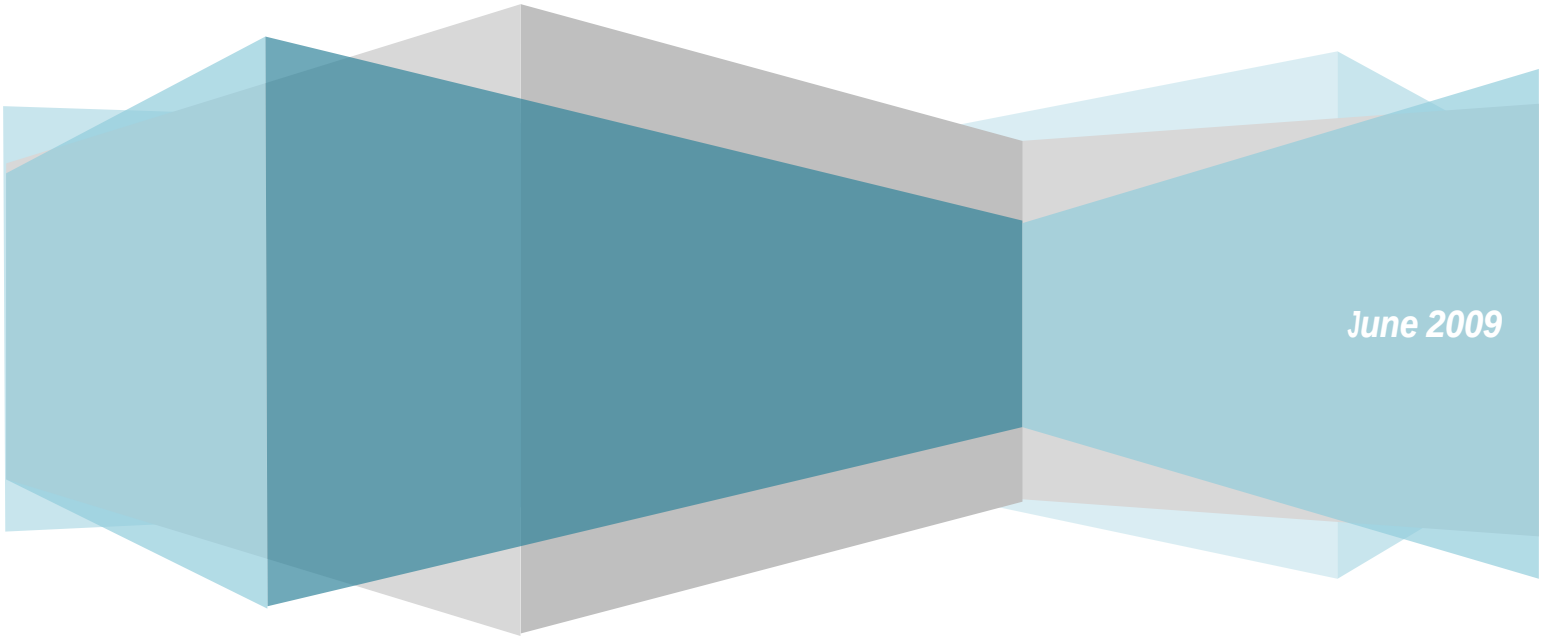
Washington State
Statistical Analysis Center

The Impact of Drugs in Washington State



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Executive Summary

Society pays a high price for substance abuse and addiction. A recent report from the National Center on Addiction and Substance Abuse (CASA) calculates the national cost of tobacco, alcohol, and other drug abuse and addiction in 2005 at $373.9 billion in federal and state funds with an additional $93.8 billion of local funds.[1] For Washington, state spending on substance abuse and addiction was estimated at $3.2 billion. Spending on health and justice issues accounted for over 70 percent of the federal spending and about 44 percent of Washington's state spending.

Because the cost of substance abuse is so high, understanding the ways through which it impacts the population is important. This report examines several means through which alcohol and substance use affects the public health and criminal justice systems in Washington State, focusing primarily on identifying the differential geographic impact that drugs have on the state. Using data from the Comprehensive Hospital Abstract Reporting System (CHARS), we examine the prevalence rates and costs of hospitalizations that have drug-related diagnoses codes. Adult arrests, Superior Court filings, and felony jail and prison sentences for drug crimes are also provided to demonstrate the impact on the criminal justice system in counties throughout the state.

The findings indicate that each type of drug examined has a differing pattern of hospitalization, although in general southwest Washington counties are more heavily impacted by alcohol and drug use. Rates for hospitalizations with alcohol, amphetamine, cannabis, and opiates are highest in these counties. Patterns of drug crime arrests, Superior Court filings, and sentencing also suggest a greater influence in this area of the state, particularly the felony jail and prison sentencing.

These findings suggest further research is needed to develop an explanation for the observed pattern of drug hospitalizations and crime. High unemployment and poor economic opportunities in the region may lead to higher rates of alcohol and drug abuse and addiction, although other areas of the state have similar economic conditions. Additional factors such as easier access for drug trafficking – Interstate 5- or the change in economic opportunities in this region due to losses in the logging industry may be contributing to the patterns seen.

[1] National Center on Addiction and Substance Abuse, (2009).

Introduction

Society pays a significant price for alcohol and other substance abuse and addiction. A recent report from the National Center on Addiction and Substance Abuse (CASA) calculates the national cost of tobacco, alcohol, and other drug abuse and addiction in 2005 at $373.9 billion in federal and state funds with an additional 93.8 billion of local funds.[2] For Washington, state spending on substance abuse and addiction was estimated at $3.2 billion. Very little of this spending, less than three cents of every dollar, is used for prevention, treatment, or research. Nearly 85 percent is spent on programs that serve people for whom prevention and treatment failed – so-called "burden to public" programs. Spending on health and justice issues accounted for over 70 percent of the federal spending and about 44 percent of Washington's state spending.

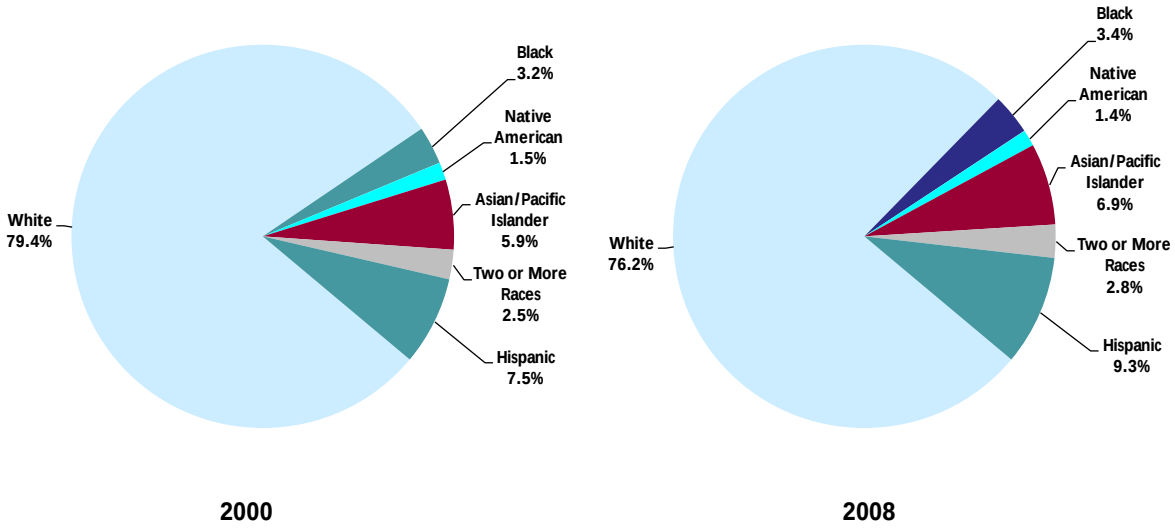
Because substance abuse is so prevalent and costly for the state, developing an understanding of the impact of substance abuse over time and at the sub-state level is also instructive. This study focuses on two areas, drug-related hospitalizations and drug-related crimes. The first section of the report provides basic population characteristics. The snapshot of key demographic and economic measure provides a framework for understanding underlying characteristics of the population that may affect the use and abuse of alcohol and drugs. For general background, section two provides state-level data on drug and alcohol use in the population. Section three analyzes drug and alcohol-related hospitalizations in total and by drug type. The section includes analyses of prevalence rates, estimates of cost, and distribution of payers as well as data by geographic region. The final section examines the impact of drug-related crimes on the criminal justice system in Washington using adult arrests, Superior Court filings, and sentencing data.

[2] National Center on Addiction and Substance Abuse, (2009).

Demographic and Economic Characteristics

Washington State has a population of 6.7 million people,[3] ranking the state twelfth largest in the nation for population. The population has grown steadily averaging approximately two percent a year since 1990. The majority of the population lives in counties west of the Cascade Mountains and along the Interstate-5 corridor. King County is the largest county in the state and includes Washington's largest city, Seattle. The Seattle-Tacoma-Bellevue metropolitan statistical area[4] is home to approximately half of the state's residents.

Figure 1: Population Distribution by Race/Ethnicity, 2000 and 2008



As shown in Figure 1, about three-quarters of Washington's population is non-Hispanic white.[5] People of Hispanic origin comprise the largest minority group, 9.3 percent of the total population, and are also the fastest growing major ethnic or racial group in the state. Between 2000 and 2009, the Hispanic population grew 39.1 percent. The next fastest growing racial group was Asian and Pacific Islanders increasing 30.2 percent over the same time period. Non-Hispanic whites comprise the slowest growing group, increasing by only 7.2 percent. Washington is also home to twenty-nine federally recognized tribes.[6]

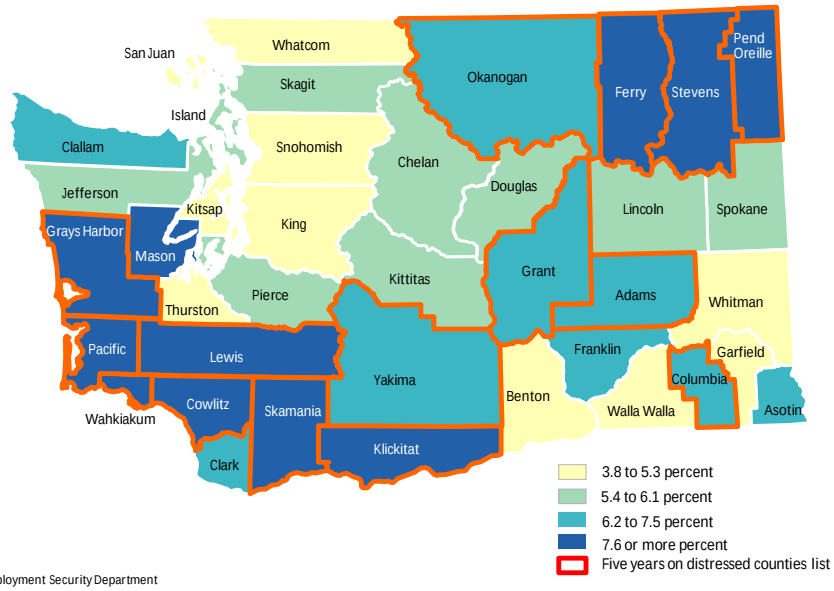
[3] Population estimate is for April 1, 2009 and is from the November 2008 State Population Forecast (http://www.ofm.wa.gov/pop/stfc/stfc2008/stfc2008.pdf).

[4] Includes King, Pierce, and Snohomish counties.

[5] Data are from the Office of Financial Management (OFM) web site: http://www.ofm.wa.gov/pop/race/summarytables08.asp

[6] Washington's Federally Recognized Tribes are: Confederated Tribes of the Chehalis Reservation, Colville Confederated Tribes, Cowlitz Tribe, Hoh Tribe, Jamestown S'Klallam Indian Tribe, Kalispel Tribe, Lower Elwha Klallam Tribe, Lummi Nation, Makah Tribe, Muckleshoot Tribe, Nisqually Tribe, Nooksack Tribe, Port Gamble S'Klallam Tribe, Puyallup Tribe, Quileute Tribe, Quinault Nation, Samish Nation, Sauk-Suiattle

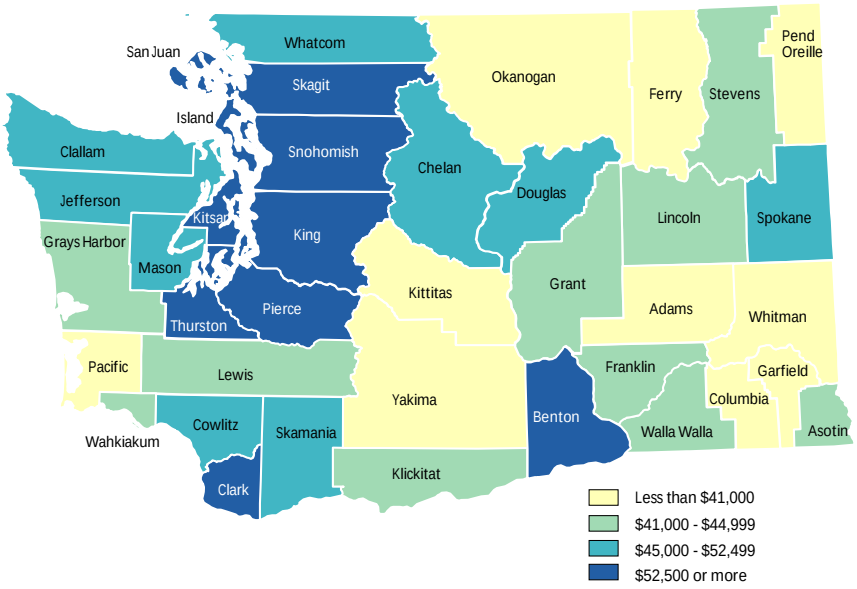
Figure 2: Average Unemployment Rate by County and Counties on the Distressed Areas List, 2008



Source: Employment Security Department

Although in the current unemployment rate has topped 9.0 percent, the average statewide unemployment rate in 2008 was 5.2 percent. Rural areas of southwest and northeast Washington experienced the highest unemployment with rates above eight percent in some counties (see Figure 2).

Figure 3: Median Household Income by County, 2008



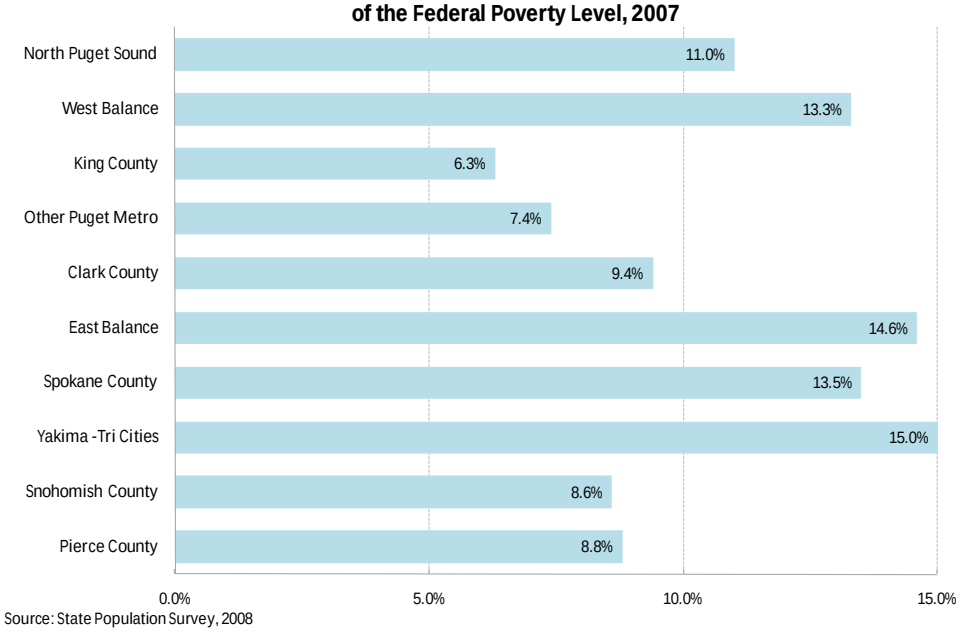
Tribe, Shoalwater Bay Tribe, Skokomish Tribe, Snoqualmie Tribe, Spokane Tribe, Squaxin Island Tribe, Stillaguamish Tribe, Suquamish Tribe, Swinomish Tribe, Tulalip Tribe, Upper Skagit Tribe, and Confederated Tribes of the Yakama Indian Reservation.

San Juan County, in the northwest corner of the state had the lowest rate at 3.8 percent. King County had a rate of 3.9 percent.

Each year the Employment Security Department (ESD) creates a list of distressed areas in the state that includes counties with a three-year average unemployment rate equal to or greater than 120 percent of the statewide unemployment rate. Fifteen counties in Washington have had persistently high unemployment rates and have been on ESD's list of distressed areas every year for the last five years. Those counties are predominantly in southwestern and northeastern Washington and include: Adams, Columbia, Cowlitz, Ferry, Grant, Grays Harbor, Klickitat, Lewis, Okanogan, Pacific, Pend Oreille, Skamania, Stevens, Wahkiakum, and Yakima Counties. Figure 2 shows the counties outlined in red.

In 2008, the median household income in Washington was $60,010.[7] County-level estimates ranged

Figure 4: Percent of Population Living Below 100 Percent of the Federal Poverty Level, 2007



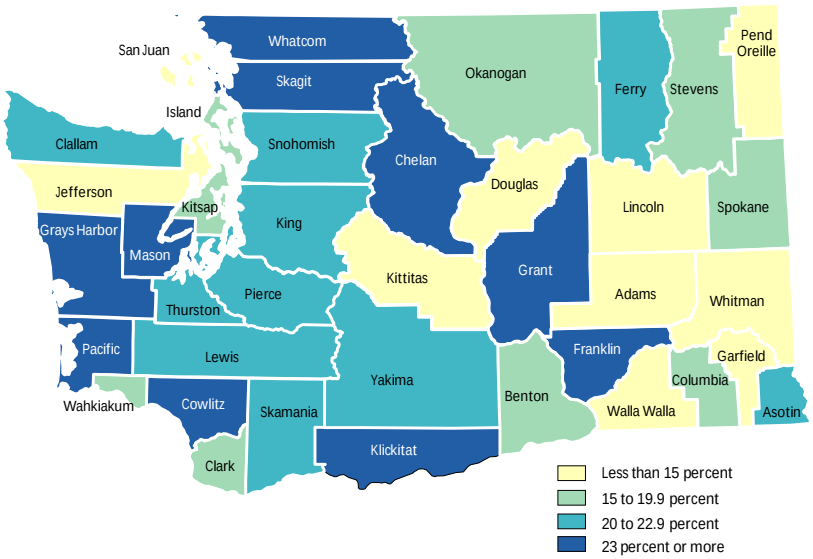
Source: State Population Survey, 2008

from a low of $33,115 for Ferry County in northeast Washington, with an economy dominated by service sector jobs,[8] to $68,832 in King County, which has many high-technology jobs.[9] With the exception of Benton County, the ten counties with the highest median income were in western Washington (see Figure 3). The high wages in Benton County are driven by employment at the Hanford Nuclear Reservation.[10] Nationally, Washington ranked 11th in the 3-year-average median household income for 2005-2007.[11]

According to the 2008 State Population Survey (SPS), 10.2 percent of Washington's residents were living below the poverty line, which is a smaller percentage than the national average of 12.5 percent. The

[7] Median household income estimate is from the October 208 Estimates by County (http://www.ofm.wa.gov/economy/hhinc/medinc.xls). The value is a projection.
[8] Kone, Arum (2008).
[9] Phair, Desiree (2008).
[10] Schau, Dean (2007).
[11] http://www.census.gov/hhes/www/income/income07/statemhi3.xls

Figure 5: Estimated High School Cohort Dropout Rate by County, 2005-2006



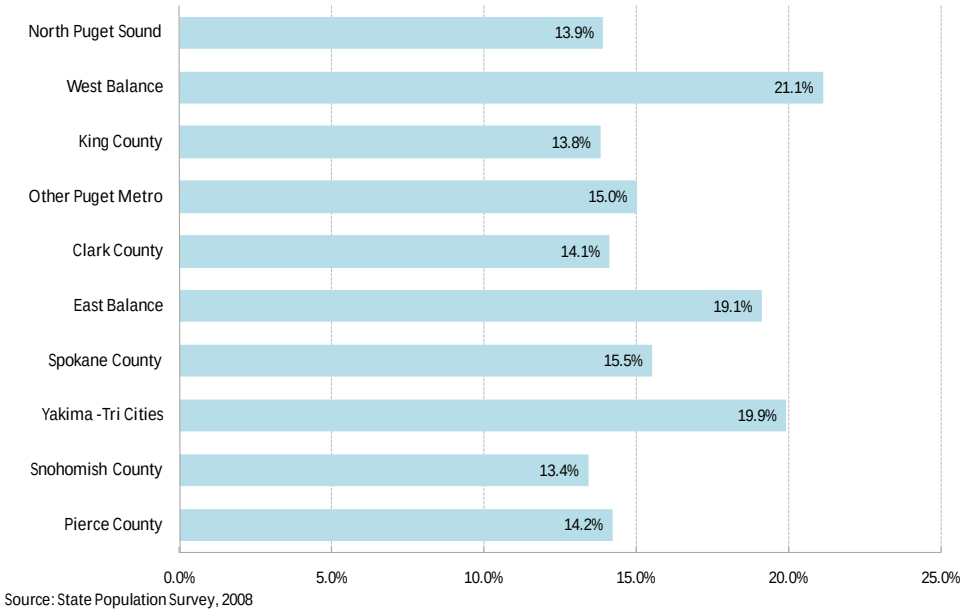
Source: Education Research and Data Center

area of the state with the highest percentage of households below the poverty level, 15.0 percent, was the Yakima – Tri Cities region including Yakima, Benton, and Franklin counties.[12] King County had the lowest percentage with 6.3 percent of the population below the poverty level (Figure 4).

