

STATE OF VERMONT  
**SUBSTANCE ABUSE ASSESSMENT AND  
EPIDEMIOLOGICAL PROFILE**

**Executive Summary**

March, 2011

**PREPARED BY THE  
STATE EPIDEMIOLOGICAL WORKGROUP**

## EXECUTIVE SUMMARY

The Substance Abuse Epidemiological Profile was originally developed as part of the planning process for Vermont's Strategic Prevention Framework State Incentive Grant (SPF-SIG), awarded to the state by the Center for Substance Abuse Prevention (CSAP), Substance Abuse and Mental Health Services Administration (SAMHSA). The original Epidemiological Profile and accompanying Executive Summary was published in 2007 in order to offer an empirical basis for the selection of substance abuse prevention priorities to address at a state and community level. This is an update and expansion of that original document. As such, it is intended to assist policy makers and practitioners in monitoring trends and patterns in substance abuse indicators and thereby continue to guide the identification of the state's most pressing substance abuse concerns. We recognize that non-epidemiological considerations will also influence the policies and priorities of Vermont's substance abuse prevention and treatment systems, but believe that solid epidemiological data provides an essential foundation for planning and decision-making.

This Executive Summary provides selected highlights from the most relevant and methodologically rigorous data sources. These data sources include the National Survey on Drug Use and Health (NSDUH), the Youth Risk Behavior Survey (YRBS), and the Behavioral Risk Factor Survey System (BRFSS). In addition, we highlight findings from additional data sources of interest. This summary focuses on statewide data, whereas the full report provides regional and county-level comparisons for as many of the data sources where this level of data was available.

The Vermont Department of Health takes a *public health approach* to preventing substance related problems, focusing on population level change in which the goal is to reduce community-level and/or state-level indicators of substance use and related consequences. Effective substance abuse prevention is grounded in a solid comprehension of alcohol, tobacco, and other drug *consumption and consequence patterns*. Understanding the nature and extent of consumption (e.g., underage drinking) and associated consequences (e.g., motor-vehicle crashes, substance-related hospital admissions, etc.) is critical for determining prevention priorities, aligning strategies to address them, and assessing progress in reducing them. The priorities identified are also congruent with specific goals established in the US Healthy People 2020 and/or the Vermont Department of Health Strategic Plan. Reduction of substance use and abuse among adolescents and young adults is an overall goal in these policy statements; reductions in alcohol use, binge drinking, and marijuana use among these age groups are specific targets.

This document summarizes the most up-to-date data available on alcohol, tobacco, and other drug use, and consequences associated with use in Vermont, and the state's ranking relative to other states. Although this document is more comprehensive than the original Epidemiological Profile, the same substance-related themes emerged from the data as before. As demonstrated below, the substance use and abuse data relevant to Vermont clearly and unambiguously point to three specific areas of concern that should continue to receive high priority in the state's prevention efforts. These areas of concern are *underage drinking, high risk drinking (ages 21-24)*, and *marijuana use (under age 25)*.

### *Demographics*

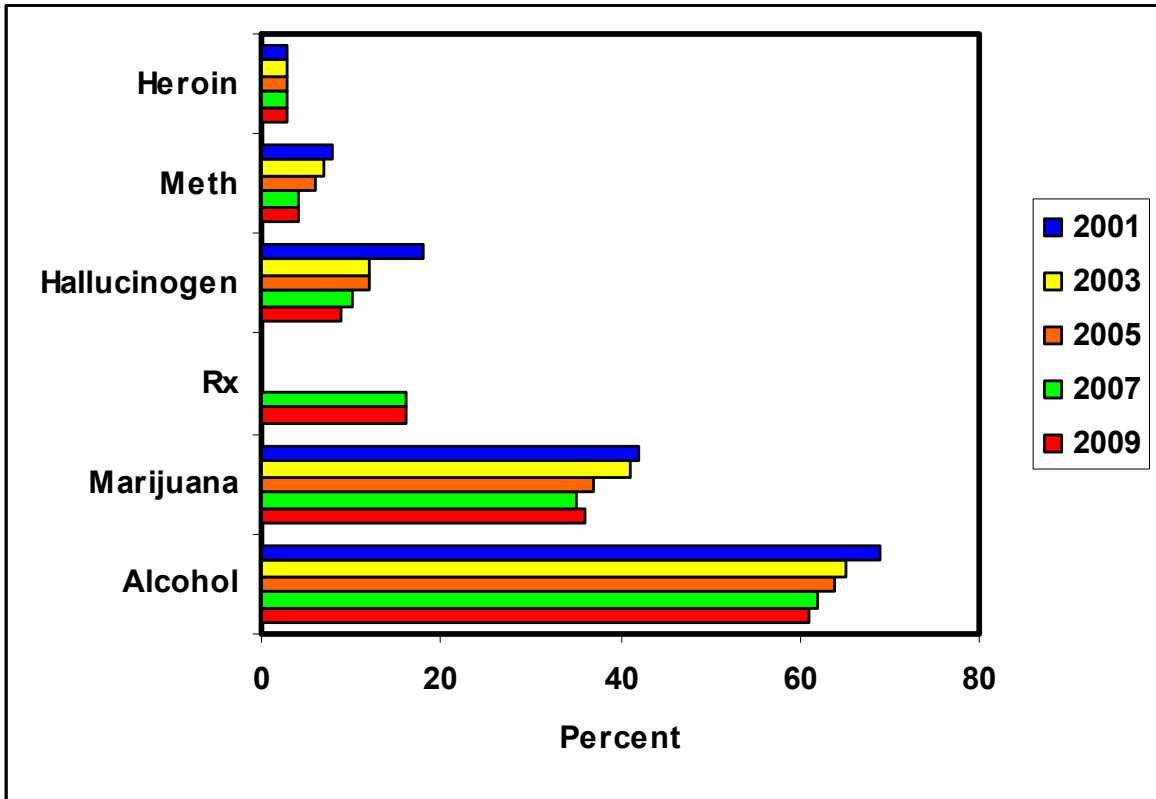
Vermont ranks 49<sup>th</sup> in population and 45<sup>th</sup> in geographic area among the 50 States. The State has a relatively homogeneous racial make-up with 96.5% of the population listing their race as white; 1.3% Hispanic; 1.2% Asian; 0.8% African American; 0.4% American Indian; and 1.1% list two or more races. Vermont has the second highest median age in the nation at 41.2 years.

