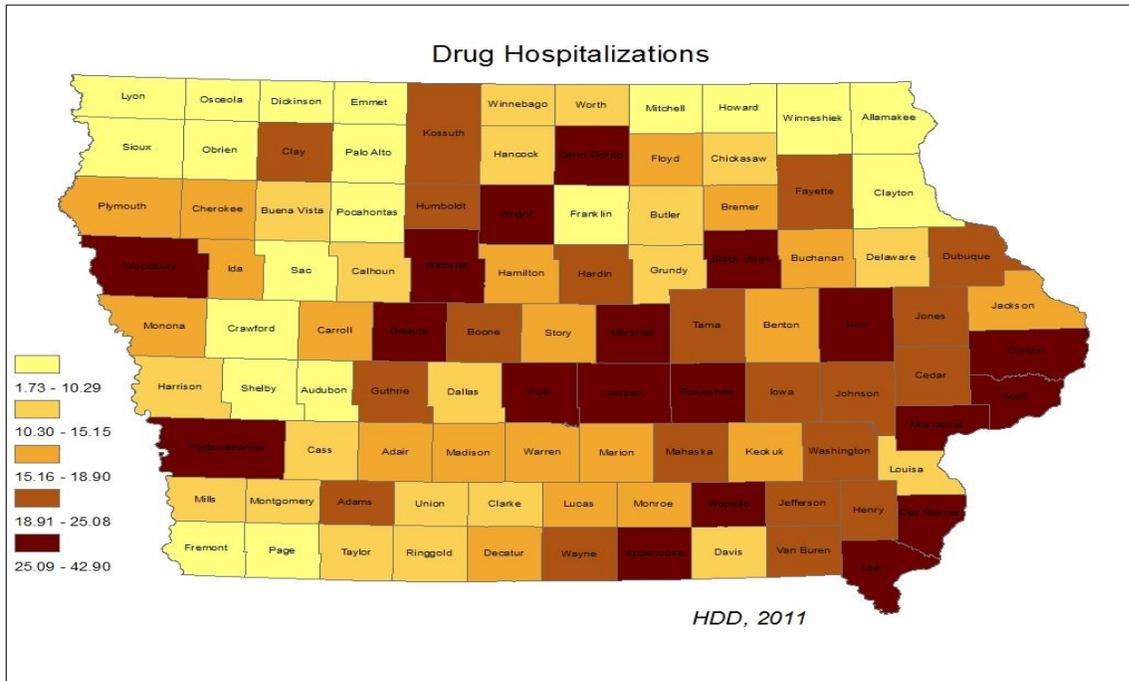
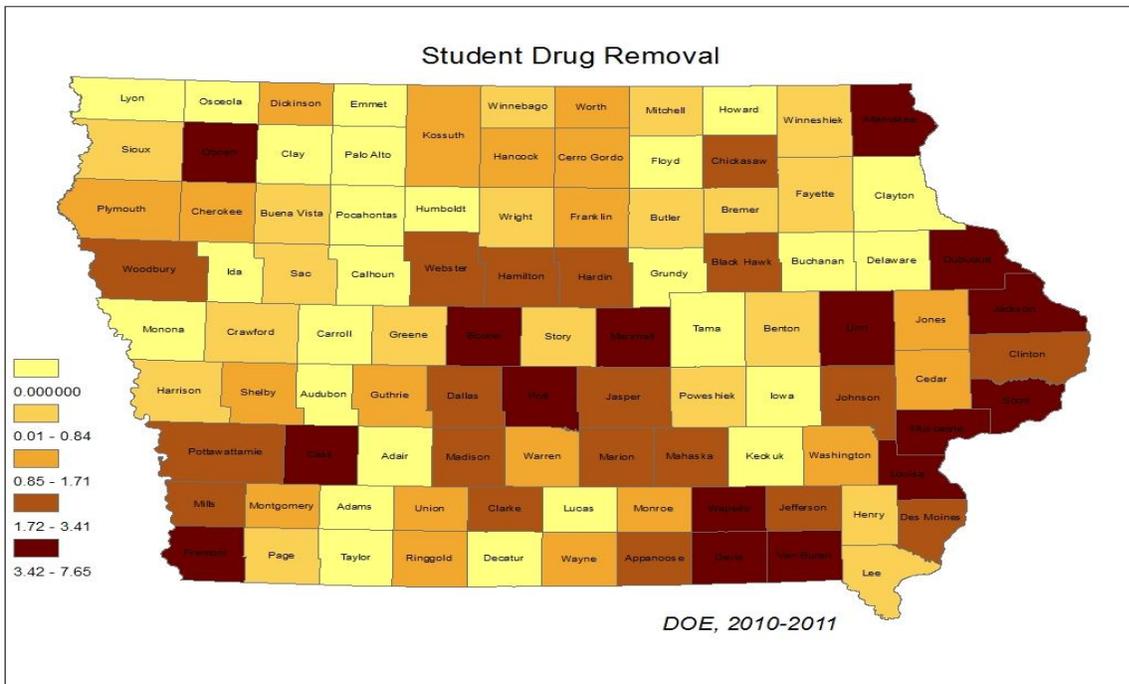


