Utah State Substance Use and Abuse Epidemiological Profile

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Executive Summary

This document is a compilation of substance-related consequence and consumption data for the state of Utah. The State Epidemiological Outcomes Workgroup (SEOW) has worked for more than one year to collate state data and compare it to available national measures. As a result of this effort, this epidemiological profile presents 28 indicators of substance use consequences and 24 indicators of substance use estimates for youth and adult populations in the state.

Utah is fortunate to experience relatively low rates of substance use and substance use related outcomes compared to the nation. Identified rates of substance use and outcomes among Utah adults are less than the United States as a whole for all reported measures except suicide and reported property crimes. Both of these outcomes have been related to substance use but are not proximal (immediate consequence) indicators of substance use. Youth substance abuse rates are also generally much lower than the national average. In fact, 30 day use rates of Utah youth for the most commonly reported substances (alcohol, tobacco and marijuana) are about half of the national rates for these substances.

Some data gaps were identified during the SEOW process. There is a paucity of data at the county or district level compared to the state level. This is especially true of adult consumption data. There is also a lack of data for specific groups that may be at higher risk of outcomes such as racial or ethnic groups, or specific age groups such as senior citizens. Additionally, the SEOW remains open to suggestions for additional data relevant to substance use or consequence that is available.

Overview

In preparation for the Strategic Prevention Framework State Incentive Grant (SPF SIG), the State of Utah received funding in October 2005 from the Federal Center for Substance Abuse Prevention (CSAP) to organize and convene a State Epidemiological Outcomes Workgroup (SEOW). The primary task of the SEOW is to collect and interpret data related to consumption and consequences of substance use and abuse in an effort to make recommendations about the substance abuse priorities for the State of Utah, and for the Utah SPF SIG Project. For more than a year the Utah SEOW has looked within the agencies represented in the workgroup and throughout the state, to find suitable data regarding substance use and the outcomes of substance use that could be added to the State Epidemiological Data System (SEDS) data provided by CSAP. Contained within this epidemiological profile report are the indicators compiled by the SEOW as of March 2007. The data presented reflect data obtained through both national and state level sources, and cover a wide range

of substance use and consequence indicators. As seen in the tables and charts provided in the epidemiological profile, Utah has relatively low rates of substance use compared to the USA. In fact, substance use rates in Utah are often half those of the national average, and for many indicators, Utah rates represent some of the lowest rates in the nation.

This epidemiological profile begins with this overview, followed by a brief description of the process to be used in determining the substance abuse priorities for the state and the SPF SIG Project. Next, a set of reference tables providing a summary of the collected indicators is presented. These tables also act as a table of contents for the report by providing page numbers where more detailed information about each indicator (indicator snapshots) can be found. Information about the various data sources from which the indicators were obtained is provided in the appendices. Please note that the current report focuses on presenting state and national data, and illuminating substance use and consequence issues and trends at the state level. Future work by the SEOW will begin to analyze substance use and consequence issues and trends at sub-state levels and in more specific populations within the state.

The data in this report is organized by three general substance categories: a) alcohol, b) tobacco, and c) other drugs. Substance use consequence data is presented first, followed by substance use (consumption) data. The reference tables on pages 6-12 act as both an index and a summary of all 28 consequence and 24 consumption indicators included in the report. These tables allow readers to compare outcome and consumption indicators within substance category readily across a variety of attributes. Among the attributes provided in the consequence reference tables are the following:

1) *Indicator Name* – The name or description of the indicator
2) *Years* – The specific (data) years which are summarized in the table
3) *Average Annual Number of Cases* – The average number of cases of the substance consequence that occurred during the specified years
4) *Average Rate per 100,000 Population* – The average annual rate of cases per 100,000 population during the specified years
5) *UT:USA Rate Ratio* – Provides a comparison of the rate in Utah to the national rate during the same years; Ratios less than one reflect a lower state rate vs. the national rate, while ratios above one reflect a higher state rate vs. the national rate
6) *Trend* – The general trend in the number of cases or rate of incidence over the most recent years of data available
7) *Time from Use to Outcome* – A general index of the amount of time between use of the substance to the onset of the consequence (immediacy)
8) *Strength of Relationship* - A general index of the extent to which substance use is a strong determinant of or is highly correlated with the consequence

9) *Data Source* – Specifies the source from which the indicator was obtained; additional information about each source is contained in the appendices of the report
10) *Page* – Provides the page number where more detailed information and charts for each indicator can be found

Prioritization Process

The information collected in this report will be used to establish state level substance use and abuse prevention priorities. During the prioritization process, consideration will be given to all of the attributes specified in the reference tables, including: number of cases, rates, time from use to outcome, strength of use/outcome relationship, etc. Each of these attributes provides unique and important information that will be integral in determining the most pressing substance use and consequence issues facing the state. Additionally, the data will be examined geographically and by demographic variables to determine which parts of the state and which populations are of the highest need. In particular, the data will be broken out at the Local Substance Abuse Authority District level and by age, where appropriate, to determine need by region and populations.

It is important to keep in mind the relatively low rates of substance use and substance related consequences that Utah experiences. Therefore, it has been and should continue to be the goal of prevention professionals to achieve the lowest rates possible for Utah rather that achieving rates lower than the nation or our neighbors.

Alcohol Use Consequences

	Indicator	Years	Average Annual Number of Cases	Average Rate per 100,000 Population	UT:USA Rate Ratio	Trend	Time from Use to Outcome	Strength of Relationship	Data Source	Page
Mortality	Alcohol Related Motor Vehicle Crash Fatalities	2000-2004	73.5	32	0.53	Stable	Immediate	Strong	13	13
	# of Fatal Alcohol Related Vehicle Crashes	2000-2004	64.8	28	0.53	Stable	Immediate	Strong	13	13
	Proportion of Fatal Motor Vehicle Crashes Related to Alcohol	1990-2003	26%	41%	0.63	Slightly Decreasing	Immediate	Medium	13	13
	Alcoholic Cirrhosis	1990-2001	52	2.6	0.57	Stable	Distant	Strong	19-23	16
	Other Cirrhosis	1990-2001	56	2.8	0.54	Stable			19-23	16
	Alcoholism Fatalities	1999-2005	37	1.6	Not Available	Slightly Decreasing		Strong	3	17
Morbidity	Emergency Department Encounters with ICD-9 980.0, Toxic Effect of Alcohol	1999-2004	385	16.5	Not Available	Slightly Decreasing	Immediate	Strong	4	18
Other Consequences	Alcohol Dependence or Abuse	2002-2004	*Estimated* 125,802*	*Estimated* 6816*	*Estimated* 0.89*	Stable	Variable	Strong	16	21

Tobacco Use Consequences

	Indicator	Years	Average Annual Number of Cases	Average Rate per 100,000 Population	UT:USA Rate Ratio	Utah Trend	Time from Use to Outcome	Strength of Relationship	Data Source	Page
Mortality	Lung Cancer	1990-2001	358	17.7	0.32	Stable	Distant	Strong	19-23	22
	Ischemic Cerebrovascular Disease	1990-2001	3,182	159.0	0.53	Decreasing	Distant	Strong	19-23	23
	Cardiovascular Disease	1990-2001	414	19.3	0.73	Increasing*	Distant	Strong	19-23	23
	Other Lung Diseases	1990-2001	424	20.9	0.56	Stable	Distant	Strong	19-23	25
	Extent to which Tobacco Contributed to Death (probably contributed or was underlying cause of death)	1999-2004	1,422	61.1	Not Available	Decreasing	Distant	Strong	7	26

Other Drug Use Consequences										
	Indicator	**Years**	**Average Annual Number of Cases**	**Average Rate per 100,000 Population**	**UT:USA Rate Ratio**	**Trend**	**Time from Use to Outcome**	**Strength of Relationship**	**Data Source**	**Page**
Mortality	Accidental and Undetermined Intent Drug Poisoning Deaths	1999-2004	222	9.4	Not Available	Increasing	Immediate	Strong	7	28
	Drug Use	1990-1998	4	0.22	0.44	Increasing	Immediate	Strong	19-23	28
	Intentional (Suicide) Drug Poisoning Deaths	1999-2004	44	1.9	Not Available	Increasing	Immediate	Strong	7	28
	Number of Non-Illicit Drug Poisoning Suicides Deaths	1991-2005	37	1.7	Not Available	Stable	Immediate	Strong	9	28
	Number of Drug Poisoning Deaths Investigated by the Medical Examiner	1991-2005	215	Not Applicable	Not Available	Increasing	Immediate	Strong	9	28
	Number of Accidental and Undetermined Intent Illicit Drug Poisoning Deaths	1991-2005	75	3.4	Not Available	Increasing, then Stable	Immediate	Strong	9	28
	Number of Accidental and Undetermined Intent Non-Illicit Drug Poisoning Deaths	1991-2005	76	3.3	Not Available	Increasing	Immediate	Strong	9	28
Morbidity	Emergency Department Encounters for Narcotics Overdose (ICD-9 CM 965.x)	1999-2004	2,368	101.3	Not Available	Increasing	Immediate	Strong	4	29
Other Consequences	**Reported Property Crimes**	**2000-2003**	**94708.5**	**41.21**	**1.2**	**Stable**		**Medium**	**12**	**33**

Indirect Outcomes of Substance Use

	Indicator	Associated Substance	Years	Average Annual Number of Cases	Average Rate per 100,000 Population	UT:USA Rate Ratio	Trend	Time from Use to Outcome	Strength of Relationship	Data Source	Page
Mortality	Homicides	Alcohol	1990-1998	61	3.1	0.36	Slightly Decreasing	Variable	Low-Medium	19-23	32
	Suicides*	**Alcohol**	**1990-2001**	**289**	**14.3**	**1.2**	**Stable**	**Variable**	Low-Medium	**19-23**	**30**
	Falls	Alcohol	1999-2005	97	4.1	Not Available	Increasing	Short	Low-Medium	3	20
	Accidental Drowning and Submersion	Alcohol	1999-2005	24	1	Not Available	Stable	Short	Low-Medium	3	20
	Accidental Deaths due to Fires	Tobacco	1999-2005	10	0.4	Not Available	Stable	Short	Low-Medium	3	See note on page 27
Other Outcomes	Reported Violent Crimes	Illicit Drugs	2000-2003	5,496	2,390	0.51	Slightly Rising Since 2001	Variable	Medium	12	34

*Bolded item indicates that the state rate is higher than the national rate.

Estimates of Alcohol Use

	Indicator	Age Category	Year	Utah	USA	Utah:USA Ratio	Utah Trend	Data Source	Page
Youth	30 Day Alcohol (%)	Grade 6	2005	2.1	N/A	N/A	Stable	10,27	38
		Grade 8	2005	9.3	17.1	0.54	Slightly Increasing	10,27	38
		Grade 10	2005	15.7	33.2	0.47	Stable	10,27	38
		Grade 12	2005	20.5	47.0	0.44	Decreasing	10,27	38
		College Enrolled	2005	22.1	67.9	0.33	Increasing	8,27	38
	Binge Drinking (%) (5 or more drinks in the past 2 weeks)	Grade 6	2005	1.7	N/A	N/A	Stable	10,27	39
		Grade 8	2005	5.7	11.4	0.50	Slightly Increasing	10,27	39
		Grade 10	2005	9.7	22.0	0.44	Slightly Increasing	10,27	39
		Grade 12	2005	13.3	29.2	0.46	Decreasing	10,27	39
		College Enrolled	2005	11.7	40.1	.29	Slightly Increasing	8,27	39
Adult	At risk for binge drinking (%)		1995, 1997, 1999, 2001–2005	9.4	15.5 (2002–05)	0.61 (2002–05)	Stable	1,25	40
	At risk for chronic drinking (%)		1989–1993, 1995, 1997, 1999, 2001–2005	2.8	5.4 (2002–05)	0.55 (2002–05)	Stable	1,25	40
	Drank alcohol during last 3 months of pregnancy (%)		1999–2003	2.9	5.6 (2002)	0.54 (2002)	Decreasing	5,26	40
	Alcohol use during pregnancy (%)		1989-2005	1.1	N/A	N/A	Stable	2	40
	Population adjusted alcohol sales (gallons/person)		1990-2002	1.28	2.21	0.58	Stable	17	40
	Current alcohol use (%)		2002-2003	29.6	50.5	0.59		16	40
	Binge Alcohol Use (%)		2002-2003	15.9	22.8	0.70		16	40
	Alcohol Dependence or Abuse (%)		2002-2003	6.9	7.6	0.91		16	40

Estimates of Tobacco Use

	Indicator	Age Category	Year	Utah	USA	Utah:USA Ratio	Utah Trend	Data Source	Page
Youth	30 Day Smoking (%)	Grade 6	2005	0.8	N/A	N/A	Stable	10,27	43
		Grade 8	2005	2.8	9.3	0.30	Stable	10,27	43
		Grade 10	2005	6.0	14.9	0.40	Slightly Increasing	10,27	43
		Grade 12	2005	8.0	23.2	0.34	Slightly Decreasing	10,27	43
		College Enrolled	2005	7.9	23.8	.33	Decreasing	8,27	43
	Chronic Heavy Smoking (%) (1/2 pack or more/day)	Grade 6	2005	0.0	N/A	N/A	Stable	10,27	44
		Grade 8	2005	0.3	1.7	0.18	Stable	10,27	44
		Grade 10	2005	0.8	3.1	0.26	Stable	10,27	44
		Grade 12	2005	1.3	6.7	0.19	Slightly Decreasing	10,27	44
Adult	Current smoking (%)		1989-2005	13.9	22.4 (1995-2005)	0.58 (1995–2005)	Decreasing	1,25	45
	Current Cigarette Use (%)		2002-2003	16.74	25.71	0.65		16	45
	Attempted to quit smoking this year (%)		1994-2005	52.3	N/A	N/A	Slightly Increasing	1,25	45
	Population adjusted tobacco purchasing (annual packs/person)		1990-2002	47.7	87.9	0.56 (2000-2002)	Decreasing	18	45
	Smoked during last 3 months of pregnancy (%)		1999-2003	6.4	13.1 (2002)	0.49	Decreasing	5,26	47
	Smoked during pregnancy (%)		1989-2005	6.9 (2000-2005)	N/A	N/A	Decreasing	2	47

Estimates of Other Drug Use

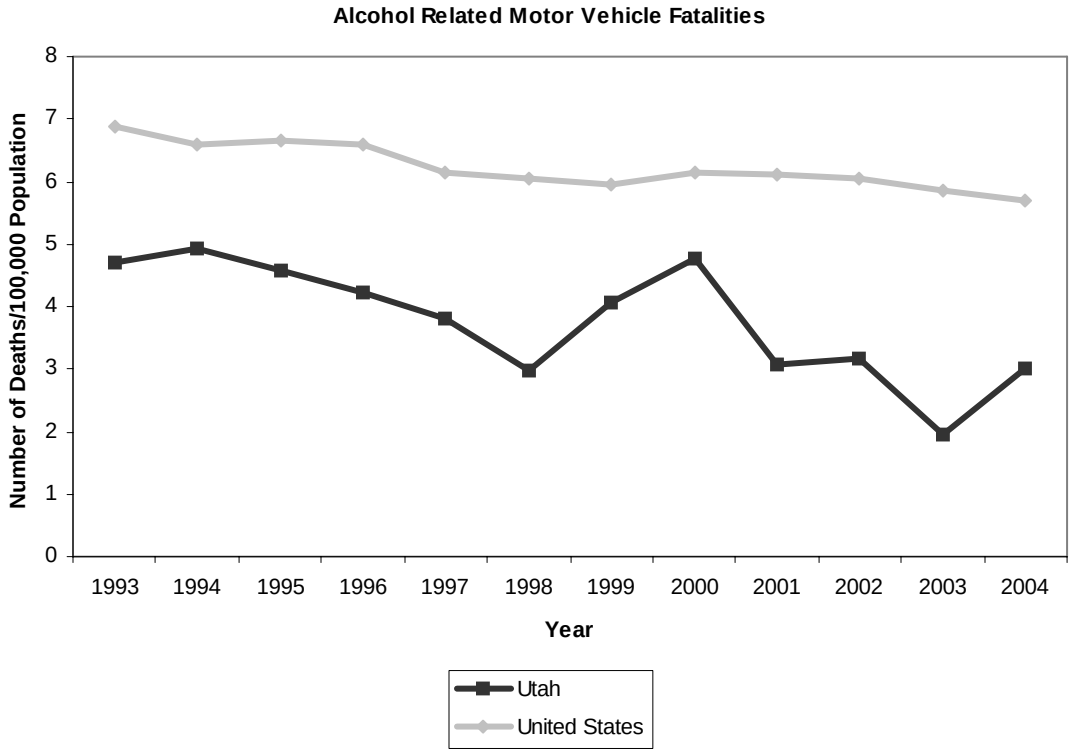
		Age Category	Year	Utah	USA	UT:USA Ratio	Utah Trend	Data Source	Page
Youth	30 Day Inhalant Use (%)	Grade 6	2005	3.8	N/A	N/A	Slightly Increasing	10,27	49
		Grade 8	**2005**	**5.3**	**4.2**	**1.26**	**Stable**	**10,27**	49
		Grade 10	**2005**	**3.1**	**2.2**	**1.41**	**Stable**	**10,27**	49
		Grade 12	2005	1.6	2.0	0.80	Decreasing	10,27	49
		College Enrolled	2005	0.2	0.3	0.67	Stable	8,27	49
	30 Day Marijuana Use (%)	Grade 6	2005	0.4	N/A	N/A	Stable	10,27	50
		Grade 8	2005	3.0	6.6	0.45	Stable	10,27	50
		Grade 10	2005	7.4	15.2	0.49	Slightly Increasing	10,27	50
		Grade 12	2005	9.5	19.8	0.48	Slightly Decreasing	10,27	50
		College Enrolled	2005	4.6	17.1	0.27	Decreasing	8,27	50
	30 Day "Any Drug Use" (%)	Grade 6	2005	5.6	N/A	N/A	Stable	10,27	N/A
		Grade 8	2005	9.8	11.8	0.83	Stable	10,27	N/A
		Grade 10	2005	13.3	19.4	0.68	Slightly Increasing	10,27	N/A
		Grade 12	2005	14.0	23.2	0.60	Decreasing	10,27	N/A
		College Enrolled	2005	7.4	19.5	0.38	Slightly Decreasing	8,27	N/A
Adult	Current Marijuana Use		2002-2003	4.0	6.2	0.65		18	52
	Current Other Illicit Drug Use		2002-2003	3.7	3.7	1.00		18	52
	Drug Dependence or Abuse		2002-2003	2.9	3.0	0.97		18	52

Alcohol Mortality Indicators – Alcohol Related Motor Vehicle Fatalities

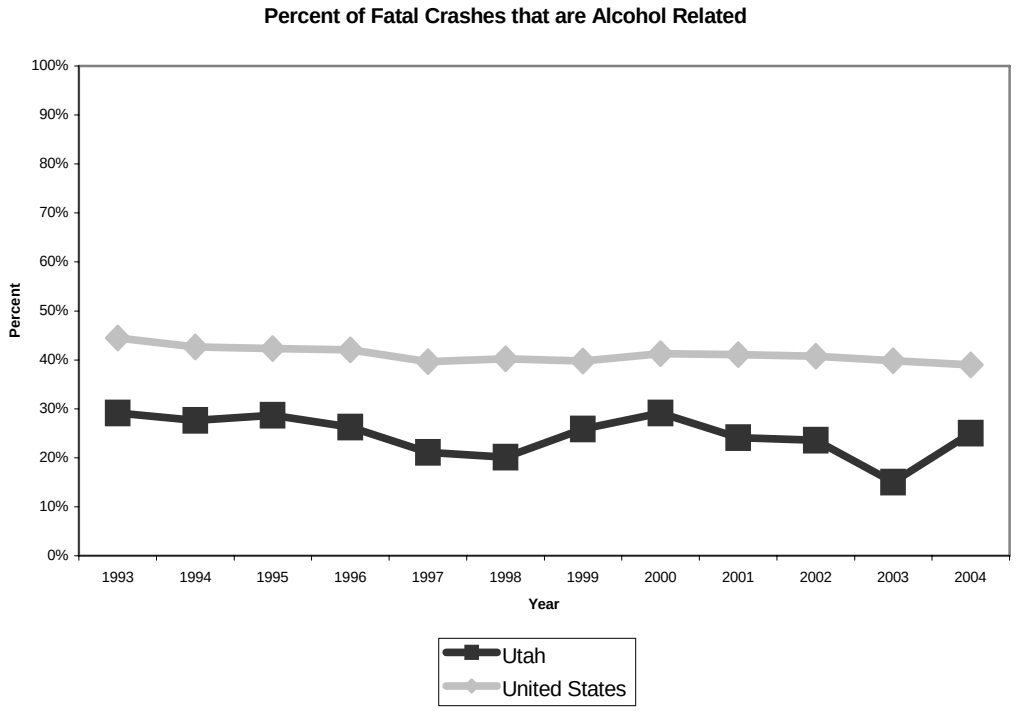
Indicator	Years	Average Annual Number of Cases	Average Rate per 100,000 Population	UT:USA Rate Ratio	Trend	Time from Use to Outcome	Strength of Relationship
Alcohol Related Motor Vehicle Crash Fatalities	2000-2004	73.5	32	0.53	Stable	Immediate	Strong
# of Fatal Alcohol Related Vehicle Crashes	2000-2004	64.8	28	0.53	Stable	Immediate	Strong
Proportion of Fatal Motor Vehicle Crashes Related to Alcohol	1990-2003	26%	41%	0.63	Slightly Decreasing	Immediate	Medium

*Indicator source 13.