## Key Indicators of Use from the Youth Risk Behavior Survey and the National Survey on Drug Use and Health

Figure 1 presents data from the Youth Risk Behavior Survey (YRBS) for lifetime prevalence rates of alcohol and other drugs from 2001 to 2009. These data represent trends in prevalence rates over the past five administrations of the instrument.

Table 1 summarizes data derived from the latest National Survey on Drug Use and Health (NSDUH) for Vermont and compares the prevalence rates of substance use across two different survey administrations to examine change over time. There were significant decreases over the five-year period; in no case was there an increase in reported use of any substance. Table 1 also includes Vermont ranking of prevalence rates relative to the rest of the states and the District of Columbia for the 2008 survey. Vermont prevalence rates are among the highest in the nation for underage drinking, underage binge drinking, young adult drinking, young adult binge drinking, and marijuana use across all age groups.

**Figure 1: YRBS Alcohol and Drug Lifetime Prevalence Rates 2001-2009**  
(Source: Vermont Department of Health)



**Table 1**  
**Summary of Statewide Prevalence Estimates from NSDUH**  
 (Source: Office of Applied Studies, SAMHSA)

<i>NSDUH Categories</i>	<i>2002/3</i>	<i>2007/8</i>	<i>Significant Change</i>	<i>2008 VT Ranking</i>
<i>Alcohol</i>				
Past Month Alcohol Consumption 12+	58.4	60.7		7
Past Month Binge Drinking 12+	25.5	25.3		15
Past Month Alcohol Consumption (Age 12-20)	35.6	38.3		1
Past Month Binge Drinking (Age 12-20)	25.8	27.3		2
Past Month Consumption 12-17	22	20.3		2
Past Month Binge Drinking 12-17	14.7	12.7		2
Past Month Consumption 18-25	73.5	74		3
Past Month Binge Drinking 18-25	49.2	53.3		3
Past Month Consumption 26+	60.7	63.3		8
Past Month Binge Drinking 26+	22.9	22.3		24
<i>Tobacco</i>				
Past Year Tobacco Products 12+	30.6	28.9		31
Past Year Tobacco Products 12-17	18.3	14.7	▼	8
Past Year Tobacco Products 18-25	52.6	46.5	▼	15
Past Year Tobacco Products 26+	28.5	27.7		36
Past Month Cigarette Use 12+	25.4	22.5		40
Past Month Cigarette Use 12-17	14.8	10.4	▼	26
Past Month Cigarette Use 18-25	47.5	38.7	▼	22
Past Month Cigarette Use 26+	23	21.3		45
<i>Marijuana</i>				
Past Month Marijuana Use 12+	9.8	10.2		2
Past Year Marijuana Use 12+	15.9	15.5		3
Past Month Marijuana Use 12-17	13.3	10.9		1
Past Year Marijuana Use 12-17	22.7	17.9	▼	1
Past Month Marijuana Use 18-25	27	29.6		2
Past Year Marijuana Use 18-25	44.6	44.2		1
Past Month Marijuana Use 26+	6.3	6.9		2
Past Year Marijuana Use 26+	10.1	10.5		3
<i>Illicit Drug Use Other than Marijuana</i>				
Past Month Illicit Drug use 12+	3.9	4		15
Past Month Illicit Drug use 12-17	6.8	4.8	▼	18
Past Month Illicit Drug use 18-25	9.2	11		3
Past Month Illicit Drug use 26+	2.6	2.8		23
<i>Rx Misuse</i>				
Past Year Rx Misuse 12+	5.4	4.7		26
Past Year Rx Misuse 12-17	8.9	6.4	▼	34
Past Year Rx Misuse 18-25	14.6	13.3		16
Past Year Rx Misuse 26+	3.3	3.1		33
<i>Cocaine</i>				
Past Year Use of Cocaine 12+	3	3		6
Past Year Use of Cocaine 12-17	2.8	1.3	▼	25
Past Year Use of Cocaine 18-25	9.7	10.5		1
Past Year Use of Cocaine 26+	1.9	2		14

▼ = Significant decrease from 2002/3 to 2007/8; there were no significant increases

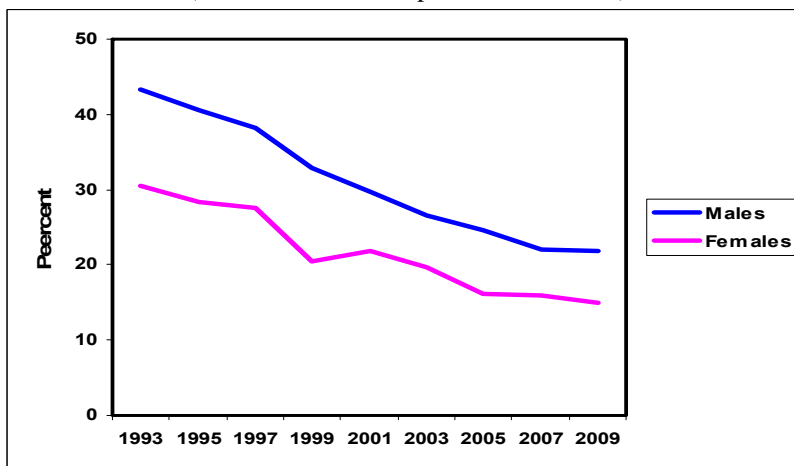
## Additional Indicators of Substance Use, by Substance

### Alcohol

State-level surveys (Table 1) indicate that Vermont ranks at or near the top in the nation in underage drinking, underage binge drinking, young adult drinking and binge drinking. This consistent finding endures across different surveys and years. Consumption across the country in general has decreased over time, but the relative ranking of Vermont has remained high.