Figure 90: Removal Rate per 1,000 Students for Drug, Project Easier 2010-2011



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 resulted in three small cities with extraordinarily large numbers of students and young adults concentrated in one place, and engaging 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%).¹⁷

Iowa legislature has been forthcoming on policy to prevent 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, Iowa Smoke Free Air Act) 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.”

Iowa binge drinking prevalence is considerably higher than the national average. This situation may be intuitively understood from the data, on attitudes toward use and abuse of alcohol. Iowans have markedly higher levels of acceptance of drinking and lower fear of adverse consequences compared to other Americans. As a matter of fact, Iowa is ranked fifth in binge drinking prevalence associated with a lower perception of risk as reported by NSDUH

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 use remains the leading cause of mortality and morbidity in the nation¹⁸, this EPI Profile found over 10,000 hospitalizations occurring in Iowa because of alcohol with increasing trends. Meanwhile, tobacco or drug morbidity stayed constant in Iowa. Since, the rise in prescription

drugs mortality and morbidity in the nation and in Iowa is a matter of concern, prescription drug abuse and its consequences need to part the routine SEW surveillance activities along with the SPF SIG priorities.

APPENDICES

ICD 9 and ICD10 Code

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 5 th 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#RTF>

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

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/sammecc/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 5 th digit codes with more specific drug induced mental disorders]	292	Mental and behavioral disorders due to psychoactive substance use (excluding alcohol and tobacco). [includes 4 th characters: .0 acute intoxication, .1 harmful use, .2 dependence syndrome, .3 withdrawal 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 5 th 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#RTE>

⁵ From <http://www3.who.int/icd/vol11htm2003/fr-icd.htm>

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

Data Sources

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

Criminal and Juvenile Justice Planning (CJJP), Justice Data Warehouse:

<http://www.humanrights.iowa.gov/cjpp/jdw/index.html>

Hospital Discharge Data (HDD), Iowa Hospital Association through IDPH

Iowa Department of Public Safety, Incident Based Uniform Crime Reporting System (Iowa UCR):

<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>

National Survey on Drug Use and Health (NSDUH) <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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³ US Department of Health and Human Services, US Department of Agriculture; Dietary Guidelines for Americans, 2005. Available (www.healthierus.gov/dietaryguidelines)

⁴ Centers for Disease Control and Prevention. Alcohol Related Disease Impact (ARDI) application, 2008. Available http://apps.nccd.cdc.gov/DACH_ARDI/Default.aspx (accessed June 2011)

⁵ <http://apps.nccd.cdc.gov/ARDI/HomePage.aspx>

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⁷ Mendez D et al. *Smoking Prevalence in 2010: Why the Healthy People Goal is Unattainable*. Am J Public Health, 2000; 90:401-403

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