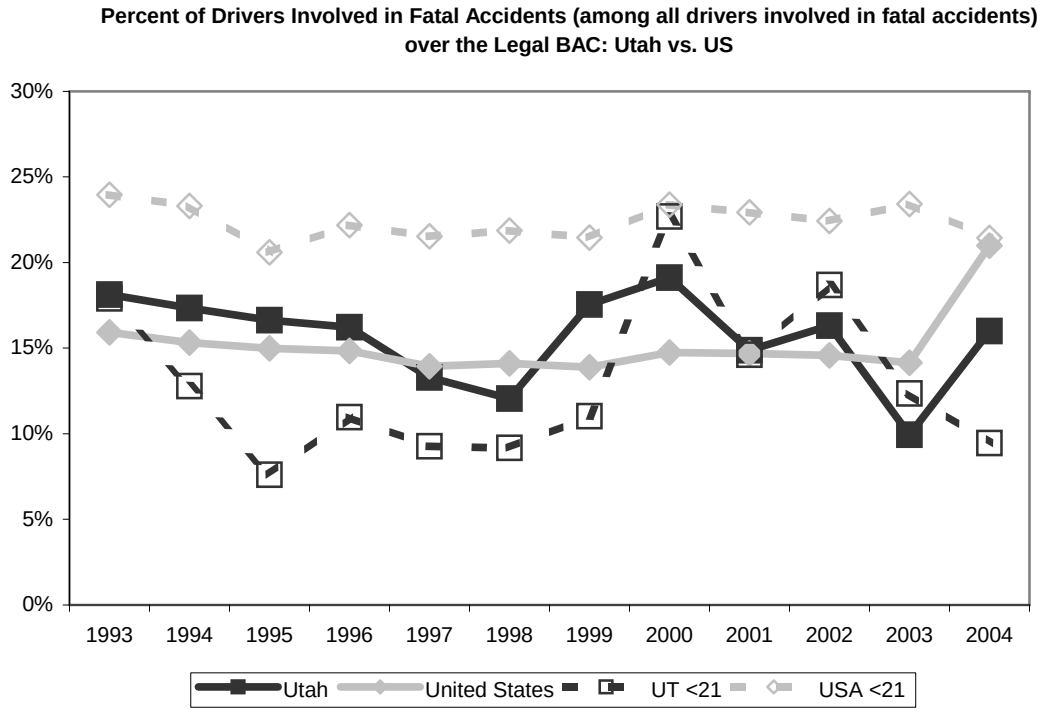
Motor vehicle fatalities make up a large portion of accidental injuries in both Utah and the nation. Utah experienced an average of 73.5 fatalities a year between 2000 and 2004 as a result of alcohol related crashes. The rate of fatalities due to alcohol related motor vehicle crashes in Utah has been 50-60% of the national rate with this rate being stable over the past four years.



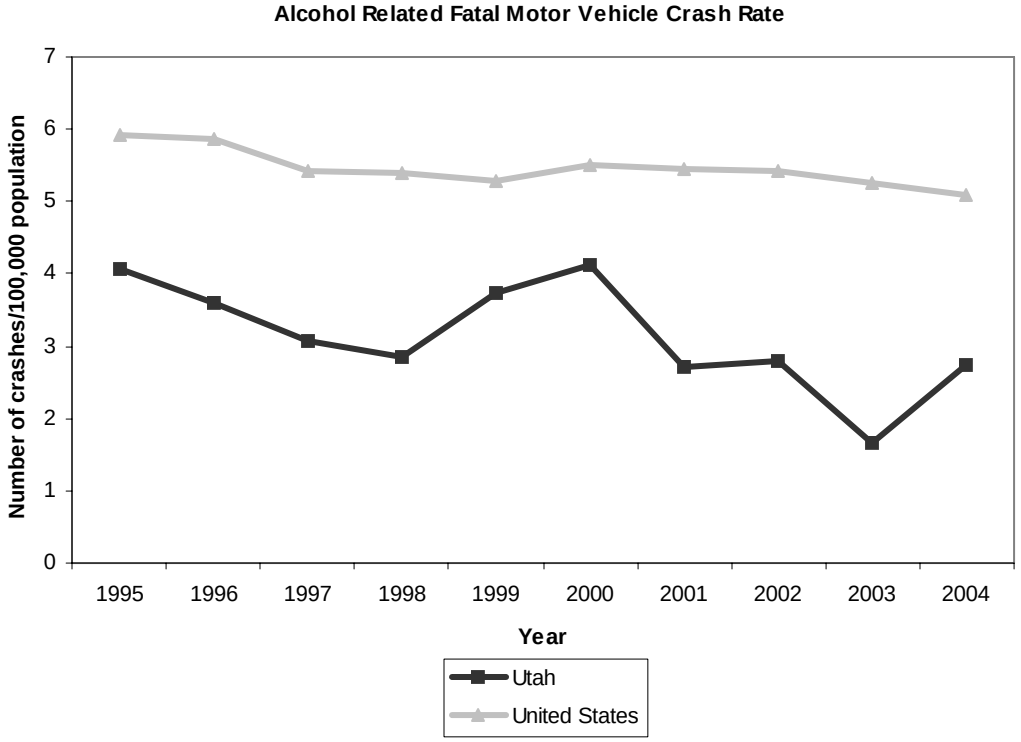
As seen in the table below, the percentage of fatal crashes related to alcohol use has consistently been lower in Utah compared to the national average. Where as about 40% of fatal accidents are alcohol related for the nation, only about 25% of fatal accidents are alcohol related in Utah.



The following figure includes separate lines for all drivers and drivers <21 years old. While the Utah <21 year old proportion of drivers involved in fatal accidents is lower than the national, the proportions are much less stable than the national proportions and increased qualitatively from 2000-2002.



Motor vehicle fatalities make up a large portion of accidental injuries in both Utah and the nation. Utah experienced an annual average of 64.8 fatal motor vehicle crashes involving alcohol between 2000 and 2004. The rate of alcohol related crashes in Utah has varied between 50-75% the national rate between 2000 and 2004.

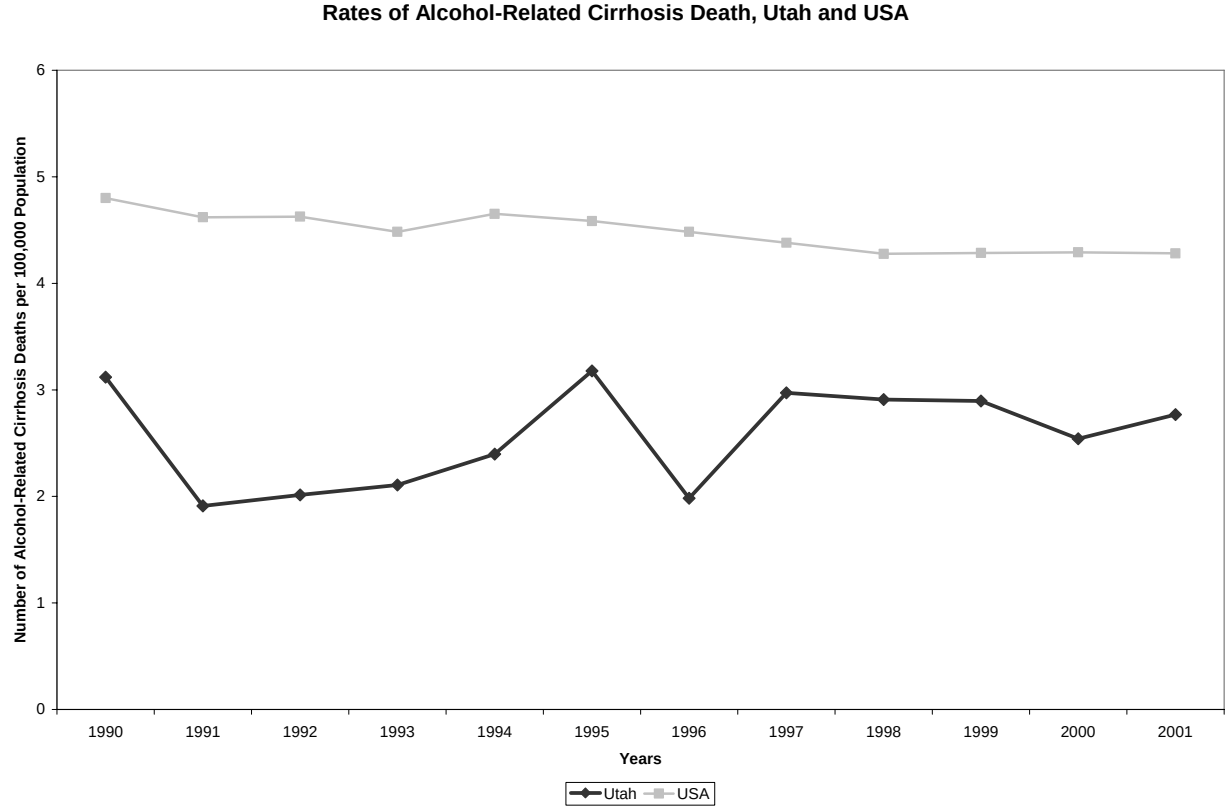


Alcohol Mortality Indicator – Cirrhosis and Liver Disease

Indicator	Years	Average Annual Number of Cases	Average Rate per 100,000 Population	UT:USA Rate Ratio	Trend	Time from Use to Outcome	Strength of Relationship
Alcoholic Cirrhosis	1990-2001	52	2.6	0.57	Stable	Distant	Strong
Other Cirrhosis	1990-2001	56	2.8	0.54	Stable		

*Indicator source 19-23.

Overuse of alcohol has been linked to mortality through several pathways, one of which is liver damage. The magnitude of alcohol-related mortality may be estimated using the death rate from alcoholic liver disease or cirrhosis and other liver disease or cirrhosis which may represent an unrecognized contribution of alcohol. Nationally, 45% of cirrhosis deaths in US between 1999-2003 were alcohol related. Utah's death rate from cirrhosis was steadily half that of the nation.



Alcohol Mortality Indicator – Alcoholism Fatalities

Indicator	Years	Average Annual Number of Cases	Average Rate per 100,000 Population	UT:USA Rate Ratio	Trend	Time from Use to Outcome	Strength of Relationship
Alcoholism Fatalities	1999-2005	37	1.6	Not Available	Slightly Decreasing		Strong

*Indicator source 3.

The ICD-10 classification system includes a set of codes for deaths attributed to "Mental and behavioral disorders related to alcohol" (ICD-10 F10.x). This category includes deaths attributed to alcoholism that would not have been captured in other alcohol-related categories such as liver disease. Decedents in this category were an average of 51 years old at death, significantly younger than the age of the average decedent in Utah, 71 years. Approximately three times as many males as females are included in this category of deaths caused by alcoholism. Comparable national data are not available.

Slightly more deaths are attributed to alcoholic liver diseases such as cirrhosis than alcoholism in Utah. Rates of both outcomes are decreasing slightly.

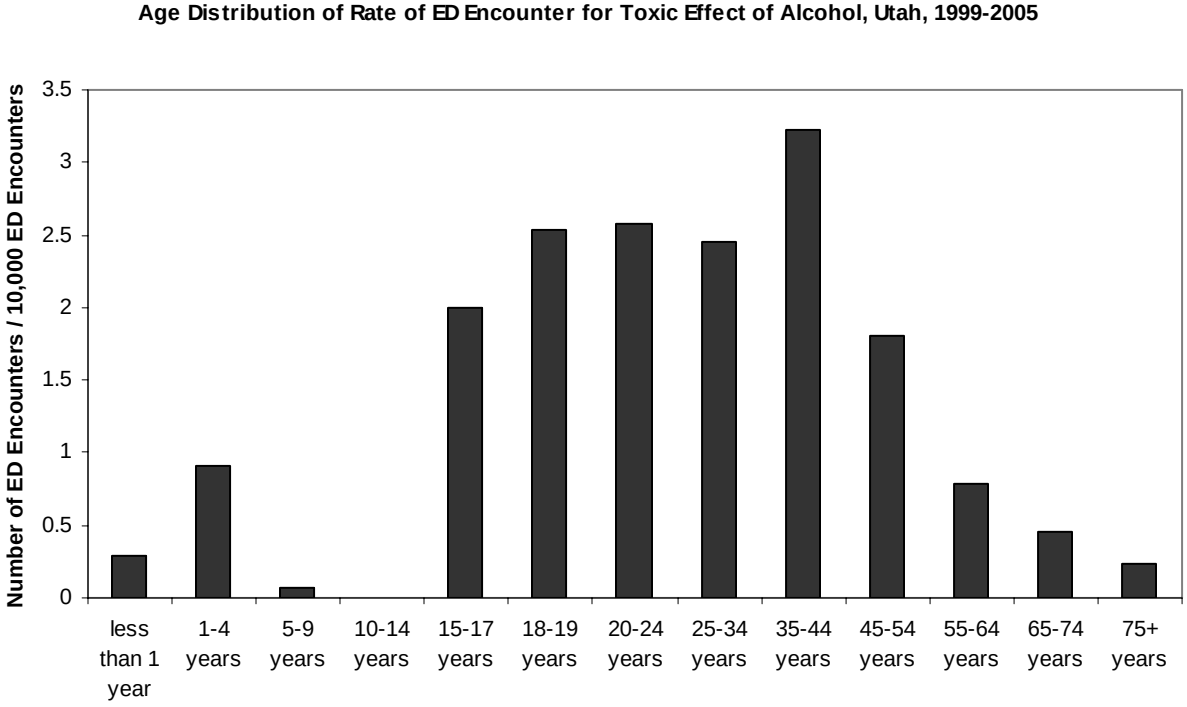
Alcohol Morbidity Indicator – Emergency Department Encounters

Indicator	Years	Average Annual Number of Cases	Average Rate per 100,000 Population	UT:USA Rate Ratio	Trend	Time from Use to Outcome	Strength of Relationship
Emergency Department Encounters with ICD-9 980.0, Toxic Effect of Alcohol	1999-2004	385	16.5	Not Available	Slightly Decreasing	Immediate	Strong

*Indicator source 4.

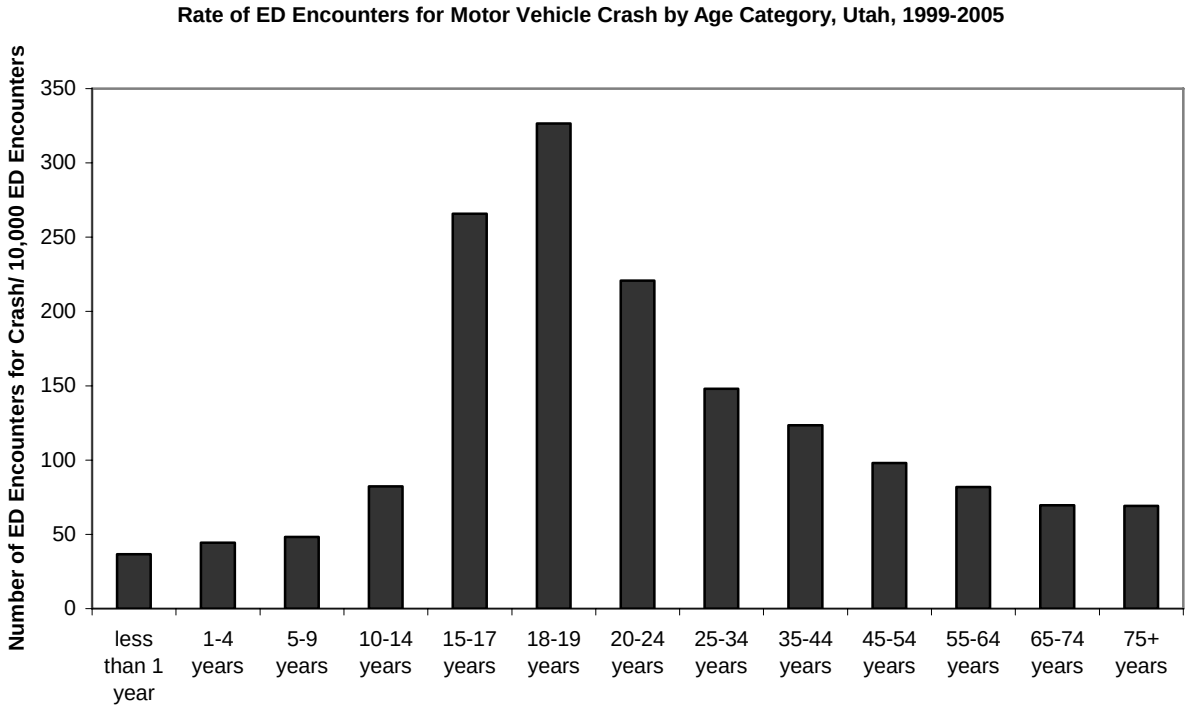
Nearly one person each day visits an emergency department in Utah and receives a diagnosis in this category. This indicator represents an acute effect of alcohol overuse and may be directly related to the consumption indicator of binge drinking.

This consequence is differentially distributed by age with the highest rate among those 35–44 years of age. The relatively high rates among people 15–19 years of age is of special concern both because these age groups represent underage drinkers and because the rate is disproportionate to the number of people in those age groups.



Alcohol Morbidity Indicator – Injuries from Motor Vehicle Crash

Motor vehicle crash is another alcohol-related morbidity indicator that can be extracted from the Emergency Department Encounter Database. It is striking to note that the highest rates of ED visits related to motor vehicle crash occur among the age 15–24 population. Data from FARS (13) indicate that in Utah, approximately 30% of motor vehicle crashes are alcohol related.



Alcohol Mortality Indicator – Alcohol Related Accidental Deaths

Indicator	Years	Average Annual Number of Cases	Average Rate per 100,000 Population	UT:USA Rate Ratio	Trend	Time from Use to Outcome	Strength of Relationship
Falls	1999-2005	97	4.1	Not Available	Increasing	Short	Low-Medium
Accidental Drowning and Submersion	1999-2005	24	1	Not Available	Stable	Short	Low-Medium

*Indicator source 3.

Falls: ICD-10 W00-W10; Accidental drowning and submersion: ICD-10 W65-W74.

These two injury categories have been attributed in part to alcohol use. Nationally, it is thought that 35% of injuries due to falls are attributable to alcohol use http://www.greenfacts.org/alcohol/figures/table15.htm. Comparable figures for mortality are not available. The average age at death for fall-related mortality in Utah for 1999–2005 was 70 years, so circumstances such as age, frailty, or other morbid conditions may have contributed to the deaths (3).