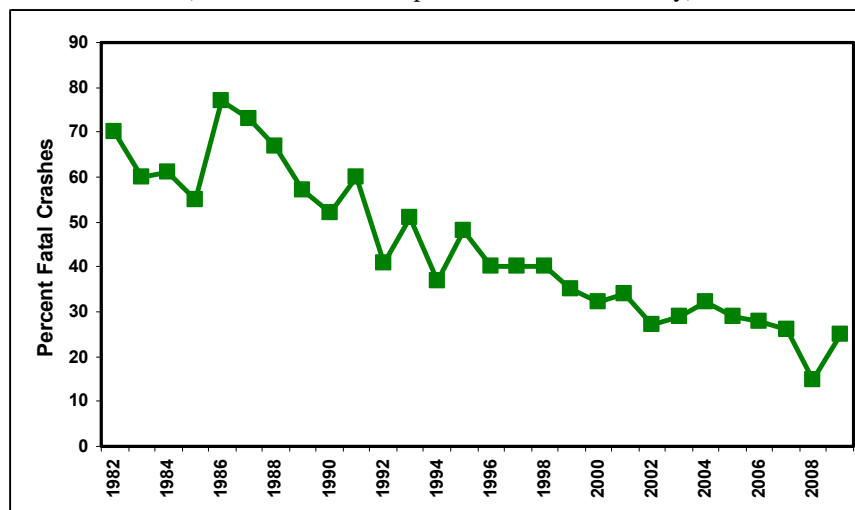
There is some good news as well. Research has consistently demonstrated that early onset of regular drinking is predictive of later alcohol use disorders. As shown in Figure 2, the proportion of Vermont students who report drinking before age 13 has decreased significantly since 1993 for both males and females as reported on the YRBS. This trend is also reflected nationally, albeit less dramatically than in Vermont.

**Figure 2: First Drink Before Age 13**  
(Source: Vermont Department of Health)



In addition, as shown in Figure 3, there has been a significant decrease in the percent of motor vehicle fatalities that are alcohol-related (ARMVF) in Vermont from 1982-2009. We note this decrease in this rate is likely attributable to a number of factors working in concert: the minimum legal drinking age, the *per se* limit for intoxication, increased awareness of the dangers of drinking and driving, increased enforcement of DUI laws, and other unspecified factors. Vermont's rate of decrease in ARMCF also mirrors the national trend.

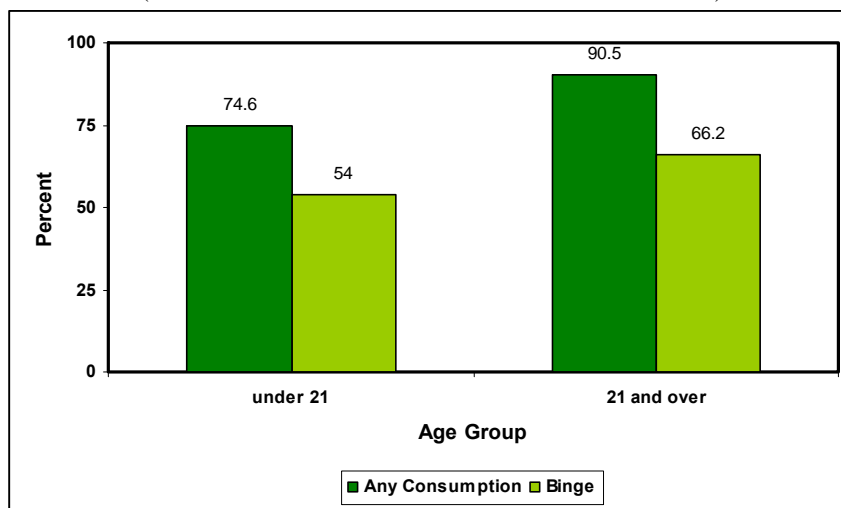
**Figure 3: Proportion of Motor Vehicle Fatalities that were Alcohol Related, 1982-2009**  
(Source: Vermont Department of Public Safety)



The Pacific Institute for Research and Evaluation in collaboration with the Vermont Department of Health conducted two surveys to provide additional data for helping plan and support intervention strategies and evaluating the results of the SPF-SIG. The first was the Core Survey on Alcohol and Drug use aimed at individuals attending college conducted in the fall of 2008. All 25 colleges accredited in Vermont were invited to participate in the survey and 11 accepted our invitation, including the three schools with the largest enrollments. Figure 4 presents representative data from the survey on the past 30 days consumption of any alcohol and binge drinking for this group. The full report is available as an appendix to the Profile.