Education is an important determinate of lifetime success. Washington counties vary in their high-school dropout levels. The median county high school cohort dropout rate is 20.2 percent. For every five students who enter ninth grade in a given year, one of those students will dropout before graduation. The dropout rates are higher in western Washington counties than in eastern Washington. Pacific County has the highest rate at 41.7 percent for the 2005-2006 school year (See Figure 5).

[12] Regions used are from the Washington State Population Survey and are: **North Sound** (Island, San Juan, Skagit, Whatcom Counties); **West Balance** (Clallam, Cowlitz, Grays Harbor, Jefferson, Klickitat, Lewis, Mason, Pacific, Skamania, Wahkiakum Counties); **King County**; **Other Puget Sound Metro** (Kitsap, Pierce, Snohomish, Thurston Counties); **Clark County**; **East Balance** (Adams, Asotin, Chelan, Columbia, Douglas, Ferry, Garfield, Grant, Kittitas, Lincoln, Okanogan, Pend Oreille, Stevens, Walla Walla, Whitman Counties); **Spokane County**; **Yakima-TriCities** (Benton, Franklin, Yakima Counties)

Figure 6: Percent of Population 18-64 Years Old Without Health Insurance, 2008



Source: State Population Survey, 2008

The SPS collects data on health insurance coverage for all persons in the survey sample. Based on the most recent survey, 2008, the West Balance region of the state had the highest uninsured rate, 21.1 percent, for adults 18-64 years of age. Yakima – Tri Cities was second with 19.9 percent uninsured. The lowest rate uninsured rate was reached by Snohomish County at 13.4 percent of 18-64 year olds.

Alcohol and Drug Use

As background for the drug-related hospitalization and crime data, this section offers general information on alcohol and drug use in Washington's population.

People who experience alcohol and drug abuse and dependence frequently begin using these substances as children in middle or high school.[13] In the National Household Survey on Drug Use and Health (NHSDUH), 95 percent of adults 21 and older with alcohol dependence or abuse in the previous year started using alcohol before age 21. The earliest experiences typically involve alcohol and tobacco, and use of these so-called gateway drugs may result in young people moving on to the use of harder drugs over time.

The Washington Department of Health (DOH) conducts the biennial Healthy Youth Survey (HYS) of middle and high-school students to determine, among many things, the extent to which teens are using alcohol and other drugs.[14] As shown in Figure 7, alcohol and marijuana use increases as students move into higher grade levels. In 2008, about 16 percent of 8th graders had consumed alcohol in the preceding 30 days whereas 31.7 percent and 40.8 percent of 10th and 12th graders had respectively. The percents for each of the three grade levels were down from the 2000 survey.

Figure 7: Use of Alcohol in Previous 30 Days - 8th, 10th, and 12th Graders

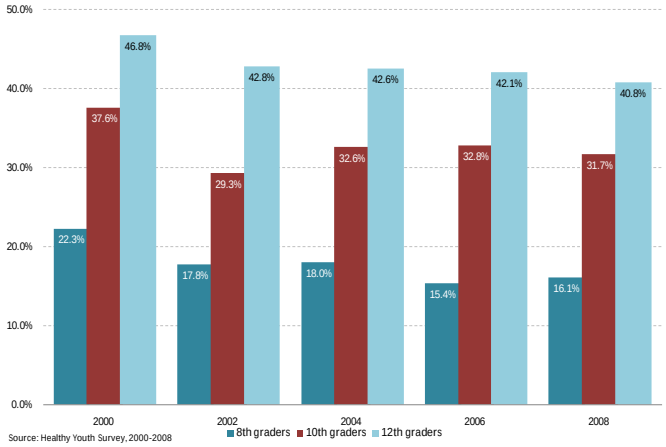


Figure 8: Use of Marijuana in Previous 30 Days - 8th, 10th, and 12th Graders

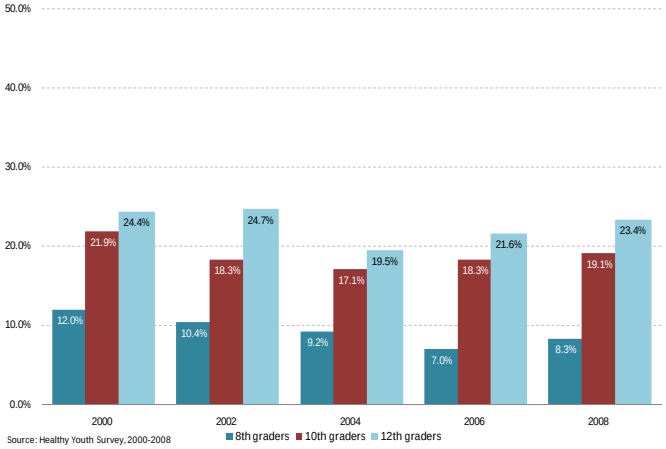
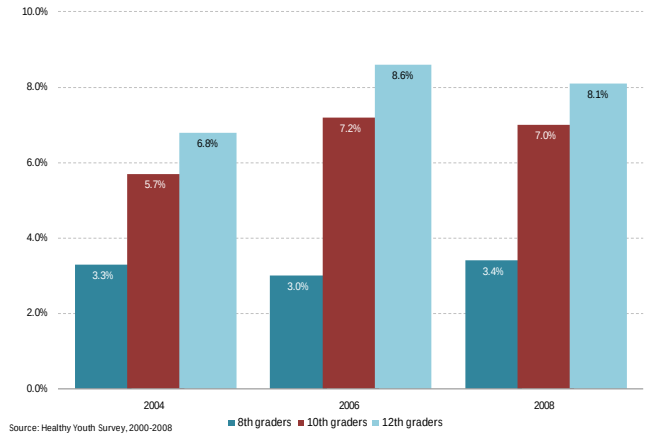
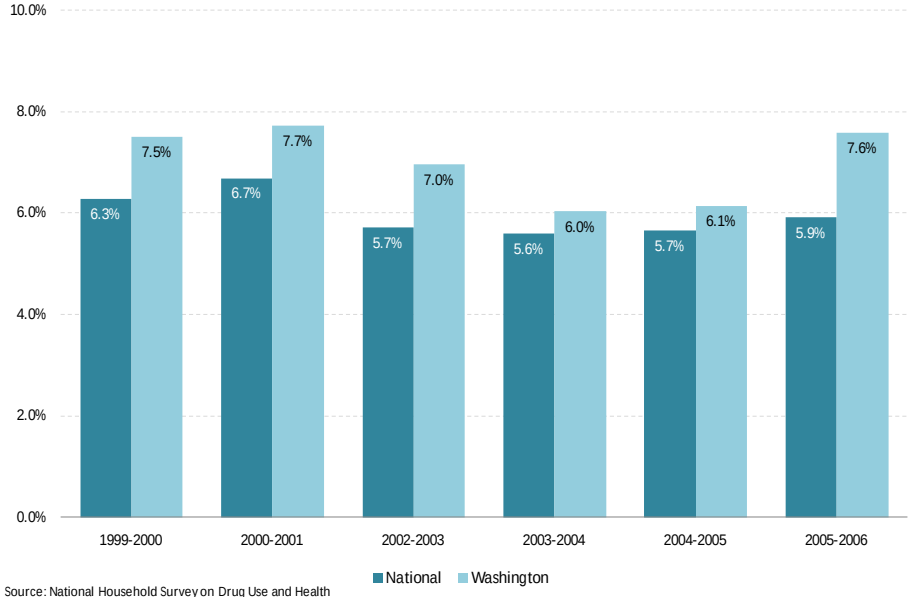


Figure 9: Use of Drugs Other Than Alcohol, Tobacco, and Marijuana in Previous 30 Days - 8th, 10th, and 12th Graders



[13] Substance Abuse and Mental Health Services Administration, Office of Applied Studies. (2004).
[14] Healthy Youth Survey. https://fortress.wa.gov/doh/hys/

Figure 10: Percentage Reporting Past Month Use of Any Illicit Drug, Ages 26 and Older

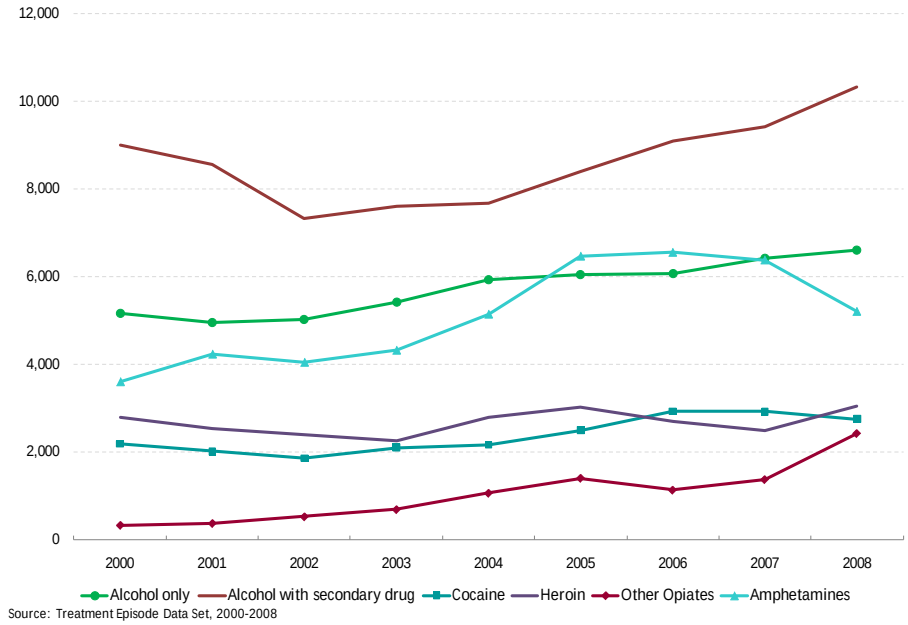


Source: National Household Survey on Drug Use and Health

Marijuana use, Figure 8, has the same pattern as alcohol for use within the previous 30 days. Seniors are most likely to have used at 23.4 percent followed by 10th graders at 19.1 percent and 8th graders at 8.3 percent. Students in the 10th and 12th grades had a decline between 2000 and 2004 then an increase between 2004 and 2008, although the percents did not rise to the 2000 levels. Eighth grade usage declined between 2000 and 2006 before increasing in 2008.

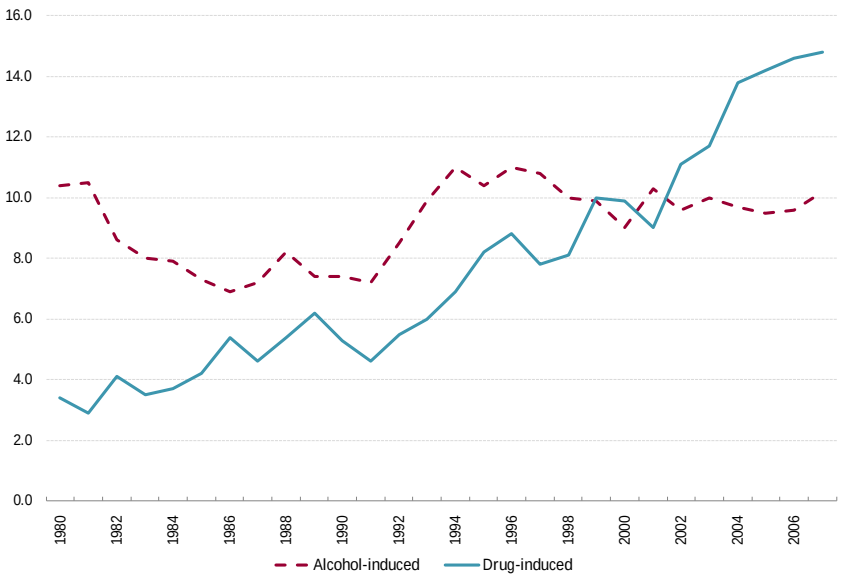
Use of drugs other than alcohol, tobacco, and marijuana has remained fairly flat between 2004 and 2008 for 8th graders. Rates of usage for 10th and 12th graders have increased over the same time period (See Figure 9).

Figure 11: Substance Abuse Treatment Admissions, 2000 - 2008



Source: Treatment Episode Data Set, 2000-2008

Figure 12: Age-adjusted Drug and Alcohol-Induced Deaths Per 100,000 Washington State, 1980-2007



Source: Department of Health

Drug use among adults 26 and older has changed little since 1999. According to the NHSDUH,[15] illicit drug use in the previous month for adults 26 and older varied slightly between 1999-2000 and 2005-2006. [16] Figure 10 illustrates the change during that period; the percent using illicit drugs ranged from 6.0 percent to 7.7 percent. In each of the years examined, the percent reporting use in Washington State was greater than the percent reported nationally.

While the percent of adults using drugs has changed little over time, the mix of admissions into drug treatment has changed. The Treatment Episode Data Set (TEDS) collects administrative data on persons admitted to substance abuse treatment with specialty providers. In 2008, there were over 42,000 admissions for treatment in Washington State, a 28.1 percent increase since 2000.[17] More than one quarter, 26.2 percent, were for alcohol with secondary drug followed by marijuana (21.1 percent), alcohol alone (16.8 percent), and amphetamines (13.2 percent). By far the drug group with the largest increase since 2000 is other (non-heroine/synthetic) opiates, which includes codeine, opium, and oxycodone (See Figure 11).[18] The number of admissions has increased 625 percent from 335 in 2000 to 2,400 in 2008. The numbers for the most recent year are approaching the number of admissions for cocaine. Amphetamine admissions have grown by 44.2 percent.

Drug and alcohol-induced death patterns have also changed over time (See Figure 12). In 1980, alcohol-induced deaths exceeded drug-induced deaths by about three to one. Over the following decades, the rate of alcohol-induced deaths remained fairly constant, dipping slightly during the 1980s, but returning

[15] The National Household Survey on Drug Abuse was changed to the National Household Survey on Drug Use and Health in 2002 to better describe the survey's content.
[16] Illicit drugs in this survey include marijuana/hashish, cocaine (powder and crack), heroin, hallucinogens, inhalants, or prescription psychotherapeutics used without a prescription.
[17] TEDS only collects data on admissions. Persons admitted for treatment more than once during a year are counted multiple times.
[18] This group does not include methadone.

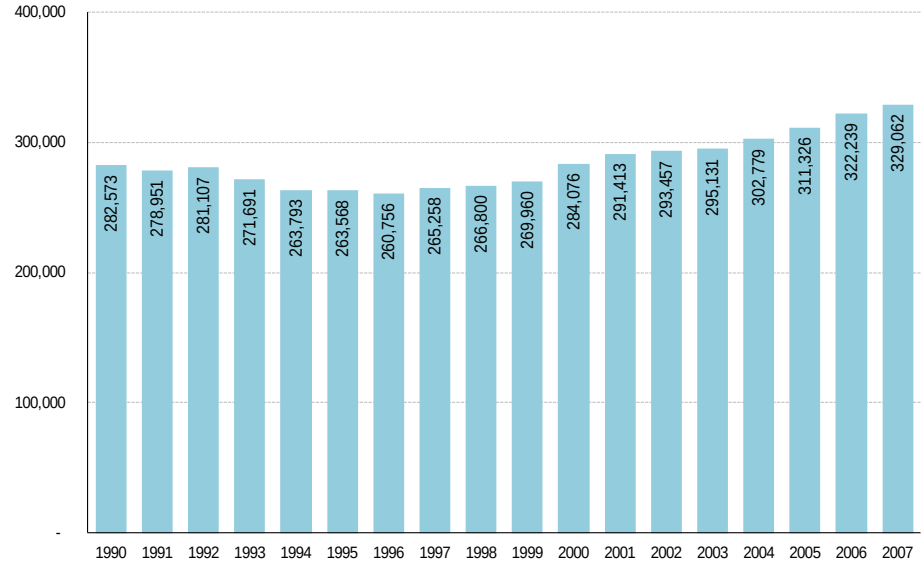
to the 1980 level during the 1990s and 2000s. On the other hand, the rate of drug-induced deaths has risen steadily over the three decades increasing from 3.4 per 100,000 in 1980 to 14.8 per 100,000 in 2007. In 2007 almost 1,000 Washington residents died as the result of drug use and approximately 700 from alcohol use.

Alcohol and substance use and abuse affect many aspects of life for Washington citizens. In the following sections, we will examine the impact on hospitalizations and on the criminal justice system. Particular attention will be paid to differential geographic affects throughout the state.

Alcohol and Drug-related Hospitalizations

The Washington Department of Health (DOH) collects detailed data, including patient diagnoses, on all hospital discharges through the Comprehensive Hospital Abstract Reporting System (CHARS).[19] These data are used in this section to examine the extent of alcohol and drug-related hospitalizations in Washington. Substance use and abuse-related hospitalizations are identified in two ways, directly and indirectly. Direct identification occurs when substance use or abuse is explicitly mentioned in primary or secondary diagnoses codes. Most of these codes reference a specific drug or drugs. Indirect identification is made when substance use or abuse is not mentioned in the diagnoses codes, but the specified diagnoses are strongly associated with alcohol or substance abuse, such as cerebrovascular stroke. In this analysis, the indirect methodology uses a logistic regression model to link patient characteristics and diagnoses to suspected alcohol and substance abuse. For a more detailed explanation of the methodology used in identifying alcohol and drug-related hospitalizations, see Appendix A.