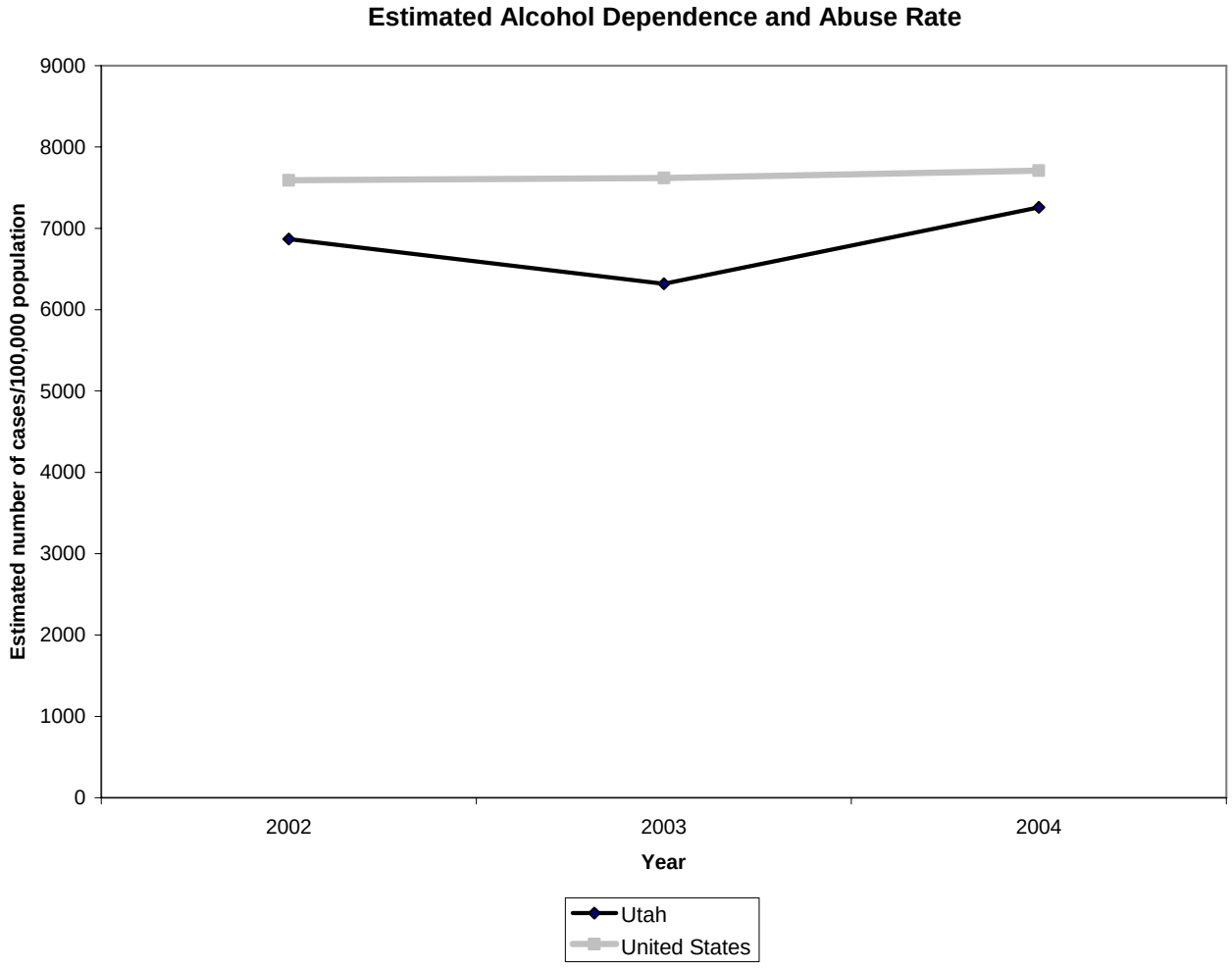
Examination of Medical Examiner records has shown that in Utah many drowning and hypothermia deaths are related to alcohol. Nationally, 25-50% of water recreation fatalities among adolescent and adult victims involve alcohol http://www.cdc.gov/ncipc/factsheets/drown.htm. The average age at death for drowning decedents for the years 1999–2005 was 26 years, therefore it is reasonable to think that alcohol may have been related to many of these deaths (3).

Alcohol Morbidity Indicator – Estimated Alcohol Dependence or Abuse

Indicator	Years	Average Annual Number of Cases	Average Rate per 100,000 Population	UT:USA Rate Ratio	Trend	Time from Use to Outcome	Strength of Relationship
Alcohol Dependence or Abuse	2002-2004	*Estimated* 125,802*	*Estimated* 6816*	*Estimated* 0.89*	Stable	Variable	Strong

**Indicator source 16.
*Estimated from NSDUH percent of respondents 12 and over classified as dependent on alcohol using 2002-04 data.

A state-level estimate of the number of individuals (ages 12 and over) who can be classified as dependent on or abusing alcohol is provided through data from the National Survey of Drug Use and Health (NSDUH). From 2002 to 2004, the average number of estimated cases of alcohol dependence or abuse was 125,802, with a rate of 6,816 per 100,000 population. The rate in Utah was about 89% the rate of the nation during 2002 and 2004.



Tobacco Mortality Indicator – Lung Cancer

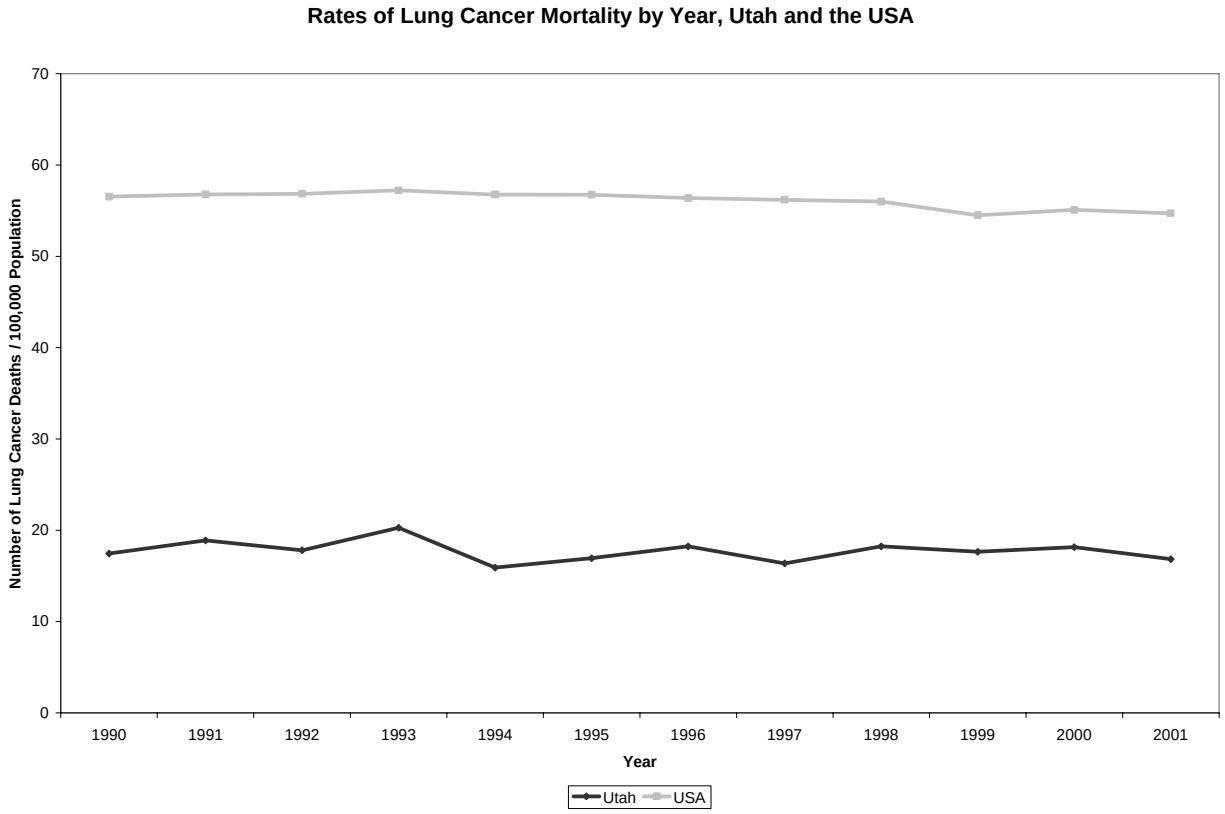
Indicator	Years	Average Annual Number of Cases	Average Rate per 100,000 Population	UT:USA Rate Ratio	Trend	Time from Use to Outcome	Strength of Relationship
Lung Cancer	1990-2001	358	17.7	0.32	Stable	Distant	Strong

*Indicator source 19-23.

Lung Cancer

ICD-9 (1990-1998) 162.2-169.9
ICD-10 (1999-2001) C34-C39.9

Overall, Utah has a much lower smoking-associated cancer rate than the USA as a whole. This is not unexpected given Utah's low rate of tobacco use.



Tobacco Mortality Indicator – Cardiovascular Disease

Indicator	Years	Average Annual Number of Cases	Average Rate per 100,000 Population	UT:USA Rate Ratio	Trend	Time from Use to Outcome	Strength of Relationship
Ischemic Cerebrovascular Disease	1990-2001	3,182	159.0	0.53	Decreasing	Distant	Strong
Cardiovascular Disease	1990-2001	414	19.3	0.73	Increasing*	Distant	Strong

*Indicator source 19-23.

Ischemic Cerebrovascular Disease

ICD-9 (1990-1998) 410-414 and 430-438
ICD-10 (1999-2001) I21-I25.9 and I60-I69

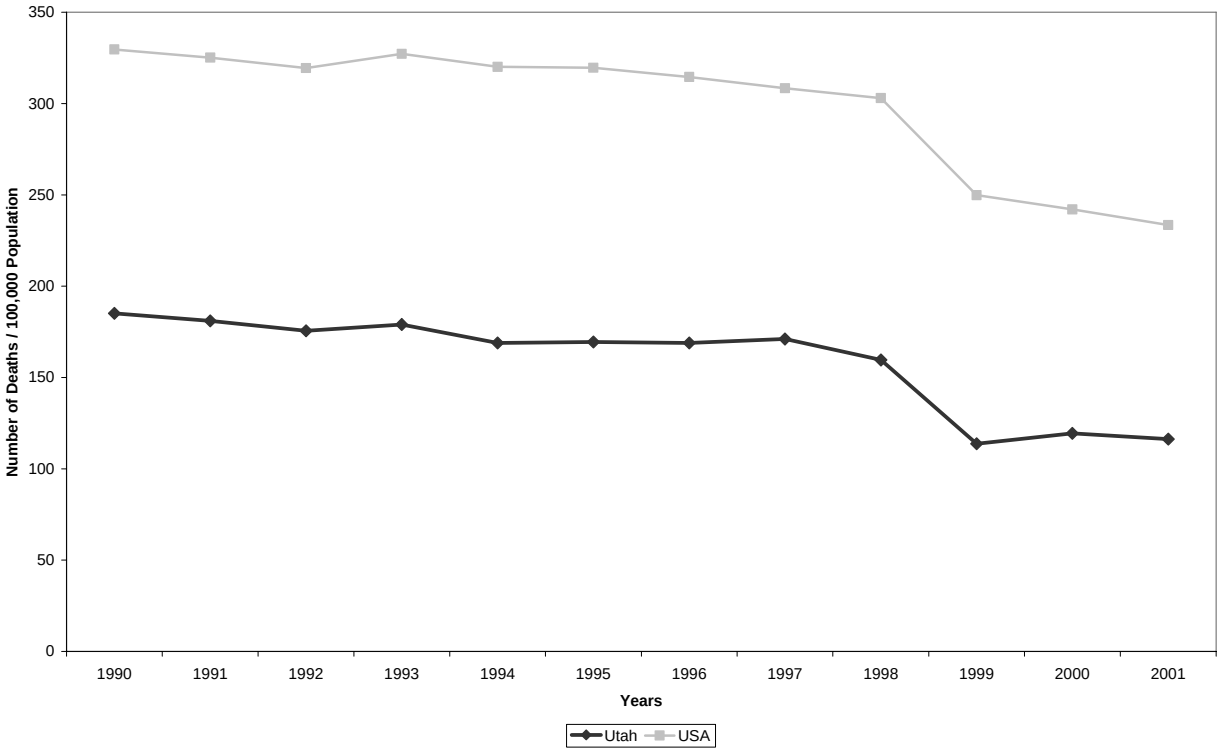
Cardiovascular Disease

ICD-9 (1990-1998) 390-398, 402, 404-405, 420-429, 429.2
ICD-10 (1999-2001) I00-I09, I11, I13-I15.9, I30-I50.9, I51.6

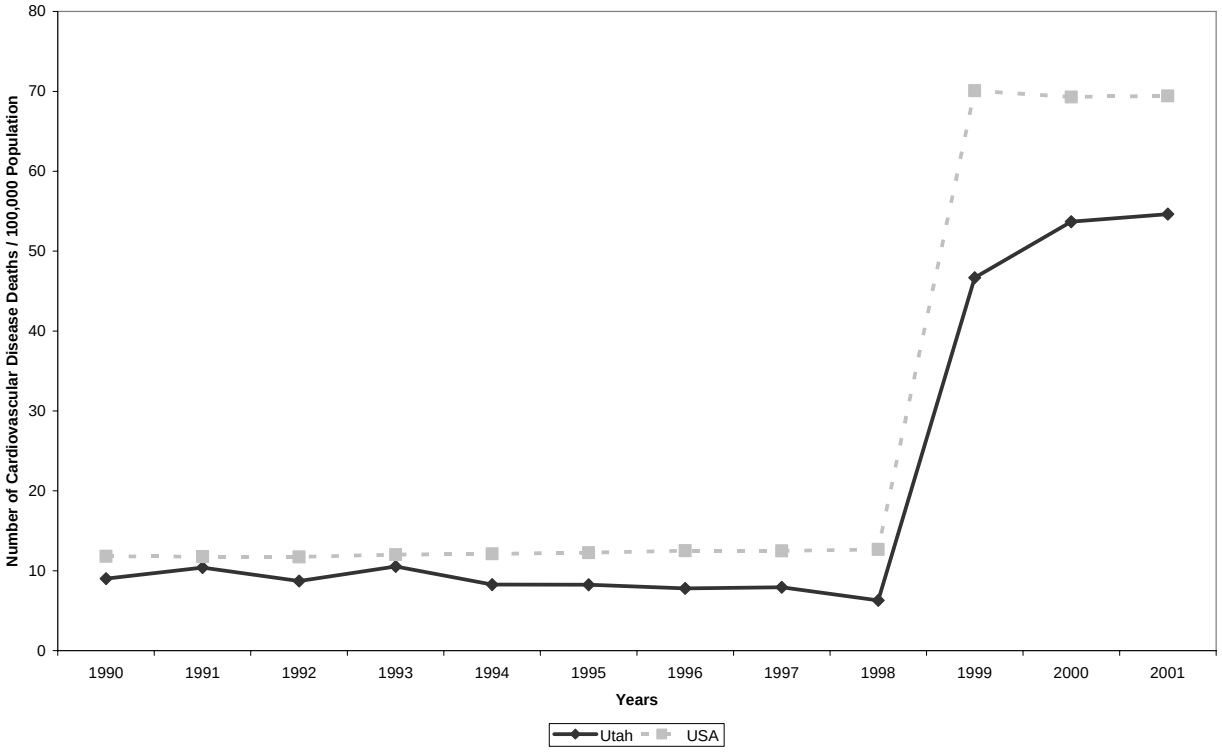
Overall, Utah has a lower smoking-associated cardiovascular disease and ischemic cerebrovascular disease rate than the USA as a whole. This is not unexpected given Utah's low rate of tobacco use.

The graphs for these indicators illustrate dramatic changes due to the transition from ICD-9 coding (1990-1998) to ICD-10 coding (1999-2001). The definitions of the categories changed with the new codes, and trends should be interpreted with caution if at all.

Ischemic Cerebrovascular Disease Death Rates, Utah and USA



Rates of Cardiovascular Disease Death, Utah and USA



Tobacco Mortality Indicator – Other Lung Disease

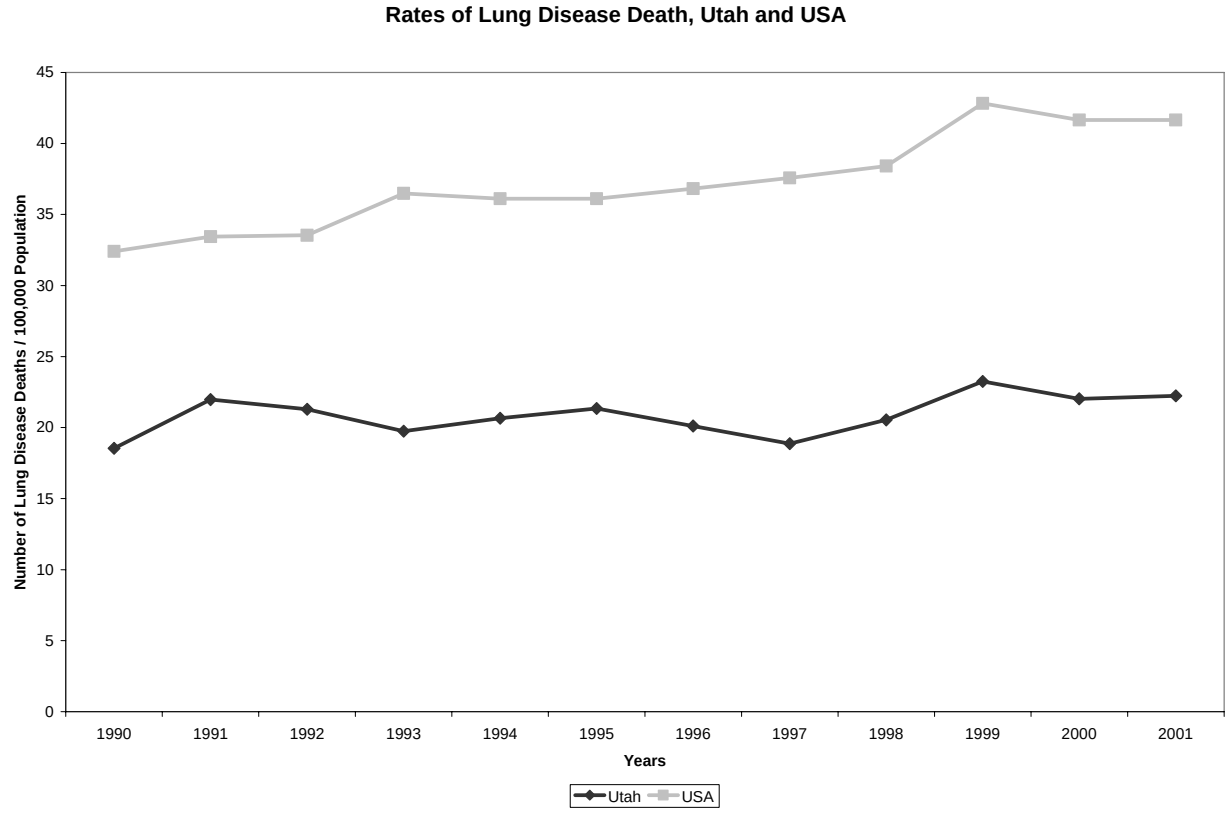
Indicator	Years	Average Annual Number of Cases	Average Rate per 100,000 Population	UT:USA Rate Ratio	Trend	Time from Use to Outcome	Strength of Relationship
Other Lung Diseases	1990-2001	424	20.9	0.56	Stable	Distant	Strong

*Indicator source 19-23.

This category includes:

ICD-9 (1990-1998) 490-491, 492, or 496
ICD-10 (1999-2001) J40-J44, J47

Overall, Utah has a much lower smoking-associated other lung disease death rate than the USA as a whole. This is not unexpected given Utah's low rate of tobacco use. The increase in 1999 is probably attributed to changes in how deaths are coded caused by the switch to ICD-10 coding.



Tobacco Mortality Indicator – Extent that Tobacco Contributed to Death

Indicator	Years	Average Annual Number of Cases	Average Rate per 100,000 Population	UT:USA Rate Ratio	Trend	Time from Use to Outcome	Strength of Relationship
Extent to which Tobacco Contributed to Death (probably contributed or was underlying cause of death)	1999-2004	1,422	61.1	Not Available	Decreasing	Distant	Strong

*Indicator source 7.

Utah death certificates include a determination made by the certifying official of the extent to which tobacco contributed to the death. The options are: probably contributed; was underlying cause of death; did not contribute; unknown relation to cause of death; non-user; and unknown if user.

Since 1999, tobacco was thought to contribute to 11.2% of Utah deaths. This proportion is only 1/3 as much as the average smoking attributable fraction of mortality calculated by the Smoking-Attributable Mortality, Morbidity, and Economic Costs (SAMMEC) software (28). Decedents whose deaths were related to tobacco were younger than decedents whose deaths were not related to tobacco (69.8 years compared to 76.3 years) and a higher proportion of tobacco-related decedents were male (66.5% compared to 41.1%).

The SAMMEC software can be used to estimate the smoking-attributable mortality for several causes of death. Using the Smoking-Attributable Mortality, Morbidity, and Economic Costs (SAMMEC) software and input data for 2001 the following results were generated:

> Utah's age-adjusted smoking attributable mortality for malignant neoplasms was 0.41 of the national rate (Utah = 45.8/100,000; USA 111/100,000) (28). Males comprise the majority of the Utah rate (male 81.9, female 16.9/100,000).
>
> Utah's age-adjusted smoking attributable mortality for cardiovascular disease was 0.49 of the national rate (Utah = 44.6/100,000; USA 90.4/100,000) (28). Males comprise the majority of the Utah rate (male 75.9, female 21.4/100,000).
>
> Utah's age-adjusted smoking attributable fraction for perinatal conditions was 0.65 of the national rate (28).
>
> Utah's age-adjusted smoking attributable mortality for respiratory disease was 0.51 of the national rate (Utah = 137.7/100,000; USA 272.5/100,000) (28). Males comprise the majority of the Utah rate (male 233.2, female 66.1/100,000).

