

Drug Abuse and Dependence

Definition: Drug abuse and dependence are patterns of drug use leading to clinically significant impairment or distress. Symptoms of abuse include failure to fulfill major obligations at work, school, or home and recurrent legal problems. Symptoms of dependence include tolerance, withdrawal, using more of the substance than intended, giving up social, occupational or recreational activities because of substance use, and continued use despite knowledge of having a persistent or recurrent problem.¹ Data on drug abuse and dependence are not available and so we measure drug-induced deaths (see Technical Notes).

Summary

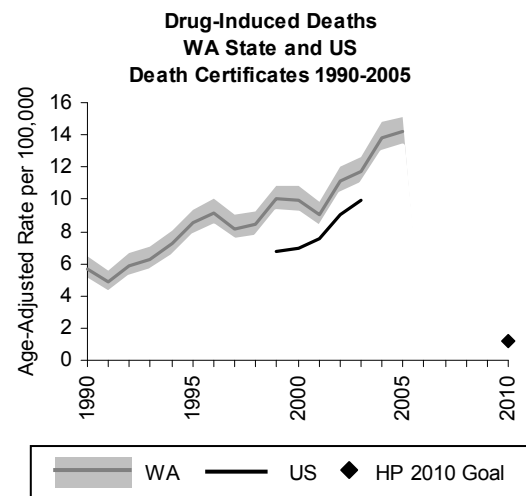
Negative health effects of drug abuse and dependence, such as toxic effects to the heart, lungs, liver, kidneys, and brain are associated with greater quantities and longer duration of use. In Washington State in 2005, there were 921 drug-induced deaths involving heroin, cocaine, tranquilizers, and other substances. Of these, 139 were suicides. In another 8,128 deaths, drugs played a role in multiple causes contributing to death.

School-based prevention programs reduce drug use in youth, especially among those who are not heavy drug users. Evidence-based drug treatment programs can achieve a 22% reduction in drug use, although most studies do not measure long-term success. Needle-exchange programs reduce HIV and hepatitis transmission among injecting drug users.

This chapter is related to the chapter on Poisoning and Drug Overdose in that drug abuse and dependence can lead to poisoning and overdose. Each of these chapters, however, contains information about aspects of drug use that are not covered in the related chapter.

Time Trends

Drug-induced deaths. The rate of drug-induced deaths—intentional and unintentional poisonings involving heroin, cocaine, tranquilizers, and other substances—in Washington increased from an age-adjusted rate of 5 per 100,000 people in 1990 to 14 per 100,000 in 2005. The rate of drug-induced deaths by suicide (2 per 100,000), which accounted for about 15% of drug-induced deaths in 2003-2005, did not increase over this period.



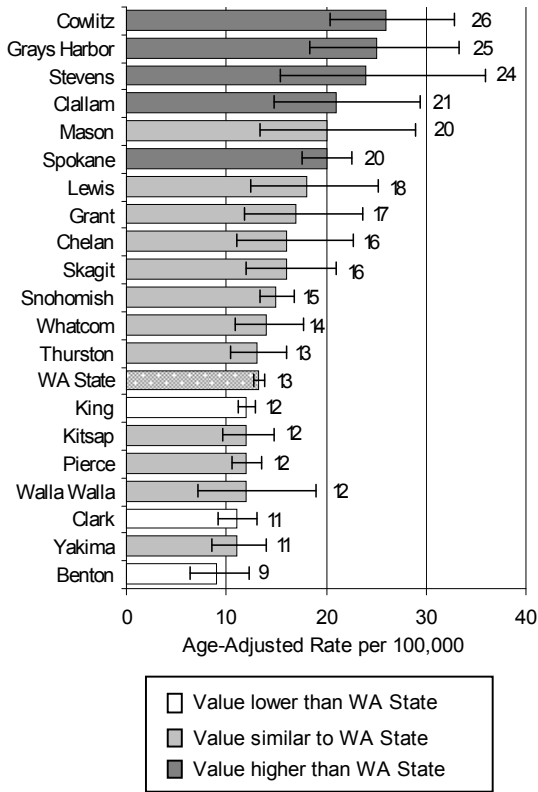
Year 2010 Goals

National goals in *Healthy People 2010* include reducing drug-induced deaths to 1.2 per 100,000 ([age-adjusted](#)). Drug-induced deaths in Washington increased rapidly over the last decade to about 14 per 100,000 in 2005 and so Washington appears unlikely to meet this goal.