Figure 13: Number of Drug-related Hospitalizations, 1990-2007

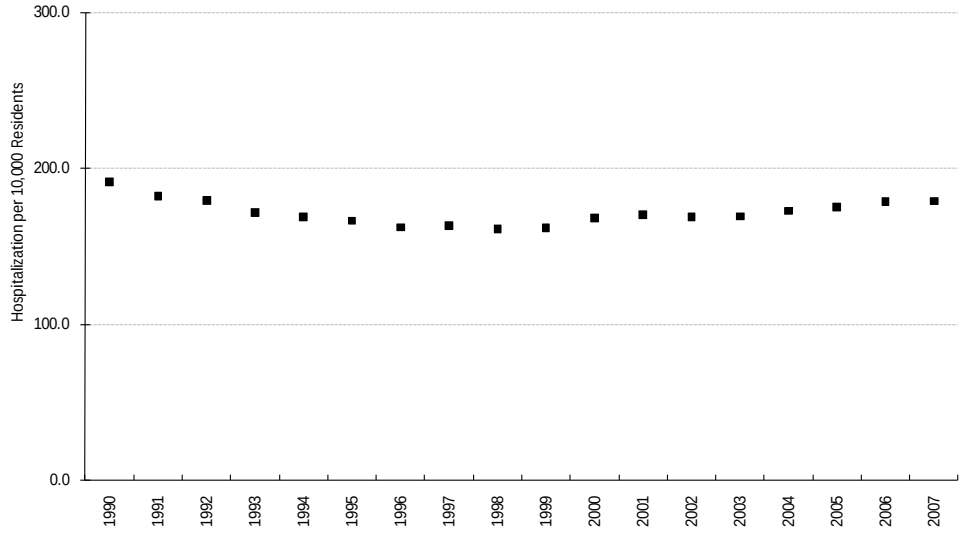


Source: CHARS, 1990-2007

Based on data from CHARS, in 2007 an estimated 329,000 hospitalizations in Washington were linked to alcohol or drug use, over half of all hospitalizations that year (See Figure 13). Every day on average 900 people were hospitalized with conditions that could be linked to alcohol or drug use. The number of drug-related hospitalizations increased 16.5 percent between 1990 and 2007, which represents a slower growth rate than the population growth rate as a whole. Over the same time period, the rate per 10,000 residents actually declined slightly from 192.9 to 173.3 per 10,000. These rates are age and sex adjusted using the methodology described in Appendix A.

[19] CHARS does not include data from military or Veterans Administration hospitals.

Figure 14: Age and Sex Adjusted Statewide Drug and Alcohol-Related Hospitalization Rates, 1990-2007

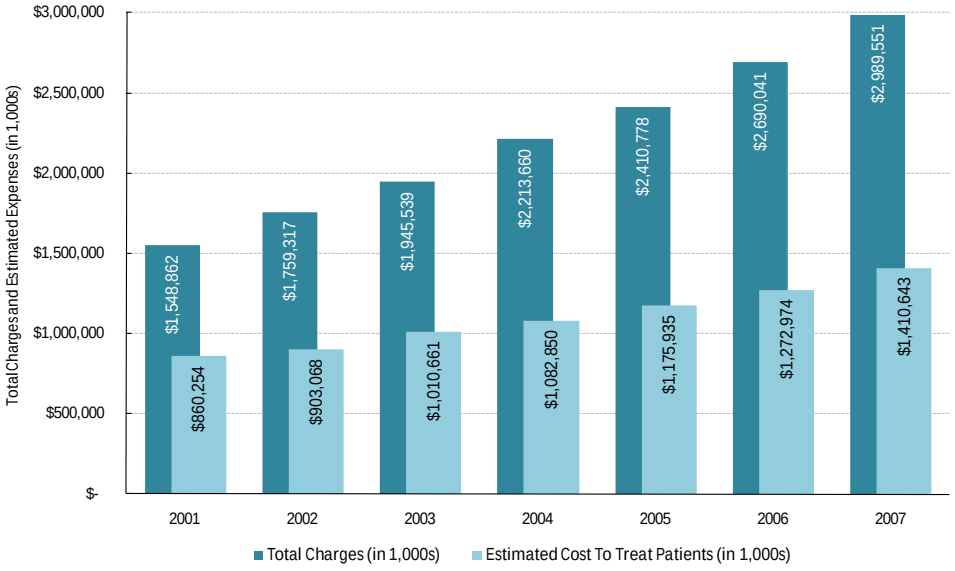


Source: CHARS, 1990-2007

CHARS provides data on the charges associated with each hospitalization as well. Although the rates charged by hospitals are frequently two to three times higher than the amount paid by most health insurers,[20] the costs associated with treating the patients can be estimated using charge-to-cost ratios available from the Healthcare Cost and Utilization Project (HCUP). [21]

HCUP has developed hospital-level, cost-to-charge ratio files for each state based on the amounts

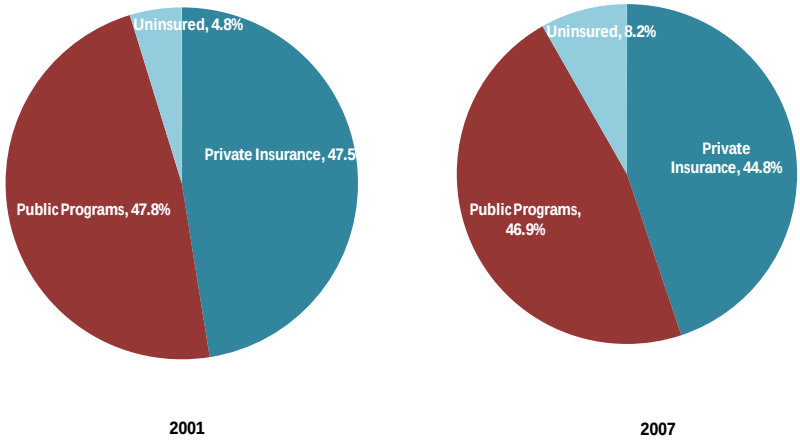
Figure 15: Statewide Charges and Estimated Cost to Treat Patients for Drug and Alcohol-related Hospitalizations (in 2007 dollars)



[20] Anderson, Gerard (2007).

[21] http://www.hcup-us.ahrq.gov/db/state/costtocharge.jsp

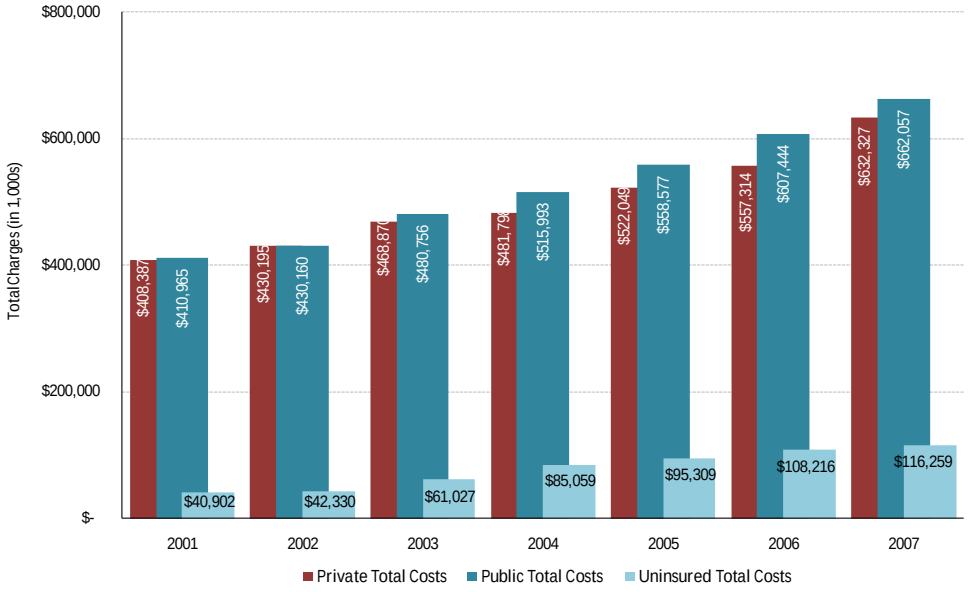
Figure 16: **Percent of Total Costs by Payer Type, 2001 and 2007**



hospitals billed for services and cost information from accounting reports. These files can be used to convert the charges found in the CHARS data files to the costs associated with each hospitalization by taking the product of the two values. For this study, we've grouped the hospitals by characteristics – number of hospital beds, rural/urban, and proprietary/not for profit. Seven groups are identified, and their ratios are averaged using all hospitals in the group. All charges and costs are provided in 2007 dollars.

As shown in Figure 15, the cost of these hospitalizations increased during the time period between 2001 and 2007. Alcohol and drug-related hospitalizations cost $860 million in 2001. By 2007, the costs of this type of hospitalization reached approximately $1.4 billion, a 64 percent increase over 2001. The costs in 2007 represent a little less than half of the reported charges for the year. Between 2001 and 2007, the average cost per hospitalization increased from $5,315 to $9,085 in 2007 dollars.

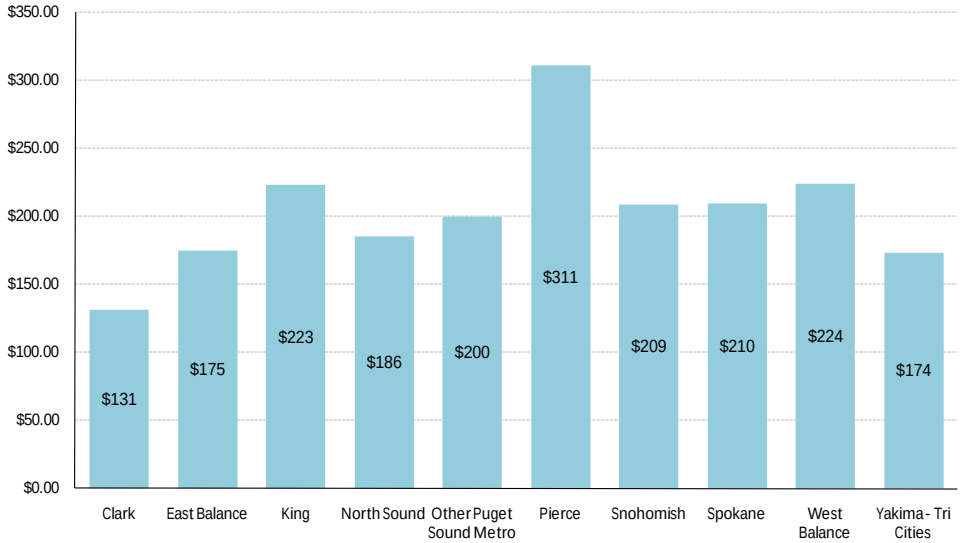
Figure 17: Drug-related Hospitalizations Total Costs by Payer Type, 2001 -2007 (in 2007 Dollars)



King County had the highest total cost for its hospitalizations, $418.7 million, among all the SPS regions. The Clark County total was the lowest, $56.0 million, although we don't know how many people went to Portland hospitals for treatment. On a per capita basis, Pierce County's hospitalizations were the most expensive, $311 per person, followed by West Balance - $224- and King County - $223. Clark County also had the lowest per capita cost, $131 per person.

In CHARS, the payer for each hospitalization is recorded at admission and is not updated if more accurate information becomes available at a later date. In some instances, therefore, the actual payer of the charges may differ from the one appearing in the CHARS file. At this point, we have no data to

Figure 18: Drug-related Hospitalizations Per Capita Estimated Costs by Region, 2007

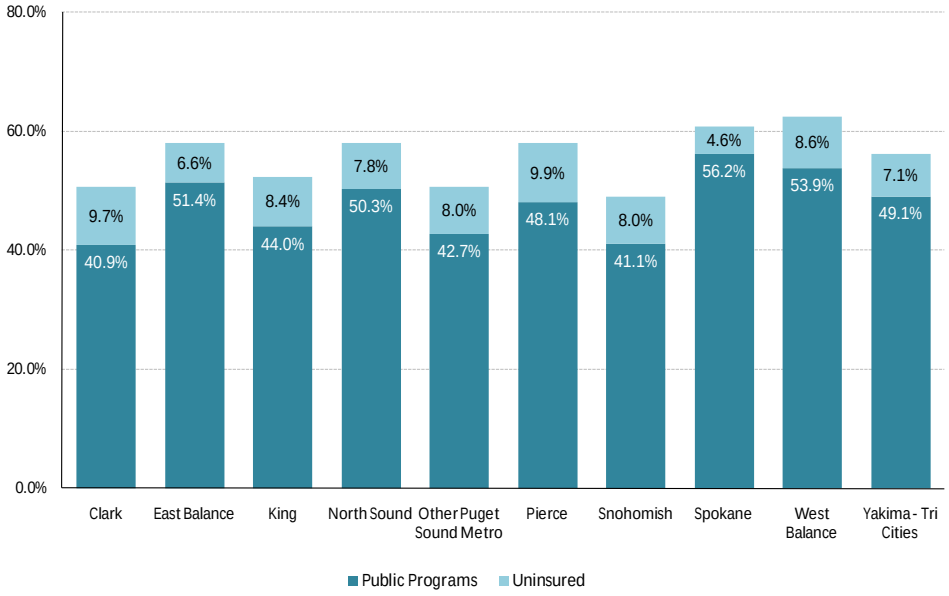


examine how the recorded payer shifts in comparison to the actual payer. We assume that the percentage of each payer type remains constant.

Public programs, including Medicaid and Medicare, have been paying about the same portion of the costs over the seven-year time period. In 2001, public programs paid 47.8 percent of the drug-related hospitalization costs. This percent was 46.9 percent in 2007. The cost for uninsured patients is paid for through increased costs to paying patients. The uninsured percent has increased during the time period with 4.8 and 8.2 percent for 2001 and 2007 respectively. Coverage from private insurers experienced a decline from 47.5 percent to 44.8 percent.

By 2007, public programs were responsible for over $662 million in drug-related hospitalization costs up from $411 million in 2001. Private insurance covered approximately $632 million, an increase from $408 million in 2001. Uninsured clients cost another $116 million, increasing from $41 million. The percentage increase in uninsured costs was 183.9 percent, far greater than either the public or private insurance, which were 61.1 and 54.9 percent respectively.

Figure 19: Drug-related Hospitalizations
Percent with Public Payer by Region, 2007



Regions of the state have differing proportions of hospitalizations that are paid by public programs and for whom the patient is uninsured. In West Balance, almost two thirds, 62.5 percent, of the hospitalization costs were paid through public programs or the patients were uninsured. Snohomish County had the lowest percentage with just under half of the hospitalizations listed as public or uninsured. Although Spokane County had the second highest combined percentage, it had the lowest uninsured population at 4.6 percent. Pierce County had the highest percentage uninsured, 9.9 percent.

Individual Drug Patterns

The burden of substance abuse is not distributed evenly throughout the state, and the pattern of hospitalizations with drug diagnoses in Washington varies by drug type. Of the types of drugs examined in this study, several experienced increases in hospitalization rates over the period 1990 through 2007 including opiates, cocaine, marijuana, and amphetamines. Hospitalizations with hallucinogenic drug diagnoses did not increase but actually decreased. The largest increase in a hospitalization rate was for amphetamines, rising more than 650 percent since 1990, followed by opiates and then cocaine with increases of 195 percent and 26 percent respectively.

Each type of hospitalization has a distinct geographic pattern as well. King County has the highest rate in the most recent year available for hospitalizations with cocaine diagnoses. As with amphetamines, the King County rate is significantly higher than the next highest region, North Sound., 13.3 versus 7.8 per 10,000. The King County rate was the highest regional rate starting in 1993, and the gap in rates increased through the time period until 2007.

This portion of the analysis relies on those hospitalizations that are explicitly coded with drug diagnoses and for which the drug is specified. Some duplication may occur in cases in which more than one drug is recorded. Any additional hospitalizations identified through the logistic model described earlier are not included.

Alcohol

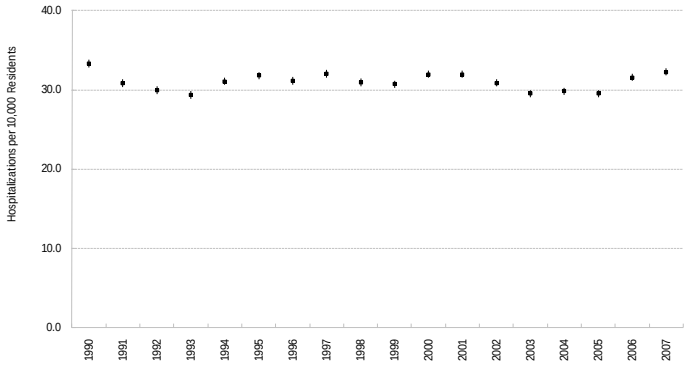
Data from the NHSDUH indicate that for 2005-2006, 22.80 percent of all persons 12 and older in Washington binge drank alcohol in the previous month. This percentage was up from the previous report for 2004-2005 in which 21.74 percent reported binge drinking. Washington's rates are lower than the national rates in both years, which were 22.70 and 22.82.

As shown in Figure 20, statewide, the rate for hospitalizations with alcohol[22] diagnoses has remained fairly flat between 1990 and 2007. The rate has fluctuated between 29.3 per 10,000 and 33.4 per 10,000 during the time period with the early 1990s and early 2000s experiencing the lowest rates.

Hospitalizations with alcohol diagnoses begin at approximately the same rate during the late teens, 15-19 year olds, for males and females, but quickly diverge in the 20-24 year age group and above (Figure 21). The gap continues to expand after age 45, because the hospitalization rate for females begins to drop whereas the rate for males remains flat through the mid-60s. The male rate peaks at 81.8 per 10,000 for the 65-69 age group then drops gradually for the 85 and older age group. The rate for females is bimodal with a peak at 40-44 (35.0 per 10,000) and another slightly lower peak (30.1) at 70-74.

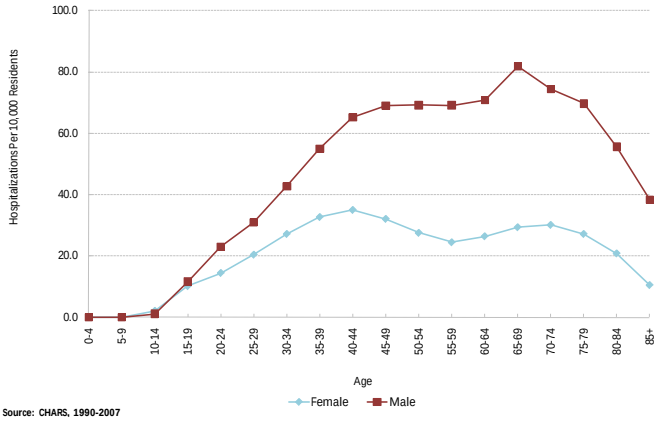
Figure 22 displays the hospitalization rates by region for 2007. West Balance experienced the highest hospitalization rates and has had a higher rate than the other regions in every one of the 18 years of available data (Figure 23). North Sound

Figure 20: Age and Sex-Adjusted Statewide Hospitalization Rates, 1990-2007
Hospitalizations with Alcohol Diagnoses



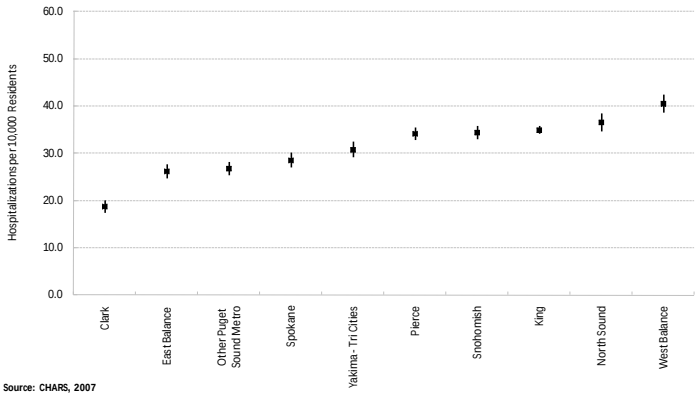
Source: CHARS, 1990-2007

Figure 21: Age-Specific Hospitalization Rates by Sex
Hospitalizations with Alcohol Diagnoses



Source: CHARS, 1990-2007

Figure 22: Age and Sex-Adjusted Hospitalization Rates, 2007
Hospitalizations with Alcohol Diagnoses



Source: CHARS, 2007

[22] ICD-9 codes used for alcohol-related hospitalizations are: 291, 291.0, 291.1, 291.2, 291.3, 291.4, 291.5, 291.89, 291.9, 303, 303.0, 303.00, 303.01, 303.02, 303.03, 303.9, 309.90, 303.91, 303.92, 303.93, 305.0, 305.00, 305.01, 305.02, and 305.03.

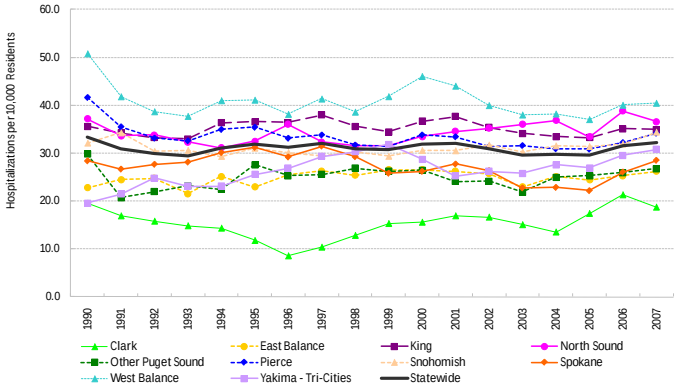
was second highest in the most recent five years having moved ahead of King County in 2003.

