

# The Financial Burden of Substance Abuse in West Virginia:

## The State Workforce System



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## The Financial Burden of Alcohol and Substance Abuse in West Virginia: The State Workforce System



The growing financial cost of drug and alcohol abuse puts tremendous pressure on every social sector. The present report, part of a larger Family Funding Study project, is the fifth and last in the series that examines the cost of drug and alcohol abuse to West Virginia’s criminal justice, healthcare, education, welfare, and workforce systems. A comprehensive report, incorporating estimates from all these sectors, will be produced at the end of this project.

The present report attempts to capture the impact of drug and alcohol abuse on West Virginia’s workforce system. Although drug and alcohol abuse seriously impact the workforce system in terms of productivity, efficiency, and other factors, data illuminating those costs have yet to be systematically collected. The present report, therefore, limits its scope to the cost of worker absenteeism related to drug and alcohol abuse. Worker absenteeism is defined as the extra days substance using workers are absent compared to non-users (Foster & Vaughan, 2005). This report estimates that **drug and alcohol abuse-related worker absenteeism costs the state over \$12 million a year (Table 1).**

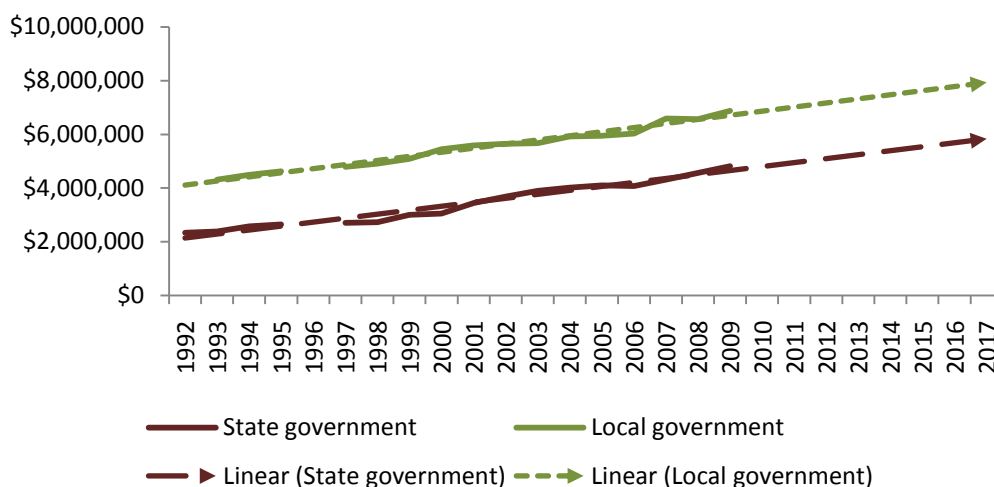
**Table 1: Financial Burden of Drugs on West Virginia Workforce System, 1992 to 2017**

	State government	Local government	Total
1992	\$2,334,389	N/A	N/A
1993	\$2,385,372	\$4,310,250	\$6,695,621
1994	\$2,569,720	\$4,496,445	\$7,066,165
1995	\$2,649,834	\$4,620,875	\$7,270,709
1996	N/A	N/A	N/A
1997	\$2,710,594	\$4,793,816	\$7,504,410
1998	\$2,727,471	\$4,907,536	\$7,635,007
1999	\$3,001,714	\$5,089,679	\$8,091,393
2000	\$3,054,185	\$5,442,132	\$8,496,317
2001	\$3,450,176	\$5,588,433	\$9,038,610
2002	\$3,682,976	\$5,653,236	\$9,336,212
2003	\$3,898,495	\$5,667,822	\$9,566,317
2004	\$4,010,850	\$5,921,003	\$9,931,853
2005	\$4,103,986	\$5,947,375	\$10,051,361
2006	\$4,081,876	\$6,034,305	\$10,116,181
2007	\$4,317,994	\$6,592,914	\$10,910,909

	State government	Local government	Total
2008	\$4,565,314	\$6,561,604	\$11,126,918
2009	\$4,816,843	\$6,872,496	\$11,689,339
2017*	\$4,886,571	\$7,470,188	\$12,356,759

\*Projected figures based on linear growth trend

## Projected Cost of Substance Abuse in the Government Workforce System



Although \$12 million is a significant figure, this estimated cost of drug and alcohol abuse in the state workforce is understood to be considerably understated because of severe data limitations. The cost of substance use-related worker absenteeism is only one of the several costs accruing from worker substance use. Research also associates worker substance use with lower productivity, increased turnover, workplace accidents, and higher health insurance costs (Foster & Vaughan, 2005; Larson, Eyerman, Foster, & Gfroerer, 2007; Substance Abuse and Mental Health Services Administration, 1997). No estimate exists currently on the impact of these issues in West Virginia; as such, this study is unable to estimate the amount of salary and fringe benefit costs that might be attributable to these issues. Generally, substance abuse increases the state’s cost of doing business by compromising the efficiency of its workforce.

The present study estimates the cost of substance abuse in the state workforce over several years. To obtain these estimates, this report adopts the methodology used in two previous studies that estimated the cost of drug and alcohol use. The first study, titled “Absenteeism and Business Cost: Does Substance Abuse Matter?” was published in 2005 and provides national-level estimates (Foster & Vaughan, 2005). The second study, “Shoveling Up: The Impact of Substance Abuse on State Budgets,” provides national- and state-level estimates. That study was first released in 2001 by the National Center on Addiction and Substance Abuse (CASA) at Columbia University and updated in 2009.

The present study, however, makes some unique contributions. First, it provides more recent estimates of the cost of drug and alcohol use to the state. Second, it provides cost trends over several years and, based on those trends, makes cost projections in year 2017 (see Chart 1). This year was chosen to coincide with related estimates regarding needs in other systems serving persons with substance abuse problems in the state. Unless otherwise noted, linear trend was assumed for these projections. Finally, this report was initiated with the intent of producing annual updates; consequently, in most cases, only data that are available annually were used.

To achieve its objectives, this study starts by presenting an in-depth discussion of the problem of drug and alcohol use, abuse, and dependence in the state and highlights the magnitude of unmet need. Next, this report reviews the two studies that will guide the methodology used for estimating the cost of substance abuse in the state workforce system. Finally, the methodology is applied to estimate the absenteeism related cost of substance abuse in West Virginia's workforce system.

### The Current Project to Estimate the Cost of Substance Abuse in West Virginia

Substance abuse is a serious problem in West Virginia. The Office of Applied Statistics at the Substance Abuse and Mental Health Services Administration (SAMHSA) (2011) provided estimates of the state's population that used, abused, or was dependent on drug or alcohol based on data from the 2006, 2007, and 2008 National Survey on Drug Use and Health, an annual survey of the civilian, non-institutionalized population aged 12 and over. SAMHSA (2009) also estimated annual averages of prevalence of drug and alcohol use, abuse, and dependence at the substate level. The map "legend's ranges were created by dividing 344 substate regions, nationally, into 7 groups based on the magnitude of their percentages" (OAS, SAMHSA, 2011). The statistics are presented and discussed in the following section.