**Figure 4: Core Survey Estimates of Alcohol Consumption and Binge Drinking in Past 30 Days, 2008**

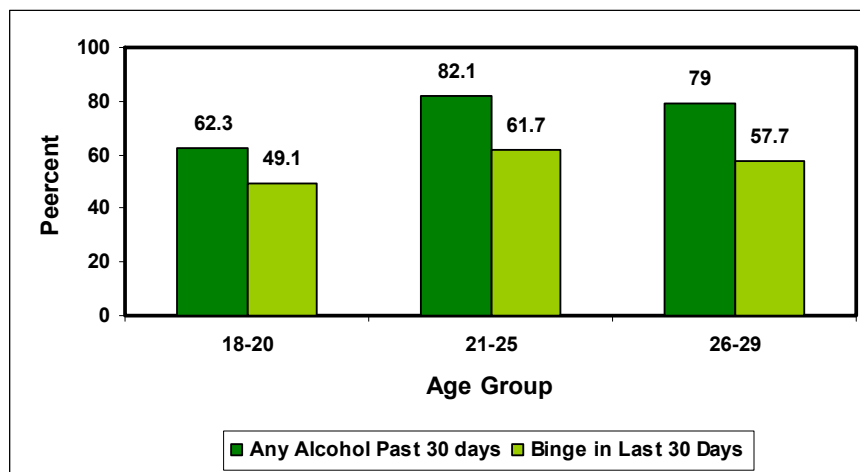
(Source: Pacific Institute for Research and Evaluation)



Also in the fall of 2008, PIRE and VDH developed and implemented a Young Adult Survey (YAS) in an attempt to collect data on non-college youth 18-29. This population's use has been particularly difficult to assess on the state level due to insufficient numbers for meaningful analyses. The YAS collected a convenience sample by employing a number of recruitment techniques including posters in locations where there would be a high density of the target demographic, Facebook ads, and ads in community newspapers. Respondents were offered the choice of a web-based or paper survey. A total of 991 surveys were completed, representing a wide geographic distribution. Figure 5 presents data for alcohol consumption and binge drinking. The data show a pattern similar to that observed with the Core Survey, in which prevalence rates of both any alcohol use and binge drinking are notably higher among persons age 21 and over. As with the Core survey, a complete report on the YAS is available as an appendix to the Profile.

**Figure 5: Young Adult Survey Prevalence of Alcohol and Binge Drinking Past 30 Days by Age Group, 2008**

(Source: Pacific Institute for Research and Evaluation)

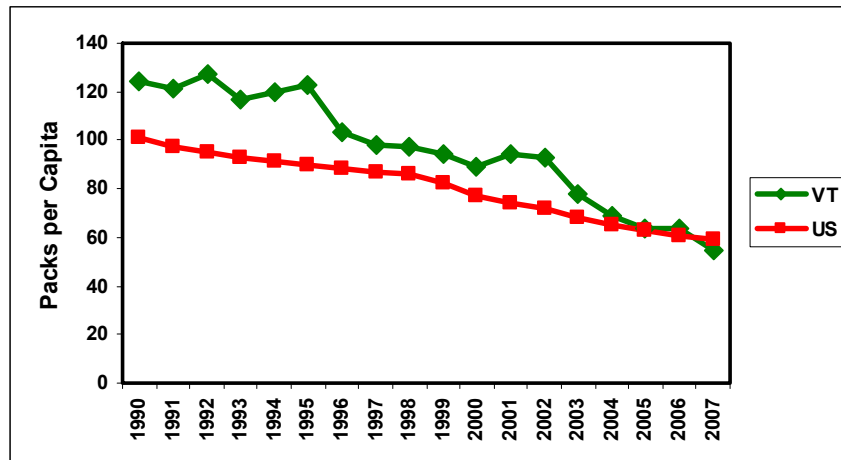


## Tobacco

Tobacco is a leading cause of health-related problems in the U.S. Rising product prices due largely to tax increases as well as increased public awareness of the health hazards of tobacco have combined to substantially reduce the prevalence of smoking in recent decades. Nonetheless, given the health risks associated with initiating and continued smoking, contemporary prevention efforts remain extremely important.

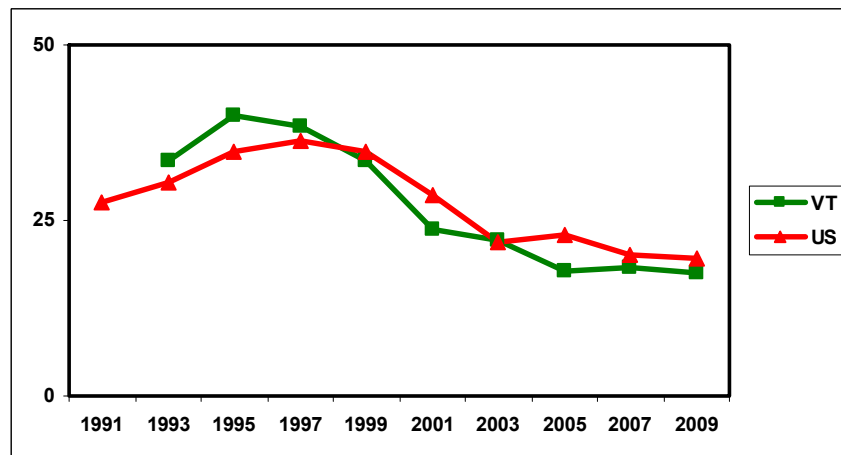
NSDUH data (Table 1) show several significant declines related to tobacco use over time. Figure 6 shows the decline in per capita (ages 18+) cigarette sales, while Figure 7 documents the decline in past 30 day smoking among adolescents for the US and Vermont. We note after steep declines for many years, a stabilization of the adolescent rate that is of some concern. The annual Monitoring the Future data also show a stabilization of usage rates nationally for 8<sup>th</sup>, 10<sup>th</sup>, and 12<sup>th</sup> graders, continuing in 2010.