Among the hospitalizations in this group, 16.4 percent listed an alcohol-related diagnosis as the primary diagnosis. For the remainder, the primary diagnosis was the digestive system in 22.9 percent and mental health diagnoses 15.7 percent of the time (Figure 24). Injuries were listed for 13.2 percent of the hospitalizations.

In 2007, approximately one-third, 33.5 percent, of the hospitalizations with alcohol diagnoses statewide had private insurance as the primary payer. Over half of the hospitalizations, 52.0 percent, were paid through public programs, and the remaining 14.4 percent were uninsured (Figure 25).

Figure 26 illustrates the pattern of primary payer across regions. East Balance and Spokane County had the highest percentage of hospitalizations paid by public programs at 65.3 and 63.8 percent respectively. Pierce and Clark Counties were more likely to be uninsured, 17.3 and 17.8 percent. Snohomish and Clark Counties had the highest percentages of privately paid hospitalizations at 42.5 and 42.6 percent.

Figure 23: Age and Sex-Adjusted Hospitalization Rates by Region, 1990-2007
Hospitalizations with Alcohol Diagnoses



Source: CHARS, 1990-2007

Figure 24: Primary Diagnosis Category for Hospitalizations with Non-Primary Alcohol Diagnosis, 2007

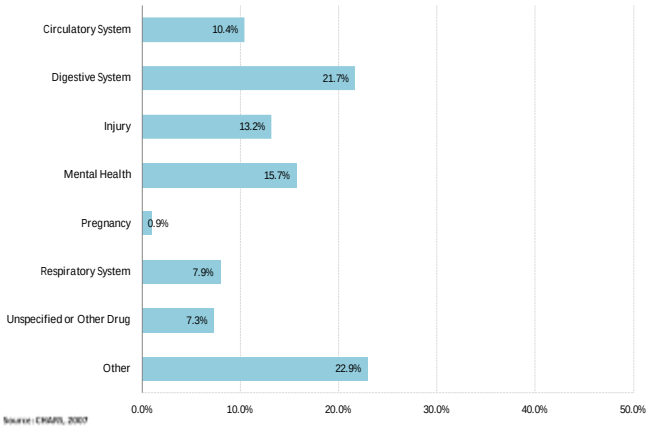
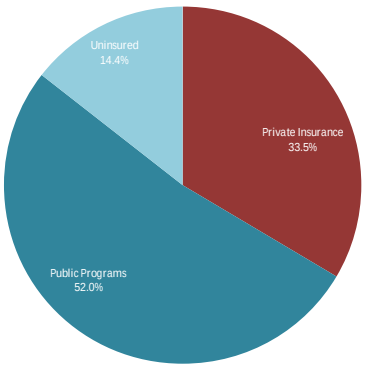
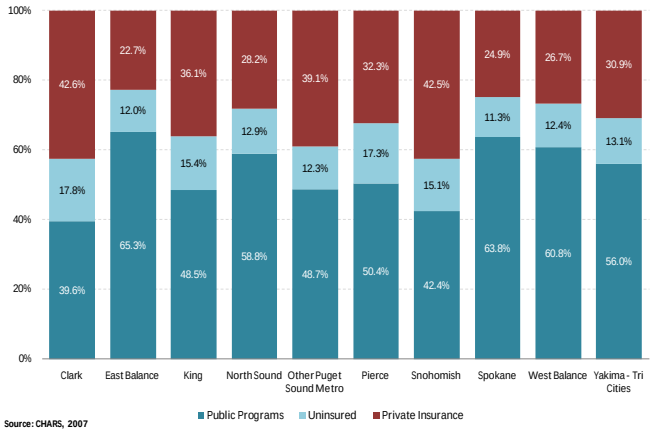


Figure 25: Percent of Hospitalizations with Alcohol Diagnosis by Payer, 2007



Source: CHARS, 2007

Figure 26: Percent of Alcohol-related Hospitalizations by Payer Type and Region, 2007



Source: CHARS, 2007

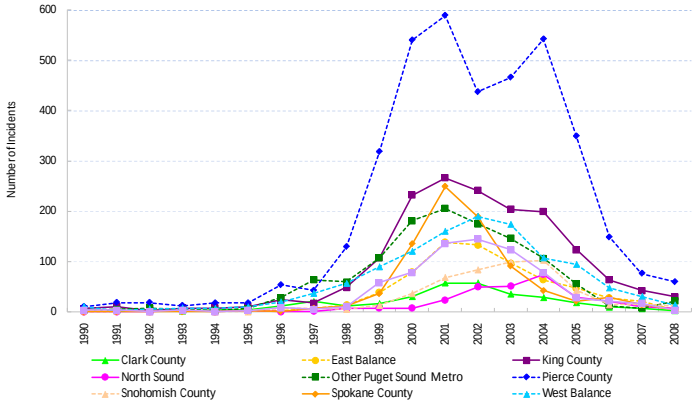
Amphetamine

In the *National Methamphetamine Threat Assessment 2009,*[23] 94.3 percent of law enforcement officials responding to the National Drug Threat Assessment (NDTA) indicated that methamphetamine is the biggest illicit drug threat in the Pacific Region, although data from the last two years show some success in reducing the problem. As shown in Figure 26, the number of methamphetamine laboratory incidents reported by the Ecology Department has declined in every region, including a dramatic decline in Pierce County, as the result of state and federal legislative changes that made acquisition of ingredients more difficult. Most methamphetamine found in Washington today is produced in Mexico.[24]

The rise and subsequent fall of the methamphetamine influence can be seen in the number of hospitalizations with amphetamine[25] diagnoses. The rate of hospitalization increased over seven-fold between 1990 and 2005, before dropping 22 percent in the most recent two years available (Figure 27).

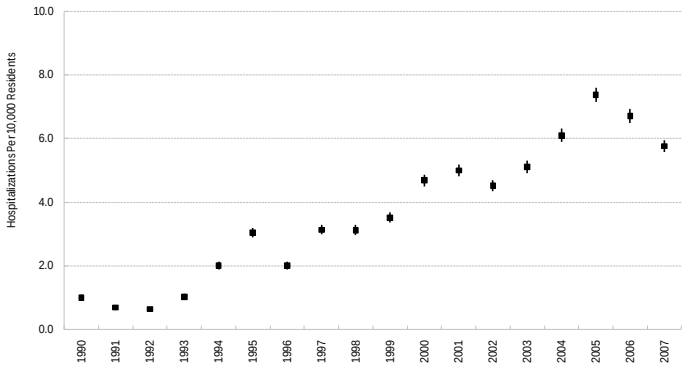
The rate of hospitalization with amphetamine diagnoses reaches the highest level for females in their twenties, peaking at 8.6 for the 20-24 and 25-29 year age groups (Figure 28). The rate then drops steadily until it reaches 0.26 per 10,000 for the 65-69 age group. Among males, the rate rises through the twenties and peaks at 7.5 per 10,000 for the 30-34 year age group. The male rate then declines, remaining higher than the female rates at each age group, until reaching 0.26 per 10,000 at 65-69.

Figure 27: Methamphetamine Incidents in Washington by Region, 1990-2008



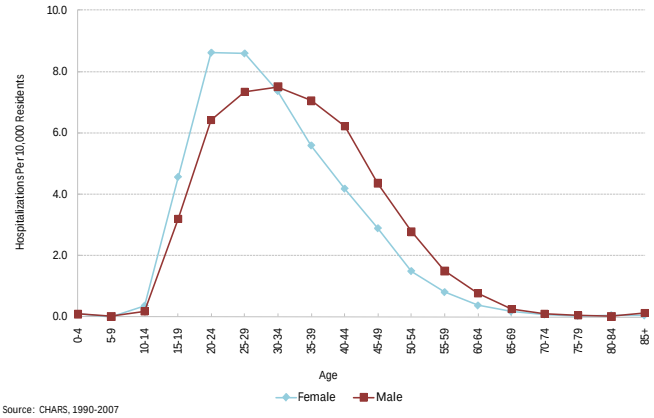
Source: Department of Ecology, 1990-2008

Figure 28: Age and Sex-Adjusted Statewide Hospitalization Rates, 1990-2007
Hospitalizations with Amphetamine Diagnoses



Source: CHARS, 1990-2007

Figure 29: Age-Specific Hospitalization Rates by Sex
Hospitalizations with Amphetamine Diagnoses



Source: CHARS, 1990-2007

[23] National Drug Intelligence Center (2009).

[24] Office of National Drug Control Policy, Drug Policy Information Clearinghouse (2008).

[25] ICD-9 codes for amphetamine-related hospitalizations are: 304.4, 304.40, 304.41, 304.42, 304.43, 305.7, 305.70, 305.71, 305.72, 305.73, E8542.

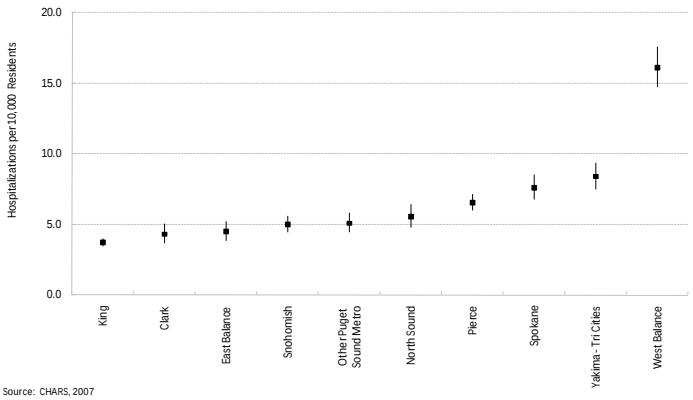
Figure 29 displays the regional hospitalization rates. West Balance has by far the highest hospitalization rate due to amphetamines. In 2007 the rate was almost twice the rate for the next highest region, Yakima-Tri Cities, 16.1 versus 8.4 hospitalizations per 10,000 residents. King County had the lowest rate (3.7 per 10,000), about one fifth of the West Balance rate. West Balance began deviating from the other regions in 1994, and the gap has increased dramatically (Figure 30). The other regions experienced a more gradual rate increase between 1990 and 2007.

Nearly one in five, 19.2 percent, of these hospitalizations had a mental health primary diagnosis in 2007. Another 15.0 percent had either another drug as the primary or the drug was not specified. Pregnancy was primary for 14.5 percent of the hospitalizations (Figure 32).

Statewide, nearly 60 percent of hospitalizations with amphetamine diagnoses listed public programs as the primary payer (Figure 33). Another 22.9 percent were uninsured in 2007 with the remaining 18.8 percent having private insurance.

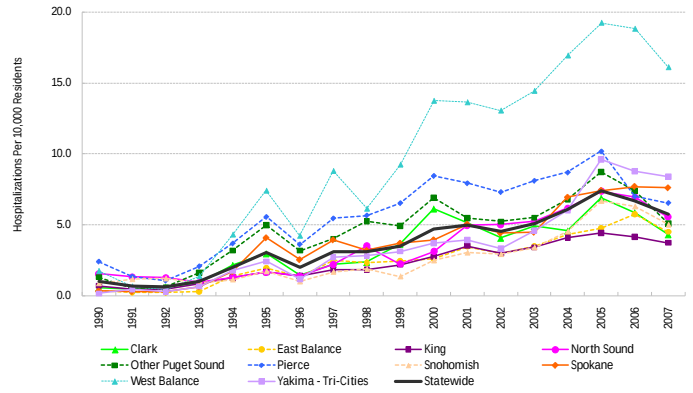
In Figure 34, Spokane County and East Balance again had the highest percentage of hospitalizations for which the primary payer was public programs, 72.1 and 70.6 percent. Pierce County had 28.9 percent that were uninsured followed by King County with 24.2 percent. Other Puget Sound Metro had approximately one-quarter of its hospitalizations privately insured, the highest percentage of any region. In Spokane County, only 11.4 percent listed private insurance as the primary payer.

Figure 30: Age and Sex-Adjusted Hospitalization Rates by Region, 2007
Hospitalizations with Amphetamine Diagnoses



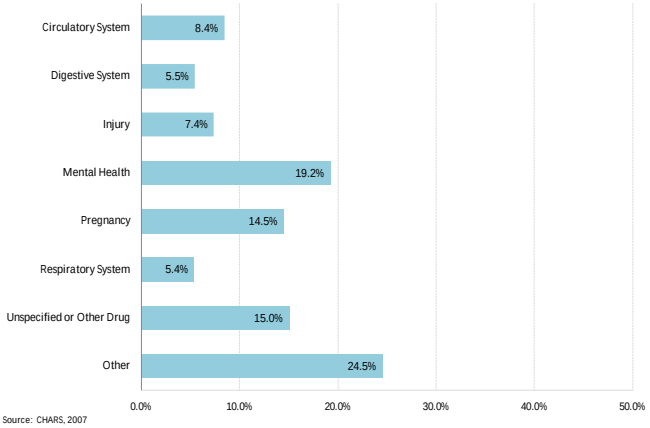
Source: CHARS, 2007

Figure 31: Age and Sex-Adjusted Hospitalization Rates by Region, 1990-2007
Hospitalizations with Amphetamine Diagnoses



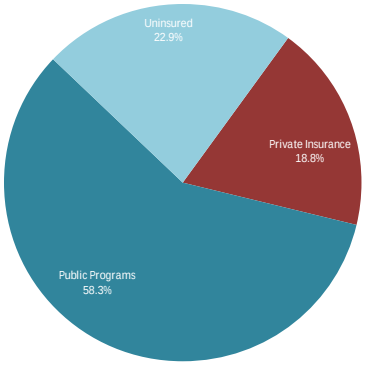
Source: CHARS, 1990-2007

Figure 32: Primary Diagnosis Category for Hospitalization with Non-Primary Amphetamine Diagnosis, 2007



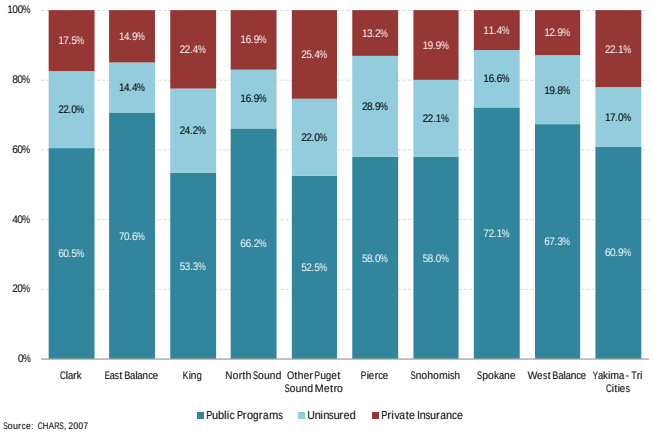
Source: CHARS, 2007

Figure 33: Percent of Hospitalizations with Amphetamine Diagnoses by Payer, 2007



Source: CHARS, 2007

Figure 34: Percent of Hospitalizations with Amphetamine Diagnoses by Payer Type and Region, 2007



Source: CHARS, 2007

Barbiturates

The rate of hospitalizations with barbiturate[26] diagnoses has not changed dramatically during the 18-year research period. The rate has remained between 1.0 and 2.0 per 10,000 residents, although the rate has trended slightly upward in the most recent five years (Figure 35).

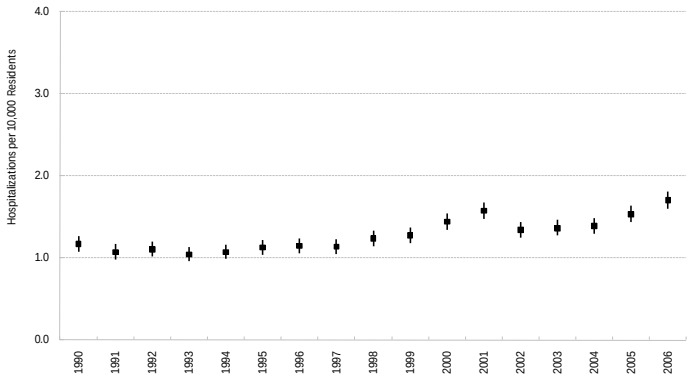
As shown in Figure 36, the hospitalization rate remains higher for females than males over the entire life cycle. Starting in the l5-19 age group, the gap grows reaching the greatest difference at age 35-39. The female rate peaks at 40-44 years of age and a rate of 3.2 per 10,000. The hospitalization rate for males reaches a maximum of 2.16 per 10,000 at age 40-44.

Snohomish County has the highest rate of hospitalizations with barbiturate diagnoses, although the rate is not statistically different from the rate for North Sound (Figure 37). The rates for those two regions increased during the early 2000s, but the rates have dropped back down closer to the other regions in 2007.

Over half of the hospitalizations in this group have a primary diagnosis of unspecified or other drug (Figure 38). This finding suggests that barbiturates may be used frequently with other types of drugs. Mental health issues account for another 21.3 percent of the primary diagnoses.

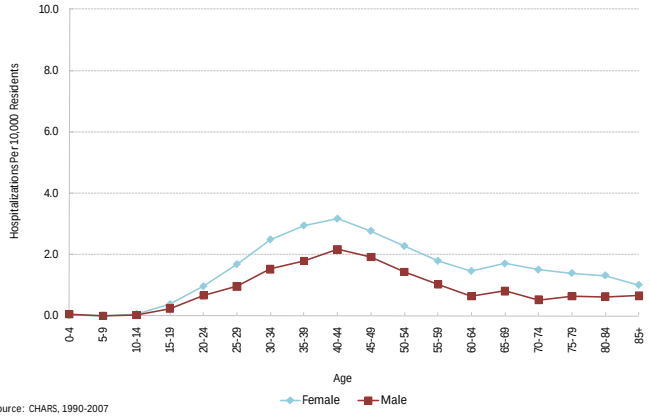
Private insurance and public medical programs were approximately equal as payers for hospitalizations with barbiturate diagnoses (Figure 40). Private insurance represented 46.2 percent and public programs 46.5 percent. The uninsured made up about 7.3 percent, the smallest

Figure 35: Age and Sex-Adjusted Statewide Hospitalization Rates, 1990-2007
Hospitalizations with Barbiturate Diagnoses



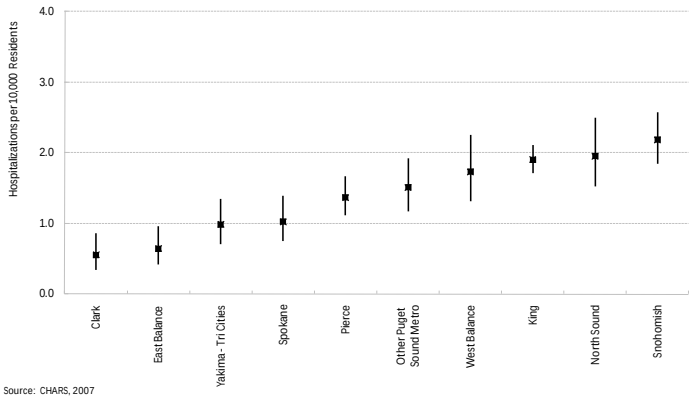
Source: CHARS, 1990-2007

Figure 36: Age-Specific Hospitalization Rates by Sex
Hospitalizations with Barbiturate Diagnoses



Source: CHARS, 1990-2007

Figure 37: Age and Sex-Adjusted Hospitalization Rates by Region, 2007
Hospitalizations with Barbiturate Diagnoses



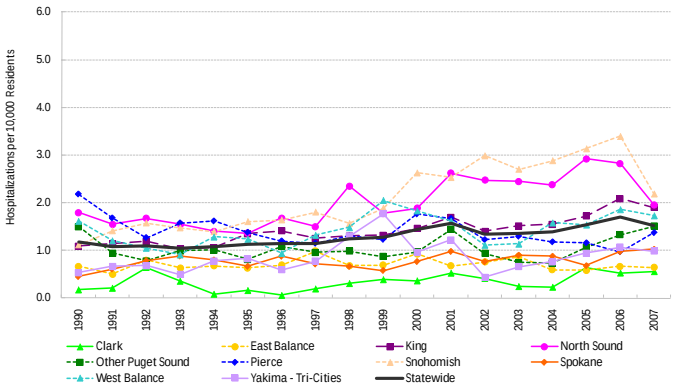
Source: CHARS, 2007

[26] ICD-9 codes for barbiturate-related hospitalizations are: 304.1, 304.10, 304.11, 304.12, 304.13, 305.4, 305.40, 305.41, 305.42, 305.43, 967.0

percentage for any of the individual drug categories examined for the study.