The following table presents a comparison of the smoking-attributable mortality by different causes of death for Utah and the USA within relevant age categories. Utah has a lower smoking-attributable mortality for every cause of death than the USA.

Mortality Smoking-Attributable Fractions by Sex and Age												
	Utah, 2001				USA, 2001				Utah:USA Ratio			
	Male		Female		Male		Female		Male		Female	
Disease Category	**35–64**	**65+**	**35–64**	**65+**	**35–64**	**65+**	**35–64**	**65+**	**35–64**	**65+**	**35–64**	**65+**
Malignant Neoplasms												
Lip, Oral Cavity, Pharynx	69%	61%	44%	23%	77%	71%	55%	42%	0.90	0.86	0.80	0.55
Esophagus	64%	67%	55%	30%	72%	72%	66%	53%	0.89	0.93	0.83	0.57
Stomach	21%	22%	9%	5%	28%	27%	13%	11%	0.75	0.81	0.69	0.45
Pancreas	20%	11%	21%	10%	28%	19%	29%	21%	0.71	0.58	0.72	0.48
Larynx	78%	77%	70%	48%	84%	82%	78%	69%	0.93	0.94	0.90	0.70
Trachea, Lung, Bronchus	85%	83%	69%	45%	89%	87%	77%	67%	0.96	0.95	0.90	0.67
Cervix Uteri	-	-	9%	3%	-	-	14%	8%	--	--	0.64	0.38
Kidney and Renal Pelvis	31%	31%	5%	1%	40%	38%	7%	4%	0.78	0.82	0.71	0.25
Urinary Bladder	39%	39%	24%	14%	48%	46%	32%	26%	0.81	0.85	0.75	0.54
Acute Myeloid Leukemia	18%	17%	7%	6%	24%	22%	10%	10%	0.75	0.77	0.70	0.60
Cardiovascular Diseases												
Ischemic Heart Disease	31%	11%	26%	4%	40%	15%	35%	10%	0.78	0.73	0.74	0.40
Other Heart Disease	15%	12%	8%	3%	21%	18%	12%	8%	0.71	0.67	0.67	0.38
Cerebrovascular Disease	28%	4%	32%	2%	38%	9%	43%	5%	0.74	0.44	0.74	0.40
Atherosclerosis	24%	18%	11%	2%	32%	26%	16%	7%	0.75	0.69	0.69	0.29
Aortic Aneurysm	57%	56%	51%	23%	66%	64%	62%	46%	0.86	0.88	0.82	0.50
Other Arterial Disease	16%	3%	16%	4%	22%	11%	23%	12%	0.73	0.27	0.70	0.33
Respiratory Diseases												
Pneumonia, Influenza	17%	18%	15%	4%	23%	22%	23%	12%	0.74	0.82	0.65	0.33
Bronchitis, Emphysema	86%	89%	76%	66%	89%	91%	83%	80%	0.97	0.98	0.92	0.83
Chronic Airway Obstruction	74%	77%	72%	54%	81%	81%	80%	73%	0.91	0.95	0.90	0.74

In addition to disease-related death, cigarette use has been linked to injury death. Nationally, 19% of accidental deaths due to fires are attributed to cigarette use http://www.usfa.dhs.gov/downloads/pdf/tfrs/v5i5.pdf. If this fraction holds true in Utah, that would account for approximately 2 deaths each year (3).

Other Drug Mortality – Drug Poisoning

Indicator	Years	Average Annual Number of Cases	Average Rate per 100,000 Population	UT:USA Rate Ratio	Trend	Time from Use to Outcome	Strength of Relationship
Accidental and Undetermined Intent Drug Poisoning Deaths *	1999-2004	222	9.4	Not Available	Increasing	Immediate	Strong
Drug Use[1]	1990-1998	4	0.22	0.44	Increasing	Immediate	Strong
Number of Drug Poisoning Deaths Investigated by the Medical Examiner[2]	1991-2005	215	Not Applicable	Not Available	Increasing	Immediate	Strong
Number of Accidental and Undetermined Intent **Illicit** Drug Poisoning Deaths[2]	1991-2005	75	3.4	Not Available	Increasing, then Stable	Immediate	Strong
Number of Accidental and Undetermined Intent **Non-Illicit** Drug Poisoning Deaths[2]	1991-2005	76	3.3	Not Available	Increasing	Immediate	Strong

*Indicator source 7.
[1]Indicator source 19-23.
[2]Indicator source 9.

* ICD-10 Codes: X40–44; Y10–14 in the Underlying Cause of Death field

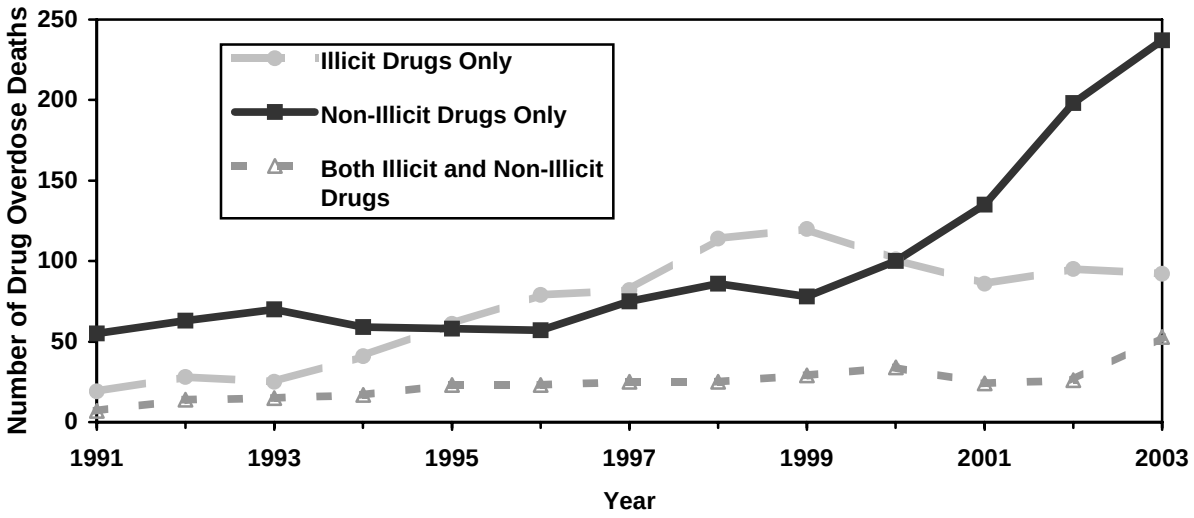
Two main sources of data are used in estimating mortality associated with drug use. These sources are death certificate data and the state medical examiner data. Limitations inherent in data sources affect the numbers of deaths counted in different categories of drug poisonings when extracted from different data sources. Deaths counted using death certificates indicate the manner or intention (suicide or accident) of death within the code for the underlying cause of death, but this code is not specific for the type of drug (illicit or non-illicit). Medical examiner data is not coded, so it is more difficult to use, but more data are available regarding the causative drug. In addition, the medical examiner may not investigate every drug poisoning death, so the numbers available likely represent a very conservative estimate. Some of the variation in the above table is caused by differences in data collection and reporting.

Unfortunately, there have been significant increases in the numbers of drug poisoning deaths in recent years. As such, the mean value reported above may not do justice in illustrating the drug mortality issue facing the state. The last two rows in the table are subsets of the third row. Separating out these categories helps to illustrate the drug

overdose situation in Utah. The chart below provides a clearer picture of the situation regarding fatal drug poisoning in Utah.

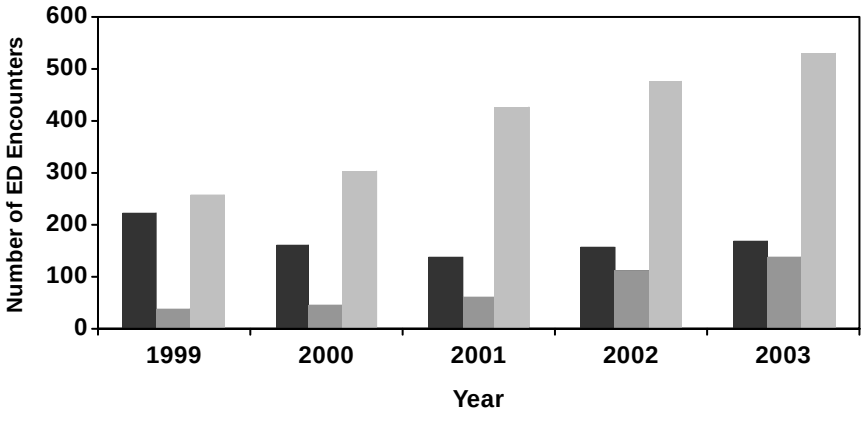
The Utah Department of Health has recognized an increasing burden of drug-poisoning death related to non-illicit drugs and has engaged in research on the topic. Prescribable narcotics such as methadone and oxycodone now contribute to more deaths each year in Utah than illicit drugs such as heroin. Health department researchers are currently working to answer the question – what proportion of drug poisoning decedents were using their own, valid prescriptions? Interventions to reduce this problem will differ based on the proportional contribution of licit, illicit, and accidental misuse of prescribable drugs.

Number of Drug Poisoning Deaths by Drug Category and Year — Utah 1991-2003



Not all drug overdose incidents are fatal. The number of overdose incidents presenting at Utah emergency departments is also increasing (4), but the majority of the patients survive.

Emergency Department Encounters for Narcotics Overdose, 1999-2002



Mortality - Suicide

Indicator	Years	Average Annual Number of Cases	Average Rate per 100,000 Population	UT:USA Rate Ratio	Trend	Time from Use to Outcome	Strength of Relationship
Intentional (Suicide) Drug Poisoning Deaths*	1999-2004	44	1.9	Not Available	Increasing	Immediate	Strong
Number of Non-Illicit Drug Poisoning Suicides Deaths[1]	1991-2005	37	1.7	Not Available	Stable	Immediate	Strong
Suicides[2]	1990-2001	289	14.3	1.2	Stable	Variable	Low-Medium

*Indicator source 7.
[1]Indicator source 9.
[2] General suicides are associated with alcohol; Indicator source 19-23.

SEDS suicide data included the following underlying causes of death:
ICD-9 (1990-1998): E950-959
ICD-10 (1990-2001): X60-X84, Y87.0

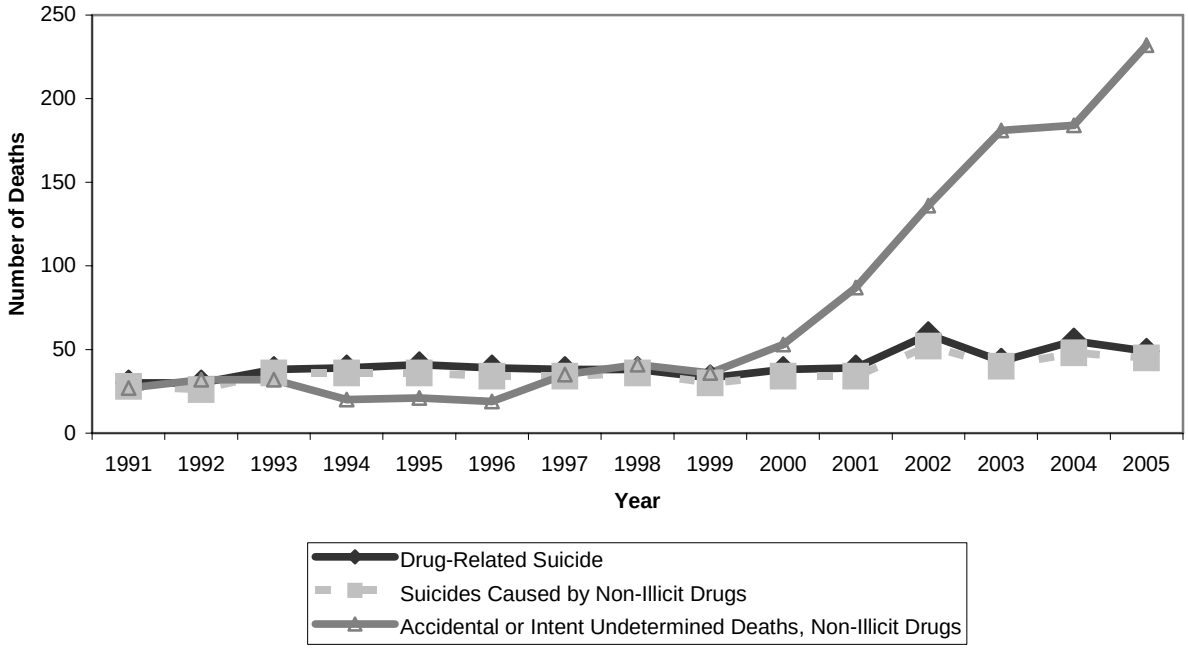
It is important to recognize that the suicides may be related to multiple causes of which substance abuse is only one.

Death certificates and medical examiner data can also be used to investigate suicides. Drug-related suicides contain an ICD-10 Code X60–65 in the Underlying Cause of Death field on the death certificate. Based on the death certificates, drug-related suicides are increasing.

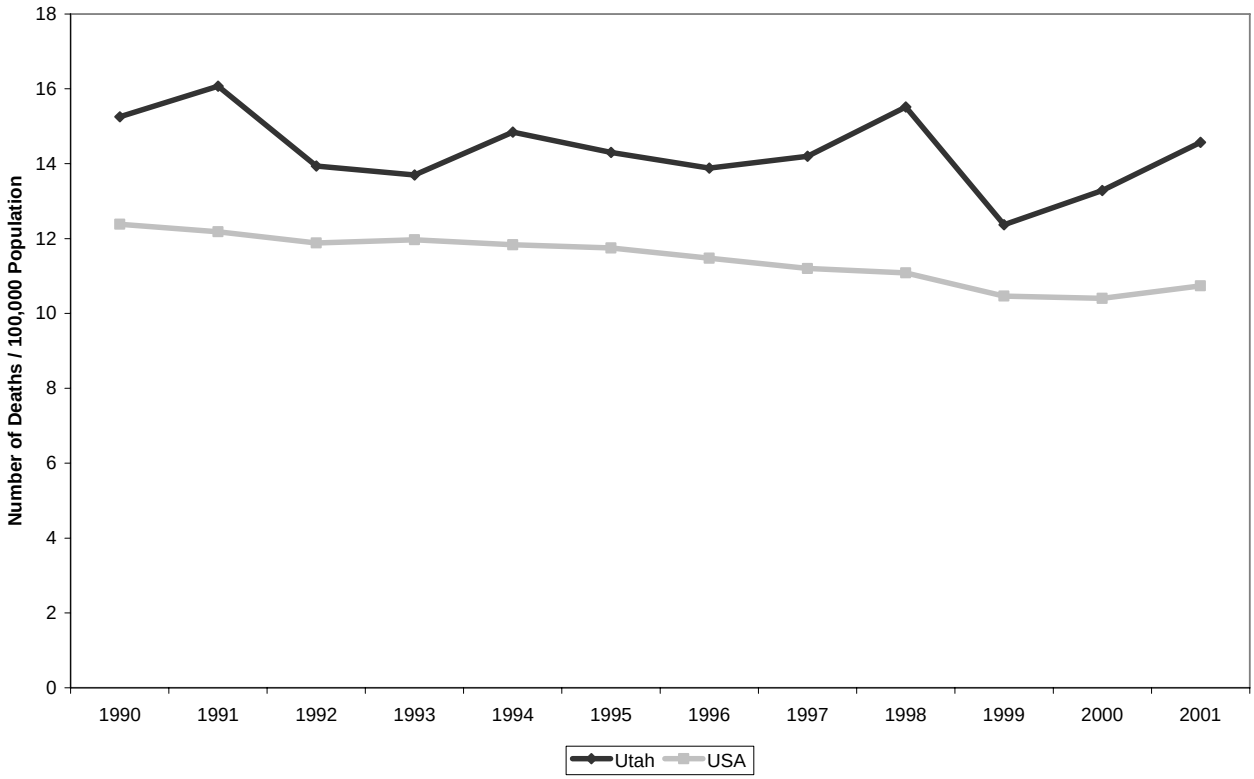
The Medical Examiner investigates deaths thought to be drug related and makes a determination on the manner (intentionality) of death. The Medical Examiner will not rule a death as a suicide without compelling evidence of intentionality. In the absence of such evidence, the manner of death will be 'intent undetermined'. Looking closer at the Medical Examiner data, suicides related to non-illicit (prescribable, primarily narcotic pain-killers) have increased slightly and comprise the majority of drug-related suicides. During the same time period, however, there has been a dramatic increase in accidental or undetermined intent deaths related to non-illicit drugs. There is a high probability that some deaths classified as 'intent undetermined' due to lack of compelling evidence were actually suicides.

Nationally, it is thought that 20% of suicides are attributable to alcohol. If that proportion holds in Utah, that would account for approximately 57 deaths each year

Drug-Related Deaths Investigated by the Medical Examiner, Utah 1991-2005



Suicide Death Rates, Utah and USA



Mortality - Homicide

Indicator	Years	Average Annual Number of Cases	Average Rate per 100,000 Population	UT:USA Rate Ratio	Trend	Time from Use to Outcome	Strength of Relationship
Homicides	1990-2001	60	3.0	0.37	Slightly Decreasing	Variable	Low-Medium

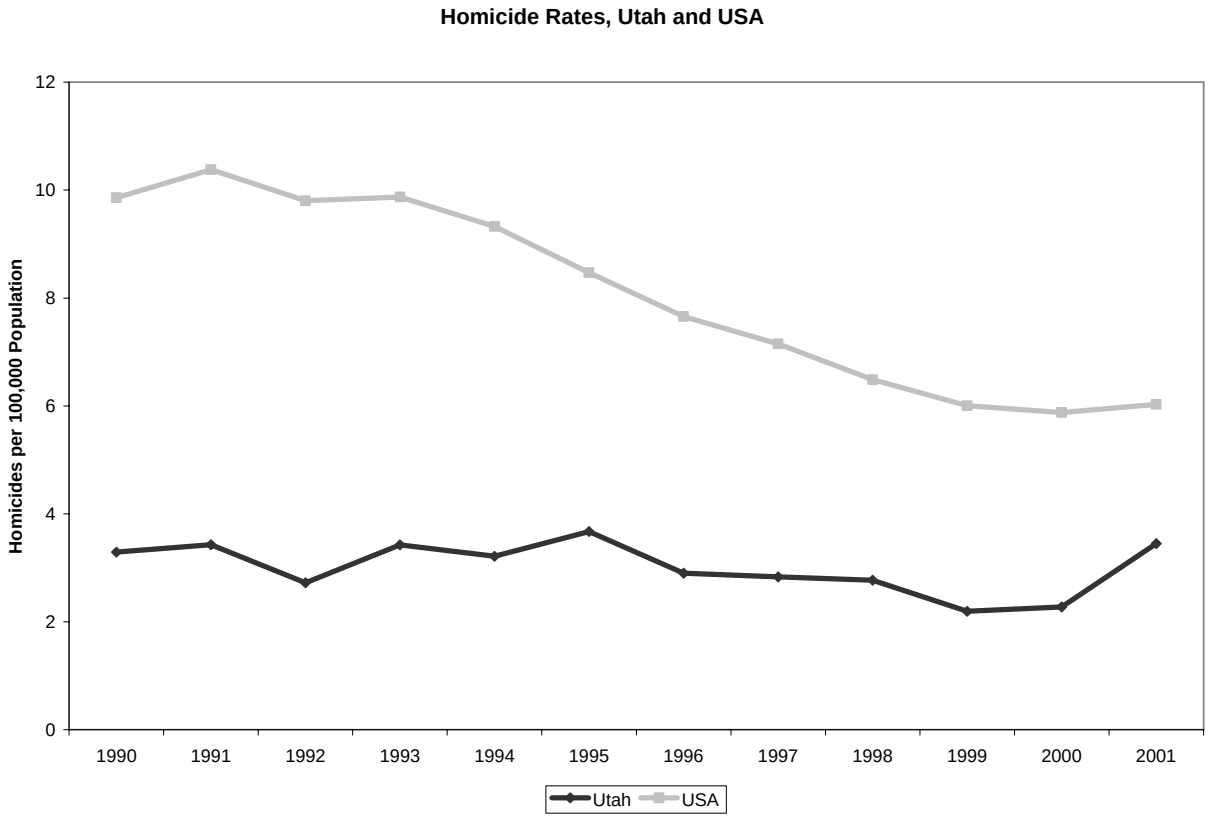
*Indicator source 19-23.