**Figure 6: Wholesale Cigarette Sales Per Capita (18+) For U.S. and Vermont, 1990-2007**  
(Source: Vermont Department of Health & Centers for Disease Control and Prevention)



**Figure 7: YRBS Prevalence of Cigarettes Past 30 Days, 1991-2009**

(Source: Vermont Department of Health & Centers for Disease Control National Center for Chronic Disease Prevention and Health Promotion)

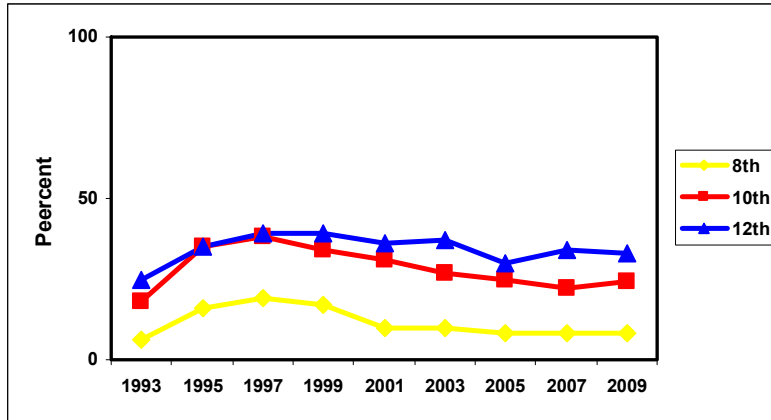


## Marijuana

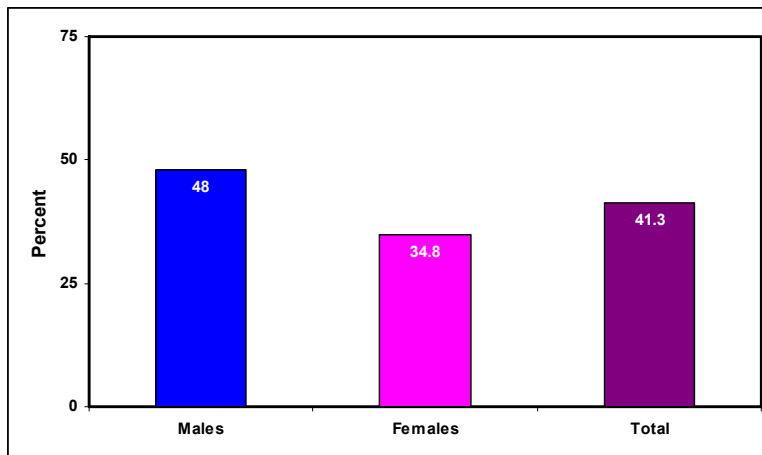
As portrayed in Table 1 and other general surveys Vermont youth and young adults lead the country in the prevalence of marijuana consumption. Figure 8 presents YRBS prevalence rates by grade over time. Figures 9 and 10 from the Core survey and the YAS respectively also indicate widespread use of

marijuana among 18-25 year olds. These data also suggest that marijuana use is more prevalent in the college samples than among their same-age peers.

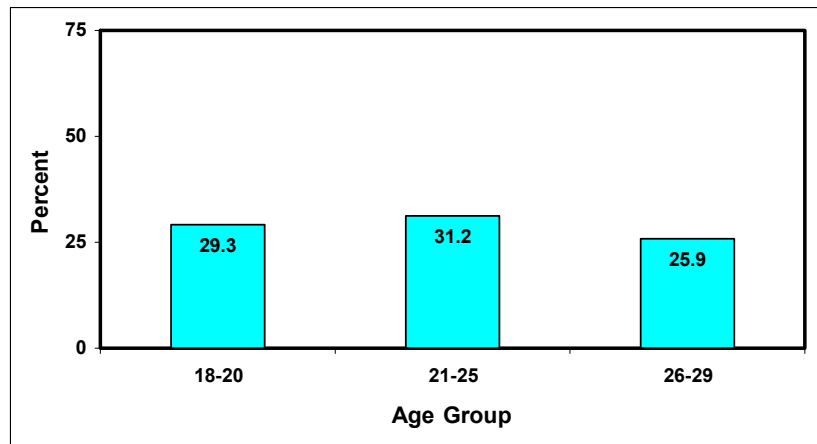
**Figure 8: YRBS Prevalence of Marijuana Use Past 30 Days, 1993-2009**  
(Source: Vermont Department of Health)



**Figure 9: Core Survey Prevalence of Marijuana Use Past 30 Days, 2008**  
(Source: Pacific Institute for Research and Evaluation)



**Figure 10: Young Adult Survey Prevalence of Marijuana Use Past 30 Days by Age Group, 2008**  
(Source: Pacific Institute for Research and Evaluation)



**Cocaine**

As Table 1 indicates, NSDUH data continue to show that cocaine use among 18-25 year olds is of concern. Vermont ranks number 1 in the country for prevalence of cocaine among this age group. We note that cocaine use in Vermont as reported by NSDUH did not increase from previous years but that other states prevalence rates significantly decreased over the past several years which has the effect of elevating the ranking of Vermont. Adolescent prevalence rate of cocaine as measured by the YRBS remains low and steady across time.

**Nonmedical Use of Prescription Drugs**

Nonmedical use of prescription drugs (in particular narcotic pain relievers) has garnered much attention in Vermont and across the U.S., especially in the past few years. Consumption questions were first asked on the 2007 YRBS and the 2007 BRFSS; therefore, there are two data points for the YRBS (2007 & 2009) and three for the BRFSS (2007-2009). The YRBS prevalence of prescription drug misuse was 16% in 2007 and 16% in 2009. There were significant decreases from 2007-2009 in both lifetime and past month misuse of prescription medications reported in the BRFSS (Table 2). NSDUH data (Table 1) also show an overall decrease in prevalence rates of nonmedical use of pain relievers from 2002-2008 for all age groups; for 12-17 year olds, this decrease was significant. Admissions to Vermont hospitals for any opiate overdose have not changed from 2002 (n=116) to 2008 (n=109).