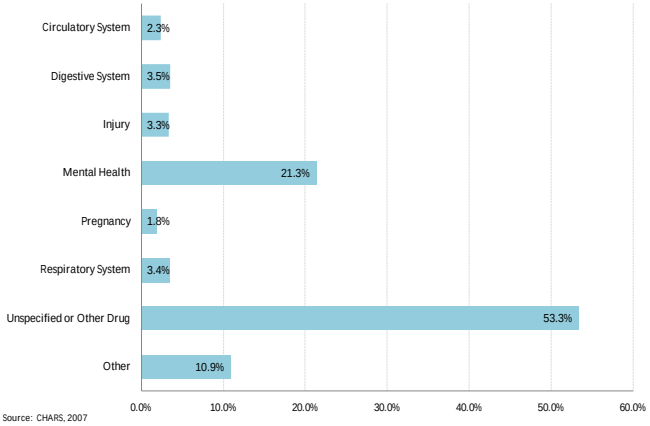
Regionally, West Balance and Yakima – Tri Cities have the largest percentage in public programs at 60.0 and 57.8 percent (Figure 41). In East Balance, 13.8 percent were uninsured. Clark County had by far the largest percentage with private insurance, 68.2 percent, but the impact of Portland's proximity to the area is uncertain.

Figure 38: Age and Sex-Adjusted Hospitalization Rates by Region, 1990-2007
Hospitalizations with Barbiturate Diagnoses



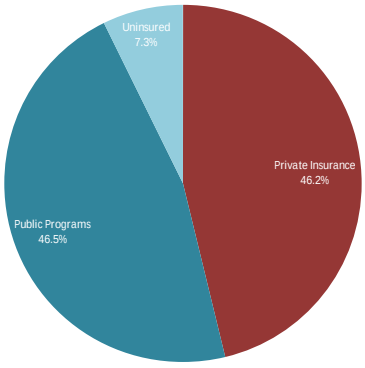
Source: CHARS, 1990-2007

Figure 39: Primary Diagnosis Category for Hospitalizations with Non-Primary Barbiturate Diagnosis, 2007



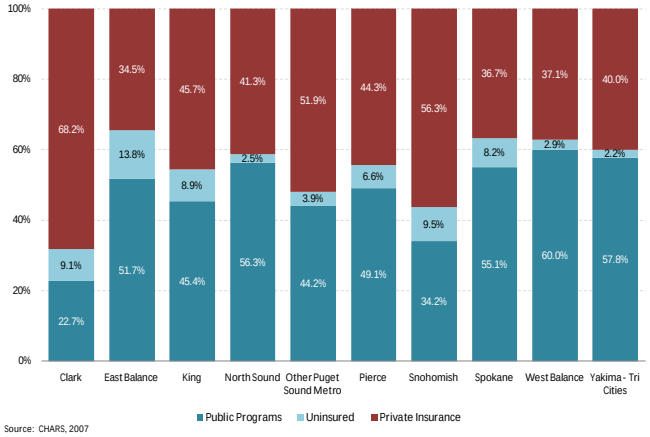
Source: CHARS, 2007

Figure 40: Percent of Hospitalizations with Barbiturate Diagnoses by Payer, 2007



Source: CHARS, 2007

Figure 41: Percent of Hospitalizations with Barbiturate Diagnoses by Payer Type and Region, 2007



Source: CHARS, 2007

Cannabis

The most recent report from NHSDUH for 2005-2006 indicated that approximately 8.25 percent of Washington's population 12 and older used marijuana in the past month. This percent represented an increase over the preceding two-year period's percentage of 7.01. Washington's percentages in each year were higher than the percentages for the total US.

As shown in Figure 42, the rate for hospitalizations with cannabis[27] diagnoses rose during the 1990s and then remained flat through the 2000s. The rate in 1990 was 3.8 per 10,000 residents and increased 55.3 percent to 5.9 in 2000. In 2007, it was 6.0 per 10,000.

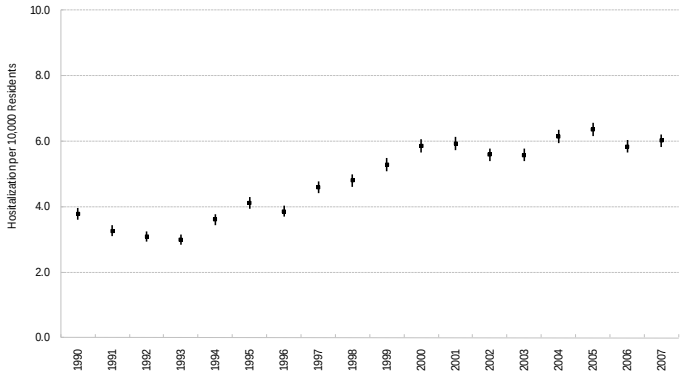
The hospitalization rates for males and females are similar through the late teens and early twenties peaking at 11.7 and 11.4 per 10,000 residents respectively for 20-24 year olds (Figure 43). The rates drop through the age groups for both genders with the female rate dropping faster and remaining below the male rate until the late 60s.

West Balance has the highest rate of hospitalizations, 10.6 per 10,000, followed by North Sound and Yakima-Tri Cities. West Balance and North Sound rates are the highest of all the regions during most of the available history.

One in three hospitalizations with a cannabis diagnoses have a mental health primary diagnosis (Figure 46). The next most common primary diagnosis is for unspecified or other drugs.

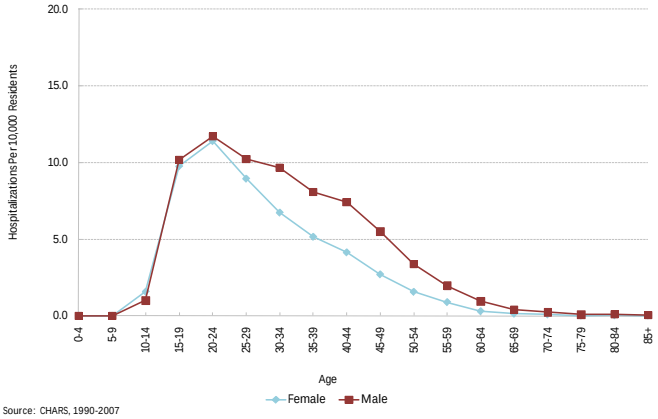
Among hospitalizations with cannabis diagnoses, over half are paid by public programs. Another 16.2 percent are

Figure 42: Age and Sex-Adjusted Statewide Hospitalization Rates, 1990-2007
Hospitalizations with Cannabis Diagnoses



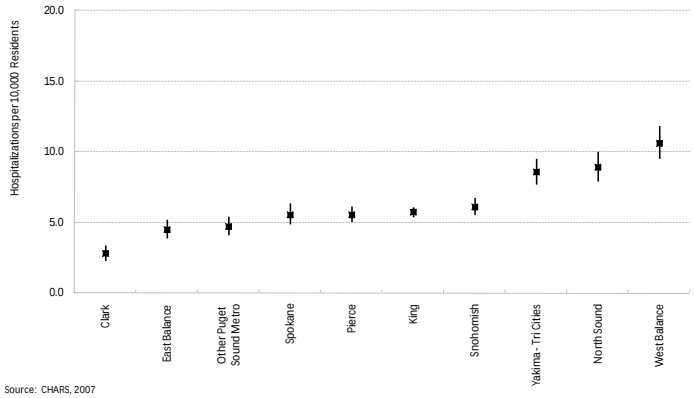
Source: CHARS, 1990-2007

Figure 43: Age-Specific Hospitalization Rates by Sex
Hospitalizations with Cannabis Diagnoses



Source: CHARS, 1990-2007

Figure 44: Age and Sex-Adjusted Hospitalization Rates by Region, 2007
Hospitalizations with Cannabis Diagnoses

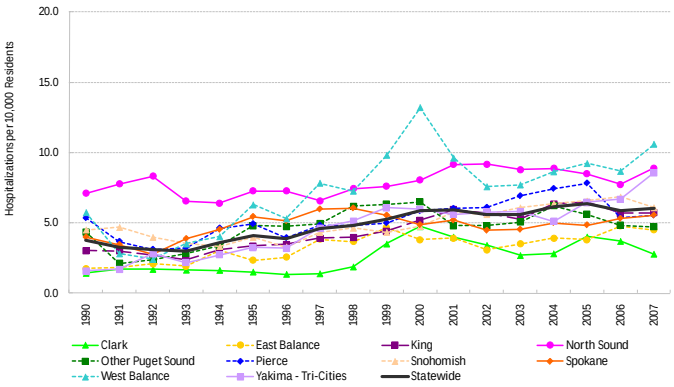


Source: CHARS, 2007

[27] ICD-9 codes for cannabis-related hospitalizations are: 304.3, 304.30, 304.31, 304.32, 304.33, 305.2, 305.20, 305.21, 305.22, 305.23

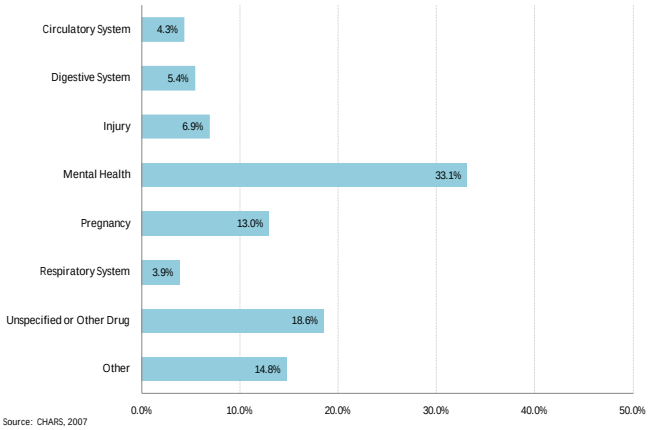
uninsured (Figure 47). These percentages are similar to those seen for alcohol. Among the regions, Spokane County has the largest percentage of publicly paid hospitalizations, 67.5 percent (Figure 48). East Balance is second with 66.1 percent. Clark County, however, has the highest uninsured number with 22.8 percent.

Figure 45: Age and Sex-Adjusted Hospitalization Rates by Region, 1990-2007
Hospitalizations with Cannabis Diagnoses



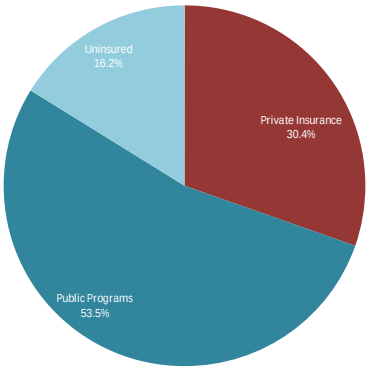
Source: CHARS, 1990-2007

Figure 46: Primary Diagnosis Category for Hospitalization with Non-Primary Cannabis Diagnosis, 2007



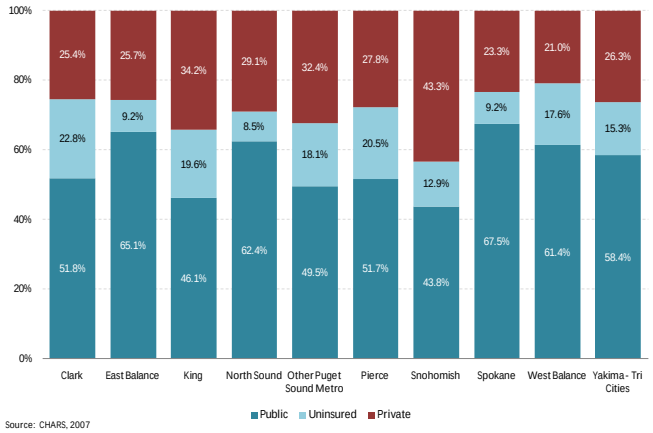
Source: CHARS, 2007

Figure 47: Percent of Hospitalizations with Cannabis Diagnoses by Payer, 2007



Source: CHARS, 2007

Figure 48: Percent of Hospitalizations with Cannabis Diagnoses by Payer Type and Region, 2007



Source: CHARS, 2007

Cocaine

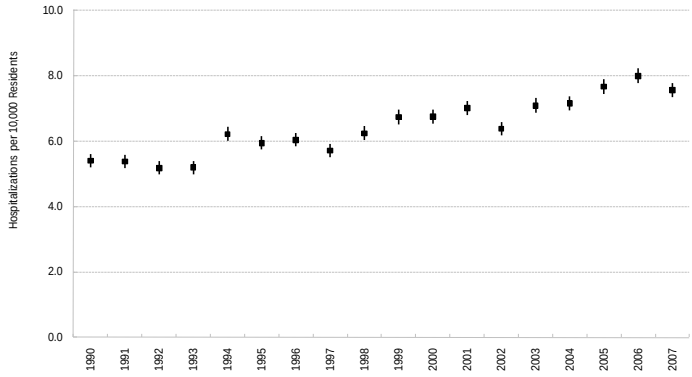
In 2008, the federal government seized 502.7 kilograms of cocaine in Washington State. [28] Both forms of cocaine, powder and crack, can be obtained throughout the state, although crack cocaine is mostly limited to low-income urban areas. Data from 2005-2006 indicate that 2.47 percent of persons 12 and older used cocaine in the previous year (NHSDUH). In 2004-2005, the percent was 2.36. Nationally, the percentages were 2.37 and 2.31.

Statewide the rate of hospitalization with cocaine[29] diagnoses has increased since 1990 from 5.4 to 7.6 per 10,000 residents. This change represents a 40.7 percent increase over the eighteen-year period, or about 2.26 percent increase annually (Figure 49).

With cocaine, female hospitalization rates increase during the twenties and are greatest at age 30-34, 14.1 per 10,000 (Figure 50). The rates drop to 0.20 per 10,000 for the 65 to 69 year olds. The male cocaine rates rise to 15.1 per 10,000 in the 35-39 age group, and then declines. At ages 65-69, however, the male hospitalization rate is over seven times greater than the rate for females at the same age.

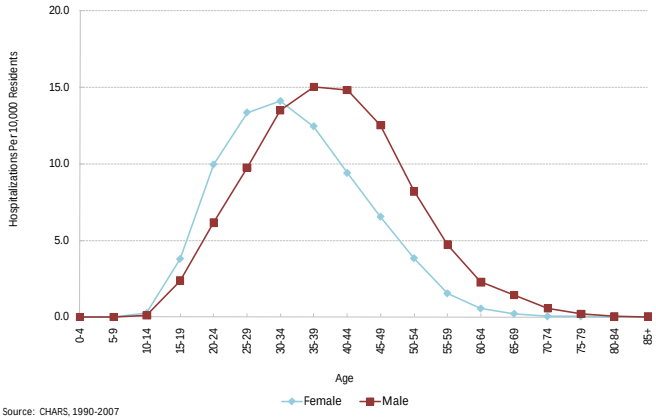
As shown in Figure 51, King County has the highest rate of hospitalizations with cocaine diagnoses in the most recent year available, 2007. As with West Balance and amphetamines, the King County rate is significantly higher than the next highest region, Pierce County, 13.1 versus 8.4 per 10,000. The King County rate was the highest regional rate starting in 1993, and the gap in rates increased through the time period until 2007 (Figure 52). Pierce

Figure 49: Age and Sex-Adjusted Statewide Hospitalization Rates, 1990-2007
Hospitalizations with Cocaine Diagnoses



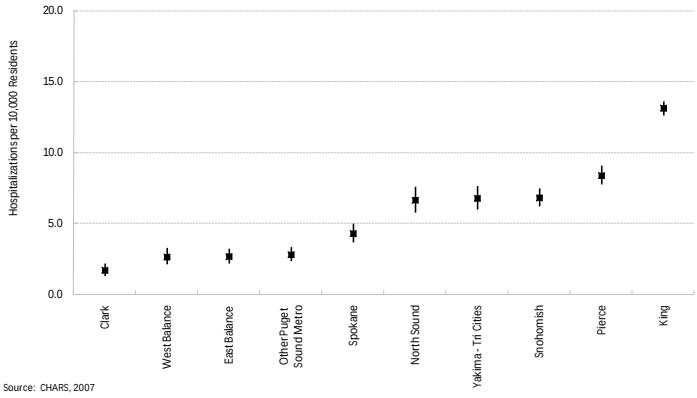
Source: CHARS, 1990-2007

Figure 50: Age-Specific Hospitalization Rates by Age by Sex
Hospitalizations with Cocaine Diagnoses



Source: CHARS, 1990-2007

Figure 51: Age and Sex-Adjusted Hospitalization Rates by Region, 2007
Hospitalizations with Cocaine Diagnoses



Source: CHARS, 2007

[28] U.S. Drug Enforcement Administration (2000).
[29] ICD-9 codes for cocaine-related hospitalizations are 304.2, 304.20, 304.21, 304.22, 304.23, 305.6, 305.60, 305.61, 305.62, 305.63.

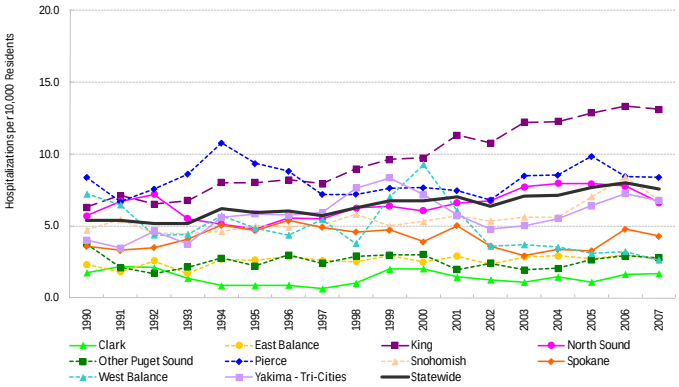
County has experienced a slight decline in hospitalization rates since 2005.

For hospitalizations with cocaine diagnoses, mental health and unspecified or other drug diagnoses had approximately the same percentage of primary diagnoses, 17.8 and 17.5 percent respectively (Figure 53). Circulatory system problems were about one tenth, 10.3 percent.

Of all the drugs examined in this study, cocaine had the highest percentage of hospitalizations for which the primary payer was a public program or uninsured (Figure 54). Statewide, 82.7 percent were in that category.

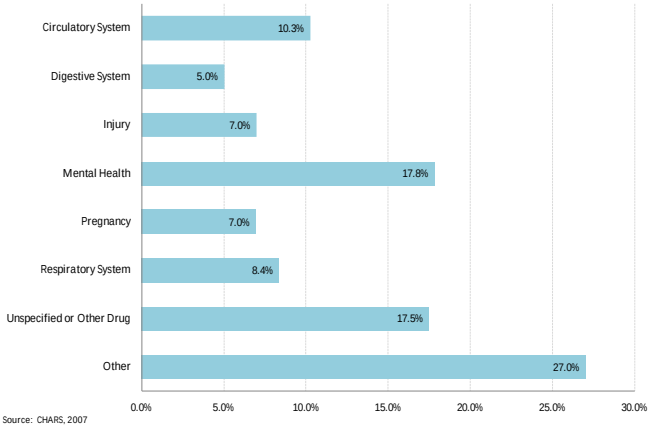
Spokane County tops the regions for payment by public programs at 71.4 percent (Figure 55). East Balance followed at 67.8 percent. Snohomish County and Other Puget Sound Metro had the highest percentages of uninsured at 22.8 and 22.0 percent respectively. Snohomish County also led the privately insured with 26.0 percent.