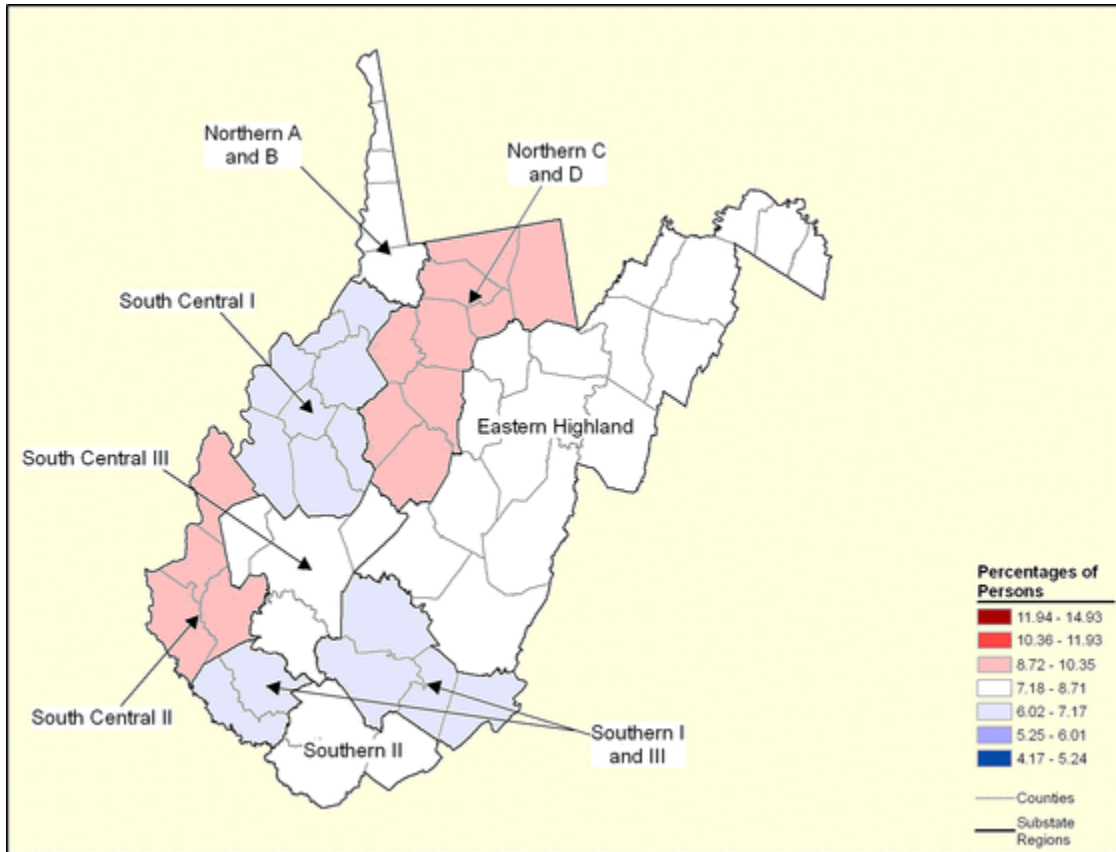
### Illicit Drug Use

Compared to the US average, West Virginians reported higher than average illicit drug use, excluding marijuana, in the month before the survey. About 4.32% of respondents reported using an illicit drug other than marijuana in West Virginia in the month before the survey, compared to 3.71% nationally (The Office of Applied Studies [OAS] in the Substance Abuse and Mental Health Services Administration [SAMHSA], 2011). When marijuana is included, however, West Virginia has a slightly lower illicit drug use rate, a prevalence rate of 7.72% compared to 8.14% nationally. This prevalence varies across the state as seen in Map 1.

Map 1 shows the percentage of individuals reporting illicit drug use in the month before the survey in West Virginia, by sub regions. Whereas the South Central I and Southern I and III regions had prevalence rates between 6.02% and 7.17%, the Northern A and B, South Central III, Eastern Highland, and Southern II had prevalence rates ranging from 7.18% to 8.71%, and the South Central II and Northern C and D regions had prevalence rates between 8.72% and 10.35%. The counties in the high prevalence regions include: Braxton, Cabell, Doddridge, Gilmer, Harrison, Lewis, Lincoln, Marion, Mason,

Monongalia, Preston, Taylor, and Wayne. The counties in each substate region are listed in the Appendix.

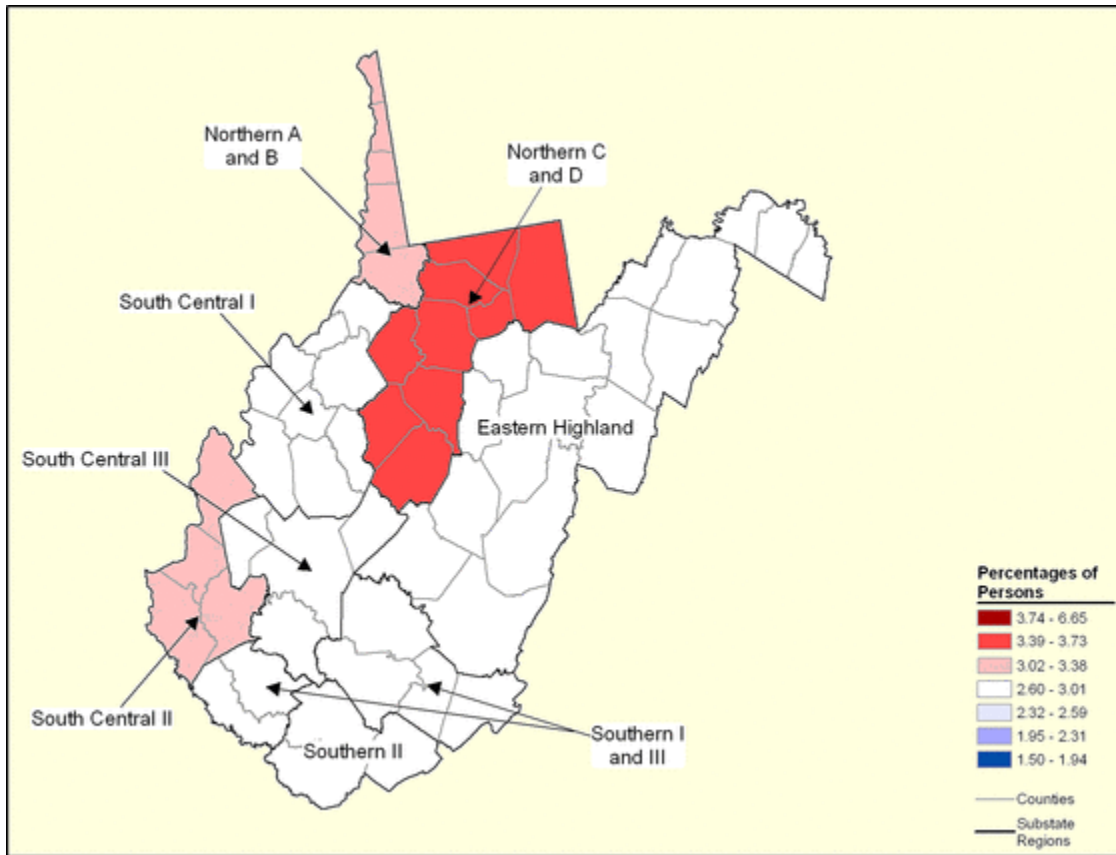
**Map 1: Illicit Drug Use in Past Month among Persons Aged 12 or Older in West Virginia, by Substate Region: Percentages, Annual Averages Based on 2006, 2007, and 2008 NSDUHs**



Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2006, 2007, and 2008.

Not surprisingly, illicit drug dependence is also a problem in the state. Approximately 2.14% of West Virginians reported dependence on illicit drugs, compared to 1.95% nationally. The prevalence of illicit drug dependence also varies by region, as seen in Map 2. Higher dependence prevalence rates are seen in the Northern C and D regions, with illicit drug dependence prevalence rates of between 3.39% and 3.73%. Thus, prevalence of dependence is higher in areas with higher use. Counties in the Northern A and B and South Central II regions also have dependence prevalence rates above 3%. It appears that none of the regions in the state had dependence prevalence rates below the national average.