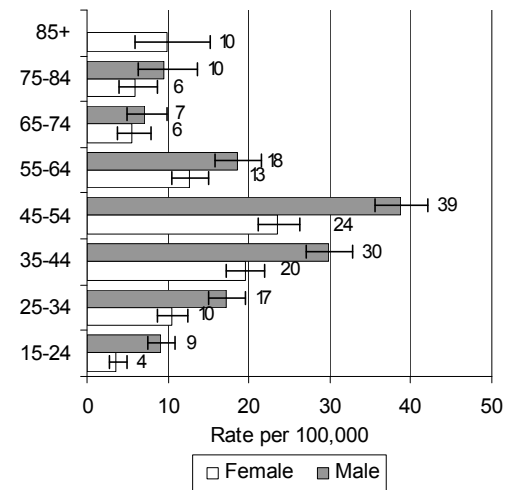
Geographic Variation

During 2003-2005 combined, 19 counties had [fewer than 20](#) drug-induced deaths; these counties are not reported. In the remaining counties, age-adjusted drug-induced death rates varied widely from 26 (± 6) per 100,000 in Cowlitz County to 9 (± 3) per 100,000 in Benton County.

**Drug-Induced Deaths
County Data
WA Death Certificates 2003-2005**



**Drug-Induced Deaths
Age and Gender
WA Death Certificates 2003-2005**



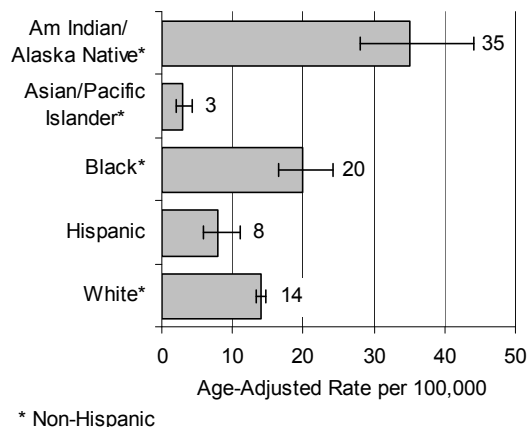
Race and Hispanic Origin

In Washington for 2003-2005 combined, the rates of drug-induced deaths were highest among American Indians and Alaska Natives, followed by blacks and then whites. Rates were lowest among Asians and Pacific Islanders and Hispanics. Nationally in 2003, drug-induced death rates were similar for whites and blacks and lower for Hispanics than for non-Hispanic whites and blacks.² The roles of income and education in these associations are not well understood.³

Age and Gender

In Washington, the rate of drug-induced deaths was generally higher in males than females. For both genders, the highest rates of death were among the age groups 35-44 and 45-54. There were fewer than 20 deaths for children younger than 15 and for males older than 85; these age and gender categories are not reported. Nationally in 2003, the age-adjusted death rate for males was 1.8 times that of females.² This is similar to Washington; in 2005, the age-adjusted death rate for drug-induced deaths for males was 1.6 times that of females (18 per 100,000 for males and 11 per 100,000 for females).

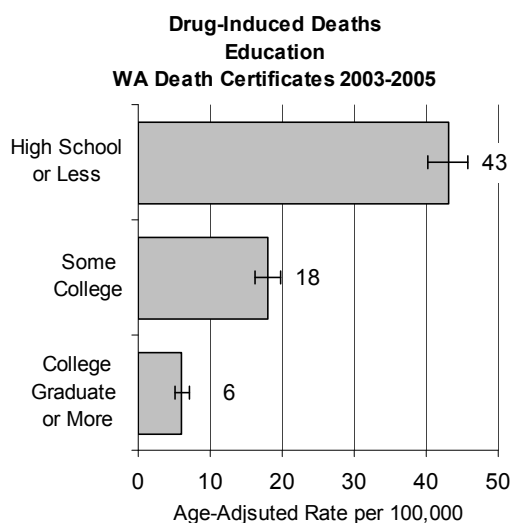
**Drug-Induced Deaths
Race and Hispanic Origin
WA Death Certificates 2003-2005**



Income and Education

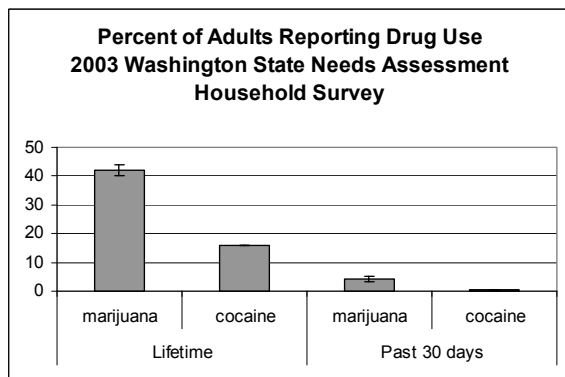
In Washington during 2003-2005, lower education was associated with higher rates of drug-induced

deaths. This is consistent with national data showing that lower levels of education and income are related to higher rates of drug dependence.⁴ Washington data to assess the relationship of economic factors and drug-induced deaths are not readily available.