SEDS suicide data included the following underlying causes of death:

ICD-9 (1990-1998): E960-969

ICD-10 (1990-2001): X85-Y09, Y87.1

Homicides occur at about 1/3 of the national rate in Utah. Nationally, it is thought that 30% of homicides are attributable to alcohol. If that proportion holds in Utah, that would account for approximately 17 deaths each year. Utah has not experienced the same decrease in homicide as the rest of the USA in recent years.



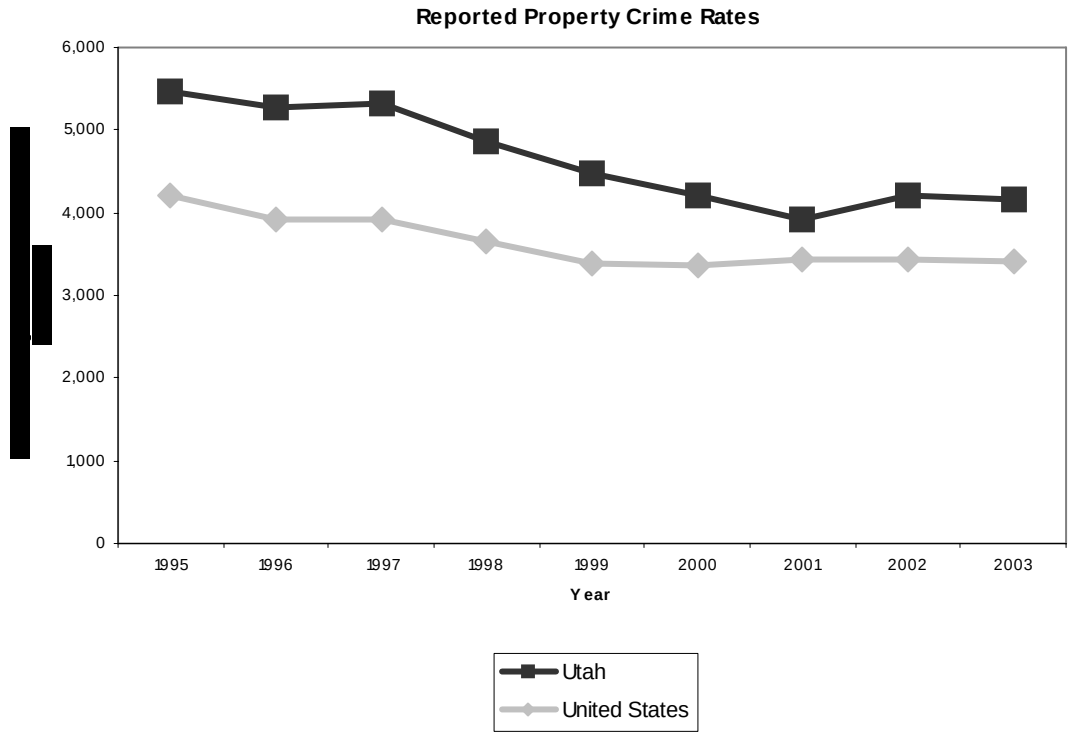
Reported Property Crimes

Indicator	Years	Average Annual Number of Cases	Average Rate per 100,000 Population	UT:USA Rate Ratio	Trend	Time from Use to Outcome	Strength of Relationship
Reported Property Crimes	2000-2003	94708.5	41.21	1.2	Stable		Medium

*Indicator source 12.

Property crime has been associated with illicit drug consumption. Nationally, the attributability of property crime to substance use is variable, from 7% for motor vehicle theft; to 30% for burglary and larceny (12). The chart below presents the rate of reported property crimes for Utah which is the preferable measure of property crimes. Although arrest rates for property crimes can also serve as an indicator of property crimes, reported property crime data are considered to be less sensitive to changes in enforcement policies that can affect arrest rate data. The average annual number of reported property crimes in Utah between 2000 and 2003 was 94708.5. The rate of reported property crime in Utah has consistently been higher than the nation from 1995-2003.

This indicator is a summation of larceny, motor vehicle theft, and burglary. The Utah rates are being driven by high numbers of larcenies, primarily concentrated in the most urban counties. More than 75% of the property crime reported here consists of larceny, the least serious of the summarized infractions.

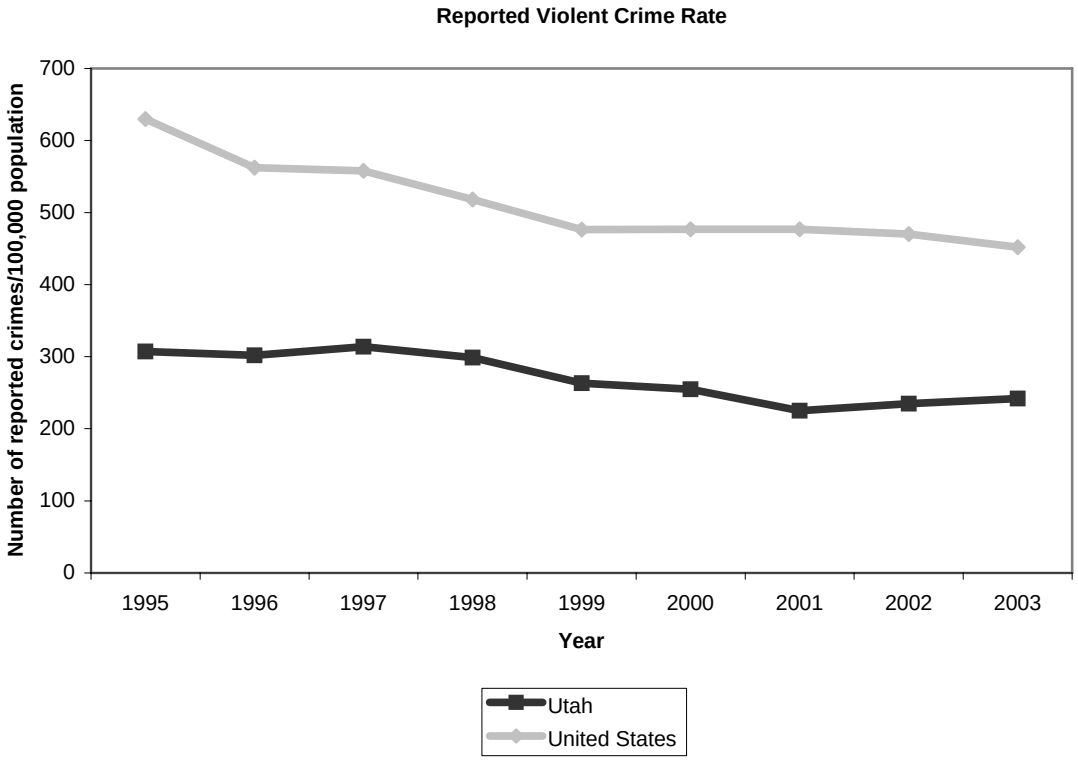


Reported Violent Crimes

Indicator	Years	Average Annual Number of Cases	Average Rate per 100,000 Population	UT:USA Rate Ratio	Trend	Time from Use to Outcome	Strength of Relationship
Reported Violent Crimes	2000-2003	5,496	2,390	0.51	Slightly Rising Since 2001	Variable	Medium

*Indicator source 12.

Violent crime has been associated with alcohol consumption. Nationally, the attributability of property crime to substance use is variable 23% for sexual assault; 30% for physical assault; 3% for robberies (12). The chart below presents the rate of reported violent crimes for Utah which is the preferable measure of violent crimes. Although arrest rates for violent crimes can also serve as an indicator of violent crimes, reported violent crime data are considered to be less sensitive to changes in enforcement policies that can affect arrest rate data. The average annual number of reported violent crimes in Utah between 2000 and 2003 was 5496. The rate of reported violent crime in Utah has generally been 50% of the national rate since 2000.



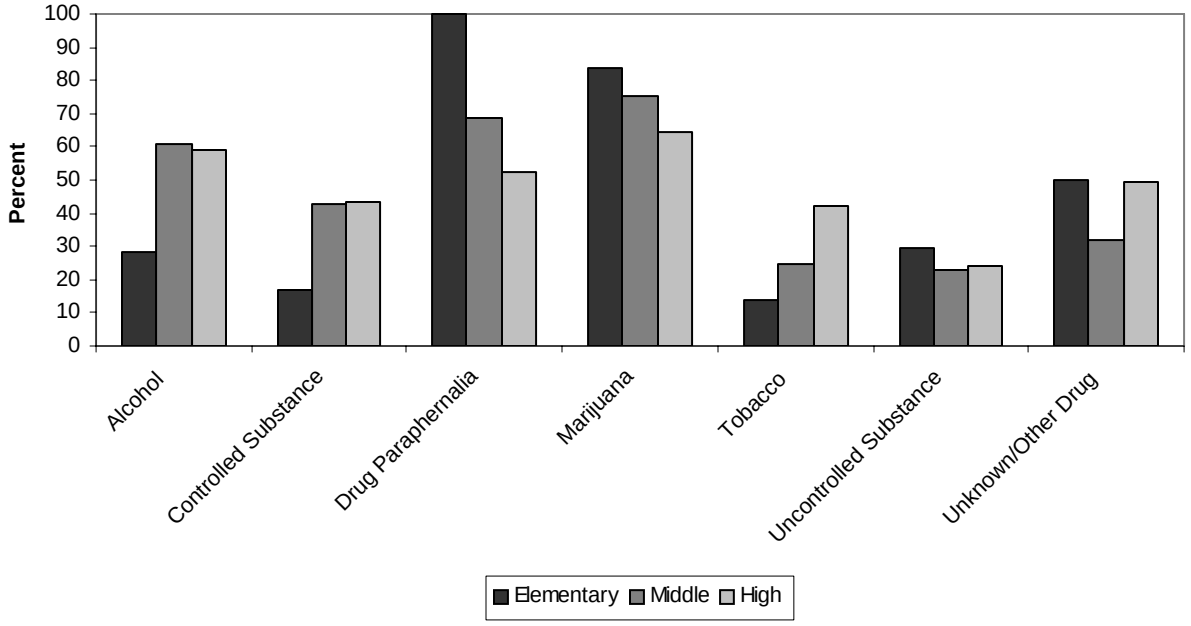
School-Related Consequences of Substance Use

The Utah State Office of Education collects school substance abuse incident data annually through the Safe and Drug Free Schools and Communities Program (reference 6). The substance-related data collected include incidents of: alcohol, controlled substance, drug paraphernalia, tobacco, uncontrolled substance, and other. Additional data collected include: gang-related incidents, number of offenders, in-school suspensions, out-of-school suspensions with and without services, expulsions, alternative placements, and referral to law enforcement. Data are collected for elementary, middle (or junior high), and high schools throughout Utah. School and district specific data may be of use for local prevention teams, but the utility at a state-wide level is limited.

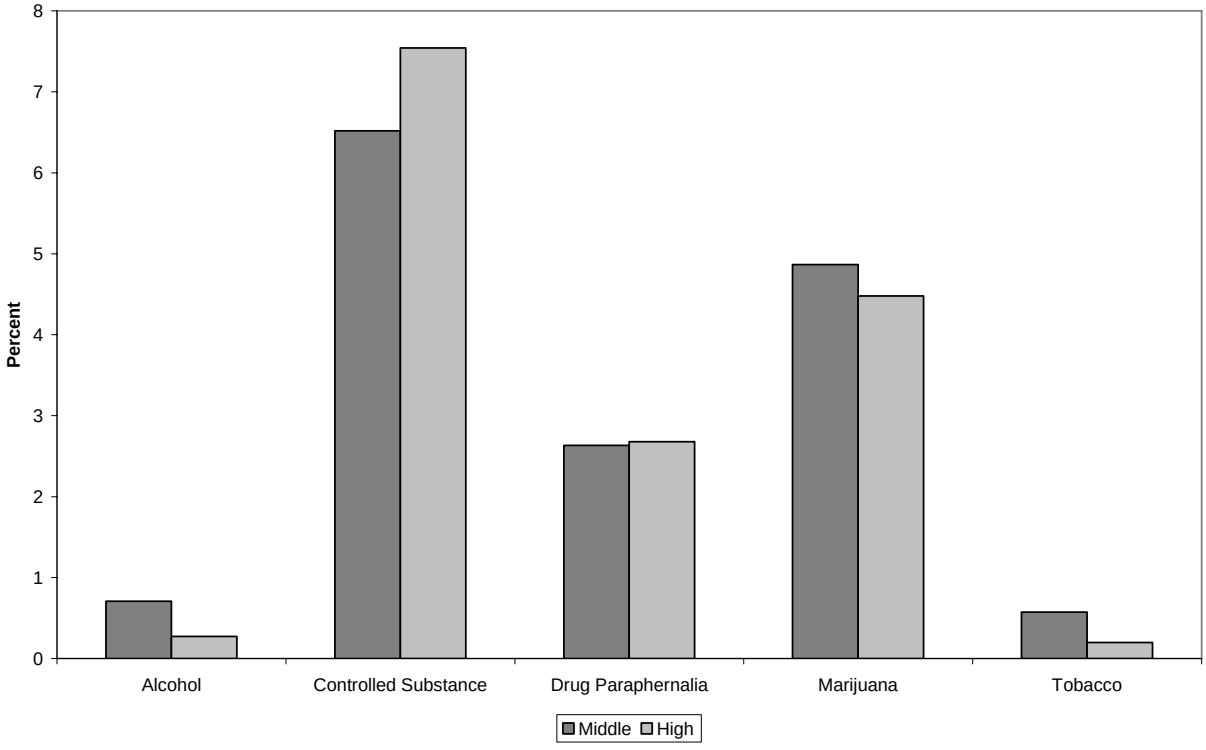
The Drug Free Schools and Community dataset represents a strong potential dataset for examining substance related incidents that occur in the school context. However, several issues hinder the ability of using this dataset to a larger extent. First, there are inconsistencies regarding how different schools and school districts define incidents. As staffing or priorities at the school (or district) change, the definitions of incidents may change as well. For that reason, comparing the number of incidents across schools and/or districts should be done with caution. These data are likely to be more relevant at the local level (e.g., school district level analyses) where consistency across years within a school or district can be more assured. Second, the numbers of incidents within a school or district are often small, which can contribute to instability of rate estimates. This is especially common for younger grade levels. The utility of this dataset for monitoring school incidents of substance abuse could be strengthened dramatically through the implementation of a more standardized reporting process across the state.

Presented below are two figures of incident severity: a) percent of offenders referred to law enforcement and b) percent of offenders expelled. It is assumed that incidents that compel school staff to refer a case to law enforcement or lead to expulsion are likely to be relatively severe infractions, and therefore, more likely to be of similar severity across schools and districts. The results are presented by grade level and involved substance. In regards to law enforcement referral, for some substances such as marijuana and tobacco there appears to be a trend (decreasing for marijuana and increasing for tobacco) while for others the potential relationship is less clear. For the 2004–2005 and 2005–2006 school years, no elementary school children were expelled for substance-related incidents, and expulsion was also rare for older students. Controlled substance incidents were most likely to result in expulsion, but fewer than 8% of offenders faced this consequence.

Percent of offenders referred to law enforcement by grade and category of offense, Utah 2004-2006



Percent of offenders expelled by grade and category of offense, Utah 2004-2006



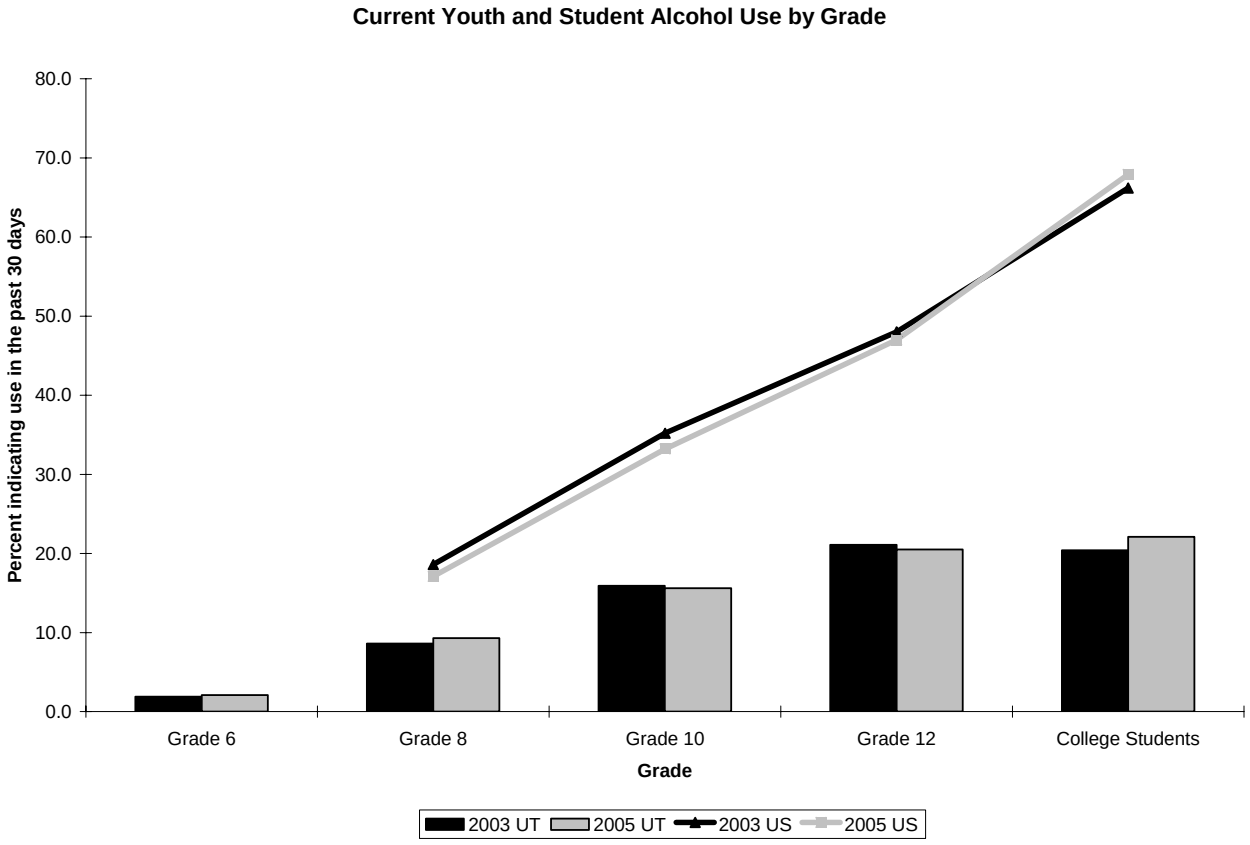
Substance Use Indicators

Estimates of substance use in Utah are provided in this section of the state epidemiological profile. All estimates of substance use are based on survey data. Youth data was obtained from the Utah Prevention Needs Assessment Survey (PNA) which is conducted bi-annually on odd numbered years through a collaboration between the State Division of Substance Abuse and Mental Health (DSAMH) and the Utah State Office of Education (USOE). Recent administrations of the PNA have utilized large, diverse samples of youth across the state, allowing county level analyses and in many cases, even school district level analyses, by grade. Data presented regarding substance use among college students was obtained from the Utah Higher Education Health Behavior Survey which is also conducted by the DSAMH. General adult substance use data was obtained through two federally administered surveys: a) the National Survey of Drug Use and Health (NSDUH) which is funded by the Substance Abuse and Mental Health Services Administration (SAMHSA), and b) the Behavioral Risk Factor Surveillance System (BRFSS) funded by the Center for Disease Control (CDC) and conducted by the Utah State Department of Health. Both the NSDUH and BRFSS samples allow for state level estimates of adult substance use by pre-set age groupings. For the NSDUH, data is provided by the SAMHSA in three age groupings (12-17, 18-25 and 26 and older), while the BRFSS provides data for five age groupings (18-20, 21-29, 30-34, 35-54, 55-64, and 65 and older). Unfortunately, the sample sizes for both the NSDUH and BRFSS do not allow analyses to sub-state levels (e.g., health districts or counties).