**Map 2: Illicit Drug Dependence in Past Year among Persons Aged 12 or Older in West Virginia, by Substate Region: Percentages, Annual Averages Based on 2006, 2007, and 2008 NSDUHs**

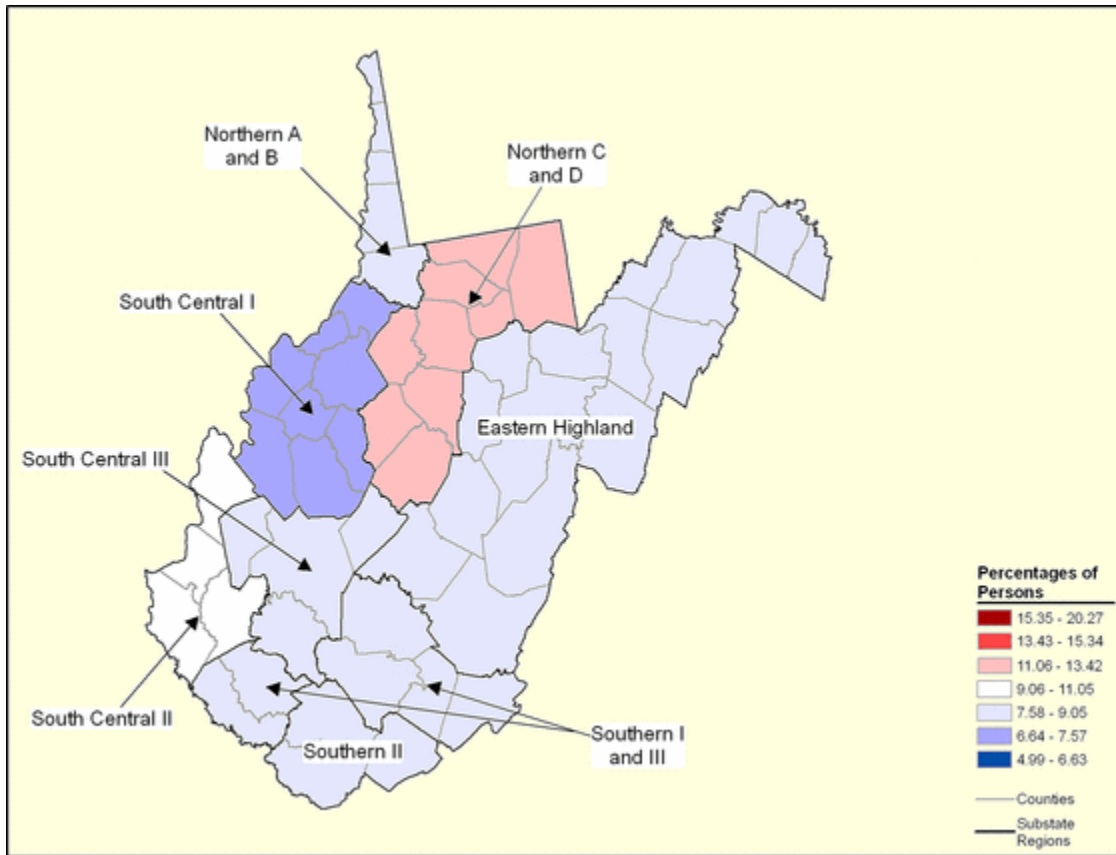


Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2006, 2007, and 2008.

### Marijuana Use in Past Year

Although West Virginians reported lower marijuana use in the year before the survey, compared to the national average, marijuana use is still high in the state. About 9.22% of respondents reported having used marijuana in the past year (Map 3). This rate is slightly lower than the national average of 10.29%. However, rates of use in certain areas of the state are higher than the national average. For example, between 11.06% and 13.42% of respondents in counties in Northern C and D reported marijuana use in the year before the survey.

**Map 3: Marijuana Use in Past Year among Persons Aged 12 or Older in West Virginia, by Substate Region: Percentages, Annual Averages Based on 2006, 2007, and 2008 NSDUHs**

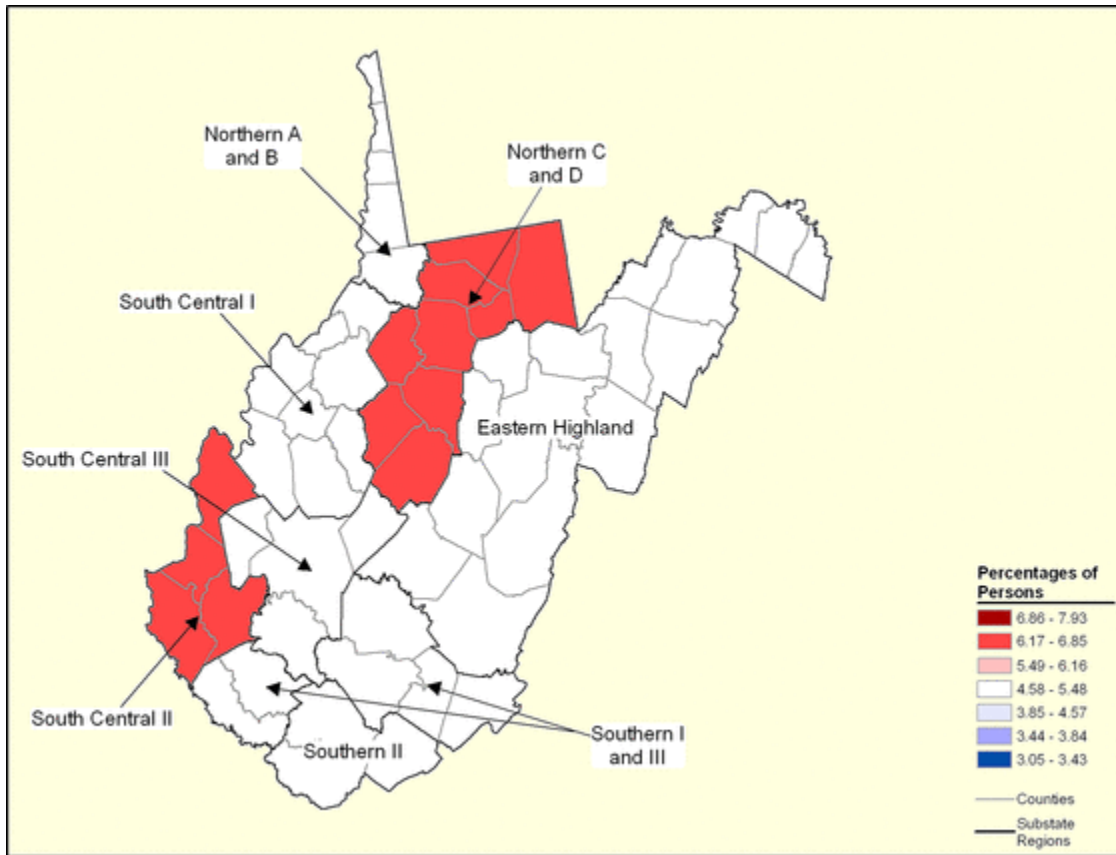


Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2006, 2007, and 2008.

### Non-Medical Use of Pain Relievers

Although not considered an illicit drug, prescription pain relievers are commonly abused today, and the consequences of that abuse are as deadly as those of illicit drugs (Knezevich, 2011). Prescription drug abuse, otherwise known as non-medical use of pain relievers, is a major problem in West Virginia. Nearly 5.50% of the state's population reported non-medical use of pain relievers the year before the survey; this compares with a national average of 5.00%. As seen in Map 4, respondents in Northern C and D and those in South Central II reported some of the highest prevalence, rates of between 6.17% and 6.85%. However, respondents in other areas of the state were not far behind, reporting rates between 4.58% and 5.48%.