Figure 52: Age and Sex-Adjusted Hospitalization Rates by Region, 1990-2007
Hospitalizations with Cocaine Diagnoses



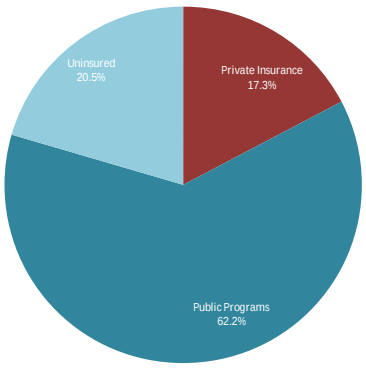
Source: CHARS, 1990-2007

Figure 53: Primary Diagnosis Category for Hospitalizations with Non-Primary Cocaine Diagnosis, 2007



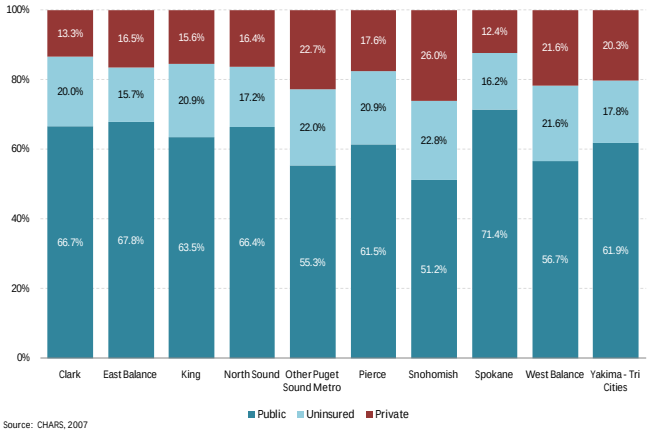
Source: CHARS, 2007

Figure 54: Percent of Hospitalizations with Cocaine Diagnoses by Payer, 2007



Source: CHARS, 2007

Figure 55: Percent of Hospitalizations with Cocaine Diagnoses by Payer Type and Region



Source: CHARS, 2007

Hallucinogens

As shown in Figure 56, the rate for hospitalizations with hallucinogen[30] diagnoses is one of the few rates that has remained stable or dropped between 1990 and 2007. In 1990, the rate, which is low compared to all the other drug rates, was 0.32 per 10,000 and ended at 0.27.

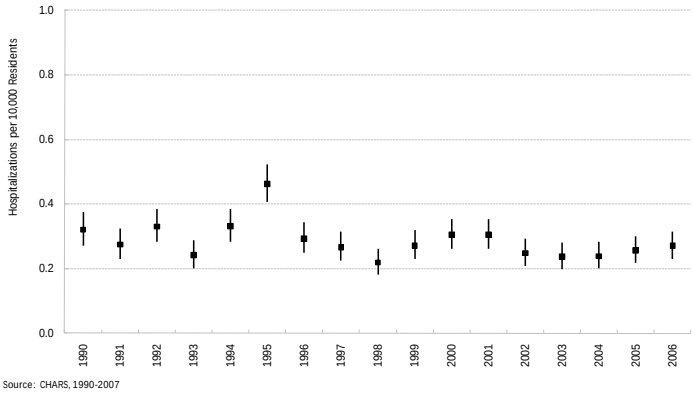
In hallucinogens, male and female rates are both highest during the late teen years, 15-19 year olds, with females reaching 0.9 hospitalizations per 10,000 and males 1.5 per 10,000 (Figure 57). The hallucinogen rates drop through the twenties and are close to zero in the thirties and older.

For hospitalizations with hallucinogen diagnoses, none of the regional rates differs significantly from the statewide rate. The regional rates are all low ranging from 0.1 in Other Puget Sound Metro to 0.5 per 10,000 residents in Yakima-Tri Cities.

Almost half, 45.8 percent, of the hospitalizations for which the hallucinogen diagnosis was not the primary diagnoses listed unspecified or another drug as the primary diagnoses (Figure 60). Mental health diagnoses followed with 36.8 percent.

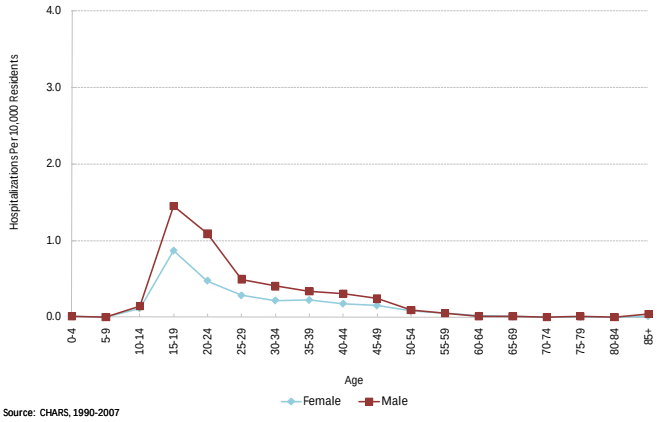
Roughly half, 50.5 percent, of the hospitalizations listed public programs as the primary payer for 2007 (Figure 61). The uninsured represented another 14.8 percent with private insurance covering the remaining 34.6 percent. Only 182 hospitalizations fell into this category in 2007, so no regional payer data are displayed.

Figure 56: Age and Sex-Adjusted Statewide Hospitalization Rates, 1990-2007
Hospitalizations with Hallucinogen Diagnoses



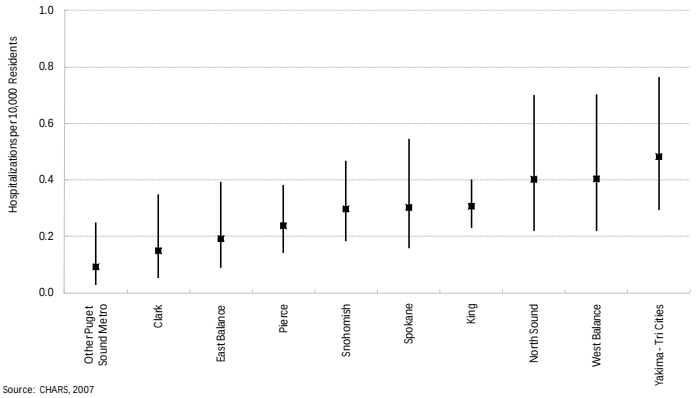
Source: CHARS, 1990-2007

Figure 57: Age-Specific Hospitalization Rates by Sex
Hospitalizations with Hallucinogen Diagnoses



Source: CHARS, 1990-2007

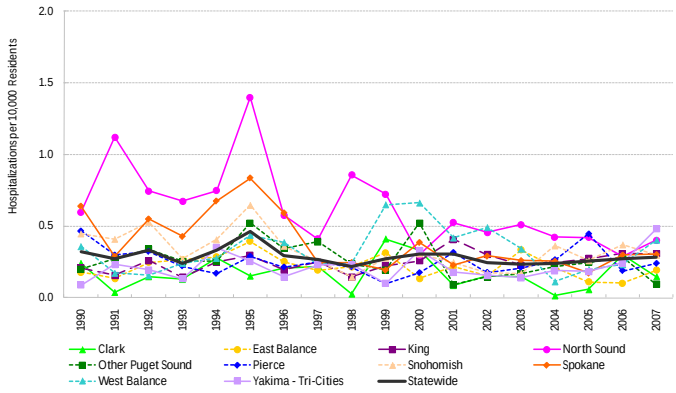
Figure 58: Age and Sex-Adjusted Hospitalization Rates by Region, 2007
Hospitalizations with Hallucinogen Diagnoses



Source: CHARS, 2007

[30] ICD-9 codes for hallucinogen-related are 304.5, 304.50, 304.51, 304.52, 304.53, 305.3, 305.30, 305.31, 305.32, 350.33, and 969.6.

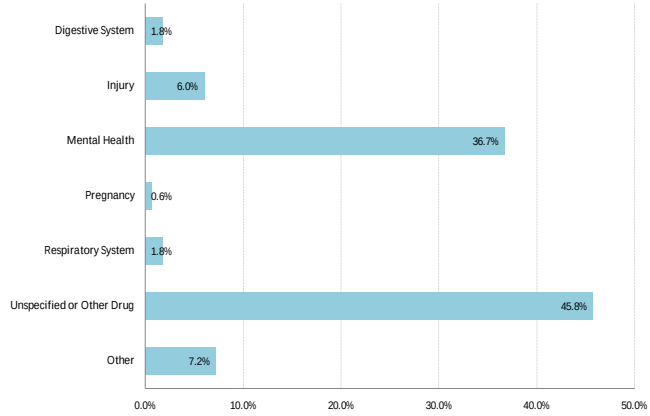
Figure 59: Age and Sex-Adjusted Hospitalization Rates by Region, 1990-2007
Hospitalizations with Hallucinogen Diagnoses



Source: CHARS, 1990-2007

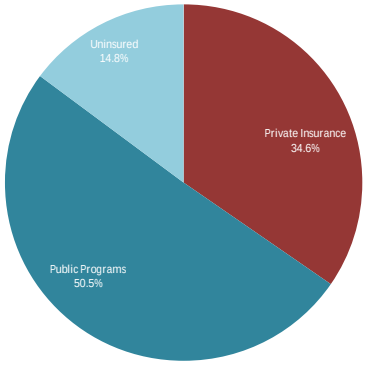
The number of hallucinogen-related hospitalizations is very small, so no breakout by region and payer is provided.

Figure 60 : Primary Diagnosis Category for Hospitalizations
with Non-Primary Hallucinogen Diagnosis, 2007



Source: CHARS, 2007

Figure 61: Percent of Hospitalizations with Hallucingen Diagnoses
by Payer, 2007



Source: CHARS, 2007

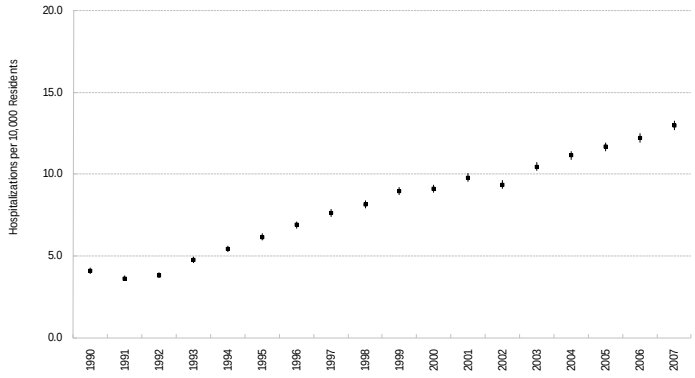
Opiates

Prescription sales of opiates have increased dramatically over the last decade.[31] Non-medical use of opiates has, unfortunately, increased at the same time throughout Washington with young adults the most likely to use opiates 'non-medically'. Washington has among the highest rates of non-medical use of prescription pain relievers in the country, sixth – 6.13 percent in 2005-2006.[32]

The rate of hospitalizations with opiate[33] diagnoses nearly tripled over the 18-year period between 1990 and 2007 (Figure 62). Starting in 1992, the rate increased every year except for one, 2002. Over this time period, the hospitalization rate increased 195 percent, or 10.8 percent per year on average.

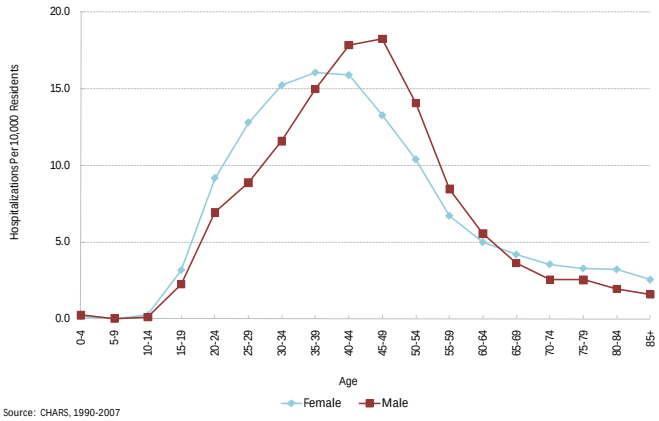
The hospitalization rate for opiate diagnoses peaks at older ages than all other drugs (Figure 63). The female hospitalization rate reaches 16.1 per 10,000 for the 35-39 age group and drops only slightly in the 40-44 age group. The rate does drop through the forties and fifties, but in the 65 to 69 age group, opiate-related hospitalizations are 4.2 per 10,000. This rate is approximately 15 times greater than the cocaine rate and almost 20 times higher than the amphetamine rate. Also, unlike with cocaine and amphetamines, the female hospitalization rates were higher than the male rates through the seventies and eighties. For males, the hospitalization rate for opiates is highest during the forties with the rate peaking at 45-49 (18.3 per 10,000). The male rate drops by more than half for the 55-59 year olds, but remains higher than the cocaine and amphetamine rates through the 85 and older age group.

Figure 62: Age and Sex-Adjusted Statewide Hospitalization Rates, 1990-2007
Hospitalizations with Opiate Diagnoses



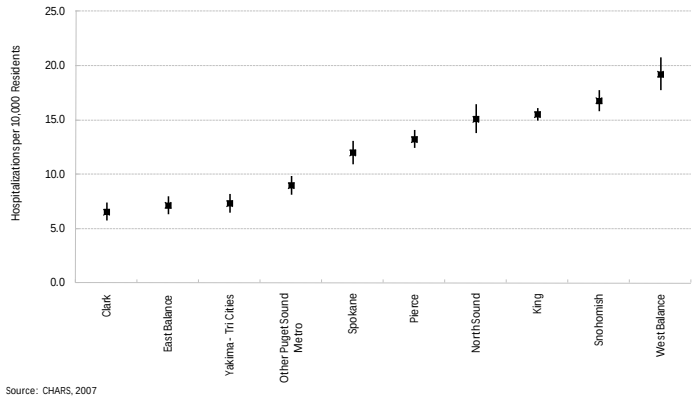
Source: CHARS, 1990-2007

Figure 63: Age-Specific Hospitalization Rates by Sex
Hospitalizations with Opiate Diagnoses



Source: CHARS, 1990-2007

Figure 64: Age and Sex-Adjusted Hospitalization Rates by Region, 2007
Hospitalizations with Opiate Diagnoses



Source: CHARS, 2007

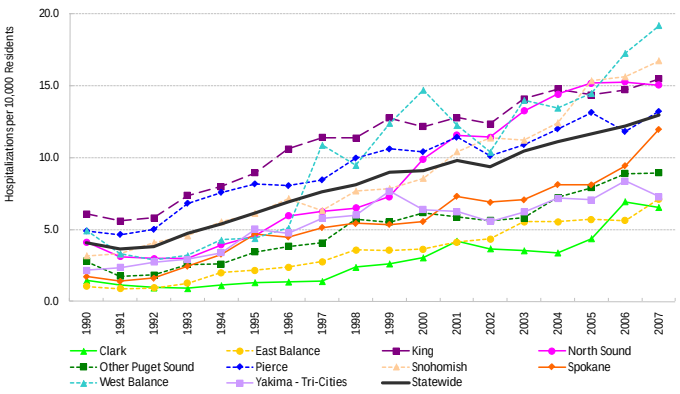
[31] Alcohol and Drug Abuse Institute (2007).
[32] Division of Alcohol and Substance Abuse (2008)
[33] ICD-9 codes for opiate-related are 304.0, .304.00, 304.01, 304.02, 304.03, 304.7, 304.70, 304.71, 304.72, 304.73, 305.5, 305.50, 305.51, 305.52, 305.53, 965, 965.0, 965.00, 965.01, 965.02, 965.09

For hospitalizations with opiate diagnoses, West Balance once again experienced the highest rate at 19.2 per 10,000 residents (Figure 64). Snohomish, King, and North Sound follow at 16.7, 15.5, and 15.1 respectively. Excluding Clark County for its known problems leaves East Balance and Yakima-Tri Cities with the lowest levels, 7.1 and 7.3 per 10,000. The West Balance rate was highest in 2006 and 2007.

Among the hospitalizations for which the opiate diagnosis is not the primary diagnoses, unspecified or other drugs are primary for 27.3 percent (Figure 66). An additional 10.5 percent are mental health diagnoses.

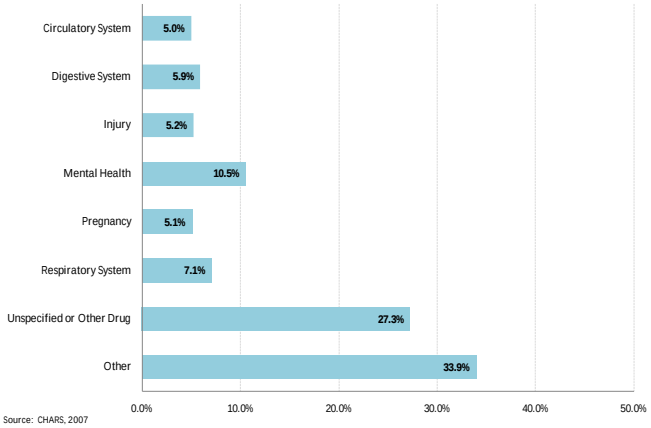
For hospitalizations with opiate diagnoses, approximately 56 percent were paid by public programs in Washington (Figure 67). In another 14.5 percent, the patient was uninsured. Spokane County, once again, had the highest percentage of publically-paid hospitalizations, 68.7 percent, followed by East Balance with 67.8 percent (Figure 68). Snohomish County had 43.3 percent, the lowest publically-paid percentage. Only 7.8 percent of the hospitalizations in East Balance were uninsured patients.

Figure 65: Age and Sex-Adjusted Hospitalization Rates by Region, 1990-2007
Hospitalizations with Opiate Diagnoses



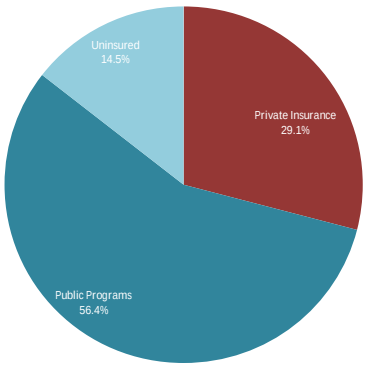
Source: CHARS, 1990-2007

Figure 66: Primary Diagnosis Category for Hospitalizations with Non-Primary Opiate Diagnosis, 2007



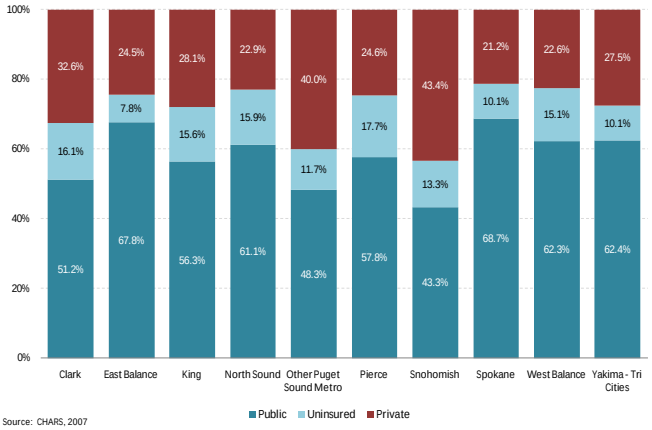
Source: CHARS, 2007

Figure 67: Percent of Hospitalizations with Opiate Diagnoses by Payer, 2007



Source: CHARS, 2007

Figure 68: Percent of Hospitalizations with Opiate Diagnoses by Payer Type and Region, 2007



Source: CHARS, 2007

Drug Crimes and the Criminal Justice System

Drug use has a considerable impact on the criminal justice system in addition to the public health system. According to Collins and Lapsley (2008), alcohol and drugs are assumed to affect the incidence of crime through four possible pathways: pharmacological/toxicological, economic, systemic, and substance-defined models. Drugs and alcohol affect crime pharmacologically by making a person more susceptible to commit crimes. Persons under the influence of drugs or alcohol are more likely to engage in risky behavior including participating in criminal activity. In the economic model, individuals commit crimes in order to support drug or alcohol addiction. The systemic model explains crimes that occur when people participate in the illegal drug economy – such as selling drugs. The fourth model, substance-defined model, includes crimes defined by the legislation of drug use, such as drug possession or drunk driving.