Current Youth and Student Alcohol Use by Grade 2003-05
(Percent indicating use in the past 30 days)

	Grade 6		Grade 8		Grade 10		Grade 12		College Students	
	2003	**2005**	**2003**	**2005**	**2003**	**2005**	**2003**	**2005**	**2003**	**2005**
Utah (10,8)	1.9	2.1	8.6	9.3	15.9	15.7	21.1	20.5	20.4	22.1
United States (27)	n/a	n/a	18.6	17.1	35.2	33.2	48.0	47.0	66.2	67.9

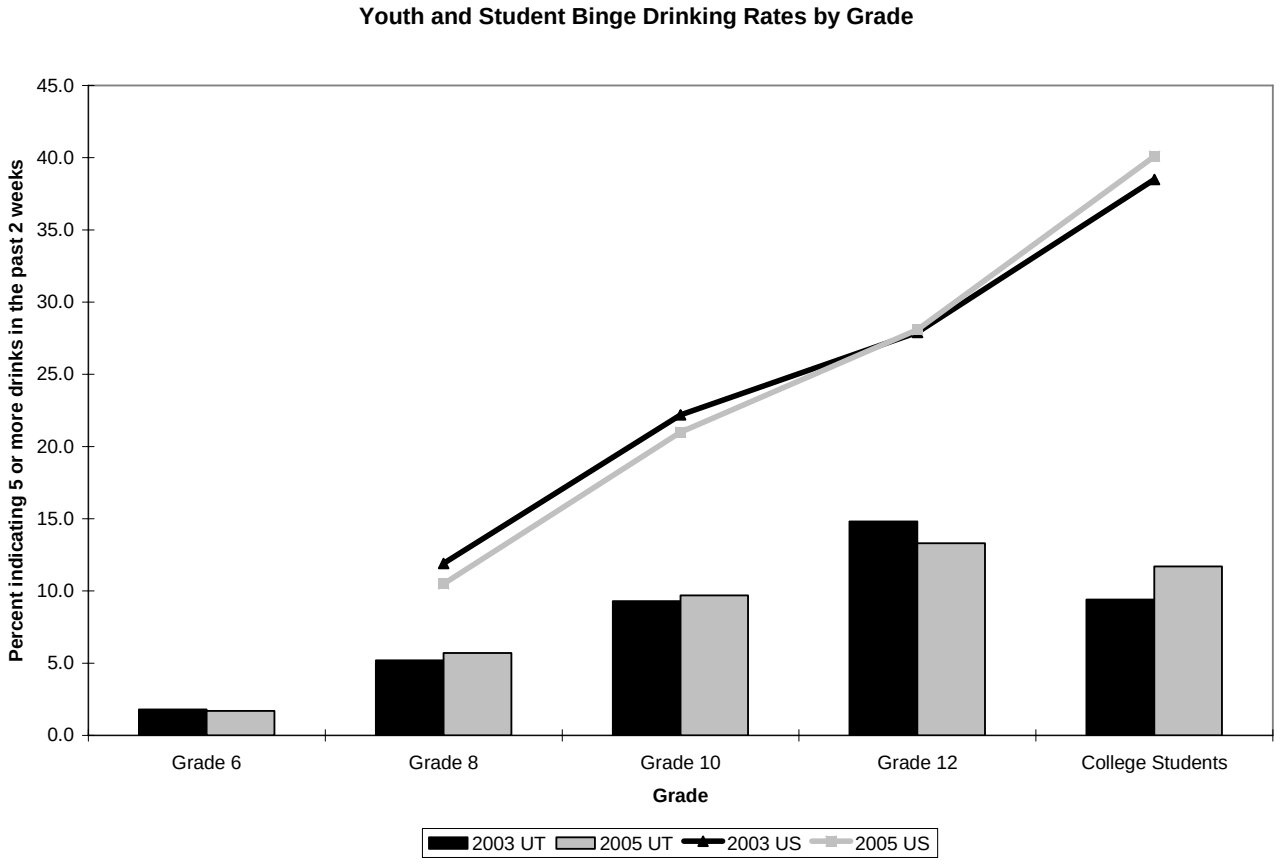
The percentage of Utah students indicating alcohol use in the past 30 days has consistently been well below the national rate of students indicating alcohol use in the past 30 days for all grades. Trends between 2003-05 suggest the 30 day use rate for alcohol among Utah students has been stable during this time period.



Current Youth and Student Binge Drinking by Grade 2003-05
(Percent indicating 5 or more drinks in a row in the past 2 weeks)

	Grade 6		Grade 8		Grade 10		Grade 12		College Students	
	2003	**2005**	**2003**	**2005**	**2003**	**2005**	**2003**	**2005**	**2003**	**2005**
Utah (10,8)	1.8	1.7	5.2	5.7	9.3	9.7	14.8	13.3	9.4	11.7
United States (27)	n/a	n/a	11.9	10.5	22.2	21.0	27.9	28.1	38.5	40.1

Consistent with alcohol use trends for the state, the rate of youth and students indicating binge drinking in the past two weeks in Utah was about half (or less) the national rate for all grades. The rate in Utah appeared relatively stable across grades between 2003 and 2005.

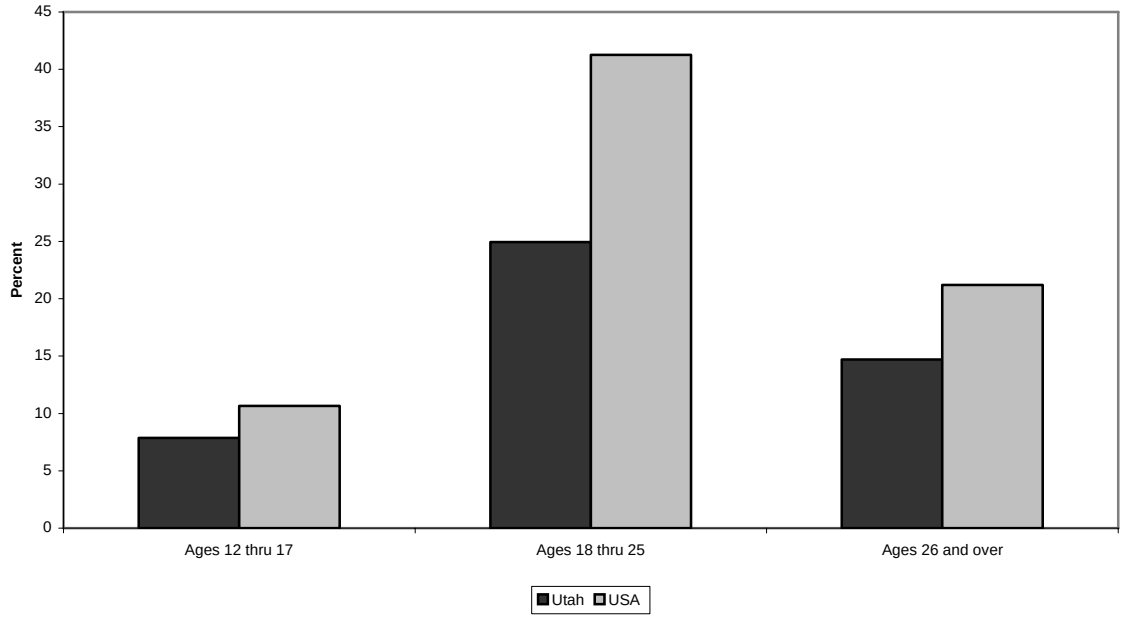


Indicators of Adult Alcohol Use

Indicator	Year	Utah	USA	Utah:USA Ratio	Utah Trend	Data Source
At risk for binge drinking (%)	1995, 1997, 1999, 2001–2005	9.4	15.5 (2002–2005 only)	0.61 (2002–2005 only)	Stable	1,25
At risk for chronic drinking (%)	1989–1993, 1995, 1997, 1999, 2001–2005	2.8	5.4 (2002–2005 only)	0.55 (2002–2005 only)	Stable	1,25
Drank alcohol during last 3 months of pregnancy (%)	1999–2003	2.9	5.6 (2002)	0.54 (2002)	Decreasing	5,26
Alcohol use during pregnancy (%)	1989-2005	1.10%	Not available	Not available	Stable	2
Population adjusted alcohol sales (gallons/person)	1990-2002	1.28	2.21	0.58	Stable	17
Current alcohol use (%)	2002-2003	29.57	50.5	0.59		16
Binge Alcohol Use (%)	2002-2003	15.86	22.75	0.70		16
Alcohol Dependence or Abuse (%)	2002-2003	6.87	7.59	0.91		16

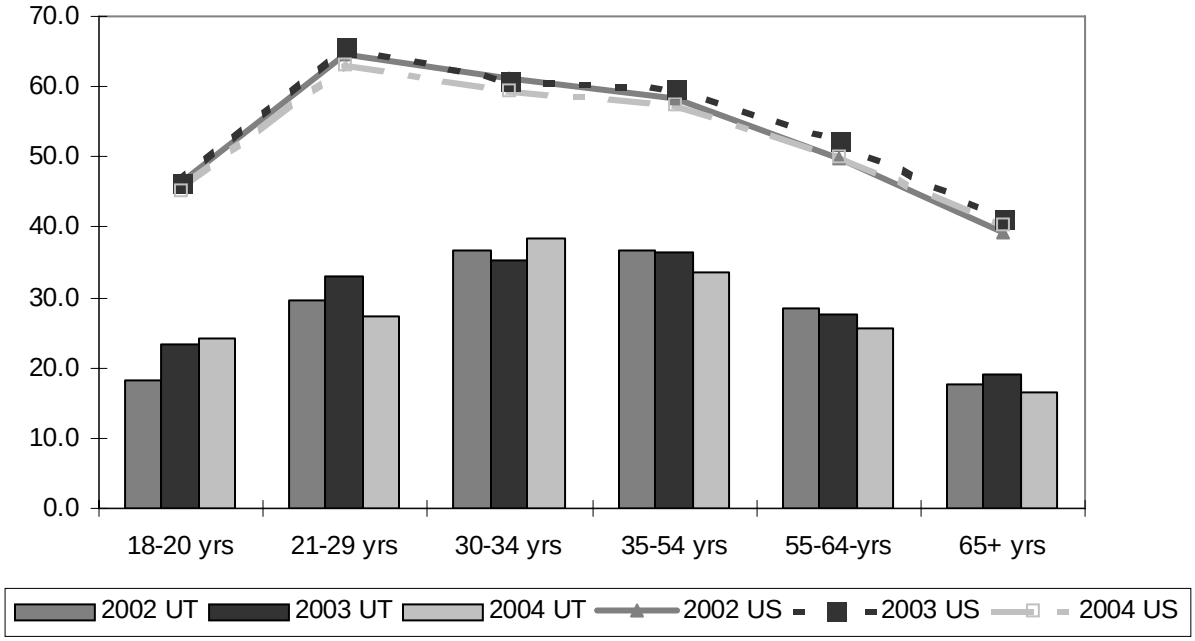
BRFSS has collected information on adults at risk for binge drinking (“Considering all types of alcoholic beverages, how many times during the past month did you have 5 or more drinks on an occasion?”) and at risk for chronic drinking (During the past month, how many days per week or per month did you drink any alcoholic beverages, on the average? On the days when you drank, about how many drinks did you drink on the average? Where the answer is >30 for women and >60 for men). The National Survey on Drug Use and Health also collects information on binge drinking and reports higher estimates for both Utah and the USA.

Estimated Percent of Population by Age Category: Binge Drinking NSDUH

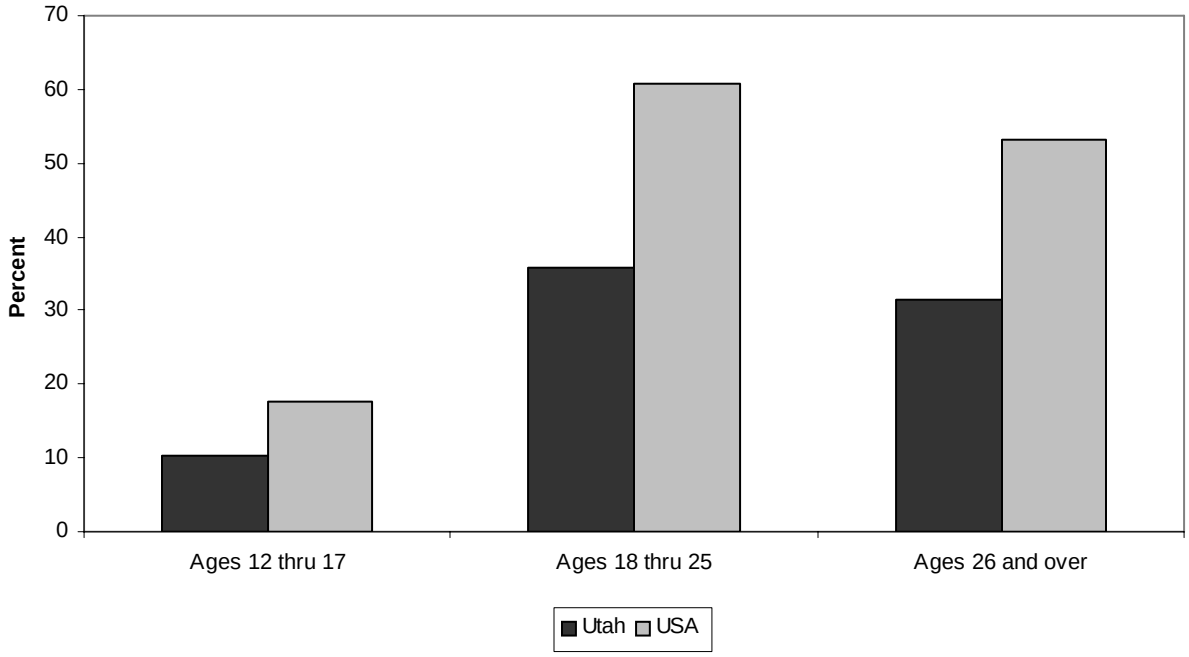


The percentage of Utah adults indicating alcohol use in the past 30 days is consistently well below the national rate of adults indicating alcohol use in the past 30 days in all age groups. A slight increasing trend is apparent in the 18-20 age group from 2002-04, while rates for other adult age groups have remained stable or shown slight declines. BRFSS data is based on a state level sample, no county estimates are available from this data set.

Current Adult Alcohol Use by Age: BRFSS

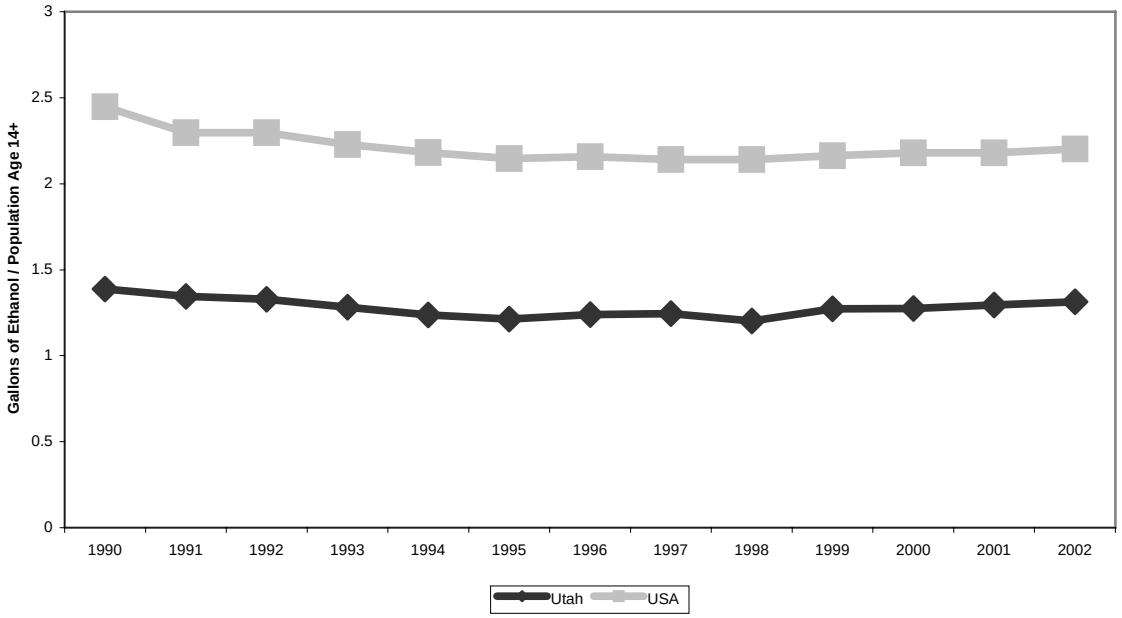


Estimated Percent of the Population by Age Category: Current Alcohol Use, NSDUH



Data on sales of alcohol as a proxy measure for alcohol consumption is available through SEDS. For all years in which data are available, Utah has been far lower than the USA as a whole with a steady per capita average of 1.3 gallons which is approximately 60% of the USA per capita average of 2.2 gallons.

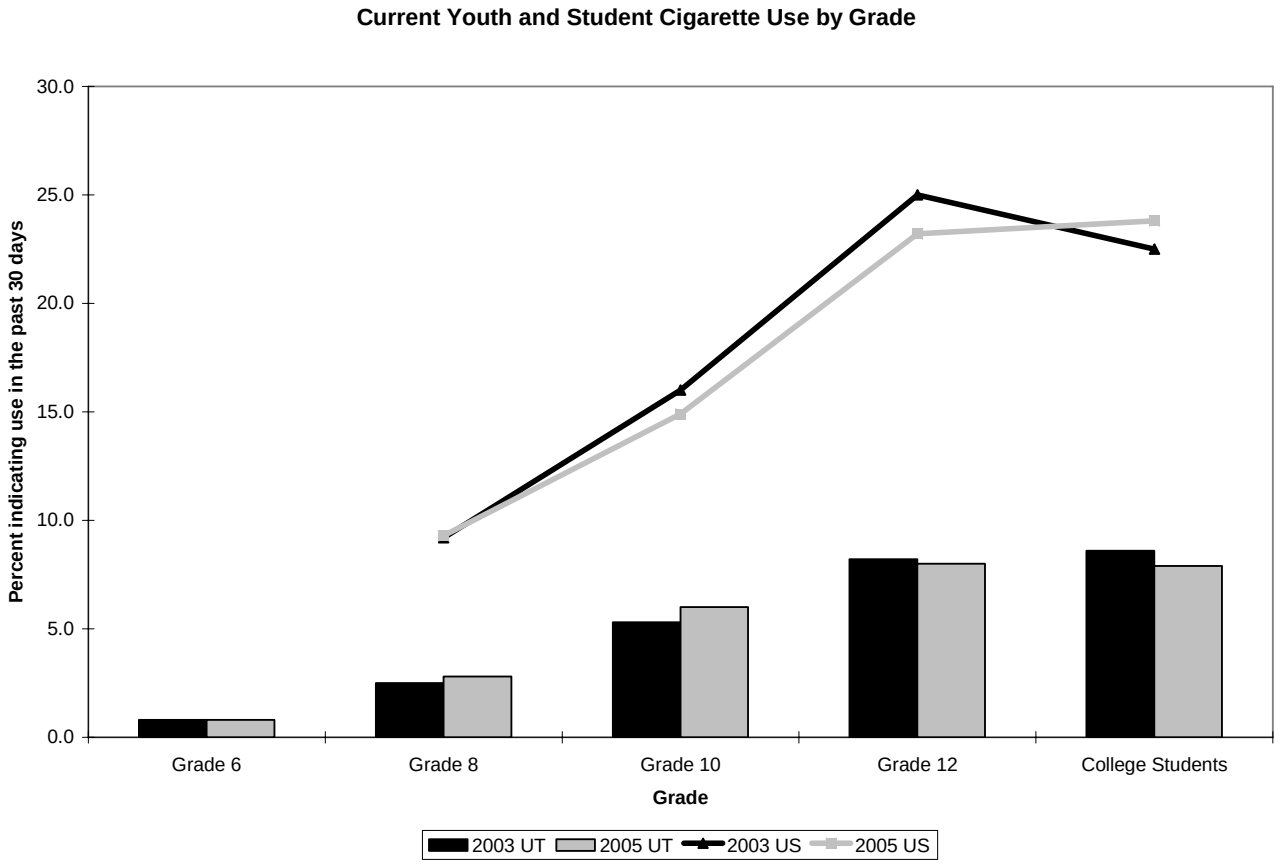
Population Adjusted Alcoholic Beverage Sales, 1990-2002



Current Youth and Student Cigarette Use by Grade 2003-05
(Percent indicating use in the past 30 days)

	Grade 6		Grade 8		Grade 10		Grade 12		College Students	
	2003	**2005**	**2003**	**2005**	**2003**	**2005**	**2003**	**2005**	**2003**	**2005**
Utah (10,8)	.8	.8	2.5	2.8	5.3	6.0	8.2	8.0	8.6	7.9
United States (27)	n/a	n/a	9.2	9.3	16.0	14.9	25.0	23.2	22.5	23.8

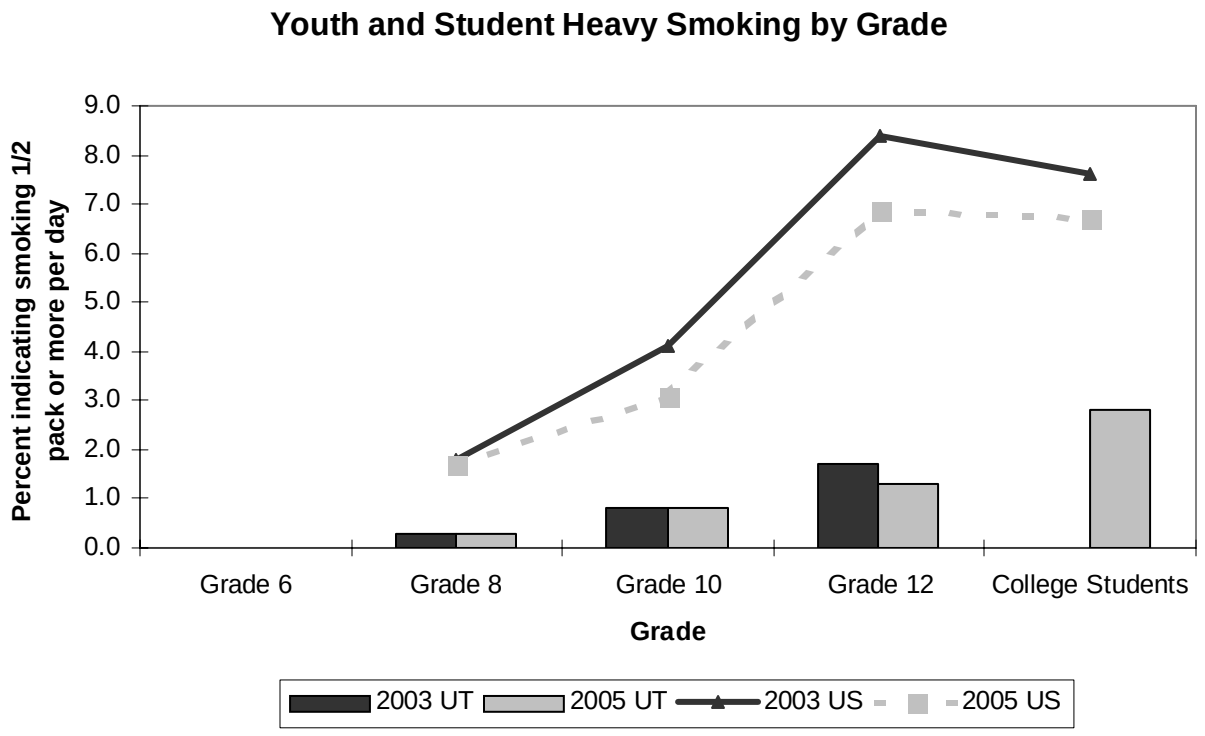
The percentage of Utah students indicating cigarette use in the past 30 days is consistently well below the national rate of students indicating cigarette use in the past 30 days for all grades. Trends between 2003-05 suggest the 30 day use rate for alcohol among Utah students has been stable for grades 6, 12 and college students, with slight increases in grades 8 and 10.