**Map 4: Nonmedical Use of Pain Relievers in Past Year among Persons Aged 12 or Older in West Virginia, by Substate Region: Percentages, Annual Averages Based on 2006, 2007, and 2008 NSDUHs**

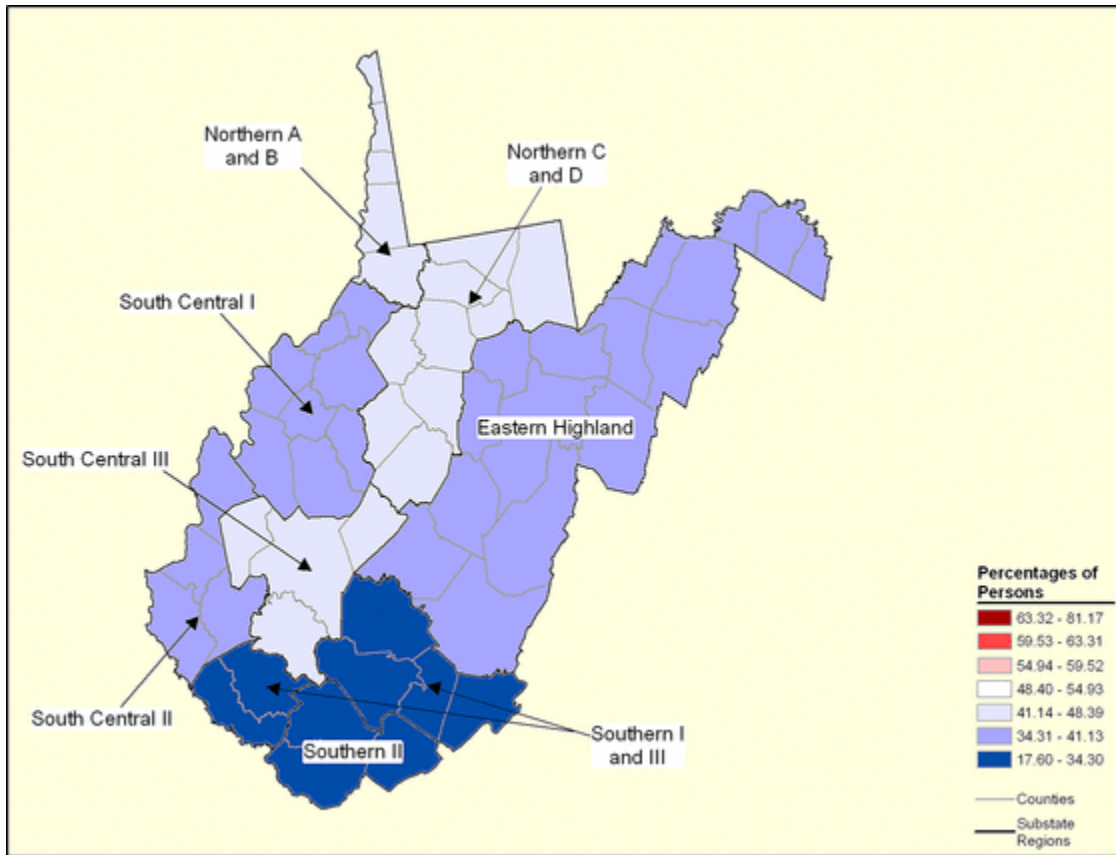


Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2006, 2007, and 2008.

### Alcohol Use and Dependence

Alcohol use is also a serious problem in West Virginia, although the state alcohol abuse rates actually compare slightly favorably with the rest of nation. Close to 40% and 20% of the state’s population reported alcohol use and binge drinking, respectively, in the month before the survey. Nationwide, 51.23% and 23.26% reported the same. The Northern A and B, the Northern C and D, and the South Central III regions had the highest prevalence, rates ranging between 41.14% and 48.39%. The Southern I, II, and III regions reported the lowest prevalence rates in the state, although those rates were still above 17% (Map 5).

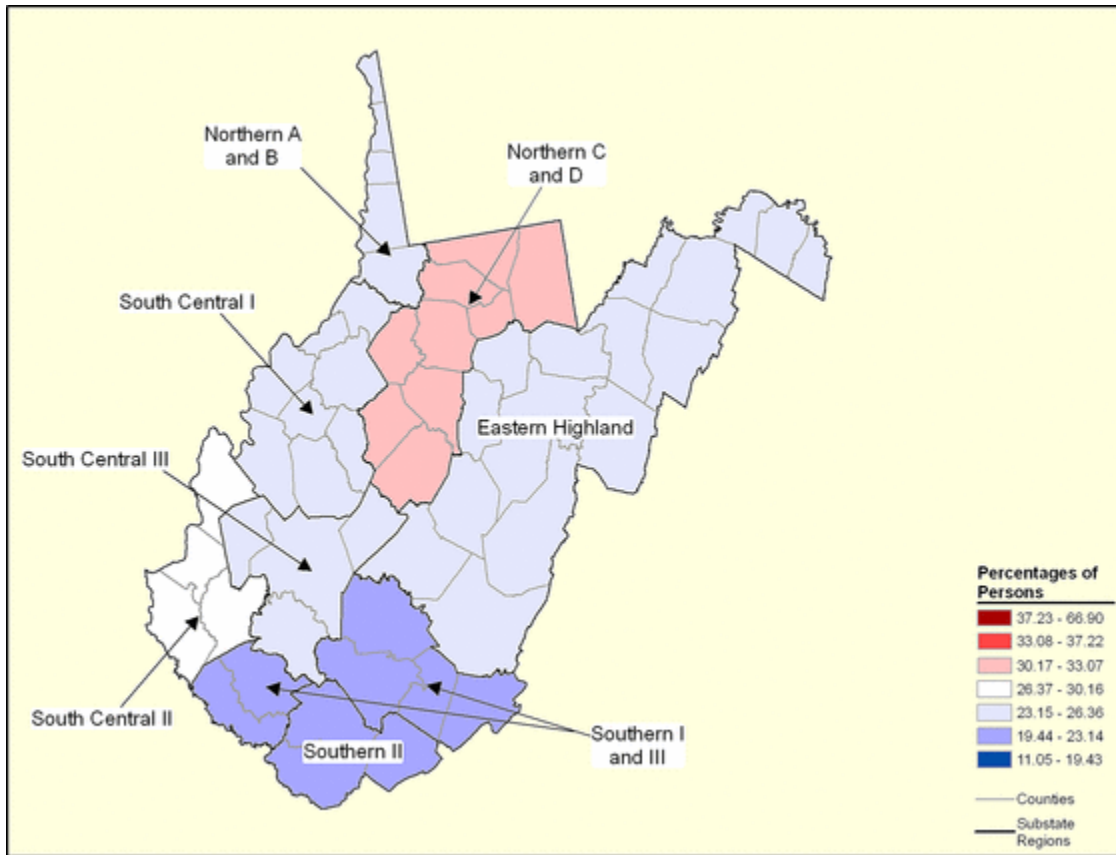
**Map 5: Alcohol Use in Past Month among Persons Aged 12 or Older in West Virginia, by Substate Region: Percentages, Annual Averages Based on 2006, 2007, and 2008 NSDUHs**



Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2006, 2007, and 2008.

Similar state variation patterns were observed for the population aged 12-20 years. About 25.19% and 17.23% of this population reported using alcohol and binge drinking, respectively, in the month before the survey. National prevalence of both events was 27.53% and 18.31%, respectively. It is alarming to note that over a third of youth aged 12 to 20 years in the Northern C and D region reported some form of alcohol use in the month before the survey (Map 6).