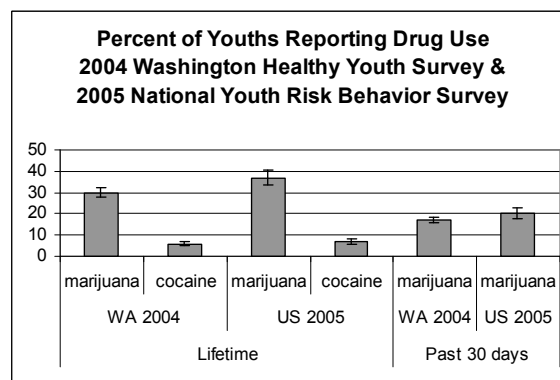
Other Measures of Impact and Burden

Adult drug use. Adult data come from the Washington State Needs Assessment Household Survey.⁵ In 2003, 4% ($\pm 1\%$) of adults surveyed reported marijuana use in the past month, and 42% ($\pm 2\%$) reported ever using it. These are similar to the 1993 percents. U.S. data are not comparable because of differences between surveys, such as participant payment in the U.S. survey.



Youth drug use. On the 2006 Healthy Youth Survey (HYS), 31% ($\pm 2\%$) of youth in grade 10 reported ever having used marijuana; 18% ($\pm 1\%$) were currently using marijuana; and 7% ($\pm 1\%$) reported ever using cocaine. These

percents are similar to those reported on the October 2004 HYS that was administered in the same school year as the April 2005 national Youth Risk Behavior Survey.⁶ On the 2004 HYS, 29% ($\pm 2\%$) of youth in grade 10 reported ever having used marijuana; this is below the national average of 37% ($\pm 3\%$). Six percent ($\pm 1\%$) of state youth reported ever using cocaine, and 17% ($\pm 1\%$) were currently using marijuana; both are similar to national rates.



Drug treatment. Records of publicly funded drug treatment and privately funded opiate treatment facilities show that during 1999-2006, Washington experienced large increases in the percent of admissions related to methamphetamine and prescription opiates such as hydrocodone (e.g., Vicodin). Among adults, admissions for methamphetamine use increased from about 11% to 21%, and admissions for prescription-type opiate use increased from about 1% to 5% of admissions. Among youth younger than age 18, admissions for methamphetamine use increased from about 4% to 10%, and admissions for prescription opiate use increased from 0.1% to 1.3%. During this time period, however, most (62%) youth admissions were for marijuana and about half (47%) of adult admissions were for alcohol.

Methamphetamine manufacturing. Illegal "meth labs" create hazardous waste including corrosive liquids, acid vapors, heavy metals, solvents, and other materials that can severely damage the environment and human health.⁷ During 2006, the Washington State Department of Ecology recorded 390 methamphetamine laboratories and dump sites. Reports of methamphetamine laboratories and dump sites increased from 38 in 1990 to 1,890 in 2001 and have since declined.

Health Effects

Drug abuse can occur with a variety of substances including marijuana, cocaine, stimulants (such as

amphetamines), hallucinogens, opiates (such as heroin), and sedatives. Short-term and long-term effects of drug use vary for the specific drugs, but long-term effects can include toxic effects to the heart, lungs, liver, kidneys, and brain.⁸ Some drugs, such as opiates, cocaine and marijuana, can also suppress the immune system.

HIV and hepatitis. Multiperson use of needles and syringes contribute to the spread of blood-borne diseases such as AIDS and hepatitis B and C. Misuse of substances is also associated with sexual and other behaviors that increase risk of HIV/AIDS.⁹

Reproductive health and sexually transmitted diseases. Drug users are at increased risk for sexually transmitted disease. Use of illicit drugs during pregnancy is associated with low birth weight, small length and head circumference, prematurity, placental abruption, and major malformations.¹⁰

Health effects of specific drugs The National Institute of Drug Abuse provides information about the health effects of a variety of drugs including acid/LSD, club drugs, cocaine, ecstasy/MDMA, heroin, inhalants, marijuana, methamphetamine, PCP/phencyclidine, prescription drugs, pain medications, and steroids.¹¹

Risk and Protective Factors

Gender. Men are more likely than women to use and to become dependent on drugs.⁴ Some evidence shows that the gender gap in substance use is narrowing, however.¹²

Poor mental health. About half of individuals with a current drug disorder have a personality disorder, such as antisocial personality.¹³ Drug abuse and dependence are also associated with depression and anxiety disorders.¹⁴ Having a conduct disorder or being aggressive as a child is a risk factor for drug dependence.⁴