Youth and Student Heavy Smoking by Grade 2003-05
(Percent indicating ½ pack or more per day)

	Grade 6		Grade 8		Grade 10		Grade 12		College Students	
	2003	**2005**	**2003**	**2005**	**2003**	**2005**	**2003**	**2005**	**2003**	**2005**
Utah (10,8)	0.0	0.0	.3	.3	.8	.8	1.7	1.3	n/a	2.8
United States (27)	n/a	n/a	1.8	1.7	4.1	3.1	83.4	6.9	7.6	6.7

Heavy smoking rates among Utah youth and college students were far lower than national rates for heavy smoking. The gaps between Utah and national rates for heavy smoking increase by grade. Heavy smoking rates in Utah remained stable between 2003-05 with a decrease in the rate for 12th graders from 2003 to 2005.

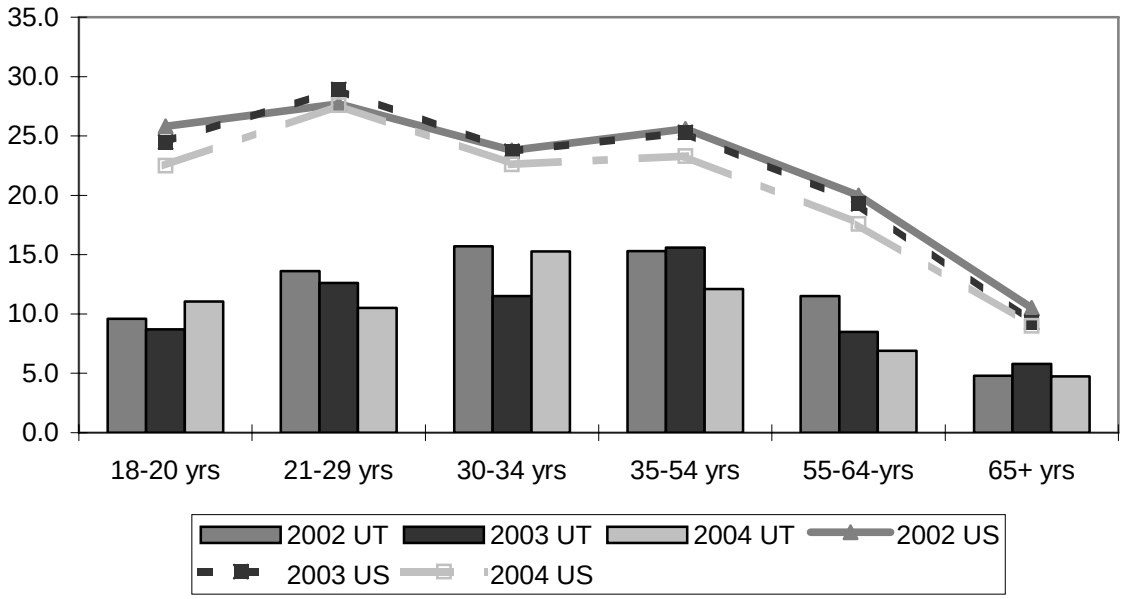


Adult Tobacco Use Indicators

Indicator	Year	Utah	USA	Utah:USA Ratio	Utah Trend	Data Source
Current smoking (%)	1989-2005	13.9	22.4 (1995–2005 only)	0.58 (1995–2005 only)	Decreasing	1,25
Current Cigarette Use (%)	2002-2003	16.74	25.71	0.65		16
Attempted to quit smoking this year (%)	1994-2005	52.3	Not Available	Not Available	Slightly Increasing	1,25
Population adjusted tobacco purchasing (annual packs/person)	1990-2002	47.7	87.9	.56 (2000-2002)	Decreasing (13% reduction since 2000)	18

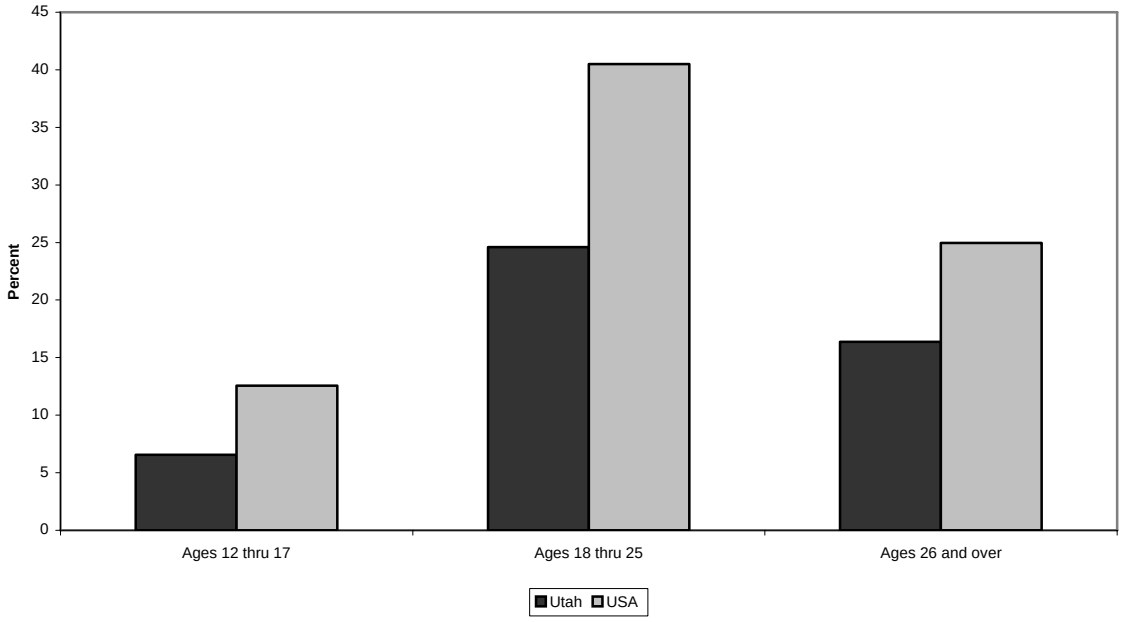
BRFSS has collected information on current smoking and attempts to quit smoking for many years. Fewer than 15% of Utah adults report current smoking, and approximately half of Utah smokers report attempting to quit each year. The percentage of Utah adults indicating cigarette use in the past 30 days is consistently well below the national rate of adults indicating cigarette use in the past 30 days in all age groups. Trends between 2002-04 show slight declines in rates for some age groups (most notably, 21-29 and 35-64), and stable rates in the other groups. BRFSS data is based on a state level sample, no county estimates are available from this data set.

Current Cigarette Use by Age: BRFSS



The National Survey on Drug Use and Health also collects information on cigarette smoking and reports slightly higher proportions of smokers but is consistent with the finding that Utah is significantly lower than the USA.

Estimated Percent of the Population by Age Category: Current Cigarette Use: NSDUH



Tobacco purchasing information is available as a proxy measure for consumption. A lower proportion of Utah adults smoke than in any other state, and the purchasing data supports this fact. For the years 2000-2002, Utah's per capita consumption averaged 56% of the consumption for the USA as a whole.

Number of packs of cigarettes taxed at the wholesale level per capita (persons aged 18 and older) by year

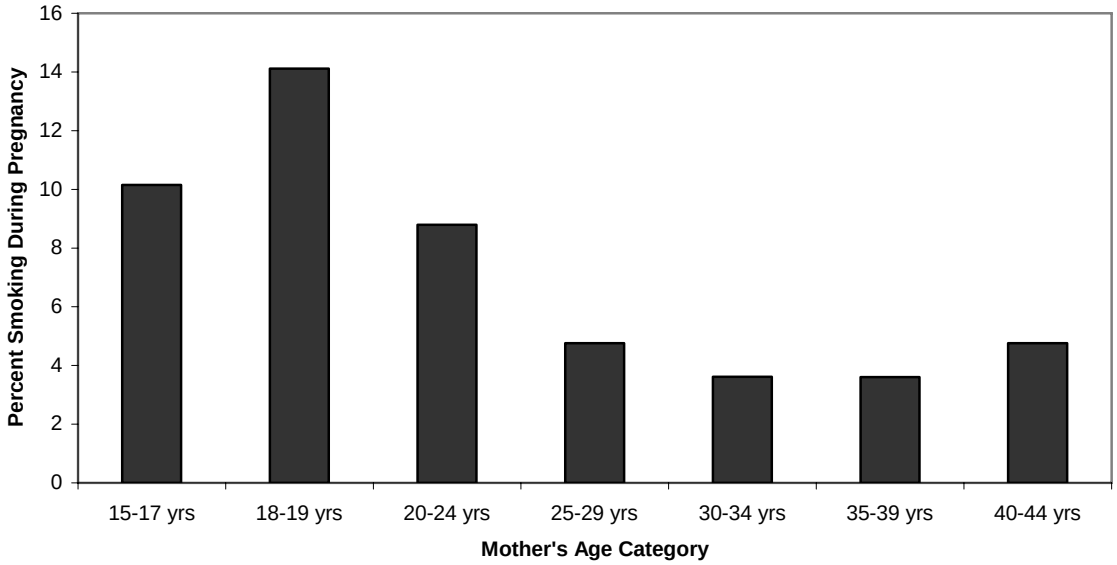
Tobacco Consumption Indicator – Use by Pregnant Women

Indicator	Year	Utah % Reporting	USA % Reporting	Utah:USA Ratio	Utah Trend	Data Source
Smoked during last 3 months of pregnancy (%)	1999-2003	6.4	13.1 (2002)	0.49	Decreasing	5,26
Smoked during pregnancy (%)	1989-2005	6.9 (2000-2005 average)	Not Available	Not Available	Decreasing (27% reduction 2000-2005)	2

Utah began collecting data in the Pregnancy Risk Assessment Monitoring System in 1999 and has collected information about alcohol use in pregnancy continuously. Approximately 6% of Utah women report smoking tobacco during the third trimester of pregnancy. According to the 2002 National PRAMS report, 13.1% of women nationally reported smoking during the last trimester. Utah had the lowest smoking rates among all of the PRAMS states for all three measures – smoking before, during, and after pregnancy (26).

Utah birth certificate data show similar rates of tobacco use. Data are available from 1989–, and the average for data years 2000–2005 is 6.9% of mothers reported smoking during pregnancy. A closer look at the proportion of mothers reporting smoking during pregnancy by age reveals that young mothers are much more likely to smoke and may be a target group for intervention.

Age Distribution of Mothers Who Reporting Smoking Tobacco While Pregnant, Utah 2003-2005

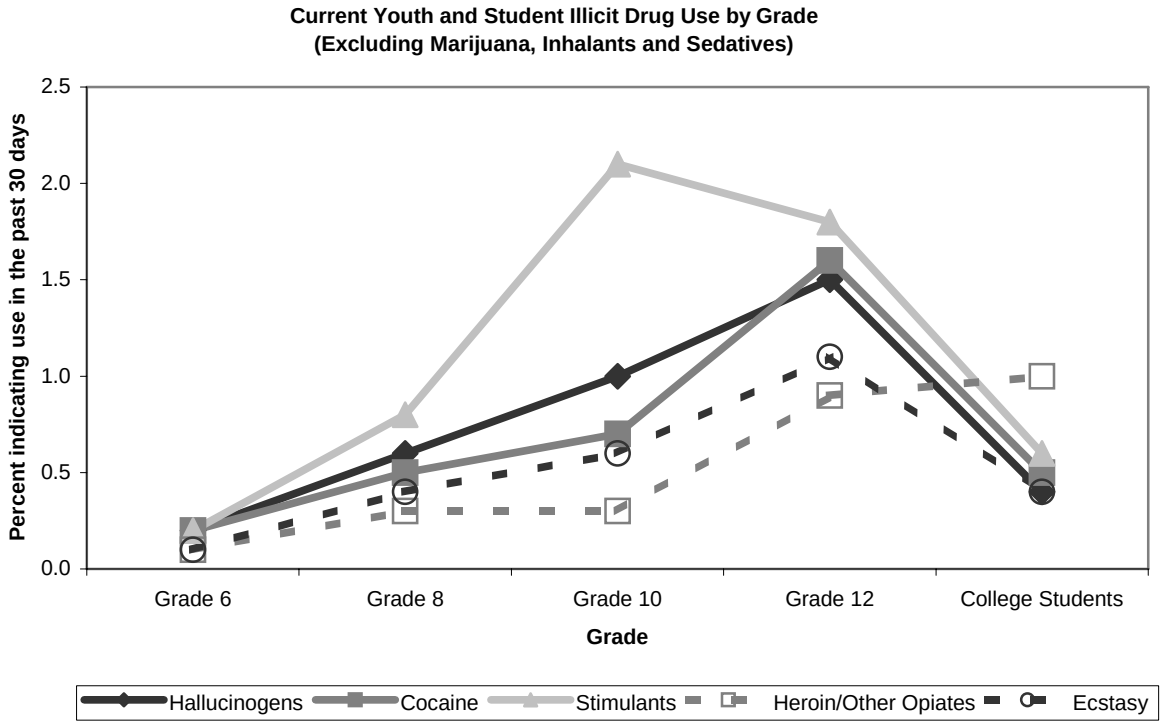


Current Youth and Student Illicit Drug Use by Grade 2005
(Percent indicating use in the past 30 days)

	Grade 6	Grade 8	Grade 10	Grade 12	College Students
Hallucinogens	.2	.6	1.0	1.5	.4
Cocaine	.2	.5	.7	1.6	.5
Stimulants	.2	.8	2.1	1.8	.6
Heroin and Other Opiates	.1	.3	.3	.9	1.0
Ecstasy	.1	.4	.6	1.1	.4

*Indicator source 10,8.

The chart below presents the 30 day use rates for illicit drugs in Utah (excluding inhalant, marijuana and sedatives) (8,10). With the exception of stimulant use rates for the 10th grade, there were no rates above 2% for any substance for any grade. Although not presented in the table above, rates for cocaine, heroin and ecstasy remained stable from 2003 to 2005 (with the exception of ecstasy use by 12th graders, which increased from .7% to 1.1%). The rates for hallucinogens and stimulants showed slight increases for some grades from 2003-05.

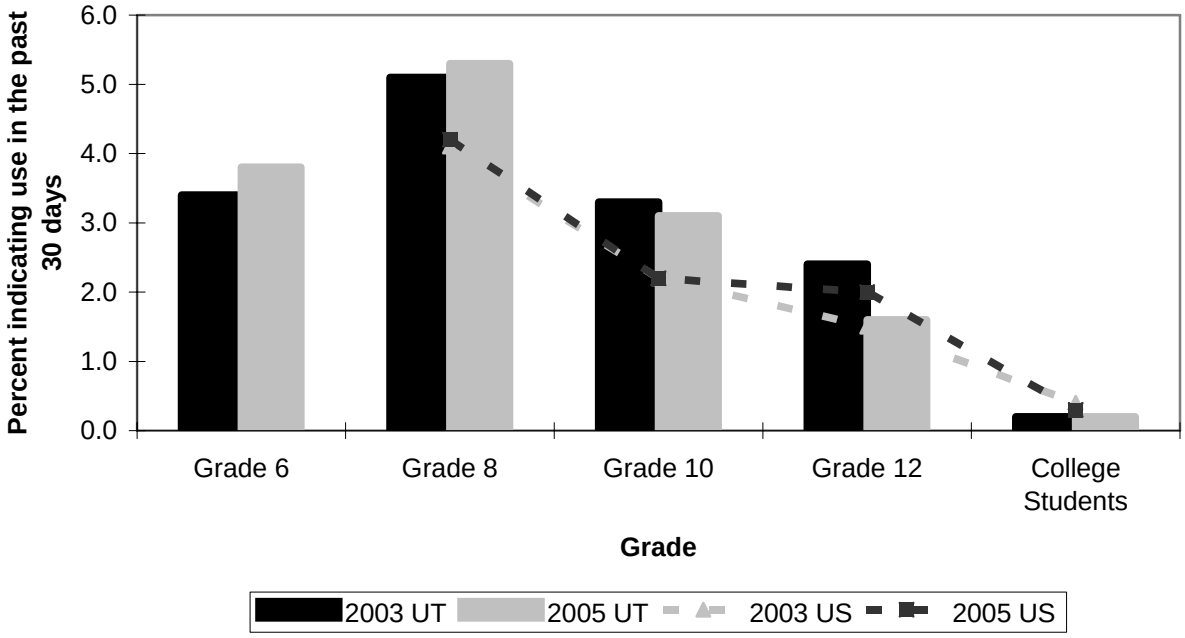


Current Youth and Student Inhalant Use by Grade 2003-05
(Percent indicating use in the past 30 days)

	Grade 6		Grade 8		Grade 10		Grade 12		College Students	
	2003	**2005**	**2003**	**2005**	**2003**	**2005**	**2003**	**2005**	**2003**	**2005**
Utah (10,8)	3.4	3.8	5.1	5.3	3.3	3.1	2.4	1.6	.2	.2
United States (27)	n/a	n/a	4.1	4.2	2.2	2.2	1.5	2.0	.4	.3

Past 30 day inhalant use rates in Utah are a rare exception to the rule of lower state rates compared to national rates for substance use. The rate of inhalant use in Utah exceeds the national rate for all grades below grade 12. The rate declines after 7th or 8th grade.