This report is limited to data on the fourth pathway, substance-defined. The data include arrests, Superior Court filings, and sentences- jail and prison- related to the drug crimes. We do not have data identifying which crimes are committed under the influence, to support alcohol and drug habits, or as part of the illegal drug economy, so we are unable to investigate those pathways at this time.

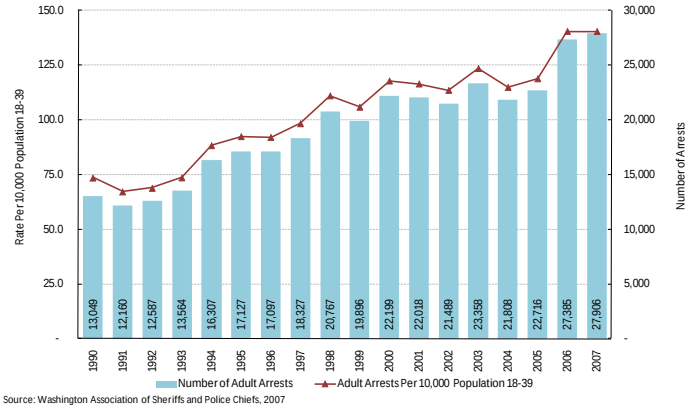
Adult Arrests

The impact of drug crimes on Washington's criminal justice system can be seen at many levels. The first is the initial point of contact with the system, the arrest. Arrest data are collected monthly by the Washington Association of Sheriffs and Police Chiefs (WASPC) from law enforcement agencies participating in the Uniform Crime Reporting (UCR) program. Data included here are for adults and include the total number of persons, 18 and older, arrested, cited, or summoned to appear in a court of law. Arrests are recorded hierarchically with only the most serious crime being reported. Regardless of the number of crimes committed at one time, only one arrest is listed. Therefore, these numbers underestimate the number of arrests for which drug crimes are involved and only include those incidents in which the drug crime was the most serious offense. Drug crimes in the arrest data include unlawful possession of, sale, use, growing, manufacturing, and making of narcotic drugs, dangerous non-narcotic drugs, and marijuana.

As shown in Figure 69, the number and rate of drug arrests per 10,000 persons aged 18-39 years old[34] has increased since 1990 primarily during the 1990s. The rate was fairly level during the early 2000s with another increase in 2006 and 2007. In 1990, Washington had 73.6 drug arrests per 10,000 residents 18-39 years of age. By 2007, the number was 140.4 per 10,000, a 90.8 percent increase.

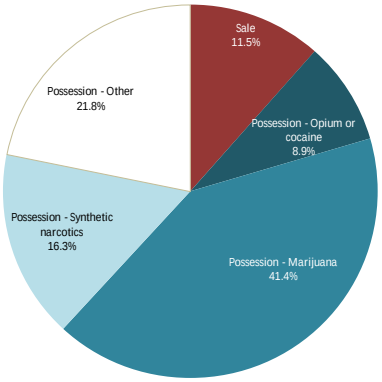
In 2007, arrests for selling drugs account for 11.5 percent of all drug arrests (Figure 70). The majority of drug crime arrests, the remaining 88.5 percent, are for possession of drugs. Of those crimes, nearly half are for possession of marijuana. Arrests for

Figure 69: Adult Arrests for Drug Crimes:
Number of Arrests and Rate Per 10,000 Population 18-39



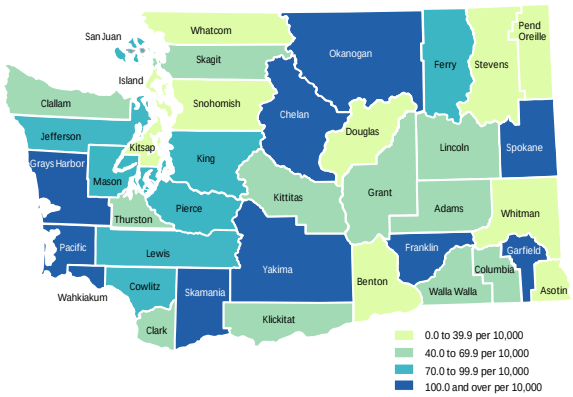
Source: Washington Association of Sheriffs and Police Chiefs, 2007

Figure 70: Drug Crime Arrests by Type - 2007



Source: Washington Association of Sheriffs and Police Chiefs, 2007

Figure 71: Adult Arrests for Drug Crimes, 1990
Rate Per 10,000 Residents 18-39



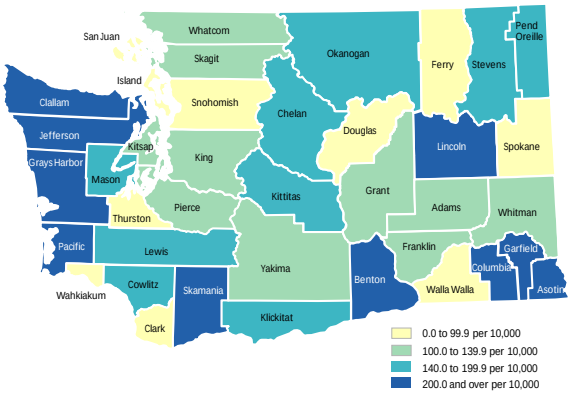
Source: Washington Association of Sheriffs and Police Chiefs, 1990

[34] Population 18 to 39 years of age is used as the denominator, because most crime is committed by persons in that age range.

possession of opium or cocaine are 8.9 percent of the total.

In 1990, the counties with the highest arrest rates for drug crimes were spread throughout the state – for example, Spokane County at the Idaho border, Okanogan and Chelan Counties at the Canadian border, along with the coastal counties of Grays Harbor, Pacific, and Wahkiakum (Figure 71). By 2007, the counties had become somewhat more clustered in the southwest -Jefferson, Clallam, Grays Harbor, and Pacific Counties- and southeast -Asotin, Columbia, and Garfield Counties (Figure 72).

Figure 72: Adult Arrests for Drug Crimes, 2007
Rate Per 10,000 Residents 18-39



Source: Washington Association of Sheriffs and Police Chiefs, 2007

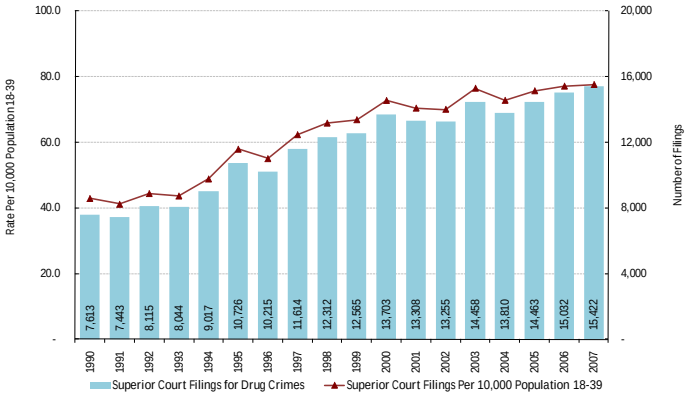
Superior Court Filings

Filings in Superior Court also reflect drug crime in Washington State. Each filing represents the initiation of a case in which the facts of a case are formally submitted to the court. . Each criminal defendant has a separate filing even if they are involved in the same incident. Superior Court filings for drug crimes occur when a violation of the Uniform Controlled Substances Act[35] or violation of regulations regarding prescription drugs is the primary charge. Data on Superior Court filings are collected by the Office of the Administrator for the Courts (OAC) from County Superior Court Clerks.

Superior Court filings for drug crimes increased between 1990 and 2007 in number and rate per 10,000 population 18-39 years old (Figure 73). In 1990, 42.9 filings were made per 10,000 population aged 18-39 in the state. This rate increased 80.9 percent to 77.6 per 10,000. The number of filings more than doubled during the 17-year time period with 15,422 occurring in 2007. In 2007, filings for drug crimes represented about a third, 33.9 percent, of the total number of filings for Superior Court, the largest offense category for the state.

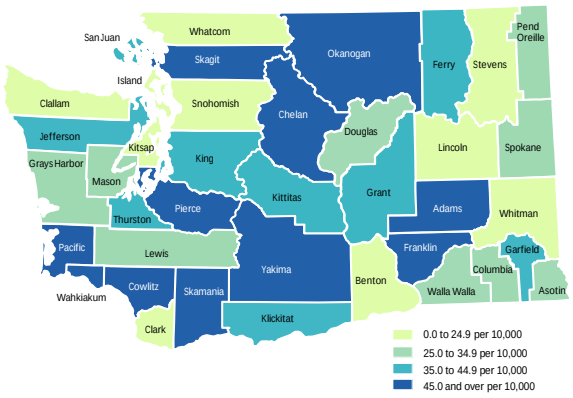
In 1990, the counties with the highest rates of Superior Court filings for drug crimes were scattered throughout the state (Figure 74). The eleven counties were split about evenly between eastern and western Washington with five and six respectively. By 2007, the highest rates were consolidated in southwestern counties including Jefferson, Clallam, Grays Harbor, Pacific, Lewis, Cowlitz, and Wahkiakum Counties. Only three counties in the highest rate category were not in this region of the state, and only two out of ten were in eastern Washington (Figure 75).

Figure 73: Superior Court Filings for Drug Crimes: Number of Filings and Rate Per 10,000 Population 18-39



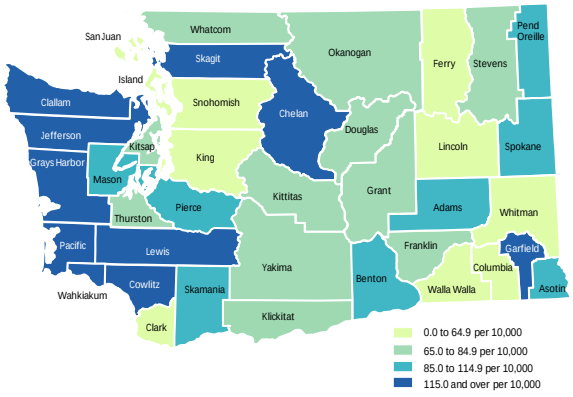
Source: Office of the Administrator for the Courts

Figure 74: Superior Court Filings for Drug Crimes, 1990 Rate Per 10,000 Residents 18-39



Source: Office for the Administrator for the Courts, 1990

Figure 75: Superior Court Filings for Drug Crimes, 2007 Rate Per 10,000 Residents 18-39



Source: Office for the Administrator for the Courts, 2007

[35] The Uniform Controlled Substances Act provides scheduling of federally controlled substances. Washington's Act can be found at http://apps.leg.wa.gov/rcw/default.aspx?Cite=69.50.

Felony Drug Sentences

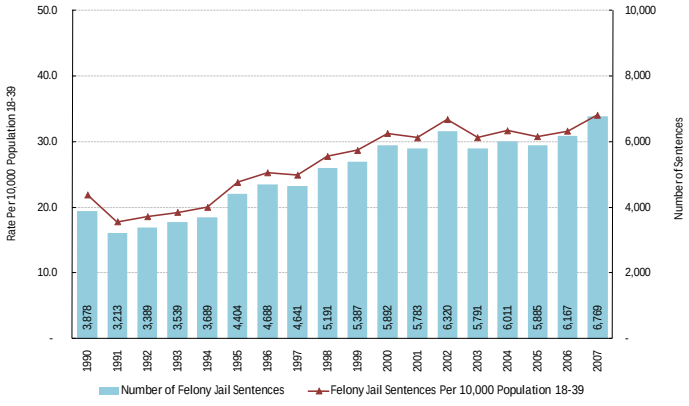
The largest impact of drug crimes on the criminal justice system occurs in sentencing. The number of offenders who are sent to jail and prison and the length of time those offenders spend in state and local facilities determines the size of the fiscal impact for the state.

The Sentencing Guidelines Commission (SGC) collects data on both the felony jail and prison sentences from the County Superior Court Clerks. Sentences do not correspond one-to-one with crimes committed, and these data do not include sentences for misdemeanors, options for first-time offenders, or juveniles. Court-ordered incarceration sentences of less than 12 months are served in jail. Those sentences that are more than 12 months are served in prison. Drug crimes are violations of the Uniform Controlled Substance Act and include dealing and possession sentences.

In 2002, the Washington Legislature changed the sentencing grid, creating an additional grid for drug laws.[36] The legislation allowed for decreased confinement time and increased use of treatment paid for through the criminal justice treatment account.

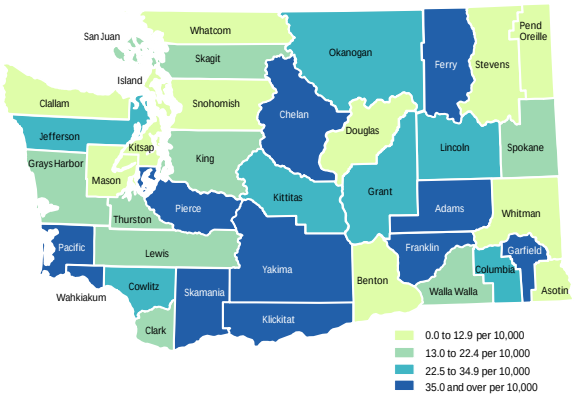
The number and rate of offenders in both types of facilities has increased since 1990, although the number of sentences has leveled off in the most recent years. In 1990, the felony jail sentence rate was 21.9 per 10,000 residents before rising to 34.0 percent in 2007 (Figure 76). The leveling off between 2002 and 2003 corresponds with the change to the separate drug sentencing grid. In 2007, 6,769 jail sentences were for drug crimes.

Figure 76: Felony Jail Sentences for Drug Crimes:
Number of Felony Jail Sentences and Rate Per 10,000 Population 18-39



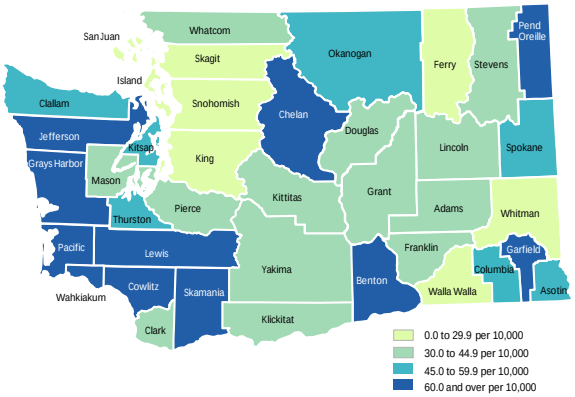
Source: Sentencing Guidelines Commission

Figure 77: Felony Jail Sentences for Drug Crimes, 1990
Rate Per 10,000 Residents 18-39



Source: Sentencing Guidelines Commission, 1990

Figure 78: Felony Jail Sentences for Drug Crimes, 2007
Rate Per 10,000 Residents 18-39



Source: Sentencing Guidelines Commission, 2007

[36] 2SHB 2338, Chapter 290, Laws of 2002

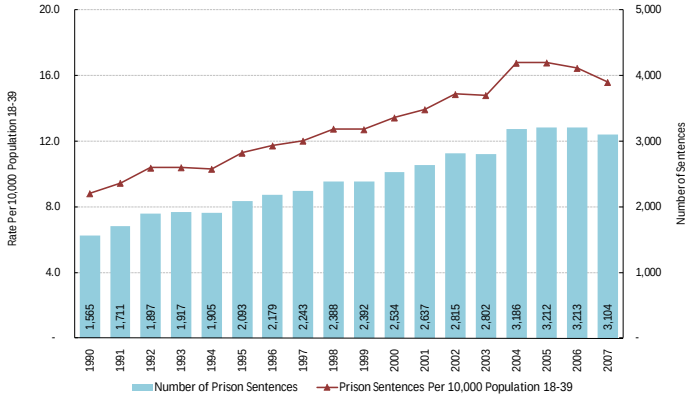
In 1990, felony jail sentences for drug crimes were clustered in the southwestern counties of the state, although five of the counties with the highest rates were in eastern Washington (Figure 77). Ferry County had a rate of 82.6 per 10,000 persons 18-39, the highest rate in the state. By 2007, seven of the eleven counties with the highest felony jail sentence rates were in western Washington and specifically in the southwestern region. Cowlitz County had the highest rate per 10,000 persons 18-39 with 123.0 (Figure 78).

For prisons, there has been a slight downward trend in the rate per 10,000 persons 18-39 since 2004 (Figure 79). The number of drug sentences was flat during those four years. The prison sentence rate for drug crimes started at 8.8 per 10,000 in 1990 and rose to 16.8 in 2004. The rate has dropped to 15.6 in 2007 with 3,104 sentences.

In 1990, the counties with the highest prison sentencing rates were scattered throughout the state (Figure 80). Only three were in western Washington. Franklin County had the highest rate of all the counties with 76.5 sentences per 10,000 residents 18-39. By 2007, the majority, seven out of eleven, of the high rate counties were in southwestern Washington including Pacific County with the highest rate of 72.4 (Figure 81).

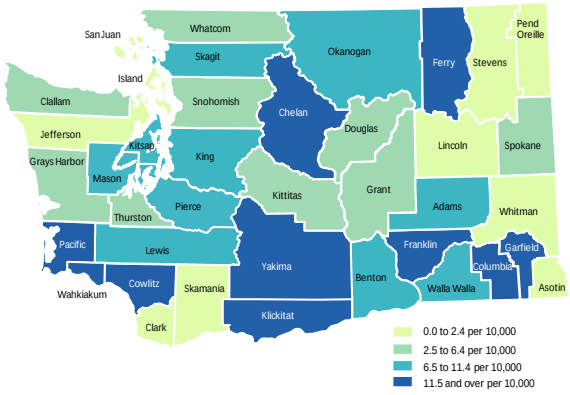
Incarceration costs were calculated using the average cost per inmate per month,[37] multiplied by the number of sentences and the average sentence length in months for drug crimes.[38] Since offenders may receive more than one sentence for an offense, the number of sentences does not equal the number of offenders entering facilities. For developing the cost estimates, the number

Figure 79: Prison Sentences for Drug Crimes:
Number of Prison Sentences and Rate Per 10,000 Population 18-39



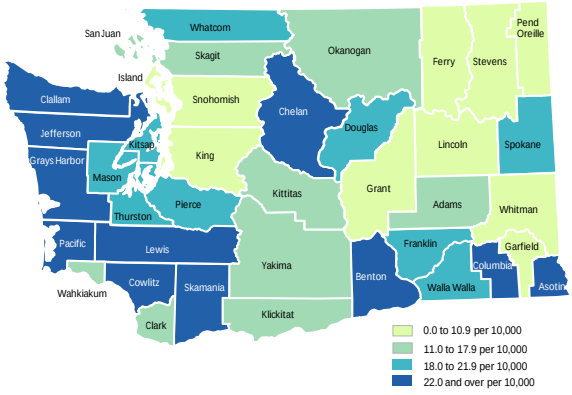
Source: Sentencing Guidelines Commission

Figure 80: Prison Sentences for Drug Crimes, 1990
Rate Per 10,000 Residents 18-39



Source: Sentencing Guidelines Commission, 1990

Figure 81: Prison Sentences for Drug Crimes, 2007
Rate Per 10,000 Residents 18-39



Source: Sentencing Guidelines Commission 2007

[37] Annual prison incarceration costs are from the Office of Financial Management. In 2007 dollars, the annual costs are $29,030; $28,655; $29,815; and $31,071 for fiscal years 2004, 2005, 2006, and 2007 respectively.

[38] Per capita costs were not available for jails in Washington.