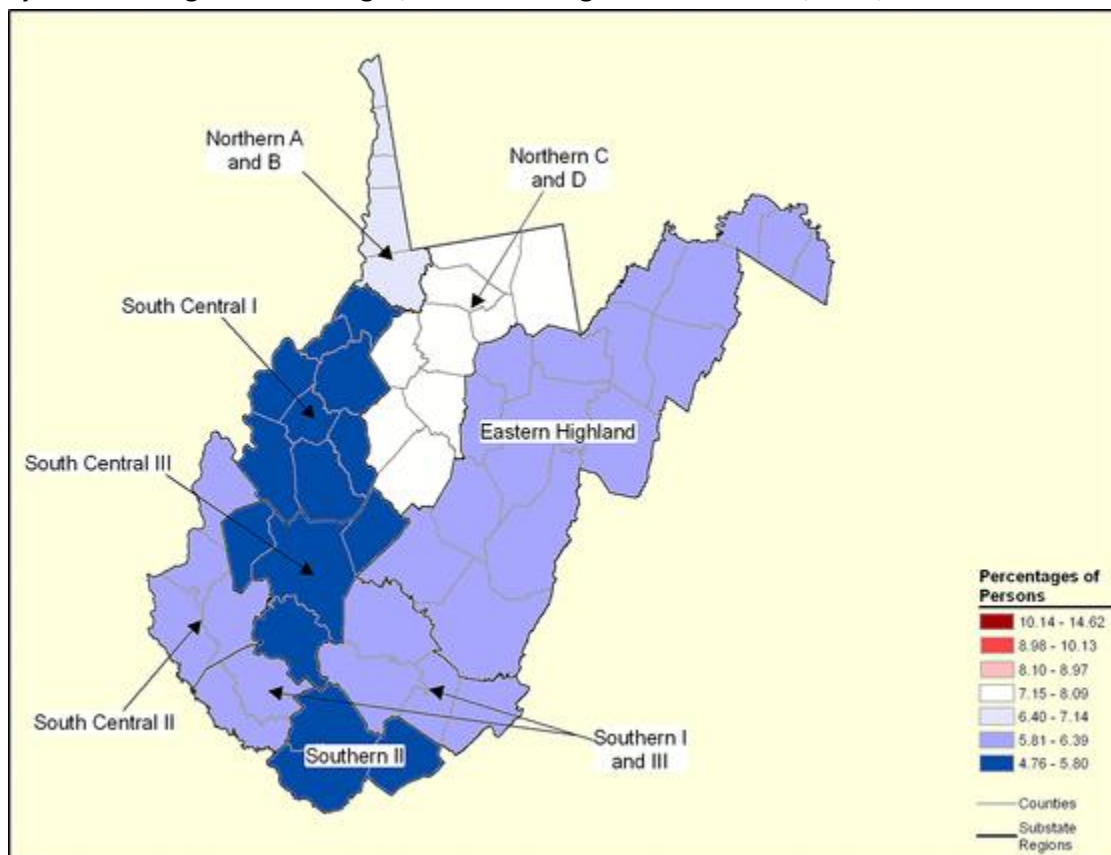
**Map 6: Alcohol Use in Past Month among Persons Aged 12 -20 in West Virginia, by Substate Region: Percentages, Annual Averages Based on 2006, 2007, and 2008 NSDUHs**



Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2006, 2007, and 2008.

Additionally, around 6.44% of the state’s population report alcohol abuse or dependence in the past year. While this prevalence compares favorably with the national average of 7.53% (The Office of Applied Studies [OAS] in the Substance Abuse and Mental Health Services Administration [SAMHSA], 2011), it conceals significant variations that exist within the state. The Northern C and D region reported the highest prevalence, rates between 7.15% and 8.09% (Map 7). The lowest prevalence was seen in the Southern II, South Central I, and South Central III regions but even in these regions prevalence rates were still above 4.5% (Map 7).

**Map 7: Alcohol Dependence or Abuse in Past Year among Persons Aged 12 or Older in West Virginia, by Substate Region: Percentages, Annual Averages Based on 2006, 2007, and 2008 NSDUHs**

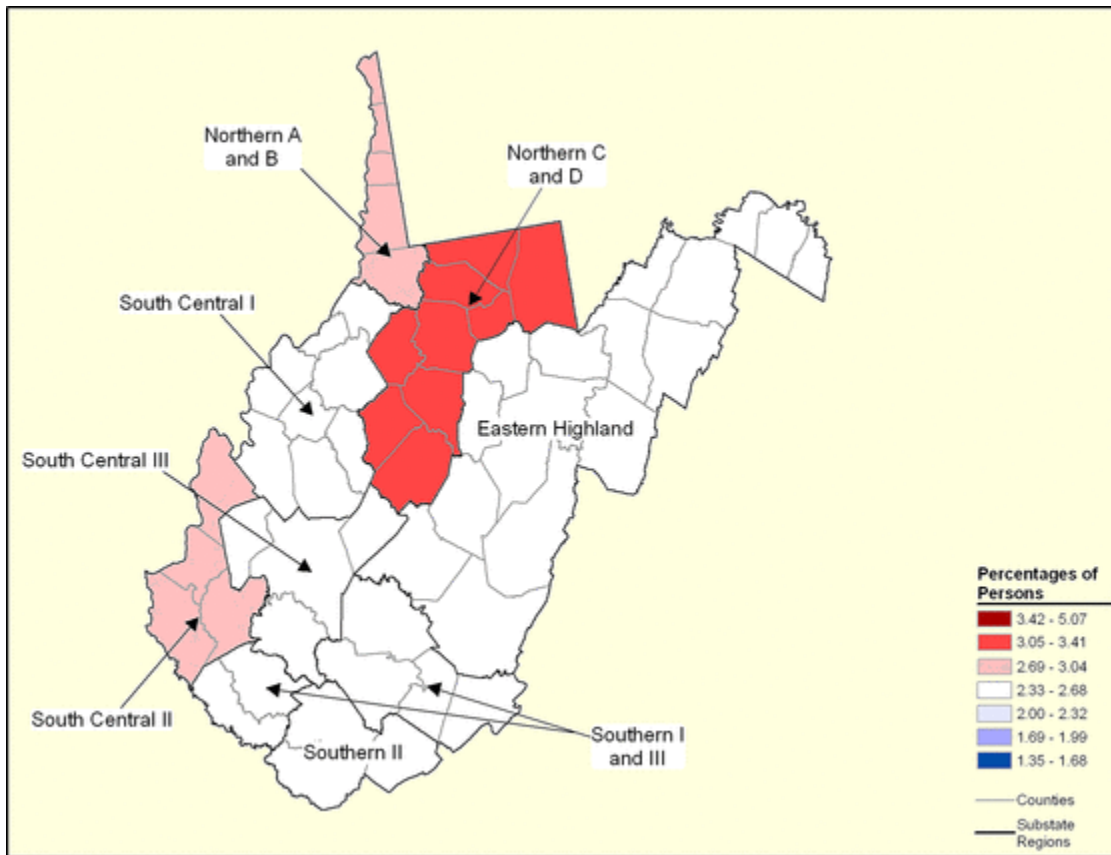


Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2006, 2007, and 2008.

### Unmet Treatment Need for Illicit Drug Abuse and Dependence

Although there are clearly serious problems with illicit drug abuse and dependence in West Virginia, there are very limited resources in the state. About 2.67% of survey respondents reported that they needed and were unable to access treatment for illicit drug abuse or dependence in the year before the survey. This rate is higher than the national average of 2.53%. Not surprisingly, the highest unmet needs were in the Northern C and D region, which consistently had the highest prevalence rates of drug and alcohol use, abuse, and dependence (Map 8). Efforts need to be directed at meeting this unmet need for treatment, and to preventing future situations like those of the present.