**Table 2: BRFSS Prevalence of Prescription Drug Misuse in Vermont, 2007, 2008, and 2009 for Age 18+**  
(Source: Vermont Department of Health)

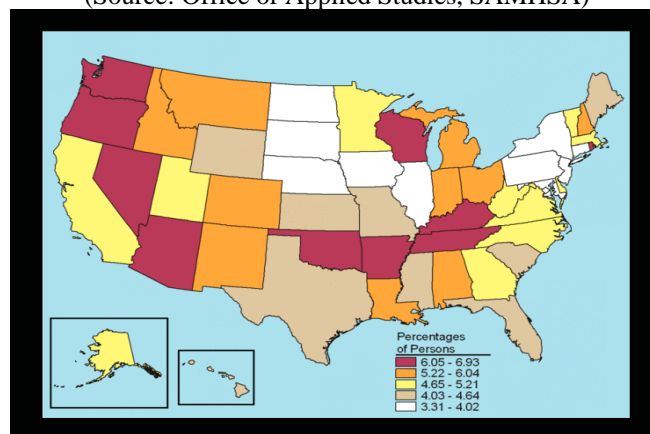
	Total %		
	2007	2008	2009
<i>Ever used Rx drug w/o own prescription</i>	8.9	9.2	7.3
<i>Ever used Rx in greater amounts than prescribed</i>	7.5	7.7	5.9
<i>Used Rx drug without own prescription during past 30 days</i>	1.4	1.3	0.8
<i>Used Rx in greater amounts than prescribed during the past 30 days</i>	1.1	1.3	0.8

In order to put Vermont data in context, Figure 11 shows NSDUH prevalence categories of nonmedical use of prescription pain relievers for all 50 states and the District of Columbia. Vermont is in the middle of the distribution of prevalence rates for these substances.

In sum, all relevant current data suggest that trends in prevalence rates of nonmedical use of prescription drugs are flat or decreasing in Vermont across time and surveys. However, we note that the past year prevalence rate of prescription drug misuse is higher than for all other illicit substances with the exception of marijuana.

**Figure 11: Nonmedical Use of Pain Relievers in Past Year among Persons Aged 12 or Older, by State for Data from 2007/2008**

(Source: Office of Applied Studies, SAMHSA)



### Other Substances

Prevalence rates of other substances including heroin, inhalants, steroids, and methamphetamines, are low and have not shown any significant movement over several years across several different surveys.

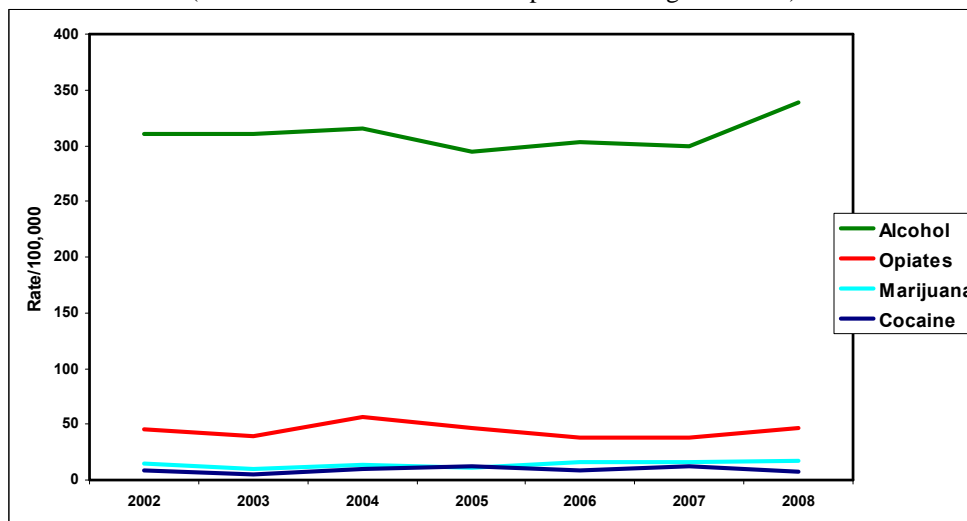
## **Indicators of Substance Abuse Based on Health Services Utilization Data: Comparisons across Different Substances**

One approach to help monitor the burden that specific substances have in Vermont is to compare rates across a common setting. We have analyzed longitudinal data from three such Vermont venues: hospital and emergency room discharge data for all hospitals in the State, and diagnostic data from the Fletcher Allen Emergency Department. This approach yields a relative ranking among classes of substances as they affect the Vermont health care system. In addition, we are able to examine any shift in trends over time with these data.

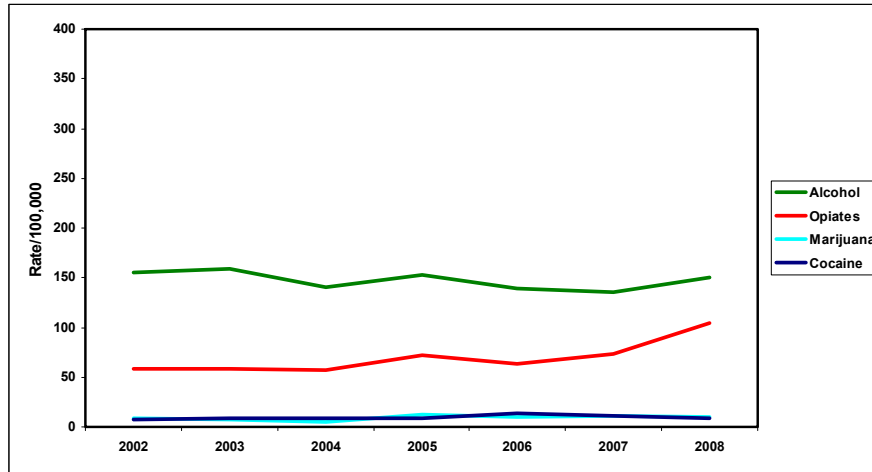
### Hospital Discharge and Emergency Room Data

We analyzed inpatient discharge data from all the hospitals and ERs in Vermont by substances recorded in any of the 20 diagnostic fields available for data input. Figure 12 presents these data for males and Figure 13 for females for the years 2002-2008. Alcohol-related discharge diagnoses constitute the majority of the substance-related discharge diagnoses for this period, with marijuana and opiates a distant second. We note these data do not include diagnoses related to use of tobacco, which tend to be almost exclusively chronic conditions with long latency periods. Figures 14 and 15 present similar data from Vermont ERs.