Family factors. Being abused as a child is associated with drug use and abuse in adolescence and adulthood.^{15,16} A small amount of research suggests that whether a person who was abused as a child goes on to abuse drugs or alcohol depends on whether he or she develops an emotional disorder, such as depression or post-traumatic stress disorder.¹⁷ There also appears to be a genetic vulnerability to drug dependence, although this is not well understood at this time.⁴

Intervention Strategies

School-based programs. School-based programs focusing on social influences prevent or reduce drug use among young people, including use of both marijuana and hard drugs such as heroin.¹⁸ The programs are most effective with youth who are not heavy drug users. These programs include training in how to resist peer pressure and improve decision-making skills.

Drug abuse and dependence treatment. A broad range of psychosocial, medical, and self-help approaches are used in treating drug abuse and dependence. Evidence-based treatment can achieve a 22% reduction in incidence or severity of drug disorders, based on short follow-up periods of a year or less.¹⁹ Both inpatient and outpatient programs are used, and these include individual and group therapies, medication, physiological monitoring, education, and 12-step groups such as Narcotics Anonymous, Cocaine Anonymous, Crystal Meth Anonymous. Cognitive behavior therapy reduced marijuana abuse in six out of six studies.²⁰ Treatment effects on pregnant drug addicts have not been established.²¹

Drug courts. Drug courts combine intensive court supervision with drug treatment and sanctions. There is a greater emphasis on rehabilitation than in regular courts. The available evidence suggests that drug courts reduce drug use and re-arrest rates, at least during treatment. Additional evidence is needed to determine whether drug courts are effective beyond the treatment period.²²

Methadone maintenance. Maintenance programs provide people who are dependent on opiates such as heroin with methadone or other replacement substances. These programs reduce heroin use.²³

Programs for injection drug users. Programs for exchanging sterile needles and syringes for used ones help reduce HIV and hepatitis transmission among injection drug users.²⁴ Injection drug users who participate in programs that provide HIV/AIDS education, self-management skills such as coping with drug cravings, and information about safer needle use report a small reduction in drug use.²⁵ Other programs for injection drug users include cognitive-behavioral and skill-building programs²⁶ and vaccination programs for hepatitis B.²⁷ Additional research on programs for injection drug users is needed.

See Related Chapters: [Alcohol Abuse and Dependence](#), [Poisoning](#), [Sexual Behavior](#), [Mental Health](#) and sections on [Maternal and Child Health](#),

[Injury and Violence](#), [Chronic Disease](#), and [Infectious Disease](#).

Data Sources See [Appendix B](#) for information about death certificate data.

For More Information

A variety of information is available online from the National Institute on Drug Abuse at www.nida.nih.gov (accessed March 21, 2007) and the U.S. Substance Abuse and Mental Health Services Administration at www.samhsa.gov (accessed March 22, 2007).

Technical Notes

Drug-induced deaths are those coded as 292.304, 305.2-305.9, E850-E858, E950.0-E950.5, E962.0, E980.0-E980.5 in the ICD-9 and D52.1, D59.0, D59.2, D61.1, D64.2, E06.4, E16.0, E23.1, E24.2, E27.3, E66.1, F11.0-F11.5, F11.7-F11.9, F12.0-F12.5, F12.7-F12.9, F13.0-F13.5, F13.7-F13.9, F14.0-F14.5, F14.7-F14.9, F15.0-F15.5, F15.7-F15.9, F16.0-F16.5, F16.7-F16.9, F17.0, F17.3-F17.5, F17.7-F17.9, F18.0-F18.5, F18.7-F18.9, F19.0-F19.5, F19.7-F19.9, G21.1, G24.0, G25.1, G25.4, G25.6, G44.4, G62.0, G72.0, I95.2, J70.2-J70.4, L10.5, L27.0-L27.1, M10.2, M32.0, M80.4, M81.4, M83.5, M87.1, R78.1-R78.5, X40-X44, X60-X64, X85, and Y10-Y14 in the ICD-10. Rates for 1990-1998 are adjusted for changes in coding between ICD-9 and ICD-10. See ["Death Certificate System" in Appendix B](#) for additional information.

Drug treatment admission data were obtained from the University of Washington Alcohol and Drug Abuse Institute and include all modalities of treatment (inpatient, outpatient, and opiate treatment programs). They do not include detox admissions. Data are for all publicly funded treatment admissions as well as privately funded admissions to opiate treatment programs. These are admissions so they are duplicated for people entering treatment multiple times in the same year and across years. Many factors affect treatment admission trends including substance use patterns, treatment demand, policy and legal changes, and funding availability.

Endnotes

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