**Map 8: Needing But Not Receiving Treatment for Illicit Drug Use in Past Year among Persons Aged 12 or Older in West Virginia, by Substate Region: Percentages, Annual Averages Based on 2006, 2007, and 2008 NSDUHs**

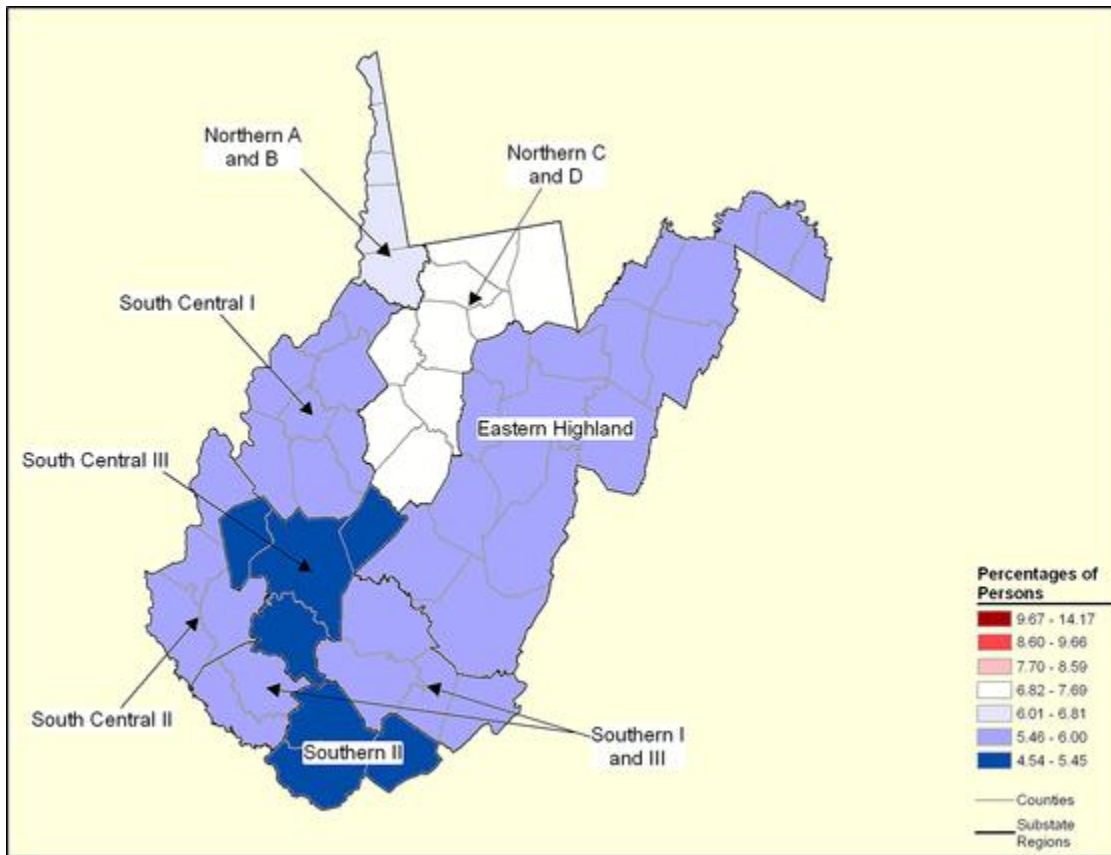


Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2006, 2007, and 2008.

### Unmet Treatment Need for Alcohol Abuse and Dependence

Unmet treatment need is even higher for alcohol; about 6.09% of survey respondents reported that they needed and were unable to access treatment for alcohol abuse or dependence in the year before the survey. Although this rate is lower than the national average of 7.16% (alcohol use and abuse are also lower than national averages), it does not diminish the importance of the problem. As seen in the map of unmet need for illicit drug treatment, the Northern C and D region had the highest unmet need (Map 9) for alcohol abuse or dependence treatment. In general, urgent resources are needed to tackle the problems of alcohol use, abuse, dependence, and unmet treatment needs across the state. However, officials and leaders in the cities, towns, and counties in the Northern C and D region should adopt proactive stances to combat drug and alcohol use, abuse, and dependence in the area and work to eliminate the region's unmet treatment needs.

**Map 9: Needing But Not Receiving Treatment for Alcohol Use in Past Year among Persons Aged 12 or Older in West Virginia, by Substate Region: Percentages, Annual Averages Based on 2006, 2007, and 2008 NSDUHs**



Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2006, 2007, and 2008.

The pervasive nature and accompanying consequences of drug and alcohol use and abuse are readily evident in West Virginia. The magnitude of these costs and their rates of increase suggest that the state needs to take urgent actions to address drug and alcohol use. The prevalence estimates provided by the present report also suggest that West Virginia cannot afford to adopt a “wait and see” approach. Rather, the state should direct urgent attention at preventing drug and alcohol use at all ages. The comprehensive approach to the problem of substance abuse advocated by the *Governor’s Comprehensive Strategic Plan to Address Substance Abuse in West Virginia* is one of the most viable options to stemming this tide (West Virginia Partnership to Promote Community Well-being, 2008). The Plan’s approach will lessen the financial burden facing the education system and free up resources for other much-needed programs. The next sections discuss the methodologies that have been used to estimate the financial cost of substance abuse in workforce systems and apply them in the West Virginia context.

## Prior Studies Estimating the Cost of Substance Abuse in West Virginia

Several studies have examined the financial and non-financial cost of worker substance use (Blum, Roman, & Martin, 1993; Foster & Vaughan, 2005; Larson, et al., 2007; Mangione, Howland, & Lee, 1998; Substance Abuse and Mental Health Services Administration, 1997; The National Center on Addiction and Substance Abuse (CASA) at Columbia University, 2001). Some focused on just one organization whereas others focused on several organizations or organizations with several work sites. Some others also focused on particular states or regions. Although these studies provide a critical foundation for the present study, they do not offer a precisely transferable approach on how to quantify the cost of substance use to the workforce system. Various methods were used in the studies; the definitions of what constitutes substance abuse also varied (The Office of Applied Studies [OAS] in the Substance Abuse and Mental Health Services Administration [SAMHSA], 2011).

Further, most of these studies failed to quantify the financial cost of substance abuse to the workforce system, stopping at indirect indicators such as lowered earnings, limited hours of work, reduced rates of unemployment, and poor work performance (Ames, Grube, & Moore, 1997; Booth & Feng, 2002; Bray, Zarkin, Dennis, & French, 2000; French, Zarkin, & Dunlap, 1998; Mangione, et al., 1998). For example, Ames, Grube, and Moore (1997) found a significant association between hangover related to drinking and negative work behavior such as falling asleep, being sick, arguing, and fighting at work. The authors, however, failed to provide a dollar estimate of the cost of these behaviors to the American workforce system.

Mangione, Howland, and Lee (1998) also found high prevalence of alcohol-related work performance problems due to hangover and also “secondhand” effects of drinking, defined as problems experienced by other workers that are attributable to their co-workers’ drinking and hangover. In the study, workers who had never or no longer drank alcohol, non-dependent alcohol drinkers, and dependent alcohol drinkers reported 4.2, 5.4, and 6.9 work-related incidents, respectively (Mangione, et al., 1998). Thus, alcohol-related problems were estimated to be 1.2 (i.e. 5.4-4.2) and 2.7 (i.e. 6.9-4.2) incidents for non-dependent and dependent drinkers (Mangione, et al., 1998); these figures were the differences between the number of incidents reported by non-drinkers and those reported by non-dependent and dependent drinkers, respectively. More importantly, the authors found that because non-dependent drinkers were three times as numerous as dependent drinkers, the majority (59%) of the alcohol-related problems were caused by nondependent drinkers who constituted 61% of their sample; the remaining 41% problems emanated from dependent drinkers who constituted 19% of their sample (Mangione, et al., 1998). Thus, nondependent drinkers caused the most of the problem as a group but dependent drinkers reported more problems per person. Despite the rich information provided by the authors, they did not estimate the financial cost of the identified problems. McFarlin and Fals-Stewart (2002) identified alcohol-related absences following days when drinking occurred, but also failed to provide the financial cost of these absences.

Two studies were found that estimated the cost of substance abuse-related absenteeism to the workforce system. The first by Foster and Vaughan (2005) used data from the 2000 National Household

Survey on Drug Abuse and the 2000 National Occupational Employment Statistical Survey. The authors sought to calculate the cost of extra days of absences for substance-dependent workers in different industries, occupations, and firm sizes; agriculture, forestry, fisheries, and hunting industries were not included in the study. The study found that workers who met the DSM-IV criteria for substance dependence were absent 1.4 days per month whereas those that did not meet the criteria were absent 0.89 days. Thus, 0.51 days per month were attributed to substance use, resulting in a cost of \$8 billion or 0.2% of all wages. Interestingly, no significant difference in cost of absenteeism due to substance use was found by industry, occupation, or firm sizes (Foster & Vaughan, 2005).