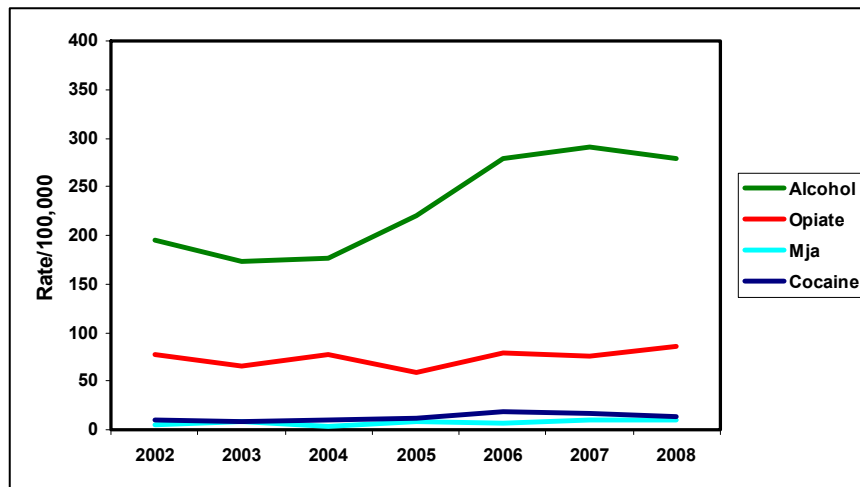
**Figure 12: Hospital Discharge Rates by Specific Substance Diagnoses, Males, 2002-2008**  
(Source: Vermont Uniform Hospital Discharge Data Set)



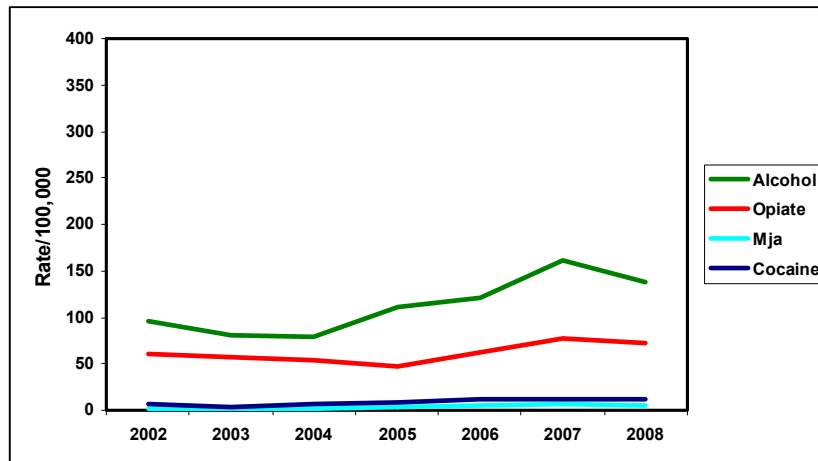
**Figure 13: Hospital Discharge Rates by Specific Substance Diagnoses, Females, 2002-2008**  
 (Source: Vermont Uniform Hospital Discharge Data Set)



**Figure 14: All VT ER Discharge Rates by Specific Substance Diagnoses, Males, 2002-2008**  
 (Source: Vermont Uniform Hospital Discharge Data Set)



**Figure 15: All VT ER Discharge Rates by Specific Substance Diagnoses, Females, 2002-2008**  
 (Source: Vermont Uniform Hospital Discharge Data Set)

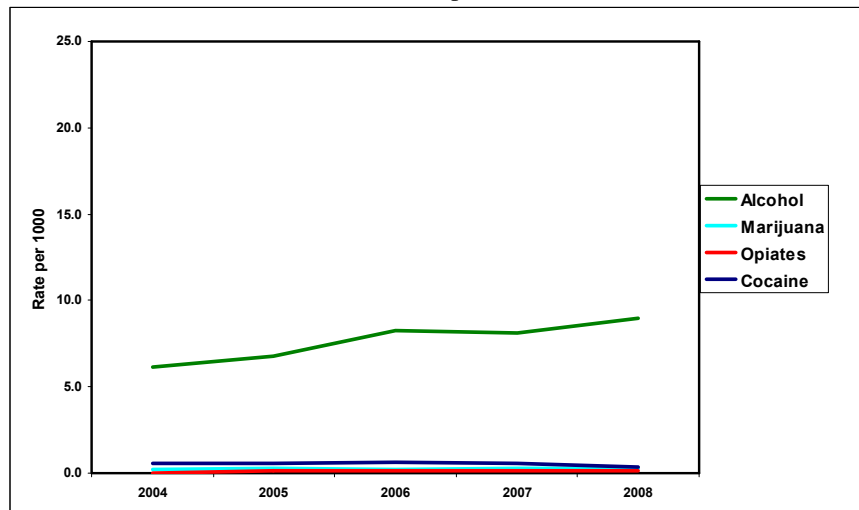


### Fletcher Allen Health Care Emergency Department Data

The Fletcher Allen Health Center (FAHC) Emergency Department (ED) at the University of Vermont receives at least twice as many visits than any other ED in the state. Furthermore, since FAHC is the only Level 1 trauma center in the state, more serious cases are brought to this ED from other hospitals when practical and medically advisable.