Current Youth and Student Inhalant Use by Grade



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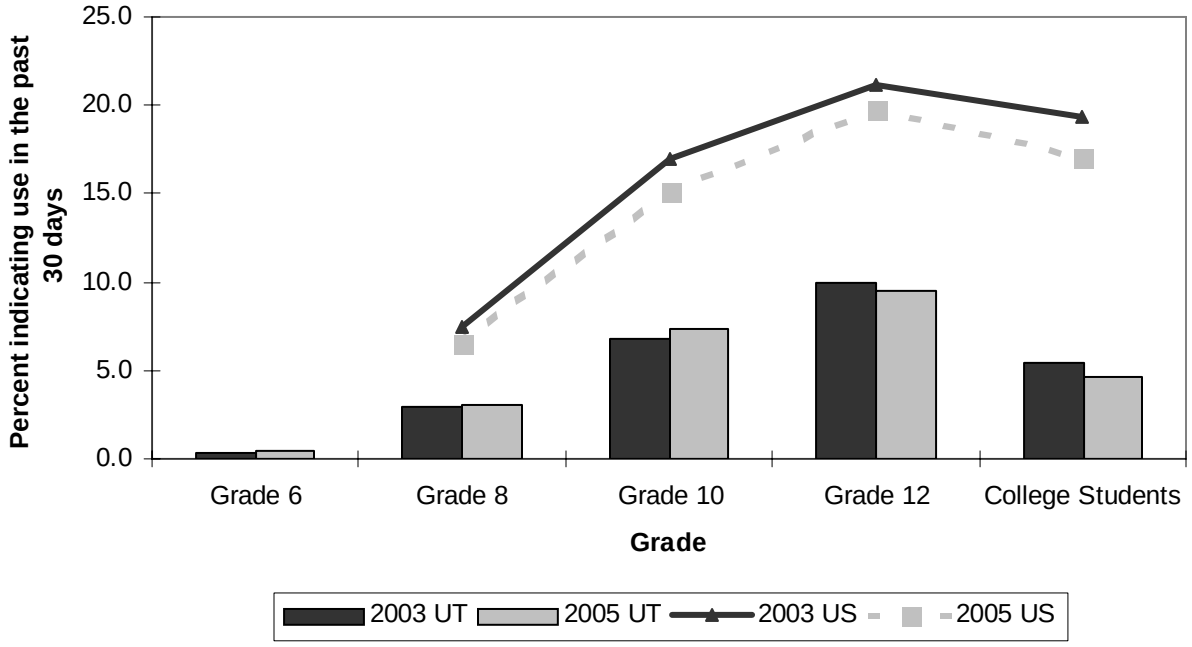
Current Youth and Student Marijuana Use by Grade 2003-05
(Percent indicating use in the past 30 days)

	Grade 6		Grade 8		Grade 10		Grade 12		College Students	
	2003	2005	2003	2005	2003	2005	2003	2005	2003	2005
Utah (10,8)	.3	.4	2.9	3.0	6.8	7.4	10.0	9.5	5.4	4.6
United States (27)	n/a	n/a	7.5	6.6	17.0	15.2	21.2	19.8	19.3	17.1

Utah current marijuana use rates among youth and students fall well below the national rates for 30 day use. The rates among 6th and 8th grade students remained relatively stable from 2003 to 2005, while the rates among 12th graders and college students showed a slight decline.

Current Youth and Student Marijuana Use by Grade

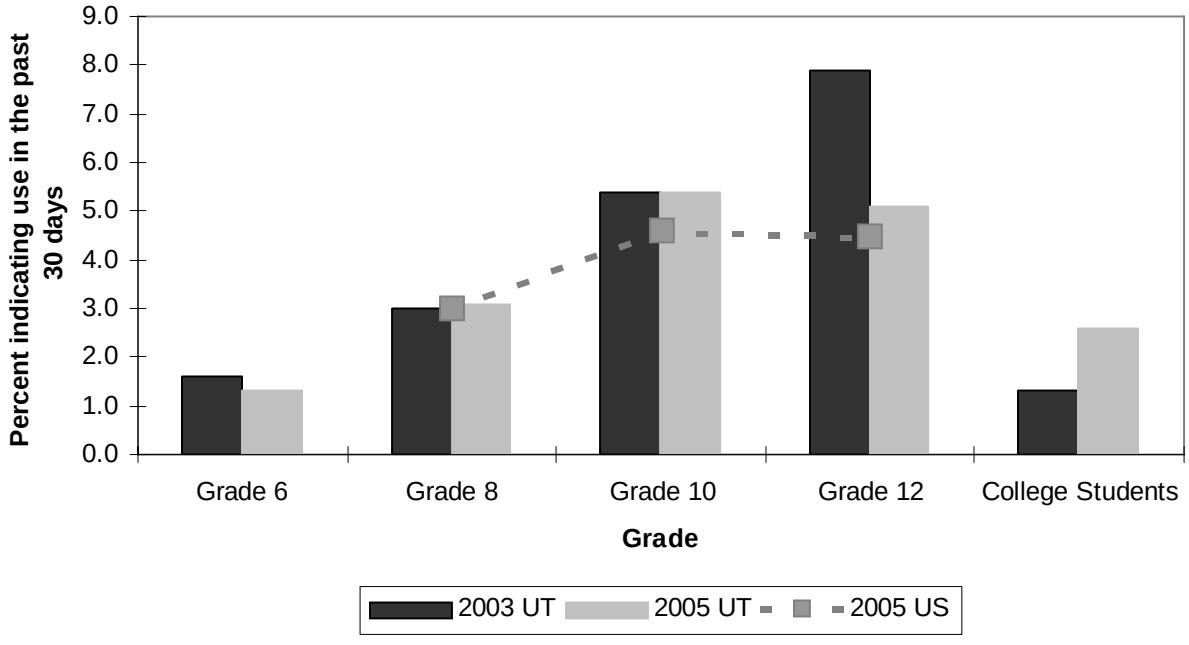


Current Youth and Student Sedative Use by Grade 2003-05
(Percent indicating use in the past 30 days)

	Grade 6		Grade 8		Grade 10		Grade 12		College Students	
	2003	2005	2003	2005	2003	2005	2003	2005	2003	2005
Utah (10,8)	1.6	1.3	3.0	3.1	5.4	5.4	7.9	5.1	1.3	2.6
United States (27)	n/a	n/a	3.0	3.0	4.5	4.6	4.3	4.5	n/a	n/a

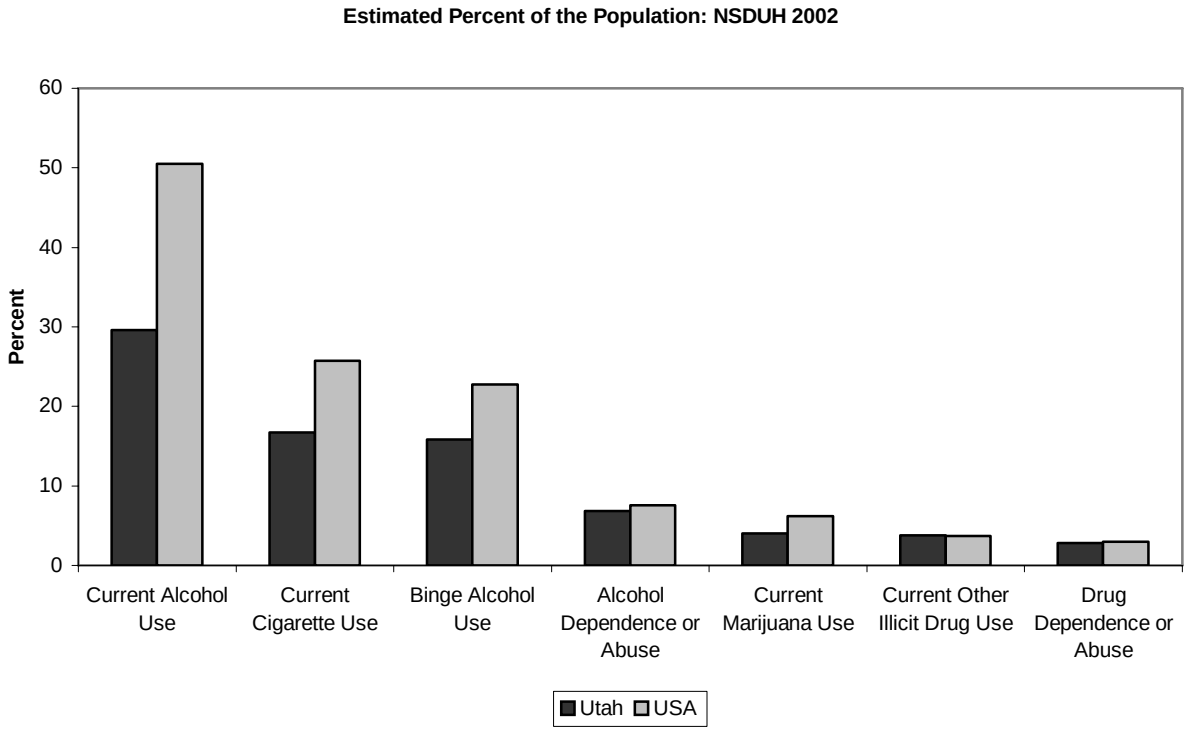
The 30 day use rate for sedatives is the only illicit substance other than inhalants or marijuana in which Utah youth indicated a use rate above 2% for more than one grade. Like inhalant rates, use rates for sedatives in Utah exceed the national use rate for several populations. Rates were generally stable across 2003 and 2005 for grades 6 through 10. The rate for 12th graders decreased from 2003 to 2005, while the college student rate increased.

Current Youth and Student Sedative Use Rate by Grade



Indicators of Adult Drug Use

The estimated use rates of alcohol and tobacco in Utah are far lower than in the United States as a whole. For less frequent behaviors such as illicit drug use or drug dependence, the estimates for Utah are similar to those of the United States.



Based on the recent increases in fatal drug overdoses attributed to prescribable drugs in Utah, it is reasonable to expect that non-medicinal (recreational or abusive) use of such drugs has increased in Utah. Limited data exist to answer this question. The 2003–2004 iteration of the National Survey of Drug Use and Health included non-medical use of pain relievers in the previous year, and the estimated percentage for Utah, 6.08%, exceeded the national estimate, 4.79%. The issue of prescription drug abuse and overdose is a priority for the Utah Department of Health and additional research is ongoing.

Works in Progress

The process of creating this Epidemiological Profile has highlighted areas of quantitative strength (vital statistics, medical examiner) and data gaps (prescription drug abuse) for the members of the SEOW. In addition, the process of using the data is helping to improve and inform future data collection strategies within the state.

Appendix A: References

References:

Data for this report were accessed through several different sources.

Utah has developed an internet portal through which data are available to the public and to researchers. The Indicator Based Information System (IBIS) http://ibis.health.utah.gov/home/welcome.html includes vital statistics, health survey, hospital inpatient and emergency department data. Utah-specific data accessed using this system include:

1. Utah Behavioral Risk Factor Surveillance System, Office of Public Health Assessment, Utah Department of Health

2. Utah Birth Certificate Database, Office of Vital Records and Statistics, Utah Department of Health

3. Utah Death Certificate Database, Office of Vital Records and Statistics, Utah Department of Health

4. Utah Emergency Department Encounter Database, Bureau of Emergency Medical Services, Utah Department of Health

5. Utah Pregnancy Risk Assessment Monitoring System (PRAMS), Utah Department of Health

Additional Utah-specific data were acquired using original data sources rather than the IBIS internet portal.

6. Safe and Drug-Free Schools and Communities Monitoring Data. Utah State Office of Education.

7. Utah Death Certificate Database, Office of Vital Records and Statistics, Utah Department of Health

8. Utah Higher Education Health Behavior Survey. Utah Department of Human Services, Division of Substance Abuse and Mental Health and the Utah Department of Health, 2003-2005. Accessed via http://www.dsamh.utah.gov/higher_ed.htm

9. Utah Medical Examiner Database, Office of the State Medical Examiner, Utah Department of Health

10. Utah Prevention Needs Assessment Survey. Utah Department of Human Services, Division of Substance Abuse and Mental Health, 2003-2005. Accessed via http://www.hsdsa.state.ut.us/sharp.htm

The Center for Substance Abuse Prevention Data Coordinating Center (CSAP DCC) created an online data warehouse to assist State Epidemiological Workgroups. The State Epidemiological Data System (SEDS) is an internet portal http://www.epidcc.samhsa.gov/default.asp that includes data from health surveys, government databases, vital statistics, and tax collection. Data acquired through this system include:

Census

11. National Center for Health Statistics. Bridged-race intercensal estimates of the July 1, 1990-July 1,1999, United States resident population by county, single-year of age, sex, race, and Hispanic origin, prepared by the U.S. Census Bureau with support from the National Cancer Institute (April 24, 2004). Estimates of the July 1, 2000-July 1, 2003 , United States resident population from the Vintage 2003 postcensal series by year, county, age, sex, race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau (September 14, 2004).

Crime

12. United States Department of Justice, Federal Bureau of Investigation. Uniform Crime Reporting Program Data [United States]: County-Level Detailed Arrest and Offense Data, 1994-2002 [Computer files]. ICPSR ed. Ann Arbor, MI: Inter-University Consortium for Political and Social Research [producer and distributor], 2004.

Fatal Accidents

13. National Highway Traffic Safety Administration, 2004. Fatality Analysis Reporting System (FARS), 2003. Department of Transportation, National Highway Traffic Safety Administration.

Health Behaviors

14. Centers for Disease Control and Prevention. *Behavioral Risk Factor Surveillance System Survey Data*. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 1999-2003.

15. Centers for Disease Control and Prevention. *Youth Risk Behavioral Surveillance System Survey Data*. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Adolescent and School Health, 1991-2003.

16. Wright, D., & Sathe, N. (2005). *State Estimates of Substance Use from the 2002–2003 National Surveys on Drug Use and Health* (DHHS Publication No. SMA 05-3989, NSDUH Series H-26). Rockville, MD: Substance Abuse and Mental Health Services Administration, Office of Applied Studies.

Sales Information

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18. Orzechowski & Walker. (2003). The tax burden on tobacco. Historical Compilation, Vol. 37,2002. Arlington, VA: Orzechowski & Walker.

Vital Statistics

19. U.S. Dept. of Health and Human Services, National Center for Health Statistics. Multiple Cause of Death, 1990 [Computer File]. Hyattsville, MD: U.S. Dept. of Health and Human Services, National Center for Health Statistics [producer], 1993. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 1994.

20. U.S. Dept. of Health and Human Services, National Center for Health Statistics. Multiple Cause of Death, 1991-1993 [CD-ROM]. Hyattsville, MD. Author, 1997.

21. U.S. Dept. of Health and Human Services, National Center for Health Statistics. Multiple Cause of Death, 1994-1996 [CD-ROM]. Hyattsville, MD. Author, 1998.

22. U.S. Dept. of Health and Human Services, National Center for Health Statistics. Multiple Cause of Death, 1997-1998 [CD-ROM]. Hyattsville, MD. Author, 2000.

23. U.S. Dept. of Health and Human Services, National Center for Health Statistics. Multiple Cause of Death, 1999-2001 [CD-ROM]. Hyattsville, MD. Author, [Special data file], 2003.

Additional References

24. Centers for Disease Control and Prevention. Annual Smoking-Attributable Mortality, Years of Potential Life Lost, and Productivity Losses — United States, 1997–2001. MMWR 2005;54:625-8. <
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5425a1.htm>

25. Centers for Disease Control and Prevention. *Behavioral Risk Factor Surveillance System Survey Data*. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 1999-2003. Accessed via http://www.cdc.gov/brfss/

26. (USA data) Centers for Disease Control and Prevention. Pregnancy Risk Assessment Monitoring System (PRAMS). 2002 Surveillance Report. Accessed via http://www.cdc.gov/prams/2002PRAMSSurvReport/PDF/2k2PRAMS.pdf

27. (USA data). Monitoring the Future Survey. Institute for Social Research, University of Michigan, 2003-2005. Accessed via http://www.monitoringthefuture.org/data/data.html

28. Centers for Disease Control and Prevention. Smoking-Attributable Mortality, Morbidity, and Economic Costs (SAMMEC) Software (computer program). http://apps.nccd.cdc.gov/sammec/index.asp

Appendix B: Description of Utah-Specific Data Sources

Description of Utah Data Sources

Utah Death Certificate Database (References 3,7)

Death certificates in Utah are required to be filed by funeral directors. Funeral directors obtain demographic information from an informant, a close family member of the decedent. The cause of death is certified by the decedent's physician or the physician that attended the death. Accidental and suspicious deaths are certified by the Medical Examiner. Death certificate data go through extensive edits for completeness and consistency. The Office of Vital Records and Statistics does annual trainings for funeral directors and local registrars.

When death certificates are received the cause of death literals are keyed into software locally by Office of Vital Records and Statistics (OVRS), then shipped to the National Center for Health Statistics where they are machine coded into ICD-10 codes. NCHS returns the ICD-10 codes to OVRS where the death records are updated.

Utah Birth Certificate Database (Reference 2)

Birth certificates are filed electronically by hospital birth certificate clerks. The information comes from a variety of sources including a worksheet the mother fills out, the mother's prenatal record, and the delivery record. The Office of Vital Records and Statistics has a Quality Control program where every hospital is audited annually. Births are randomly selected and hospital records are checked to verify the accuracy of the reported information.

Utah Emergency Department Encounter Database (Reference 4)

The Emergency Department Encounter Database (ED) contains the consolidated information on complete billing, medical codes, personal characteristics describing a patient, services received, and charges billed for each patient emergency department (ED) encounter. The Bureau of Emergency Medical Services/Office of Health Care Statistics receives quarterly Emergency Department Encounter Data form hospitals in various formats and media. The data are converted into a standardized format. The data are validated through a process of automated editing and report verification. Each record is subjected to a series of edits that check for accuracy, consistency, completeness, and conformity with the definitions specified in the Utah Hospital Emergency Patient Encounter Data Submittal Manual. Records failing the edit check are returned to the data supplier for corrections of comment.

Coverage and Validity of Diagnosis Codes: Since the data come from the billing forms, all visits or encounters have a diagnosis code making coverage great. There is some difference of opinion regarding whether some providers may emphasize diagnosis codes that yield higher reimbursements. The hospital and ED data are considered /"Administrative Data/" because they were created for use in billing and remittance of payment. As such, they were not constructed for public health surveillance purposes primarily, and are weak in some areas, such as external cause of injury and race or

ethnicity. But, in general, they are extremely valuable and reasonably complete and valid.

Utah Pregnancy Risk Assessment Monitoring System (PRAMS) (Reference 5)

PRAMS, the Pregnancy Risk Assessment Monitoring System, is a surveillance project of the Centers for Disease Control and Prevention (CDC) and state health departments. PRAMS collects state-specific, population-based data on maternal attitudes and experiences before, during, and shortly after pregnancy
PRAMS was initiated in 1987 because infant mortality rates were no longer declining as rapidly as they had in prior years. In addition, the incidence of low birth weight infants had changed little in the previous 20 years. Research has indicated that maternal behaviors during pregnancy may influence infant birth weight and mortality rates. The goal of the PRAMS project is to improve the health of mothers and infants by reducing adverse outcomes such as low birth weight, infant mortality and morbidity, and maternal morbidity. PRAMS provides state-specific data for planning and assessing health programs and for describing maternal experiences that may contribute to maternal and infant health.

Utah Medical Examiner Database (Reference 9)

Utah has a state-wide, centralized medical examiner system that has statute mandated jurisdiction over sudden and unexpected deaths. The database contains 113 variables including demographic information about the decedent, toxicological, laboratory, and autopsy examination results.

Utah Prevention Needs Assessment Survey (Reference 10)

The Utah Department of Human Services, Division of Substance Abuse and Mental Health has conducted a prevention needs assessment survey for youth across the state on a bi-annual basis starting in 2003. The PNA survey measures youth substance use rates in a variety of substance categories as well as antisocial behaviors such as theft, violence, and school suspension. The survey is based on the Risk and Protective Factor Model of Youth Problem Behavior (Hawkins, Catalano, & Miller, 1989), and also contains several scales measuring various risk and protective factors associated with substance use and other problem behaviors (e.g., school drop out, deliquency, etc.).

Utah Higher Education Health Behavior Survey (Reference 8)

The Utah Department of Human Services, Division of Substance Abuse and Mental Health and the Utah Department of Health have collaborated to conduct a prevention needs assessment survey for the higher education population across the state on a bi-annual basis starting in 2003. Like the youth-oriented PNA Survey, the higher education survey is based on the Risk and Protective Factor Model of Youth Problem Behavior (Hawkins, Catalano, & Miller, 1989). The survey measures substance use rates in a variety of substance categories, antisocial behaviors, and risk and protective factors relevant to the higher education population that are associated with substance use.

Utah Safe and Drug Free Schools and Communities Program Monitoring Data (Reference 6)

The Utah State Office of Education collects annual data from each school about incidents of prohibited behavior, including possession and use of substances, that occur on school grounds/property or during school activities. Data include the type of violation (weapons, substances, assault etc.), number of incidents, number of offenders, results of the incident (e.g. expulsion or referral to law enforcement). Data are collected at the school level and reported publicly only at the district level or higher. State-level data are included for this report.