The analysis in the present study was also guided by the national-level work conducted by CASA, which provided some baseline data on the cost of substance use related absenteeism and employee assistance program to the state workforce. CASA estimated that workers' extra absenteeism due to substance use cost West Virginia \$2.5 million in 1998. This cost increased by 728% to \$20.7 million in 2005 (The National Center on Addiction and Substance Abuse (CASA) at Columbia University, 2009).

CASA adopted the methodology from another report to calculate substance abuse-related absenteeism costs in the private sector. CASA conducted a logistical regression using National Household Survey of Drug Abuse (NHSDA) 1994 data and two panels of the National Longitudinal Survey of Youth (NLSY), (1984-88 and 1992-94). CASA employed this methodology to pinpoint a probable causal relationship between employee substance abuse and absenteeism. From this analysis, CASA identified prevalence rates and extra days absent due to substance abuse for men and women by substance type. These prevalence rates were multiplied by the state workforce (broken down by gender) to estimate the number of male and female substance dependent workers in the workforce by the substance used. The obtained figures were multiplied by the number of substance abuse-related absences per year to obtain the total substance abuse-related absenteeisms per year. The obtained figure was then divided by the total expected number of days of work, to get the substance abuse share of 0.03 percent in 1998.

In the recent 2005 study, CASA (2009) estimated that states spent "0.4 percent of payroll and fringe benefit costs in absenteeism costs alone due to substance abuse and addiction" (p. 38). CASA adjusted this rate by each state's drug and alcohol use prevalence rate and multiplied the rate by the total amount spent on payroll and fringe benefits for the state workforce. The figure obtained was added to the cost of state employee assistance programs in each state to derive the total cost of substance abuse to the state workforce system. CASA obtained salary and fringe benefit data from surveys sent to state agency officials in September 1998 and July 2006. The surveys asked state government officials working with the state workforce to provide the total amount spent on salaries and fringe benefits, their total budgets, and to estimate the amount that went directly or indirectly towards substance abuse-related programs in 1998 and 2005, respectively.

The proportion of substance abuse cost in workers' salaries and fringe benefits estimated by Foster and Vaughan (2005) and CASA (2009) are similar. Foster and Vaughan (2005) estimated that substance abuse cost 0.2% of wages, whereas CASA estimated that it cost 0.4% of wages in 2005. The present study uses

the average of both estimates, i.e. 0.3%, as the attribution fraction of substance abuse costs in government workers' wages.

### The Present Study

In the next sections, the present study presents the size of West Virginia non-farm workforce and adopts methodologies used by Foster and Vaughan (2005) and CASA (2009) to estimate the costs of substance abuse-related absenteeism to the state workforce. Substance abuse financially burdens the state workforce system in a number of ways. One example includes the state's provision of an employee assistance program to its workforce. This and other financial costs of substance abuse to the state workforce system are important but were not included in this report because the relevant data were unavailable. Substance use by the state workers may result in inefficient work performance, work performance problems, and 'secondhand' effects on work performance problems. Moreover, the state pays part of the health insurance cost of its workforce, costs which are driven up by substance abuse. These costs will not be included in the estimates presented in this report but are nonetheless very important.

### Numbers and Types of Employees in West Virginia

The government—local, state, and federal—is the largest employer in West Virginia. Of the 744,100 employees in 2009, about 150,000 or 20% were employed by the government (Bureau of Labor Statistics, 2011). Of these approximately 150,000 employees, about 50,000 were employed by the state government and another 57,000 were employed by local governments. In general, the number of government employees and the proportion they constitute of total non-farm employees in the state has increased in recent years (Table 2).

**Table 2: Number of Employees on Non-Farm Payrolls in West Virginia**

	2007		2008		2009	
	Number	Percent	Number	Percent	Number	Percent
Total employed in nonfarm establishments	758300		762000		744100	
mining	28600	3.8	31100	4.1	29600	4
logging	38900	5.1	38900	5.1	34100	4.6
Manufacturing	59000	7.8	56500	7.4	50700	6.8
Trade, transport, utilities	143300	18.9	141700	18.6	135900	18.3
Information	11400	1.5	11200	1.5	10400	1.4
Financial activities	29900	3.9	29700	3.9	28400	3.8
Professional and business services	60700	8	61000	8	59600	8
Education and health services	114100	15	116400	15.3	118500	15.9
Leisure and hospitality	71700	9.5	72900	9.6	71600	9.6
Other services	55500	7.3	55600	7.3	55500	7.5
Government	145300	19.2	147000	19.3	149800	20.1

Source: Bureau of Labor Statistics

Substance abuse accrues significant costs in all these labor force sectors; however, the present report focuses only on the government sector because government employees constitute the largest proportion of nonfarm employees in the state. Furthermore, this report focuses on the state and local government workforce because the total salaries associated with this sector is available, making it more possible to estimate the cost of substance abuse as has been done in other reports. The next section presents estimates of the cost of substance abuse in West Virginia’s state and local government sectors.

**Estimated Cost of Substance Abuse among State and Local Government Workforce**

As stated earlier, this study averages the estimated proportion of government workers’ wages attributed to substance abuse to obtain an estimate of 0.3%. This estimate was applied to salaries of state government workers provided by the U.S. Census (2011). The U.S. Census (2011) provided the total payroll of government workers from 1992 to 2009. The payroll from 1992 to 1995 was for the month of October; the payroll from 1997 to 2009 was for the month of March. No payroll total was provided for 1996.

This study uses these one month total payroll figures as estimates for all months in the year; it estimates annual payroll by multiplying the provided monthly figures by 12. The resulting estimated annual salaries are reported in Table 3 along with the accompanying number of full-time, part-time, and full-time equivalence of workers. The product of the attribution percentage of 0.3 and the total payroll figures, are reported in the last column. Substance abuse cost West Virginia state government an estimated \$2.3 million in 1992 accruing from workers’ absenteeism; this annual estimate increased by 106% between 1992 and 2009 to \$4.8 million in 2009.

**Table 3: Estimate Cost of Substance Abuse in State Government Workforce**

Year	Full-time	Part-time	Full time and Part-time	Full time Equivalent	Total Salaries	Cost of Substance Abuse
1992*	N/A	N/A	N/A	33,569	\$778,129,632	\$2,334,389
1993*	N/A	N/A	N/A	33,412	\$795,123,840	\$2,385,372
1994*	N/A	N/A	N/A	33815	\$856,573,248	\$2,569,720
1995*	N/A	N/A	N/A	34560	\$883,278,108	\$2,649,834
1996	N/A	N/A	N/A	N/A	N/A	N/A
1997	N/A	N/A	37744	32349	\$903,531,372	\$2,710,594
1998	N/A	N/A	37,818	32,004	\$909,156,972	\$2,727,471
1999	N/A	N/A	39,085	32,857	\$1,000,571,328	\$3,001,714
2000	N/A	N/A	38,369	32,034	\$1,018,061,640	\$3,054,185

Year	Full-time	Part-time	Full time and Part-time	Full time Equivalent	Total Salaries	Cost of Substance Abuse
2001	N/A	N/A	41,322	35,348	\$1,150,058,808	\$3,450,176
2002	N/A	N/A	43,091	36,732	\$1,227,658,800	\$3,682,976
2003	N/A	N/A	43,860	37,215	\$1,299,498,264	\$3,898,495
2004	N/A	N/A	44,039	37,583	\$1,336,949,856	\$4,010,850
2005	N/A	N/A	44,329	37,710	\$1,367,995,188	\$4,103,986
2006	N/A	N/A	43,396	37,004	\$1,360,625,388	\$4,081,876
2007	34,562	10951	45,513	38,060	\$1,439,331,468	\$4,317,994
2008	35,076	10825	45,901	39,065	\$1,521,771,492	\$4,565,314
2009	35,514	11143	46,657	39,505	\$1,605,614,328	\$4,816,843

\*Estimates based on October salary. All other estimates based on March salary.