We have obtained unprocessed<sup>1</sup> daily data from 2006 to the present directly from the FAHC ED in order to examine impression diagnoses uncontaminated by post-processing cost codes. Figure 16 presents rates of substance specific indicators in the daily data from FAHC (combined ages and genders for the period 2004-2008<sup>2</sup>).

**Figure 16: FAHC ED Rates by Specific Substance Diagnoses, 2004-2008**  
(Source: Vermont Department of Health)



Other than alcohol, the unprocessed data do not show increasing trends of substance-related medical consequences in the ED. Furthermore, all substances exhibit very low rates for all years. We continue to receive daily reports (sent monthly for the previous month) from the FAHC ED and we will monitor these data and update the charts as necessary.

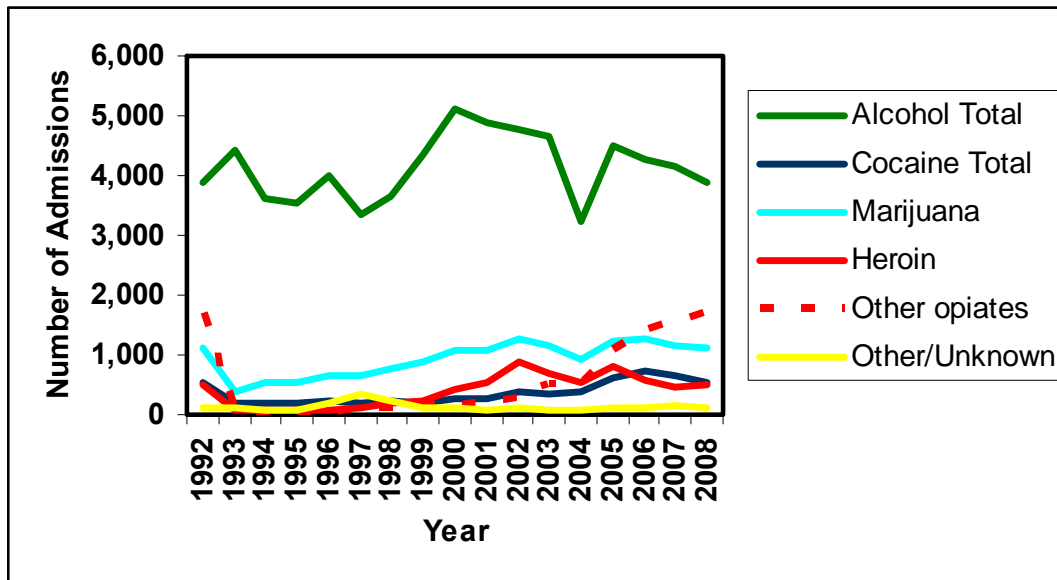
### Treatment Data

Treatment data provide another perspective on the substance abuse burden in Vermont. We note that treatment data do not reflect rates of use and are subject to many influences other than just the prevalence of the underlying conditions and as such are not considered epidemiological in nature. Nonetheless, these data are relevant and important in describing a complete picture of substance abuse in Vermont and will be considered in future ADAP prevention and treatment planning. Figure 17 shows the number of treatment admissions for various substances spanning the years 1992-2008. These data indicate that while alcohol has been and remains the main substance of admission, treatment for abuse of non-heroin opiates show an increasing trend over the past several years.

<sup>1</sup> “Unprocessed” refers to data that has not yet been coded for billing. There have been suggestions in the literature that hospital discharge data are coded to maximize reimbursement, which, if valid, could potentially compromise the validity of these data. However, after analyzing both the processed and unprocessed data sets, we found no differences in the rank order of substance abuse diagnoses.

<sup>2</sup> We used the Burlington Hospital Service Area (HSA) for these computations. Since FAHC draws patients from the entire state (and other states), this procedure may slightly bias the estimates, although we do not believe this bias would be systematic (i.e., consistently more/less alcohol or drug cases from out of the HSA). Furthermore, we computed the proportion of FAHC ED patients who reported living in the Burlington HSA and determined that from January, 2005-October, 2010 this accounted for approximately 80% of all patients served by the FAHC ED and 90% of those living in Vermont. Since, we are interested in relative rankings to examine trends across specific classes of substances, this may be an issue that is more conceptual than real.

**Figure 17: Total Number of Treatment Admissions by Substance, 1992-2008**  
 (Source: Substance Abuse and Mental Health Services Administration)



### **Summary and Conclusions**

Based on as many data sources as the SEW could locate, process, and analyze, the priorities identified in the 2007 Epidemiological Profile remain the same in this 2010 update. Based on a thorough review of available data sets the SEW recommends that prevention efforts in Vermont should continue to assign a high priority to reducing:

1. underage drinking
2. high risk drinking among 21-24 year olds
3. marijuana use among those under 25

The SEW has determined that prevalence and consequences of other substances do not reflect the same level of concern exhibited by alcohol and marijuana at this time. Furthermore, the age groups of greatest concern with respect to these problems are adolescents and young adults. However, a secondary level of concern, accompanied by close monitoring of the data, should be assigned to cocaine use among 18-25 year olds.

These recommendations are based on several types of comparisons, including comparing rates of use and consequences of use across substances, comparing Vermont's rates with national estimates, and comparing across years (i.e., examining trends). Our recommendations do not always explicitly take into consideration the severity of consequences of use (e.g., by examining death and disability rates or monetary costs), which are much more difficult to quantify; ascertaining the proportion of injury or disease attributable to substance use/abuse is a complex procedure subject to a number of sources of systematic and unsystematic error that complicate methodological clarity.

Although anecdotal reports abound, systematic data to substantiate widespread or increasing use/abuse of other substances are at this time absent or equivocal. This does not mean that other substances should receive no consideration, but rather that the three specific areas of concern identified here continue to warrant heightened attention. We recognize that this conclusion is subject to revision as we obtain and analyze new data on a continuing basis.