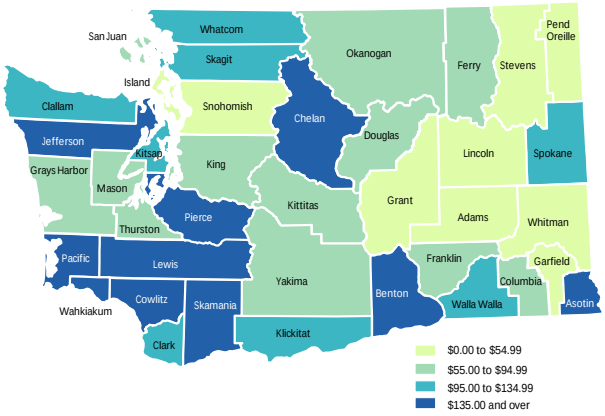
Table 1: Incarceration Costs for Drug-related Felonies (in 2007 Dollars)	
Fiscal Year	**Total Cost ($1000s)**
2004	$72,366
2005	$66,253
2006	$68,956
2007	$69,424

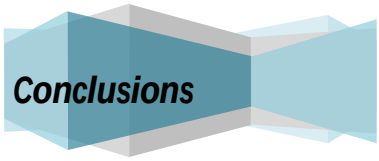
of sentences is converted to the estimated number of offenders entering facilities by using a discount factor developed by the Department of Corrections (DOC) and the SGC. The discount factor varies by type of offense, and for drug offenses the value is .714. Offenders also do not typically spend the full length of their sentences in confinement, because they may be eligible time off for good behavior. Another adjustment is, therefore, made to account for the reduced time. The most recent data available for drug offenders indicates that on average they spend 52.6 percent of their sentence in prison. This reduction is also used in calculating the cost estimates for prison sentences in this report. All costs are adjusted for inflation and are shown in 2007 dollars.

As shown in Table 1, Washington's overall cost for incarcerating drug-related felonies in prison has actually dropped from $72.3 million in 2004 to $69.4 million in 2007.

In 2007, the cost for incarcerating prison inmates for drug crimes was highest on a per resident basis for southwestern Washington counties (Figure 82). Pacific County had, by far, the greatest per person cost at $162 per county resident, 53 percent higher than the next county. Cowlitz, Lewis, Benton (eastern Washington), and Jefferson Counties were the four counties with the next highest costs.

Figure 82: Cost of Drug Crime Incarcerations, 2007
Per Resident 18-39





This report examined several means through which substance abuse affects the public health and criminal justice system in Washington State. CHARS data were used to analyze the overall burden that drug-related hospitalizations have on the state as a whole. Overall, the cost of treating drug and alcohol-related hospitalizations has increased over time, but the hospitalization rate has remained fairly constant. Examining hospitalizations related to specific drugs, we found great variation in the impact over time. Many types of hospitalizations with drug diagnoses increased over the 18-year study period, but some increases were quite dramatic including those for amphetamines and opiates.

The data examined also indicate that not all regions and counties have the same burden placed on their systems, and for some the load has increased over time. In particular, southwestern Washington counties appear to pay a higher price than counties in most other parts of the state. Hospitalizations with alcohol, amphetamine, and opiate diagnoses have a greater impact on this region of the state. Drug-related crimes, as evidenced by arrests, court filings, and sentences, are above the state average in southwestern counties as well.

High unemployment and poverty rates suggest an area with fewer economic resources and opportunities for residents. While other areas of the state also have similar issues, the residents' apparent use of drugs and alcohol are not as high. One possible explanation is that southwest Washington counties had well-paying manufacturing industries in the past but lost many of their jobs. Logging practices have changed in this region due to the spotted owl and the ban on log exports, greatly altering the availability of well paying jobs. Other distressed areas of the state have not experienced this type of change.

Another possible factor may be access to drugs. The proximity of these counties to I-5 and two major metropolitan areas, Seattle and Portland, may also provide easier access to major drug trafficking activities. Pierce County also had a majority of methamphetamine labs in the state before much of the production shifted to Mexico.

Future steps should be taken to investigate the differential impact substance abuse has on southwest Washington. Developing an understanding of the causes could provide improved access to prevention and treatment services for residents of those counties.

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Appendix A: Data and Methods

Data for the hospitalization portion of this study are from the Comprehensive Hospital Abstract Reporting System (CHARS), which contains inpatient hospitalization discharge data for all hospitals in Washington except military and Veteran's Administration hospitals. The state created CHARS to be a source of information on health care spending for use in policy and program development. Collection of CHARS data is authorized in the Revised Code of Washington (RCW) 43.70.052, which requires hospitals to submit data quarterly to the state's Department of Health (DOH).[39] This study uses CHARS records for 1990 through 2007.

Each record in CHARS contains demographic, diagnostic, and charge data for an individual hospitalization episode. For a list of variables on each record, please see Table A1.

Table A1: CHARS Data Elements

Hospital Code	Description
ZIP Code	ZIP code for patient's residence
Age	Age at admission
Gender	
Discharge Date	
Length of Stay	Length of hospital stay in days
Admission Type	Includes codes such as emergency, urgent, and elective.
Admission Source	Includes codes such as physician-admitted, emergency room, and court/law enforcement
Charges	
Payer Identification	Up to two payer codes listed at admission
Diagnosis Codes 1-9	Up to nine ICD-9-CM diagnosis codes
Procedure Codes 1-6	Up to six ICD-9-CM procedure codes

The diagnostic data consist of up to nine diagnoses codes from the *International Classification of Diseases, Ninth Revision, Clinical Modification*, or ICD-9-CM. The ICD-9-CM is the official diagnoses and procedure coding system for hospitals in the United States. This study categorized any record with a drug-related diagnosis code (see Appendix B) as a drug-related hospitalization. Some drug-related hospitalizations may be missed if they are not coded with the appropriate diagnoses codes.

Drug and alcohol-related hospitalizations that were not explicitly coded are identified using a second methodology. Some diagnoses, such as cerebrovascular stroke, that can be the result of alcohol or substance abuse may not be identifiable as such through the diagnoses codes on the hospitalization record. These hospitalizations that are at least partially attributable to substance abuse needed to be

[39] Additional information on the Comprehensive Hospital Abstract Reporting System (CHARS) is located at http://www.doh.wa.gov/EHSPHL/hospdata/Chars.htm.

accounted for in the estimates. For this portion of the study, another source of data is used - the Medicaid claims data.

The Medicaid claims data include all fee-for-service claims paid including those for clients in Categorically Needy Temporary Assistance for Needy Families (CN-TANF) and Family Medical, Categorically Needy Pregnant Women (CN-Pregnant Women), and the Categorically Needy Aged, Blind, and Disabled (CN-ABD) programs.[40] The claims data were matched against data for Department of Social and Health Services (DSHS) clients receiving alcohol and substance abuse treatment. A logistic regression was run using the client's age, sex, diagnoses, and length of hospital stay to determine the likelihood that the client had been in alcohol or substance abuse treatment. Diagnoses codes were grouped according to the University of California, San Diego Chronic Physical Disease Conditions (CPDC) grouper,[41] and the DSHS Mental Illness and Injuries groupers (See Appendix B). These estimates were then used with the CHARS data to create a weight that was used in determining the estimated substance abuse impact on each hospitalization record. Separate models were run for youths (ages 11 to 17), adult males (ages 18-64), and adult females (ages 18-64). The maximum likelihood estimates are available in Appendix C. Any record with specified drug-related diagnoses was given a weight of one.

All drug and alcohol hospitalizations are included in the first step of the analysis that includes the non-drug specified codes. Hospitalizations for each specific drug category are also analyzed separately, but this portion of the analysis is limited to hospitalizations that specifically reference a drug code. Due to limitations of the ICD-9-CM coding system, not all individual drugs are identifiable. Instead, classes of drugs are available and include amphetamines, opiates, cocaine, and hallucinogens.[42] These drug groupings include both illicit and prescription drugs. For example, the amphetamine group includes both methamphetamine and prescription stimulants such as Ritalin. Research by Dobkin and Nicosia (2007) has shown, however, that ninety-five percent of the hospitalizations in the amphetamine category are due to methamphetamines. Records with more than one drug-related diagnosis code are analyzed in each category listed. The codes used for these analyses are found in Table A2.

[40] Eligibility for the CN-TANF/Family Medical is limited to families with dependent children, whose income is below 100 percent of the Federal Poverty Level (FPL). Pregnant women are eligible for CN-Pregnant Women if their income is below 185 percent of the Federal Poverty Level. CN-ABD is available to clients who are eligible for Supplemental Security Income (SSI) due to limited income and disability, blindness, or age.

[41] Information for this grouper was obtained from the Department of Social and Health Services, Research and Data Analysis (DSHS/RDA).

[42] Amphetamines are central nervous system stimulants that may be prescribed to treat conditions such as Attention Deficit Disorder and Attention Deficit Hyperactive Disorder. Methamphetamine is an illegal form of the stimulant. Cocaine is also a central nervous system stimulant and is a powder or cooked into crack cocaine. Opiates include true opiates as well as synthetically produced opioids such as oxycondone.

Table A2: ICD-9 Codes Used for Each Drug Type	
Drug Type	**ICD-9 Codes**
Alcohol	291, 291.0, 291.1, 291.2, 291.3, 291.4, 291.5, 291.89, 291.9, 303, 303.0, 303.00, 303.01, 303.02, 303.03, 303.9, 309.90, 303.91, 303.92, 303.93, 305.0, 305.00, 305.01, 305.02, 305.03
Amphetamines	304.4, 304.40, 304.41, 304.42, 304.43, 305.7, 305.70, 305.71, 305.72, 305.73, E8542
Barbiturates	304.1, 304.10, 304.11, 304.12, 304.13, 305.4, 305.40, 305.41, 305.42, 305.43, 967.0
Cannabis	304.3, 304.30, 304.31, 304.32, 304.33, 305.2, 305.20, 305.21, 305.22, 305.23
Cocaine	304.2, 304.20, 304.21, 304.22, 304.23, 305.6, 305.60, 305.61, 305.62, 305.63, E8552
Hallucinogens	304.5, 304.50, 304.51, 304.52, 304.53, 305.3, 305.30, 305.31, 305.32, 305.33, E9396, E8541
Opiates	304.0, 304.01, 304.02, 304.03, 304.7, 304.71, 304.72, 304.73, 305.5, 305.51, 305.52, 305.53, 965.0, 965.01, E935, E850

In order to compare the hospitalization data over time and across regions, the hospitalization rates are age and sex adjusted, or standardized. This demographic technique removes the variation in rates caused by differing age-sex structures of the populations within each region. For example, an area with a large population of young adults might experience a higher overall rate of drug-related hospitalizations due to amphetamines than an area with a large population of retirees because younger populations are more likely to use amphetamines.

Direct standardization uses the age-sex specific hospitalization rates for each region and applies them to the age-sex structure of a standard population to obtain the number of hospitalizations in the region. In this case, the standard population is the 1990 Washington statewide population. The number of hospitalizations is then divided by the total 1990 population to produce the standardized regional rate. Once the data are standardized, the resulting rates are easily compared. Confidence intervals are

calculated for the regional comparisons and for the statewide yearly rates using methods recommended by the Washington State Department of Health.[43]

The total charges/costs for drug-related hospitalizations are also examined at the statewide level along with the estimated average cost per hospitalization and the average length of stay in days. All three of these measures are displayed across the sixteen year time period of the study, so that trends and patterns can be evaluated. Payer data are also investigated at the statewide level to determine whether changes have occurred.

Inpatient hospital charges are the only readily available source of medical care costs. CHARS records include the charges associated with each hospitalization. These charges do not correspond directly to the amount paid for the hospitalization nor to the amount required by the hospital to care for the patient. The charges exceed the payments depending upon the payer and the hospital. This gap between hospital charges and cost grew during the 1990s and has accelerated since 2000.[44]

[43] Department of Health guidelines can be found at http://www.doh.wa.gov/Data/Guidelines/WordDocs/CI_guidelines.pdf.
[44] Gerard Anderson, "From 'Soak the Rich' to 'Soak the Poor': Recent Trends in Hospital Pricing," *Health Tracking,* May/June 2007: 780-788.

Appendix B: Disease Groupers

Table B1: Mental Illness Categories	
Category	**ICD-9 Codes**
Psychotic	295 -295.99; 297 -297.99 298.2 -298.99 299 -299.99
Mania and Bipolar	296.0-296.19 296.4-296.99 298.1-298.19
Depression	296.2-296.29 296.3-296.39 298.0-298.09 300.4-300.49 311-311.99
Dementia and Organic	290-290.99 293-293.99 294-294.99 310-310.99
Retardation and Delay	315-315.99 314.1-314.19 317-317.99 318-318.99 319-319.99
Neurotic, Personality, and Childhood Psychiatry	300.2-300.39 300.5-300.99 301-301.99 302-302.99 307-307.99 312-312.99 313-313.99 314-314.99 314.2-314.99
Adjustment and Stress	300.0-300.09 300.1-300.19 308-308.99 309-309.99
Alcohol Use Disorders	303-303.99 305.0-305.09 291-291.99
Drug Use Disorders	304-304.99 305.2-305.99 292-292.99

Table B2: Injury Categories	
Category	**ICD-9 Codes**
Fractures	800-829.99
Sprains and Dislocations	830-849.99
Intracranial	850-854.99
Thorax, Abdomen, and Pelvis	860-869.99
Open Wounds	870-904.99
Superficial Face, Scalp, and Neck	910-924.99
Crushing Injuries	925-929.99
Foreign Body	930-939.99
Burns	940-949.99
Nerve and Spinal Cord	950-957.99
Trauma Complications and Other	958-959.99
Poison, Medicinal	960-979.99
Toxic Effect, non-Medicinal	980-989.99
Other Injury	990-995.99 905-909.99

Appendix C: Maximum Likelihood Estimates

Table C1: Maximum Likelihood Estimates: Youths 11-17		
Covariate	**Coefficient**	**Pr > ChiSq**
Intercept	-3.7307	<.0001
Cancer – high	1.0067	<.0001
Cancer – medium	-1.4843	0.0006
Cardiovascular – low	-0.5257	0.0101
Cardiovascular – extra low	-1.2764	0.0001
Cerebrovascular – low	-1.1903	0.0077
Central Nervous System – low	-0.8849	<.0001
Diabetes, Type 1 – high	2.466	0.018
Diabetes, Type 1 – medium	0.5066	0.0002
Genital – extra low	0.2532	0.0418
Gastro – high	-2.0635	0.0454
Gastro- medium	0.5695	<.0001
Hematological – low	-0.814	0.0061
Pulmonary – high	1.3135	<.0001
Pulmonary – low	0.3898	<.0001
Renal – medium	-0.7991	0.0213
Skeletal – extra low	0.9924	<.0001
Skin – very low	0.527	<.0001
Pregnancy – moderate cost completed	-0.1412	0.0063
Pregnancy – higher cost without completion	0.2486	<.0001
Psychotic	1.6927	<.0001
Mania and Bipolar	1.9268	<.0001
Depression	0.9198	<.0001
Dementia and Organic	0.9898	0.0055
Retardation and Delay	-1.336	0.018
Neurotic	0.3314	0.0313
Fractures	-1.022	<.0001
Sprains	0.8567	<.0001
Open Wounds	0.6396	<.0001
Superficial Face/Scalp/Neck	0.4695	0.0067
Trauma Complications and Other	-1.719	<.0001
Poison, Medicinal	1.1874	<.0001
Toxic Effect, non-Medicinal	2.6329	<.0001
Other Injury	0.5934	0.003
Age 13	1.6275	<.0001
Age 14	1.8336	<.0001
Age 15	1.9837	<.0001
Age 16	1.8424	<.0001
Age 17	1.881	<.0001
Length of Stay – 4 days	-0.2661	<.0001
Length of Stay – 5+ days	0.1519	0.0142
Sex	0.4372	<.0001

Table C2: Maximum Likelihood Estimates: Males 18-64		
Covariate	Coefficient	Pr > ChiSq
Intercept	-0.686	<.0001
Cancer – high	-0.724	<.0001
Cancer – medium	-0.314	0.0033
Cancer – low	-0.886	<.0001
Cardiovascular – extra low	-0.204	<.0001
Central Nervous System – low	0.142	0.0064
Developmental Disability – low	-0.986	0.0067
Diabetes, Type 1 – medium	0.341	0.0014
Diabetes, Type 2 – medium	-0.634	<.0001
Diabetes, Type 2 –low	-0.683	<.0001
Eye – very low	-1.410	0.0119
Gastro – high	0.577	<.0001
Gastro – medium	1.232	<.0001
Gastro- low	-0.102	0.0194
Hematological – very high	1.378	<.0001
Hematological – medium	0.325	0.0074
HIV – medium	0.814	0.0061
Infectious– low	0.299	0.0005
Metabolic – high	0.407	<.0001
Psychiatric - high	0.626	<.0001
Psychiatric – low	0.335	<.0001
Pulmonary – low	0.191	<.0001
Renal – very high	-0.406	0.0119
Renal – low	-0.276	0.0023
Skeletal – medium	0.949	<.0001
Skin – low	0.500	<.0001
Mania and Bipolar	1.336	<.0001
Retardation and Delay	-1.256	<.0001
Adjustment and Stress	0.629	<.0001
Fractures	0.479	<.0001
Sprains and Dislocations	0.726	0.0024
Open Wounds	0.871	<.0001
Poison, Medicinal	1.976	<.0001
Age 3 = Age*Age*Age3	0.000	<.0001
Age 4 = Age*Age*Age*Age	0.000	<.0001

Table C3: Maximum Likelihood Estimates: Females 18-64		
Covariate	Coefficient	Pr > ChiSq
Intercept	1.4027	0.1109
Cancer – high	-0.7805	<.0001
Cancer – low	-0.3395	0.0048
Cardiovascular –very high	0.3639	0.0100
Cardiovascular – medium	1.5867	<.0001
Cerebrovascular – low	-0.2183	0.0406
Central Nervous System – low	-0.6792	<.0001
Diabetes, Type 1 – medium	0.4606	<.0001
Diabetes, Type 2 –low	-0.5949	<.0001
Genital – extra low	1.3353	<.0001
Gastro – high	0.6552	<.0001
Gastro- medium	0.5020	0.0043
Gastro - low	0.8853	<.0001
Hematological – very high	2.4254	<.0001
AIDS – high	-2.6487	0.0346
HIV – medium	7.2749	<.0001
Infectious - medium	0.2418	0.0054
Infectious – low	0.3003	0.0001
Metabolic – high	0.3058	<.0001
Metabolic – very low	1.2265	<.0001
Psychiatric – high	0.3072	0.0444
Psychiatric - medium	0.5694	<.0001
Psychiatric - low	0.4995	<.0001
Pulmonary - low	-0.3187	0.0015
Renal – very high	-1.0027	<.0001
Renal – medium	0.1418	0.0141
Skeletal - low	0.2464	0.0003
Skeletal – extra low	0.3714	0.1263
Skin - low	1.7723	<0.0069
Skin – very low	-0.5301	0.0048
Psychotic	1.5934	<.0001
Mania and Bipolar	-0.2255	0.2692
Neurotic	0.7398	<.0001
Adjustment and Stress	0.3228	<.0001
Fractures	0.2466	0.0038
Sprains	0.5949	0.0014
Thorax, Abdomen, and Pelvis	1.0577	<.0001
Poison – medicinal	1.3183	<.0001
Age	-0.3874	0.0002
Age 2 = Age * Age	0.0168	0.0001
Age 3 = Age * Age * Age	-0.00026	0.0010
Age 4 = Age * Age * Age * Age	0.00000118	0.0205
Length of Stay –3 days	0.0629	0.0093
Length of Stay – 4 days	0.5817	<.0001
Length of Stay – 5 days or more	1.0401	<.0001
Cardiovascular – medium * Age	-0.0274	<.0001
Central Nervous System – medium * Age	-0.0093	<.0001
Central Nervous System – low * Age	0.0208	<.0001
Genital – extra low * Age	-0.0571	<.0001
Gastro – medium * Age	0.0148	0.0004
Gastro – low * Age	-0.0173	<.0001
AIDS – high * Age	0.1388	<.0001
HIV – medium * Age	-0.1442	0.0026

Covariate	Coefficients	Pr>ChiSq
Metabolic – very low * Age	-0.0225	<.0001
Psychiatric – low * Age	-0.00917	0.0019
Pulmonary – low * Age	0.0130	<.0001
Skeletal – low * Age	-0.0134	0.0187
Skin – low * Age	-0.0310	0.0282
Skin – very low * Age	0.0177	0.0002
Psychotic * Age	-0.0309	<.0001
Mania and Bipolar * Age	0.0276	<.0001
Retardation and Delay * Age	-0.0376	<.0001
Poison – medicinal * Age	0.0208	0.0085
Length of stay – 5 days or more * Age	-0.0205	<.0001
Length of stay – 4 days * Age	-0.0100	<.0001