Source: Annual Survey of State and Local Government Employment and Payroll

A similar methodology was applied to estimate substance abuse costs to local government workforces. The U.S. Census provided local government payroll figures for 1992 to 2009. As reported for the state government payroll, the figures from 1993 to 1995 were October payroll figures whereas the figures for 1997 to 2009 were March payroll figures; the payroll figures for 1992 and 1996 were not available. Using these estimates, annual payroll figures were estimated and reported in Table 4. The estimated percent of the payroll attributed to substance abuse, 0.3%, was multiplied with the annual payroll figures to obtain the cost of substance abuse among local government workforce. Table 4 shows that, while substance abuse cost \$4.3 million in 1993, the cost had risen to about \$6.9 million in 2009. Thus, the effect of substance abuse on local government workers' payroll is significant.

**Table 4: Estimate Cost of Substance Abuse in Local Government Workforce**

	Full-time	Part-time	Full time and Part-time	Full time Equivalent	Salaries for the year	Annual cost of SA
1992*	N/A	N/A	N/A	N/A	N/A	N/A
1993*	N/A	N/A	N/A	57,161	\$1,436,749,860	\$4,310,250
1994*	N/A	N/A	N/A	59019	\$1,498,814,988	\$4,496,445
1995*	N/A	N/A	N/A	59687	\$1,540,291,608	\$4,620,875
1996	N/A	N/A	N/A	N/A	N/A	N/A

Year	Full-time	Part-time	Full time and Part-time	Full time Equivalent	Total Salaries	Cost of Substance Abuse
1997	N/A	N/A	N/A	66096	\$1,597,938,780	\$4,793,816
1998	N/A	N/A	N/A	61,726	\$1,635,845,388	\$4,907,536
1999	N/A	N/A	N/A	60,744	\$1,696,559,652	\$5,089,679
2000	N/A	N/A	N/A	60,920	\$1,814,044,152	\$5,442,132
2001	N/A	N/A	N/A	61,186	\$1,862,811,120	\$5,588,433
2002	N/A	N/A	N/A	59,008	\$1,884,411,852	\$5,653,236
2003	N/A	N/A	N/A	56,168	\$1,889,274,120	\$5,667,822
2004	N/A	N/A	N/A	60,679	\$1,973,667,828	\$5,921,003
2005	N/A	N/A	N/A	60,712	\$1,982,458,464	\$5,947,375
2006	N/A	N/A	N/A	60,387	\$2,011,435,032	\$6,034,305
2007	58,796	11875	70,671	63,013	\$2,197,638,120	\$6,592,914
2008	58,213	13213	71,426	62,616	\$2,187,201,180	\$6,561,604
2009	57,431	12,065	69,496	61,849	\$2,290,831,956	\$6,872,496

\*Estimates based on October salary. All other estimates based on March salary.  
Source: Annual Survey of State and Local Government Employment and Payroll

### Conclusion of the Cost of Substance Abuse to the Government Workforce System in West Virginia

This report paints a very grim portrait of the problem of substance abuse in West Virginia. Not surprisingly, the financial burden of substance abuse to West Virginia's economy and workforce is also significant. This report estimates that employees' absenteeism due to substance abuse costs the state government and local government about \$4.8 million and \$6.9 million, respectively, in 2009. This results in an estimated \$11.8 million attributable to substance abuse-related employees' absenteeism.

The future impact of substance abuse on the government workforce sector is also noteworthy. Assuming current trends persist, linear projections of current costs suggest that significant growth in the financial burden of substance abuse will persist into the future if nothing different is done to divert the current trajectory; employees' absenteeism due to substance abuse will cost the state and local government an estimated total of \$12.4 million in 2017. That is, over \$12 million could be lost as a result of employee absenteeism due to substance use in the state and local government sectors. The state cannot afford to maintain the status quo. Innovative approaches are needed to address the problem of substance abuse in the state's workforce.

Specific attention needs to be devoted to the hot pockets in the state. The Northern C and D region had one of the highest prevalence for every type of substance use, abuse, and dependence in this report. According to SAMHSA (2011) the counties in Northern C region are Marion, Monongalia, Preston, and Taylor and the counties in Northern D region are Braxton, Doddridge, Gilmer, Harrison, Lewis. Policy makers, local government, and citizens of these counties need to devote considerable resources to not only meet unmet need in these counties but also prevent drug and alcohol use as early as possible.

Moreover, substance abuse certainly places even more financial and non-financial burdens on the state and local government workforce systems than this study was able to capture. Estimates used in this study captured absenteeism for substance dependent employees. However, substance abuse-related absenteeism may also occur in employees who drink or use substance occasionally but are not dependent. In addition, substance use is associated with lower productivity, increased turnover, workplace accidents, and higher health insurance costs (Foster & Vaughan, 2005; Larson, et al., 2007; Substance Abuse and Mental Health Services Administration, 1997), all of which were not included in the present report because the relevant data were not available. The cost of employee assistance program currently provided to state employees was also not available to be included in the present report.

Apart from the lack of data needed to examine other areas in which substance abuse impacts the workforce system, this report highlights several other limitations. Because SAMHSA (2011) data show that the prevalence of substance abuse in West Virginia is significantly higher than the national average, relying on national estimates most likely causes this report to underestimate the problems and costs of substance abuse in West Virginia's government workforce system. Further, the studies which provided the attribution percentage used in this report were based on workers in the private sector; significant differences may exist in substance abuse prevalence and problems between the private and public sectors. Access to state and local government annual payroll figures would also have provided better estimates of the cost of substance abuse. Further, the state and local government workforce system, although the largest single source of non-farm employees in West Virginia, still only constitutes 20% of all non-farm employees in the state. The cost to both private and public sectors, therefore, can be expected to be quite considerable. Finally, the cost of substance abuse to the federal government workforce system based in West Virginia is not included in the present report. Including this estimate would also help to provide a more comprehensive picture of the gigantic burden that substance abuse places on the government workforce systems in West Virginia.

Despite the current report's methodological limitations and conservatism, it is apparent that substance use places an enormous financial burden on West Virginia's workforce. Consequently, a comprehensive approach including prevention, early intervention, treatment, and recovery, is needed, as advocated by the *Governor's Comprehensive Strategic Plan to Address Substance Abuse in West Virginia*. This comprehensive approach can significantly reduce the future burden and cost of substance abuse in West Virginia's government workforce system.

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Table D49. WEST VIRGINIA – Substate Regions (defined in terms of counties)

The substate regions defined here were provided by the West Virginia Department of Health and Human Services and are defined in terms of the State's 55 counties. Because of sample size constraints, certain regions were combined to form substate regions. As per the State's request, estimates for eight substate regions along with three aggregate planning areas (Northern, South Central, and Southern) and maps showing all eight regions are being produced. The substate region definitions include nonadjacent counties being combined to form the Southern I and III region.

	Northern		South Central			Southern	
Eastern Highland	Northern A and B	Northern C and D	South Central I	South Central II	South Central III	Southern I and III	Southern II

Note: The substate regions defined for West Virginia in this table are the same as the substate regions defined in Section D of the *Substate Estimates from the 2004-2006 National Surveys on Drug Use and Health*.

Barbour	Northern A	Northern C	Calhoun	Cabell	Boone	Southern I	McDowell
Berkeley	Brooke	Marion	Jackson	Lincoln	Clay	Fayette	Mercer
Grant	Hancock	Monongalia	Pleasants	Mason	Kanawha	Monroe	Wyoming
Greenbrier		Preston	Ritchie	Wayne	Putnam	Raleigh	
Hampshire	Northern B	Taylor	Roane			Summers	
Hardy	Marshall		Tyler				
Jefferson	Ohio	Northern D	Wirt			Southern III	
Mineral	Wetzel	Braxton	Wood			Logan	
Morgan		Doddridge				Mingo	
Nicholas		Gilmer					
Pendleton		Harrison					
Pocahontas		Lewis					
Randolph							
Tucker							
Upshur							
Webster							